Module: Introduction

Page: Introduction

CC0.1

Introduction
Please give a general description and introduction to your organization.

Vodacom Group Limited (herein after referred to as Vodacom) is an African unified communications provider, providing a wide range of services, including mobile voice, messaging, data and converged services to over 61 million customers.

From its roots in South Africa, Vodacom has grown its operations to include networks in Tanzania, the Democratic Republic of Congo ('DRC'), Mozambique and Lesotho, and its mobile networks cover a total population of approximately 200 million people. Through Vodacom Business Africa (VBA), Vodacom offers business managed services to enterprises in 30 countries across the continent.

Vodacom is majority owned by Vodafone and was listed on the South African Stock Exchange (JSE) on 18 May 2009. Its head office is in Johannesburg, South Africa.

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
Wed 01 Apr 2015 - Thu 31 Mar 2016

CC0.3

Country list configuration

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

Select country

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.

ZAR (R)

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.
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

(i) The job title of the individual or name of the committee
Board appointed Social and Ethics Committee.

ii) A description of their/its position in the corporate structure
The Board appointed a Social and Ethics Committee, chaired by an independent non-executive director, who has the responsibility for good corporate citizenship which includes corporate social responsibility, ethical behaviour and managing the environmental impacts of the group, including climate change.

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
Corporate executive team	Monetary reward	Emissions reduction target	The key performance indicators for responsibility towards natural resources include greenhouse gas reduction targets, which are included in executive performance scorecards. The achievement of the targets positively impacts bonuses or discretionary pay; hence there exists a strong incentive to reach the emission reduction targets.
Business unit managers	Monetary reward	Emissions reduction target	The key performance indicators for responsibility towards natural resources include greenhouse gas reduction targets, which are included in employee's performance scorecards. The achievement of the targets positively impacts employee's bonuses or discretionary pay; hence there exists a strong incentive to reach the emission reduction targets.
Environment/Sustainability managers	Monetary reward	Emissions reduction target	The key performance indicators for responsibility towards natural resources include greenhouse gas reduction targets, which are included in employee's performance scorecards. The achievement of the targets positively impacts employee's bonuses or discretionary pay; hence there exists a strong incentive to reach the emission reduction targets.
All employees	Monetary reward	Efficiency target	All employees whose direct or indirect line function responsibilities have environmental impacts are empowered to manage environmental issues as integral part of their job and to establish systems that allow for employee training to ensure that they are up to date with the latest information regarding impacts and greenhouse gas reduction targets. The responsibility and accountability for environmental performance affects their performance scorecards, which in turn affect bonuses or discretionary pay.

Further Information

Page: CC2. Strategy

CC2.1

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

Integrated into multi-disciplinary company wide risk management processes

CC2.1a

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

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Six-monthly or more frequently	Board or individual/sub-set of the Board or committee appointed by the Board	Risk and control procedures are implemented in each operation of Vodacom, i.e. South Africa, Mozambique, Lesotho, Tanzania the DRC.	3 to 6 years	

CC2.1b

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

At company level the Directors consider risks and opportunities when they formulate strategy, approve budgets and monitor progress against business plans. The process is overseen by the Risk Management Committees (RMC) in each operation, which is chaired by the respective Managing Directors and include the Executive Committee members in each country.

An Enterprise Risk Management Framework was developed to provide context and guide the identification, analysis, evaluation, treatment, communication and ongoing monitoring of risks in all business units. The risk management framework is in alignment with ISO 31000 and other risk management best practices and is being rolled out across the Group.

The Audit, Risk and Compliance Committee (ARC Committee) is responsible for monitoring the risk management function and processes, and assessing significant risks facing the Group. The Group Risk Management Committee (GRMC) is responsible for managing risk and implementing appropriate controls. It is chaired by the Chief Risk Officer and comprises the Group Executive Committee members and Managing Directors of each operating company in the different geographies of operation. The GRMC also acts as the Risk Management Committee for Vodacom South Africa.

At asset level risks and opportunities are identified and managed at four different levels within the organisation, namely at project, process, operational and tactical levels. These risks and opportunities are periodically reviewed and updated. A filtering and reporting process ensures that the relevant risk items are reported to the ARC Committee.

The day-to-day responsibility for the management of enterprise risk lies with the head of the business unit or support function, which conducts the activity which gives rise to the risk. Line management is guided and assisted by the Risk Group, which reports to the Chief Risk Officer.

CC2.1c

How do you prioritize the risks and opportunities identified?

Risks and opportunities are prioritized through the following process:
1 - Define the risks
Various levels of management in each operating company define risks at project, process, operational, tactical and strategic levels.
2 - Assess their impact
Risks are assessed based on their potential impact on the operation (customers, business systems and employees), financial position and reputation (stakeholders and brand). At level 1 the risk impact is seen as insignificant and at level 5 as catastrophic. For example, if more than half of the customers would be impacted by the risk, the impact would be classified as level 5.
3 - Assess their likelihood
Risks are assessed based on the likelihood of them happening after taking into account the controls that are already in place to mitigate them. A scale from 1 to 5 is used to assess the likelihood of the risk, where 1 is “never” and 5 is “almost certain”. When a risk is rated with a likelihood as “5”, it means the controls in place will not prevent the risk from happening due to factors outside our control or the control effectiveness is poor.
4 - Classify the risk
Risks are classified as critical, high, medium and low based on the impact and likelihood score. Where a risk has a high likelihood of occurring and the impact on operations, financial position or reputation is also high it would be considered critical.
5 - Treat the risk
Management reviews all critical and high risks to determine which of these need additional treatment to reduce the risk to a medium or low. One such type treatment is the implementation of additional controls.
6 - Monitor and report
All risks are captured on the newly implemented risk management system. Risks are monitored continually and reviewed every six months. Quarterly risk reports are provided to the GRMC, the ARC Committee and the Board.

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

i) To guide the integration of sustainability issues, including climate change, into business strategy, Vodacom undertook a structured process to identify the most material sustainability issues. The resultant Sustainability Strategy document is a living document that is constantly updated to reflect the most pressing issues in the external environment that can affect business.

The process of developing the strategy involved four key steps, namely; identifying the inputs that would feed into the strategy, collecting data from the various sources that represent the different inputs, analysing the data using a set of defined criteria, and developing a set of strategic sustainability priorities.

Various tools and frameworks that guide the governance of overall business were identified and four key sources of inputs emerged as the key building blocks; the external business environment, the issues that stakeholders consider most material to them, the current business strategy and the principles of the Enterprise Risk Management (ERM) process.

The data collection process involved consulting widely from a number of different sources, including sources external to the company, such as an extensive media search and internal sources, such as Vodacom's integrated report and corresponding supplementary reports.

The bottom-up process of data collection produced a 'long list' of issues that could potentially be material to the company. Subsequently, a structured process was used to analyse the data and distil the most critical issues using a materiality filter with three primary components or criteria to analyse issues and determine their relevance. The components included; relevance of the issue(s) to the sector, importance to stakeholders and impact on the business strategy.

The distilling process produced a set of ten strategic sustainability priorities that represent the actual risks or opportunities presented by the sustainability issues and explain the relevance of the issue to stakeholders, the impact on business and current and planned strategic responses.

The Sustainability Strategy document includes a short section on 'strategy implementation' that provides a summary of the process by which the strategy is

operationalized in the business.

ii) The environmental issues influencing Vodacom's strategy include determining the carbon footprint, energy efficiency and alternative energy usage and resource utilization including water consumption.

To assist with tracking progress Vodacom now participates in the Group reporting process where electricity, diesel, fuel cells and water consumption are tracked systematically and reported to its majority shareholder, Vodafone, at six monthly intervals.

iii) Short term strategy influenced by climate change relates to the setting of targets to reduce Vodacom's carbon emissions by 5% per base station site per year. This will be achieved by investing in new technologies, free cooling, and using alternative energy sources such as generator-battery power hybrid units, and wind and solar generation for remote base station sites.

iv) Long term strategy changes relate to deploying the technologies that Vodacom and its suppliers have developed which now makes it possible to build a site powered by renewable energy that makes economic sense. Coupled with the environmental benefits of reduced diesel usage and subsequent reduced emissions, green power solutions provide a promising opportunity for operators. Further, this will allow Vodacom to service undeveloped areas not on the electricity grid, with the bare minimum environmental footprint.

Another long term strategy relates to the renewal of the radio access network (RAN) to add single RAN (SRAN) and software defined radio (SDR) technologies to the network as well as fibre-optic cables and high speed IP-microwave transmission at base stations. SRAN allows the accommodation of 2G, 3G and LTE on the same base station and together with SDR the network can be upgraded to newer technologies such as 4G or LTE. The RAN renewal programme improves energy efficiency, drives down operational cost and helps to expand data coverage.

v) Vodacom believes that strategic advantage can be obtained through providing technological innovative solutions that can reduce operating costs from fuel and electricity consumption, thereby reducing carbon emissions and Vodacom's impact on the environment while providing products and services that help customers to live and work more efficiently and flexibly. Its technological solutions have the potential to replace traditional, carbon-intensive methods of doing business and include cloud computing, video conferencing and Internet of Things (IoT) solutions.

vi) During FY2016, Vodacom defined a Carbon Management Strategy to manage internal energy and carbon performance and established a set of principles to guide how to work efficiently and dedicated resources to effectively track, manage and report performance.

The principles are:
Principle 1: Take a full life-cycle view when assessing energy and carbon performance.
Principle 2: Incorporate energy and carbon performance considerations into business and procurement decisions, design specifications and operational functioning.
Principle 3: Strive to improve energy efficiency by choosing energy efficient technology solutions as far as possible and eliminating waste.
Principle 4: Manage carbon intensity by optimising energy choices where possible, driving awareness, reducing waste and growing sustainably.
Principle 5: Ensure business continuity at all levels of Vodacom, by addressing energy shortages and pursuing alternative and independent energy solutions where the business case supports this.
Principle 6: Engender and enable behavioural change in Vodacom, along the value chain, in our customers and communities, to minimise the environmental impact, carbon intensity and energy intensity.
Principle 7: Employ the latest technology and advanced ICT solutions, integrate smart measurement and control capability to facilitate energy and carbon performance measurement and management.
Principle 8: Streamline and integrate governance and physical systems for a unified and optimal approach for Vodacom.
Principle 9: Set ambitious targets for energy performance and carbon intensity, while driving operational expenditure reductions and ensuring network resilience.

Vodacom has strengthened its commitment to the sustainable use of resources, by establishing a Carbon Management Implementation Plan containing all projects that relate to energy and carbon emissions. As a living document, it is designed to evolve as the business and its context changes, staying true to the business strategy and strategic sustainability priorities.

The Carbon Management Strategy and Carbon Management Implementation Plan therefore support Vodacom's continued commitment to sustainability.

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, but we 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)

Trade associations

CC2.3a

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

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution

CC2.3b

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

Yes

CC2.3c

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

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
World Wide fund for Nature (WWF)	Consistent	Globally, the United Nations Food and Agricultural Organization (FAO) estimates that approximately 85% of the world's fish stocks are either overexploited or exploited to their maximum. The WWF Fisheries: Facts and Trends South Africa report suggests that we are in a relatively similar position, with almost 50% of our marine resources fully exploited. A further 15% of marine resources are overexploited, including important commercial species such as West coast rock lobster and Indian Ocean yellowfin tuna populations. Of equal concern is the number of species in which the current stock status is uncertain. The report also highlights the fact that given the state of many of South Africa's fisheries resource (in particular those found inshore), it is unlikely that job creation can take	Vodacom tries to help build a sustainable future by developing and delivering transformational solutions that enable positive economic, social and environmental outcomes. Vodacom, together with the World Wide Fund ('WWF') for Nature, has provided funding to develop and operationalise a basic integrated Information Monitoring System ('IMS') with a mobile application. The output of this project will be a web-based database, developed in collaboration with Vodacom IT technicians and University of Cape Town-identified ('UCT') partners, with basic reporting functions based on the current paper-based Department of Agriculture, Forestry and Fisheries ('DAFF') small-scale fisheries data monitoring system. For monitoring purposes the data will include: • Catch data

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
		place in the short-term without progressive rebuilding strategies. “The immediate goal of fisheries management should be on job security with job creation being a longer-term goal,” the report states.	(species, volumes, geographic location, catch method, date, fish identity); • List of permit holders in each fishing community; • Fisher details per permit holder; and • Socioeconomic and livelihood data per permit holder (sale and pricing records).

CC2.3d

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

CC2.3e

Please provide details of the other engagement activities that you undertake

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?

Vodacom has specialist regulatory and government relations teams who engage with Government, Regulators, and Business Partners such as Business Unity South Africa (BUSA) and the National Business Initiative (NBI) on policy issues impacting the business including climate change. They participate actively through written submissions and formal hearings on legislative and regulatory changes. Feedback on issues is reported as per Vodacom’s risk management framework.

CC2.3g

Please explain why you do not engage with policy makers

Further Information

Page: CC3. Targets and Initiatives

CC3.1

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

Intensity 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

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
Int1	Scope 1+2 (location-based)	100%	5%	Other: metric tonnes CO2e per base station site	2015	32.10	2016	Don't know	This target relates to fuel and electricity consumption per base station site taking growth into account.

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
Int1	Increase	6.15	No change	0	The target relates to Scopes 1&2 only taking growth in base stations into account.

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
Int1	100%	100%	Vodacom achieved a 7.44% year-on-year reduction, which exceeds the target of 5% per base station site per year.

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	SMART METERING Smart meters give end users detailed, real-time information about their daily electricity use which could result in behaviour changes and reductions in energy consumption, Scope 2 carbon emissions and cost.	Avoided emissions	Other: Methodology for calculating the impact of the solutions and services are based on the GeSI Assessment Methodology using Defra emission conversion factors		Less than or equal to 10%	
Group of products	SMART LOGISTICS Remote tracking systems: Wireless, GPRS-enabled vehicle tracking devices feed data about each vehicle's position and the latest traffic information into a centralised fleet management system. This then generates routes that cover the shortest distance and alerts drivers about optimum driving speeds that result in reduced fuel consumption, Scope 1 carbon emissions and cost.	Avoided emissions	Other: Methodology for calculating the impact of the solutions and services are based on the GeSI Assessment Methodology using Defra emission conversion factors		Less than or equal to 10%	
Group of products	SMART WORKING Vodacom offers products that contribute to saving energy and reducing CO2 emissions for clients by working differently from the traditional, carbon-intensive methods of doing business. Vodacom launched cloud solutions five years ago and tremendous growth lead to the development of a Cloud Monitor for Virtual Environments to allow the user's in-house administrators to monitor the complete virtual environment of server loads and generate customised reports. It also gives customers a view on performance,	Avoided emissions	Other: Methodology for calculating the impact of the solutions and services are based on the GeSI Assessment Methodology using Defra emission conversion factors		Less than or equal to 10%	

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
	resource utilization and Scope 2 emissions of their workloads in each geographical location.					

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	3	
To be implemented*	1	1875
Implementation commenced*	1	1313
Implemented*	1	11110
Not to be implemented	0	

CC3.3b

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

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Building services	Vodacom has implemented Maintain Project Light to improve energy consumption at 15 MSC sites - HVAC system optimisation, humidity control set-point changes and lighting optimisation – and achieved energy savings of between 5% and 34% at core facilities.	11110	Scope 2 (location-based)	Voluntary	11500000	41000000	4-10 years	6-10 years	

CC3.3c

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

Method	Comment
Other	Financial optimization taking energy consumption into account. A key consideration in the RAN (Radio Access Network) equipment renewal programme is that every item of the existing radio network and core network is re-evaluated in terms of energy

Method	Comment
	consumption and included in all decisions for roll-out and replacement. Upgrading the RAN will be according to available budgets, depreciation rates, asset write-offs and other business drivers including the energy consumption analysis.
Employee engagement	Employees are empowered to manage environmental issues as an integral part of their job and to investigate more efficient technology interventions to lower operational costs through energy efficiency.
Partnering with governments on technology development	Vodacom makes use of the Eskom Demand Side Management (DSM) subsidies and rebates where available to help defray the capital costs of equipment and the NBI's Private Sector Energy Efficiency Project (PSEE) to leverage off the knowledge and skills of experts.

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 mainstream reports (including an integrated report) in accordance with the CDSB Framework	Complete	Vodacom Integrated Report 2016: pages 1 – 63	https://www.cdp.net/sites/2016/02/22902/Climate Change 2016/Shared Documents/Attachments/CC4.1/Vodacom Integrated Report 2016.pdf	

Publication	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an integrated report) in accordance with the CDSB Framework	Complete	Vodacom Sustainability Report 2016: pages 1 – 46	https://www.cdp.net/sites/2016/02/22902/Climate Change 2016/Shared Documents/Attachments/CC4.1/Vodacom Sustainability Report 2016.pdf	

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
Carbon taxes	The South African government announced that a carbon tax is likely to be implemented from January 2017 at a rate of R120 per ton of CO2e above a basic tax-free threshold of 60 per cent on Scope 1 emissions. It is planned that the proposed tax will escalate by 10% per annum until December 2020 - the end of the first phase of implementation. Tax-free thresholds of between 5% to 10% will allow emission-intensive and trade-exposed industries to invest in projects outside their normal operations to help reduce their carbon tax liabilities. This translates into an actual carbon-tax	Increased operational cost	1 to 3 years	Direct	Very likely	Low	It is anticipated that only companies with Scope 1 emissions of more than 100 000 tCO2e per annum will be subjected to the carbon tax on stationary combustion. Further, diesel and petrol-related greenhouse gas emissions will be included in the fuel tax regime. It is therefore anticipated that Vodacom will have a nil liability in terms of carbon tax due to its small amount of Scope 1 emissions.	Vodacom has a Government and Stakeholder Relations department that actively engages with policy makers on issues that affect its business, including new legislation such as carbon taxes. Vodacom provided input to the SA National Treasury Carbon Tax Policy Paper by the due date. Some of the network cooling systems and air conditioning systems in offices and shops use refrigerants. Vodacom has phased out the use of chlorofluorocarbons (CFCs) in most buildings and plans to phase out the use of R22 gas. These actions are not expected to affect the likelihood or magnitude of the risk.	No direct costs are associated with government liaison other than staff salaries.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	cap of around R6/ton at the start of 2017. From 2021, the five-year phase 2 will be applied. The SA National Treasury released a draft Carbon Tax Bill during November 2015 and invited commentary up to 15 December 2015. Only scope 1 emissions are expected to be liable to tax, suggesting the direct impact on Vodacom will be minimal. However, Eskom might be taxed too and will most likely pass on the costs, which will increase operational costs (electricity bills). Further, the carbon tax may prompt an increase in prices generally, leading to reductions in the disposable income of consumers and a potential slowing								

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	in consumer spend.								
Emission reporting obligations	The Department of Environmental Affairs (DEA) gazetted draft regulations for the mandatory reporting of greenhouse gas emissions under the Air Quality Act in June 2015. The purpose of the regulations is to introduce a single national reporting system for greenhouse gas emissions. According to the draft Carbon Tax Bill, emissions reporting will be in line with mandatory reporting requirements for greenhouse gas emissions designed by the DEA. The South African Revenue Service (SARS) will be the main	Increased operational cost	1 to 3 years	Direct	Very likely	Low	Additional cost relate to penalties for non-compliance to submit GHG inventories and data which is estimated to be capped at R5 000 000 for a first offence. However, there is no potential financial impact for Vodacom as current resources would be able to cope with the emissions reporting obligation.	Vodacom appointed external consultants to determine its organizational carbon footprint. The processes of obtaining the required data are continually refined to ensure accurate and consistent data capturing. During 2015 Vodacom had its Carbon Footprint Inventory verified by an independent third party to ensure it is free of material misstatements. These actions are not expected to affect the likelihood or magnitude of the risk.	Costs of about R395 000 per annum have been incurred relating to the appointment of external consultants to compile the carbon footprint and disclosure thereof well as the external verification of the carbon inventory.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	implementing administrative authority on the tax liability assessment while the DEA will lead the monitoring, reporting and verifying emissions process, which will form the tax base. DEA will directly collect the process emissions information while the Department of Energy (DOE) will supply the energy combustion data. All information will feed into the National Atmospheric Emissions Inventory System (NAEIS). Companies will self assess and submit their emissions to SARS and if found to be incorrect, could be penalized. In order to assess the carbon tax accurately,								

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	reporting of GHG emissions will be required together with verification of the reported emissions. This will place a financial compliance burden on Vodacom, while non-compliance could be met with penalties. Further, emission reporting could lead to more stringent licence to operate criteria, e.g. for inclusion in the FTSE/JSE Responsible Investment Index.								
Fuel/energy taxes and regulations	The SA National Treasury introduced a 3.5c/kWh levy for using non-renewable energy sources to cover generation costs for renewable energy. This was increased to 5.5c/kWh during the 2015 Budget Speech. It was	Increased operational cost	1 to 3 years	Direct	Very likely	Low	The 2c/kWh increase in the non-renewable energy levy will increase operational expenses by an additional approx. R9 million per annum whereas repealing the 5.5c/kWh levy would reduce	In South Africa, approximately 92% of Vodacom's CO2 emissions are generated from electricity consumed. The network consumes approximately 81% of electricity whereas the data centres and offices consume about 8 & 11% respectively. Energy savings	Vodacom staff had capital budget of R250 000 to develop the electricity reporting and evaluation mechanism.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	also announced that this additional 2c/kWh would be withdrawn when the current electricity shortage was over. However, the risk exists that this levy would not be withdrawn or could be increased in the future. The draft Carbon Tax Bill proposes that the carbon tax on diesel and petrol non-stationary emissions be included in the fuel tax regime. In order to assist SA's national power supplier (Eskom) with electricity supply, demand-side management schemes such as the Energy Conservation Scheme (ECS), a component of the Power Conservation Programme (PCP)						electricity costs in South Africa by approx. R24.5 million per annum.	initiatives therefore focus on network infrastructure, but small changes in buildings and operations can have a positive effect that over time makes a big difference. In order to reduce electricity consumption and manage costs Vodacom in 2015 started developing a reporting and evaluation mechanism to analyse electricity consumption and reconcile costs. The principle objective of the project is to reconcile invoices with actual consumption, verify the tariff structure and identify discrepancies as a management mechanism, with the outcome of accurate billing. Specific energy consumption performance will also be isolated and reported accompanied by corrective actions where required. The	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	seems to be placed on the backburner. Instead, large annual electricity cost increases have been experienced in the last few years and Vodacom could be exposed to potential future mandatory quotas. A constant supply of energy is critical to Vodacom's operations and network infrastructure. Electricity outages could disrupt operations and paying levies or penalties for energy consumption will affect profitability, both current operations and proposed expansion projects in South Africa.							reporting and evaluation mechanism will reduce the magnitude of the risk.	

CC5.1b

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in mean (average) temperature	Vodacom has installed free cooling technology at its base stations in Mozambique, Lesotho, Tanzania and the DRC and is looking to expand free cooling technology to South Africa. Free cooling is when electronic air-conditioning is supplemented with fresh air to reduce the temperatures of equipment resulting in about 45% reduction in energy consumption. Higher temperatures will result in lesser usage of free cooling with the resultant increase in	Increased operational cost	3 to 6 years	Direct	About as likely as not	Low	To date the equipment was installed at a capital cost of approximately R90 million. With higher average temperatures the energy use and cost could increase and the equipment may become obsolete. Should the energy use increase by 1%, then the operational expenses could increase by approximately R3.7 million per annum and a 10% redundancy rate of the equipment could result in a R9 million loss of capital invested.	Free cooling technology reduces the need for powered air-conditioning at base-stations by monitoring the external air temperature and when possible shuts down air-conditioning units to use ambient air to do the cooling whenever the outside temperature falls below 20°C. To manage an increase in temperatures Vodacom is upgrading its network with components that can withstand higher temperatures and is installing	Installing an additional 331 free cooling units with smart meters at base stations required capital investment of approximately R8 million.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	electrical energy consumed. This could make the free cooling equipment obsolete as well as increase the maintenance and replacement intervals on cooling equipment resulting in higher operational cost.							individual battery coolers rather than cooling the whole facility. Technicians are working on free cooling systems that will work even when the outside temperature is 30°C. To date 3 893 free-cooling units were installed at base stations to help reduce air-conditioning use and more free cooling units are planned for installation in FY2017. The technology reduced air-conditioning run-time and energy consumption by up to 45% as well as extended maintenance and replacement intervals on	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								cooling equipment. With the free cooling installation smart meters are installed to have remote performance monitoring capability. For additional cost and carbon emission savings at base stations Vodacom is exploring innovative energy solutions such as fuel cells, flow batteries, DC power cooling and investigating alternative power generation. These actions will reduce the magnitude of the risk.	
Change in mean	Currently unreliable grid power exists in	Reduction/disruption in production capacity	1 to 3 years	Direct	About as likely as not	Low-medium	A shortage of diesel at the base stations	Vodacom is actively looking at deploying	To date Vodacom invested

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
(average) precipitation	Mozambique, Lesotho, DRC and Tanzania. The mobile network base stations therefore rely extensively on diesel generators for electricity. The huge distances between the sites and the challenging terrain makes the logistics of refuelling and maintenance costly with today's infrastructure. With more frequent rainfall the infrastructure could be negatively impacted making access to refuel and maintain the base station generators difficult. This could result in a disruption of						could lead to the non-availability of the network and negatively impact customer usage resulting in a loss of profit. A cumulative one day shutdown of operations could result in loss of revenue of approx. R50 million based on current revenue levels in Mozambique, Lesotho, DRC and Tanzania.	small scale renewable and alternate energy technologies to places that require off-grid, low-cost base stations and to reduce the reliance on diesel consumption. In Lesotho about 23% (60 out of 256) of base stations are now powered by solar power. These base stations do not use diesel generators or power from the national grid. They require less maintenance and monitoring which greatly reduces ongoing operational costs. In the DRC energy efficiency is taken into	capital of about R395 million in the ultra-low cost sites. The installation of the GERM software required a capital investment of approximately R2.1 million.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	operations and the non-availability of the network. Changes in temperature will require more cooling at the mobile base stations resulting in more frequent refuelling of generators. Not only will the logistics of refuelling and maintenance increase operational costs, but it could impact on the network quality.							consideration in the roll out of new base stations. To date 788 ultra-low cost sites have been established in rural areas where there was previously no coverage. These sites are totally off grid and operate on battery and solar power only. Vodacom Lesotho has also implemented the ultra-low cost site, with a deployment time of only four days and at a cost of almost half of what it would cost for a normal base station. Solar sites in Vodacom Mozambique generated in the region of 257 MWh of energy	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								during the year with more solar sites to be constructed as the network roll out continues. Vodacom now have 955 solar sites across the Group. During 2014 GERM software was installed to remotely monitor the consumption of generators, reducing diesel consumption by up to 70% at 231 sites. These actions will reduce the magnitude of the risk.	
Induced changes in natural resources	Organisations are competing for natural resources in the form of energy, which is becoming one of scarcity. With almost 92% of Vodacom's carbon	Reduction/disruption in production capacity	1 to 3 years	Direct	More likely than not	Medium	A cumulative one day shutdown of operations could result in loss of revenue of approx. R169 million based on current revenue levels in South Africa.	Eskom's Stage 1 & 2 load shedding with one blackout per day has a minimal impact on Vodacom's network. However, the impact increases with	Costs relating to the management of the network relate to staff salaries and fuel costs that are part of operational expenditure.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	emissions emanating from purchased electricity, the risk of grid outages and shortages of energy supply will disrupt operations and the network will not be available. Further, the network quality could be impacted in South Africa.							Stage 3 and 4 load shedding where an area could have three or four disruptions per day. This will affect the network coverage as the batteries will not have had sufficient time to recharge to full capacity and could possibly not last the two to three hours during the next power disruption on the same day. During 2015 Vodacom installed automatic switch-over capability to enable generator auto-start-up when electrical grid failure (load shedding) occurs for all national technical	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								facilities (core network) to ensure business continuity. All new facilities must include this failure capability together with generator redundancy. Normal base stations have batteries that last around four or more hours if fully charged in a day. In cases of extended disruptions mobile generators will be deployed and ultimately phased service degradation will be deployed, e.g. turning off LTE first, then 3G and thereafter 2G. Retail stores are heavily reliant on back-up power supplied by the	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								property owner. Key stores that do not have back-up power have been identified and a proposed back up solution is being investigated to provide power for up to six hours. These actions will reduce the magnitude of the risk.	

CC5.1c

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	Vodacom's carbon footprint emanates	Reduced demand for	Up to 1 year	Direct	Likely	Medium	The potential financial implication from reputational risk is difficult to quantify, but it will emanate from a loss of customer confidence and loyalty and higher operational costs for electricity, fuel, waste and resources.	To manage reputational risk and	Vodacom spent about R395 000

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	from energy and fuel used in operations and fuel used in transport. Other environmental consequences relate to resource consumption and waste. Vodacom therefore has a responsibility to minimise the associated environmental impacts and through proactive actions be seen as a champion	goods/services					Vodacom's 2015 brand value is estimated at R20 029 million – according to brandafrica.net. An estimated 1% loss in reputation could result in a loss of brand value of approx. R200 million together with actual revenue. http://www.brandafrica.net/Documents/MostValuableSouthAfricanBrands2015-Report.pdf	to reduce the likelihood and magnitude thereof, Vodacom is annually measuring, assessing and verifying its carbon footprint and is publicly disclosing its practices and performance through the Carbon Disclosure Project. In terms of Vodacom's New Ways of Working it	per annum to appoint external consultants to compile the carbon footprint and disclosure thereof as well as the external verification of the carbon inventory.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	of and environmental “thought” leader in South Africa and Africa.							aims to reduce waste sent to landfill by identifying waste streams that can be reused and recycled. Initiatives under development include an integrated waste management procedure, a battery rejuvenation project and waste separation at source. During the year, 1 006 tonnes (2014:160 tonnes) of	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								electronic waste (e-waste) in the form of network equipment and handsets were reused or recycled. The large increase can be attributed to the battery swop-out project on the network. Some e-waste is potentially hazardous and must be handled separately and disposed of responsibly. Vodacom	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								conducts formal audits of e-waste suppliers to ensure that the e-waste is being disposed of in accordance with good practice and compliance with legislation. The level of recycling of general waste generated at the Midrand campus increased from 26% to 32% while plastic bags made	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								from recycled material was introduced into South African stores with a message to customers to re-use the bags.	
Changing consumer behaviour	Given that ICT infrastructure, particularly broadband access, is a powerful driver of GDP growth and has enormous potential to address socioeconomic imbalances,	Wider social disadvantages	1 to 3 years	Indirect (Client)	About as likely as not	Medium-high	The potential financial impact emanates from reduced economic activity from learners not receiving quality schooling and inferior health care by not having stocks available at facilities. This could lead to a reduction in demand for Vodacom's solutions and services. An estimated 0.5% decrease in sales could result in a decrease in revenue of approx. R400 million per annum based on current revenue levels.	Vodacom is assisting the shift to a low carbon economy and environment by providing communities with alternative ways of learning and conducting	Vodacom spent R106 million on social development, of which R67.5 million was invested in technology to improve access to education and

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	governments are prioritising the roll out of broadband services to all. The positive impact on people's lives – through better education and healthcare, enabling commerce or simply providing street lighting – will be felt for generations. Vodacom believes that its technologies can make a significant impact in							business. In South Africa, the Vodacom e-school platform, provides around 105 000 students with free access to online learning materials. It connected 3 087 schools with data and free internet connectivity and exceeded Vodacom's target (700 schools) of universal service obligations. In partnershi	addressing community health challenges.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	the education and health sectors and will continue its support for communities and help shift behaviour and attitudes towards a more sustainable, carbon friendly environment in Africa.							p with other ICT providers the Mobile Education initiative is connecting 81 regional ICT resource centres in South Africa enabling teachers to be trained on how to use ICT to improve their teaching in maths and science and integrate ICT in the classroom. Similar education programmes are offered in	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								International operations. Vodacom is partnering with Samsung on the Smart Schools initiative in Tanzania benefiting more than 6 000 students, piloting an iSchool programme in Lesotho, and providing online educational content via tablets in the DRC. Vodacom, in partnershi	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								p with the National Department of Health in South Africa, provides for a mobile-based stock visibility solution now active in 1 600 clinics, contributing to avoiding shortages of chronic medication at these clinics. The ‘text-to-treatment’ awareness campaigns across most operation	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								s are sending text messages to encourage patients to take their medication and attend their appointments. These actions are expected to reduce the magnitude of the risk of changing consumer behaviour.	

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
Fuel/energy taxes and regulations	Energy and fuel taxes could increase Vodacom's operational costs substantially. However, energy savings will result in large operational costs savings while benefits from potential tax allowances and incentives or subsidies for energy-efficient equipment and renewable energy technologies will add to an organization's bottom line. Compliance with energy reduction schemes (PCP) will reduce load shedding by Eskom resulting in less frequent disruptions in	Reduced operational costs	Up to 1 year	Direct	Virtually certain	Low	The potential financial implications will emanate from energy costs savings and tax allowances that can be claimed on the equipment. The energy efficiency initiatives implemented during the year reduced carbon emissions and electricity consumption with cost savings of about R11.5 million per annum.	Vodacom is continuously renewing its core network – where calls and data requests are directed and connected – to support future technologies and services. To benefit from tax and regulatory opportunities while at the same time combat the increases experienced in energy tariffs, Vodacom implemented Maintain Project Light to improve energy consumption at 15 MSC sites. Initiatives include heating, ventilation, air	Vodacom invested capital of about R41 million on the various energy efficiency equipment.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	operations and improve the network quality in South Africa. These cost savings could add to Vodacom's cost competitiveness in South Africa.							conditioning (HVAC) system optimisation, humidity control set-point changes and lighting optimisation. The project achieved energy savings of between 5% and 34% at core facilities. These initiatives are aimed at reducing energy consumption and costs, carbon emissions and where possible, take advantage of the promulgated S12l tax allowances for energy efficiency.	

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 mean (average) precipitation	The network is the backbone of Vodacom's business and the quality of its network allows Vodacom to distinguish it from the competitors. It attracts new customers and ensures retention of the existing customer base. Change in average precipitation could influence the network quality and the demand for Vodacom's solutions and services. Vodacom is therefore strengthening its resilience as an organisation by renewing the radio access network (RAN) to incorporate newer technologies	Increased demand for existing products/services	1 to 3 years	Direct	Likely	Medium-high	The potential financial impact will emanate from an increased demand for Vodacom's solutions and services. An estimated 0.5% increase in revenue could result in additional revenue of approx. R400 million per annum based on current revenue levels	To deliver exceptional network quality Vodacom continued with its RAN renewal programme after the completion of its six year radio access network (RAN) renewal project to add single RAN (SRAN) and software defined radio (SDR) technologies to the network. SRAN allows for the accommodation of 2G, 3G and LTE on the same base station; and together with SDR the network can be upgraded to newer technologies such as 4G or LTE. In DRC the radio network has been replaced with LTE/4G-ready equipment; Tanzania is 97% complete, while Mozambique and	The RAN renewal project required capital investment of about R9 billion over the six years while Vodacom invested capital of about R395 million in the ultra-low cost sites.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	that could withstand weather influences.							Lesotho were completed last year. The RAN renewal programme improves energy efficiency, drives down operational cost and helps to expand data coverage. The transmission network is enhanced by installing base stations with fibre-optic cables and high speed IP-microwave transmission. These technological changes help to reduce operational energy costs and carbon emissions, while providing solutions and services that help customers to live and work more efficiently and flexibly. In the DRC 788 ultra-low cost sites have been established in rural areas	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								where there was previously no coverage. These sites are totally off grid and operate on battery and solar power only.	
Induced changes in natural resources	Organisations are competing for natural resources, which are becoming one of scarcity. Vodacom is presented with opportunities to innovate solutions that use resources optimally and reduce operational costs.	Reduced operational costs	Up to 1 year	Direct	Likely	Low	The potential financial impact of the air separation curtains will emanate from reduced energy consumption and cost as well as carbon emissions. It saved an estimated 1 965 MWh per annum with cost savings of about R2.4 million. The value of this innovative base station solution extends beyond mobile coverage. The shops located in containers typically sell airtime and telephone	In order to optimally use scarce resources in the form of energy, a Vodacom employee conceived a simple method to optimise the efficient cooling of base station equipment by harnessing the air from outside to cool the base station container equipment that can be housed outdoors by installing a curtain in the container, dividing it into two parts. Air conditioning cools the indoor section and air outside cools the outdoor section. The	The air separation curtains were installed at a capital cost of about R450 000. Vodacom is currently piloting five rooftop base stations at a capital cost of about R3.5 million

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							services. With a base station located on their roof, Vodacom is supporting the shops with an additional source of income, and the shops in turn provide added site security. The test sites provide mobile coverage over a radius of up to 1.5km and can service up to 5 000 subscribers at peak times.	redirected airflow not only prevents equipment and transmission failure, it also saved about 90% of base station energy and preserves the equipment. Vodacom introduced the air separation curtains at 182 coastal base stations. The increasing availability of low cost devices, i.e. smartphones and tablets, has stimulated data usage, leading to a significant growth in traffic volume in townships where there are mobile coverage constraints. It is a challenge to build new base stations in crowded townships where site security can also be an issue. However,	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								Vodacom's engineers have repackaged the base station equipment inside a compact steel structure that can be bolted to the roof of an existing shipping container shop, strengthening the mobile signal in the immediate area. These new sites can be rolled out within weeks as opposed to the typical 12- to 18-month lead time to build new base stations. It has a footprint of 9m2 and utilizes existing infrastructure, are more energy efficient and costs less than half to build a traditional site.	

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	Vodacom is committed to managing the environmental impacts of its solutions and services and would like to be seen as a leader in environmental issues in the ITC industry. The reputational benefits of being a sustainable brand and responsible corporate citizen will result in market growth and opportunities for expansion	Increased demand for existing products/services	Up to 1 year	Direct	Likely	Low-medium	A reputation as a sustainable brand and responsible corporate citizen is reflected in the economic value Vodacom creates and distributes to its stakeholders such as its employees and the local communities in which it operates. Vodacom's 2015 brand value is estimated at R20 029 million – according to brandafrica.net. An estimated 0.5% gain in reputational benefits could result in a gain of brand value of approx. R100 million together with actual revenue. http://www.brandafrica.net/Documents/MostValuableSouthAfricanBrands2015-Report.pdf	In order to enhance Vodacom's reputation as a sustainable brand and responsible corporate citizen, it defined a Carbon Management Strategy in 2016 to manage internal energy and carbon performance and established a set of principles to guide how to work efficiently. The	No direct costs other than staff salaries are associated with developing the Carbon Management Strategy and Carbon Management Implementation Plan.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	in South Africa and the rest of Africa.							principles include: • Taking a full life-cycle view when assessing energy and carbon performance. • Incorporate energy and carbon performance considerations into business and procurement decisions, design specifications and operational functioning. • Choose energy efficient technolog	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								y to improve energy efficiency and manage carbon intensity while eliminating waste. • Address energy shortages and pursue alternative energy solutions to ensure business continuity. • Enable behavioural change in Vodacom, along the value chain, in customers and communities, to minimise the	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								environmental impact. • Employ the latest technology and advanced ICT solutions, integrate smart measurement and control capability to facilitate performance measurement and management. • Streamline and integrate governance and physical systems for a unified and optimal approach. • Set	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								ambitious targets, while reducing operational expenditure and ensuring network resilience. Vodacom also established a Carbon Management Implementation Plan containing all projects that relate to energy and carbon emissions, designed to evolve with business, staying true to the business strategy and	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								strategic sustainability priorities.	
Changing consumer behaviour	Customers are increasingly demanding and expecting the latest in technology developments while consumer attitudes are shifting towards more sustainable products and services. The greatest demand for mobile services is coming from emerging markets which have a young and	New products/business services	Up to 1 year	Direct	Likely	Low-medium	The potential financial impact will be an increase in demand for Vodacom's services. An estimated 0.5% increase in mobile services in Africa could result in an increase in revenue of approx. R92 million per annum based on current revenue levels.	Vodacom's Community Power initiative, implemented since 2011, entails using solar energy to power a Vodacom base station and provide the excess energy to neighboring communities where grid supplies may be unavailable or unreliable. Vodacom	Vodacom set up the base station at Vuvu Junior Secondary School with a capital budget of R2 million.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	growing population base, faster levels of economic growth, less fixed-line infrastructure, and low (but rapidly rising) mobile penetration. The mobile industry as an innovation platform for new services can make a difference in people's lives by employing technology in meaningful ways. ICT infrastructure, particularly broadband access, is a powerful							is supplying renewable energy to the Vuvu Junior Secondary School in Mount Fletcher, Eastern Cape, and its local community, with excess power generated at its 7.5kW solar-powered base station in the area. The school now has access to electricity for the first time since it opened in 2004 as well as 20 computers	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	driver of GDP growth and has enormous potential to address socioeconomic imbalances. Vodacom will therefore continue to explore innovative and transformational solutions that can play an important role in improving quality of life and driving economic growth through the use of mobile communications.							for learners, a laptop for a teacher, a server, a white-board and projector and access to Vodacom's zero rated educational content. The project follows a successful pilot initiative launched in Emfihlweni in Northern KwaZulu-Natal in 2012, as well as a second project in Kisarawe, Tanzania, in 2013. The	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								project in Emfihlweni has already seen the matric pass rate improve year-on-year to 75% at the end of 2015. Access to electricity is a key enabler of social and economic development and these projects are supporting Vodacom's objective of strengthening sustainability in Africa and transforming society.	

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 Apr 2008 - Tue 31 Mar 2009	26907.12
Scope 2 (location-based)	Tue 01 Apr 2008 - Tue 31 Mar 2009	339462.16
Scope 2 (market-based)	Tue 01 Apr 2008 - Tue 31 Mar 2009	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)

CC7.2a

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

CC7.3

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

Gas	Reference
CO2	IPCC Fourth Assessment Report (AR4 - 100 year)
Other: HFC-134a	IPCC Fourth Assessment Report (AR4 - 100 year)
Other: R407a	IPCC Fourth Assessment Report (AR4 - 100 year)
Other: R407c	IPCC Fourth Assessment Report (AR4 - 100 year)
Other: R404a	IPCC Fourth Assessment Report (AR4 - 100 year)
Other: R410a	IPCC Fourth Assessment Report (AR4 - 100 year)
Other: FM200	IPCC Fourth Assessment Report (AR4 - 100 year)
Other: Novac 1230	IPCC Fourth Assessment Report (AR4 - 100 year)

CC7.4

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

Fuel/Material/Energy	Emission Factor	Unit	Reference
Diesel/Gas oil	2.67614	kg CO2e per liter	Defra 2015 - Guidelines to Defra's GHG Conversion Factors for Company Reporting, Fuels, updated June 2015. Available: www.ukconversionfactorscarbonsmart.co.uk
Motor gasoline	2.29968	kg CO2e per liter	Defra 2015 - Guidelines to Defra's GHG Conversion Factors for Company Reporting, Fuels, updated June 2015. Available: www.ukconversionfactorscarbonsmart.co.uk

Fuel/Material/Energy	Emission Factor	Unit	Reference
Electricity	1.01	Other: kg CO2e per kWh	South Africa - Eskom Holdings SOC Limited Integrated Report 2015. Available: http://www.eskom.co.za/IR2015/Documents/Eskom_fact_sheets_2015.pdf
Electricity	0.58198	Other: kg CO2e per kWh	Mozambique, Tanzania, Lesotho and DRC: Defra 2015 - Guidelines to Defra's GHG Conversion Factors for Company Reporting, Overseas Electricity, African (average), updated June 2015. Available: www.ukconversionfactorscarbonsmart.co.uk

Further Information

Page: CC8. Emissions Data - (1 Apr 2015 - 31 Mar 2016)

CC8.1

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

Equity share

CC8.2

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

31868.73

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 CO2e

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
482322.90	0	

CC8.4

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

No

CC8.4a

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

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 Extrapolation Data Management	The emissions from diesel used in generators is derived from the litres of diesel purchased as per the records. This number may be overstated as it does not account for theft of diesel. The litres of fuel consumed were used to calculate emissions from petrol and diesel used in fleet vehicles. In Tanzania the quantity of air-conditioning gas refills was not available and in Mozambique only the gas from fire suppressants were reported.
Scope 2 (location-based)	More than 2% but less than or equal to 5%	Extrapolation Data Management	The kWhs purchased is not always specified on the utility bill as some electricity accounts are paid as part of the rental payment. Electricity charges are often based upon estimates from municipal councils and Eskom. Recalculations were performed to ensure accuracy. Electricity Transmission & Distribution losses for African operations have been calculated and incorporated as Scope 3 emissions as per Defra's guidance.
Scope 2 (market-based)	Less than or equal to 2%	No Sources of Uncertainty	No emissions in this scope.

CC8.6

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

Third party verification or assurance process in place

CC8.6a

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

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2016/02/22902/Climate Change 2016/Shared Documents/Attachments/CC8.6a/Vodacom Assurance Report 2016.pdf	Independent Assurance Report, pages 44-46	ISAE 3410	38

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-based	Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2016/02/22902/Climate Change 2016/Shared Documents/Attachments/CC8.7a/Vodacom Assurance Report 2016.pdf	Independent Assurance Report, pages 44-46	ISAE 3410	93

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
Other: Key performance indicators	

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 Apr 2015 - 31 Mar 2016)

CC9.1

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

Yes

CC9.1a

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

Country/Region	Scope 1 metric tonnes CO2e
South Africa	12894.66
Mozambique	3438.81
Lesotho	334.67
Tanzania	3031.01
Congo, Democratic Republic of the	12169.58

CC9.2

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

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)

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)

CC9.2d

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

Activity	Scope 1 emissions (metric tonnes CO2e)
Stationary combustion	24206.48
Mobile combustion - vehicle fleet	5517.39
Air conditioning and refrigerant gas refills (Kyoto protocol gases)	2144.86

Further Information

Page: CC10. Scope 2 Emissions Breakdown - (1 Apr 2015 - 31 Mar 2016)

CC10.1

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

Yes

CC10.1a

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

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
South Africa	450283.02	0	445824.77	0
Mozambique	14426.90	0	24789.34	0
Lesotho	3218.83	0	5530.83	0
Tanzania	6945.85	0	11934.86	0
Congo, Democratic Republic of the	7448.30	0	12798.21	0

CC10.2

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

By business division

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)
Access Network	300281.21	0
Core Network	91588.43	0
Data Centres	36806.96	0
Offices	53588.04	0
Retail	58.26	0

CC10.2b

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

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

CC10.2c

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

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

Further Information

Page: CC11. Energy

CC11.1

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

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

CC11.2

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

Energy type	Energy purchased and consumed (MWh)
Heat	0
Steam	0
Cooling	0

CC11.3

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

118454.45

CC11.3a

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

Fuels	MWh
Diesel/Gas oil	112062.39
Motor gasoline	6392.06

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	1093.49	Radio sites in Lesotho operate with renewable energy systems owned by Vodacom while Mozambique, DRC and South Africa generated electricity from on-site solar PV 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
501971.50	500878.01	1093.49	1093.49	1093.49	Radio sites in Lesotho operate with renewable energy systems owned by Vodacom while Mozambique, DRC and South Africa generated electricity from on-site solar PV systems.

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	2.35	Decrease	Scope 2 emissions from Maintain Project Light reduced emissions from electricity as a result of HVAC system optimisation, humidity control set-point changes and lighting optimisation. Last year 11 110 tCO2e were reduced by the emission reduction projects. Total Scope 1 & 2 emissions in the prior year was 472 067.66 tCO2e. We therefore arrived at 2.35% through (11 110 / 472 067.66) * 100 = 2.35%.
Divestment			
Acquisitions			
Mergers			
Change in output	11.45	Increase	The number of base stations increased by 11.74% resulting in an increase in Scope 2 emissions.
Change in methodology	0.18	Decrease	The emissions factor for purchased electricity (Scope 2 – location based) for SA - Eskom decreased from 1.03 in 2014 to 1.01 kg CO2e/kWh in 2015 while the emissions factor for Africa (average) decreased from 0.596 in 2014 to 0.58198 kg CO2e/kWh in 2015.
Change in boundary			
Change in physical operating conditions			
Unidentified			
Other			

CC12.1b

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

Location-based

CC12.2

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

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.0000064212	metric tonnes CO2e	80077000000	Location-based	1.34	Increase	An 8.92% increase in Scope 1 & 2 emissions mainly as a result of an increase in base stations, offset by emission reduction initiatives (2.35%) and reduced emission factors, reduced by a 7.49% increase in revenue earned, resulted in an increased intensity figure for revenue. The 2015 revenue earned was restated in the 2016 AFS to R74 500 million.

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
3.80	metric tonnes CO2e	Other: Terabyte of network traffic	98643.68	Location-based	21.31	Decrease	Scope 1 & 2 emissions for the network increased by 19.10% due to a 8.88% increase in the number of base stations. However with the energy efficiencies obtained by the RAN renewal program and other cost/energy saving initiatives, the intensity figure

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
							decreased due to a 51.35% increase in network traffic. Also see ICT2.3 in ICT module.

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, calculated	244.41	Consumption of office paper Emission factors: Mondi Rotatrim Paper Profile and Sappi Typek Paper Profile - released May 2016 and February 2015 respectively indicating electricity usage and CO2 emissions per tonne of paper. Tonnes of paper purchased provided by the service providers were used to calculated emissions according to the GHG Protocol using the provide emission factors. Assumptions: Data was provided for all operations and extrapolated according to the equity ratios.	100.00%	
Capital goods	Not relevant, explanation provided				Emissions from capital goods are captured under Scope 1&2, e.g. generators, vehicle fleet and any electricity consuming equipment.
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	4816.61	Transmission and Distribution losses from purchased electricity KWhs consumed were used to calculate emissions according to the GHG Protocol using Defra's 2015 emission factors for transmission & distribution, Africa (average). Assumptions: This figure relates to transmission and distribution losses from electricity purchased in Mozambique, Lesotho, Tanzania and DRC.	100.00%	
Upstream transportation and distribution	Relevant, calculated	344.60	Third-party transport Litres of diesel consumed by third party vehicles were used to calculate emissions according to the GHG Protocol using Defra's 2015 emission factors for fuel. Assumptions: Fuel consumed by third party vehicles was calculated using the available records for 2015 for operations in Tanzania only.	100.00%	
Waste generated in operations	Relevant, not yet calculated				
Business travel	Relevant, calculated	8896.17	Business travel in rental cars, commercial airlines, hotel accommodation Car rental - kilometres travelled, engine	100.00%	

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
			size and type of fuel used provided by service provider. Defra's 2015 emission factors for business travel - land used. Air travel - flight information provided by service provider, including class of travel, departure dates and destination of each leg. Carbon Calculated determined the distance travelled. Defra's 2015 emission factors for business travel - air used. Hotel accommodation - bednights provided by service provider. Emissions factor sourced from UNEP World Meteorological Organisation Climate Change And Tourism Report; A2.2.3 Accommodation. Emissions were calculated according to the GHG Protocol. Assumptions: Hotel accommodation was based on estimated number of nights away on business travel and calculations were based on 1 person occupying a room per night.		
Employee commuting	Relevant, calculated	11519.55	Employee commuting A commuting survey was completed for Vodacom South Africa in 2012. A total of 707 surveys were received with 696 useable surveys. Due to the low percentage of response, this figure was combined with the 2009 Vodacom South Africa employee commuting survey and an average of the two was used to extrapolate the emissions per FTE for the Vodacom group according to the GHG Protocol using Defra's 2015 emission factors for business travel - land.	100.00%	
Upstream leased assets	Relevant, not yet calculated				
Downstream transportation and distribution	Relevant, calculated	7214.33	Third-party transport Litres of diesel and petrol consumed by third party vehicles were used to calculate emissions according to the GHG Protocol using Defra's 2015 emission factors for fuel. Assumptions: Fuel	100.00%	

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
			consumed by third party vehicles was calculated using the available records for South African operations only.		
Processing of sold products	Not relevant, explanation provided				Vodacom's services are not intermediate products that require further processing. It is not responsible for directly generating greenhouse gas emissions.
Use of sold products	Relevant, not yet calculated				
End of life treatment of sold products	Not relevant, explanation provided				Vodacom sells mobile communication solutions and services. There is then no end of life treatment for sold products other than for handsets which make a up a small % of Scope 3 emissions.
Downstream leased assets	Not relevant, explanation provided				If applicable, all emissions from these sources are captured in other sections.
Franchises	Relevant, not yet calculated				
Investments	Not relevant, explanation provided				Vodacom accounts for emissions on the equity share approach.
Other (upstream)					
Other (downstream)					

CC14.2

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

Third party verification or assurance process in place

CC14.2a

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

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2016/02/22902/Climate Change 2016/Shared Documents/Attachments/CC14.2a/Vodacom Assurance Report 2016.pdf	Independent Assurance Report, pages 44-46	ISAE 3410	23

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
Purchased goods & services	Emissions reduction activities	0.50	Decrease	Emissions from the consumption of office paper decreased as a result of a focus on behavioural changes.
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Change in output	2.36	Increase	Emissions relating to electricity transmission and distribution losses increased as a result of an increase in electricity consumption in African operations.
Upstream transportation & distribution	Change in methodology	0.10	Decrease	Emissions from third party transport in Tanzania decreased due to reporting an average of data from the two previous years as data for 2016 was unavailable.
Business travel	Change in output	0.42	Increase	Economic activity and revenue increased by 7.49% resulting in increased business travel.
Employee commuting	Change in output	0.72	Increase	The emissions factor calculated for 2012 and 2009 were used to calculate emissions from employee commuting taking into account an increase of 2.13% in the number of FTEs.
Downstream transportation and distribution	Emissions reduction activities	0.65	Decrease	Third party transporters in South Africa implemented route and load optimisation where feasible and have vehicle tracking systems to monitor fuel usage and driver behaviour to reduce emissions.

CC14.4

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

Yes, our suppliers

CC14.4a

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

i) Vodacom has correspondence and face-to-face meetings with its courier service provider to see how carbon emissions can be reduced. It also engages with all Tier 1 suppliers to influence responsible behaviour and environmental sustainability along the value chain. Through our parent company Vodafone, we enforce adherence to Vodafone's Code of Ethical purchasing and encourage key suppliers to join the CDP supply chain programme. We are now working with suppliers in our distribution channel to raise awareness of the impact of their activities on climate change and take measures to minimise these impacts

ii) Courier services was prioritised as it makes up a large part of the distribution channel and through carbon emissions reductions, has the potential to reduce risk, lower costs, create new revenue opportunities and better position for the Vodacom brand. Measures of success include a shrinking year-on-year carbon footprint for transport and distribution with the same volume of output.

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
3	2%	Courier services makes up a large part of the distribution channel. Engagement include suppliers involved in installation of fibre and suppliers involved in field marketing services.

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
Identifying GHG sources to prioritize for reduction actions	Vodacom measured the footprint of the services provided by the third party courier company. The courier company makes use of route and load optimisation where feasible and has a vehicle tracking system to monitor fuel usage and driver behaviour to reduce emissions. Vodacom plans to engage with more suppliers, e.g. the travel agency to explore opportunities for smarter, more efficient ways of operating to reduce carbon emissions and cost.

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
Trisha Govender	Senior Specialist: Sustainability	Environment/Sustainability manager

Further Information

Module: ICT

Page: ICT1. Data center activities

ICT0.1a

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

Yes

ICT1.1

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

Enterprise IT Services is currently operating and maintaining close to 3000 square metres usable data centre space in Cape Town and Midrand for its internal cloud, excluding data centre space offered by Vodacom Business as hosted space to external customers, or data centre space primarily focussed on supporting the customer centric telephony/mobile data network infrastructure.

Two new data centres incorporating the latest concepts in data centre design, have been constructed in Cape Town during the past two years. A new data centre was constructed in Midrand during 2013 and is fully operational.

ICT1.2

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

Business activity	Scope 1 emissions (metric tonnes CO2e)	Scope 2 emissions (metric tonnes CO2e)	Annual electricity consumption (MWh)	Electricity data collection method	Comment
Data centers	52.71	33451.89	33120.68	Meter or submeter reading	

ICT1.3

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

Percentage	Comment
25%	PUE is measured regularly in all South African data centres.

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
7	1.96	2	Decrease	The PUE decreased as a result of decommissioning of equipment and a number of energy saving strategies implemented in the data centres.

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

Other: Total DC Load/IT Load

ICT1.6

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

No

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)

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
Planned	Power Management Efficiencies	Vodacom is focussing on energy efficiency in its core network and data centres. Project Light is in the process of being implemented with the aim to reduce the power usage effectiveness (PUE) reading at the mobile switching centre (MSC) sites from 2.0 to 1.8. The various interventions to achieve the energy savings are: - lighting optimisation that will include the latest technology fittings, lamps, control gear and occupancy sensors; - optimising the airflow paths to and from the data equipment, reducing air mixing and cooling loss, closing of redundant floor openings, and moving of return and supply air grills; - set point optimisation by setting the PCU's to a master/slave (LAN grouping) arrangement in order to turn off units where there is low load, and operating the other units at high loads; - installation of permanent intelligent meters at each site. Data, HVAC and site total power consumption, PUE, COP, Rectifier and UPS efficiencies, etc. are continuously logged, calculated and displayed on a reporting system via a VPN link; - retrofitting the induction motor fans with electronically commuted fans that allow for better control (fan speed, pressure and flow).

ICT1.8

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

No

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

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)?

Cabinet footprint per the GHG Protocol and fixed space ratio per cabinet.

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

Vodacom has a solar panel array on the roof of its Century City office in Cape Town. It is the largest array on a single building in Africa and is expected, at its peak, to provide up to 75% of the building's power. A display panel installed in the reception area of the building will display information such as power currently being produced and carbon emission savings. The total installed capacity of this array is around 500 kWp and the system produced 740 MWhs during the year. Vodacom is also exploring the feasibility of solar panels to power data centres.

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"

Vodacom South Africa is a leading mobile communications company providing voice, messaging, data and converged services to just over 34.2 million active customers in South Africa. The network that provides these services is made up of the access and core network. The access layer is the first layer of the network that customers connect to and the core forms the central aggregation and control system of the network. There are 11621 base station sites in South Africa.

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	8612.06	365890.95	362326.08	Meter or submeter reading	The access network relies on grid power. A small percentage (5%) of sites consume self-generated renewable energy.

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
3.80	metric tonnes CO2e	Terabyte of network traffic	21.31	Decrease	Scope 1 & 2 emissions for the network increased by 19.10% due to a 8.88% increase in the number of base stations. However with the energy efficiencies obtained by the RAN renewal program and other cost/energy saving initiatives, the intensity figure decreased due to a 51.35% increase in network traffic.	

ICT2.4

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

Fuel and electricity consumed in network operations (Scope 1 and 2) were converted to tonnes CO2e emissions per the GHG Protocol and divided by terabytes of network traffic to obtain the intensity figure.

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)"

Office based activities contribute around 15% of our reporting boundary however we can only accurately report on office based activities in South Africa.

This include a wide range of activities including corporate services (finance, legal, HR, corporate affairs, strategy), customer care, enterprise business management, consumer business management and network management. These activities provide operational support (50%) and revenue generating activities (50%).

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)	234.94	50940.18	51205.82	Meter or submeter reading	Some offices consume self generated renewable energy.

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
0.3688721715	metric tonnes CO2e	Square meter	97.51	Increase	Although Scope 1 & 2 emissions decreased by 11.39%, office space in South Africa reduced by 55.14% through closing down	

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment
					offices in Sandton, Hatfield and Midrand as well as a few call centres, resulting in an increased intensity figure.	

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
0.369093503	MWh	Square meter	104.47	Increase	Although MWhs consumed decreased by 8.27%, office space in South Africa reduced by 55.14% through closing down offices in Sandton, Hatfield and Midrand as well as a few call centres, resulting in an increased intensity figure.	

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