# Module: Introduction

## Page: Introduction

### CC0.1

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

MTN is a leading emerging market mobile operator at the forefront of global digital changes. From our head office in Johannesburg, South Africa and guided by our vision and values, we are delivering a bold, new Digital World to our 240 million customers across Africa and the Middle East. In over 20 years we have grown rapidly to transform the lives of our markets through digital transformation. Our solutions and service are positioned to drive entrepreneurship and social and economic development and result societal change. In addition to voice we also offer data and digital solutions and services across 22 countries which also offering enterprise solutions to institutions, Small to Medium Enterprise (SME) and public sector in 24 countries.

Our offerings range from voice, data and digital services which include enterprise solutions, cloud services, machine-to-machine technology, mobile money, as well as numerous other mobile services (including mHealth, mEducation and mInsurance). MTN is listed on the JSE Limited in South Africa under the share code “MTN”. On the 31st of December 2016, the Group had over 240 million subscribers across three regions namely, South and East Africa (SEA), West and Central Africa (WECA) and the Middle East and North Africa (MENA). We also have a presence in Kenya and Namibia. Our countries of operation are Afghanistan, Benin, Botswana, Cameroon, Cyprus, Ghana, Guinea-Bissau, Guinea Republic, Iran, Ivory Coast, Liberia, Nigeria, Republic of Congo (Congo-Brazzaville), Rwanda, South Africa, Sudan, Syria, South Sudan, Swaziland, Uganda, Yemen and Zambia.

### CC0.2

**Reporting Year**
Please state the start and end date of the year for which you are reporting data.
The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

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

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

## CC0.3

### Country list configuration

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

| Select country |
|---|
| Afghanistan |
| Botswana |
| Benin |
| Cameroon |
| Cyprus |
| Cote d Ivoire |
| Ghana |
| Guinea-Bissau |
| Guinea |
| Iran, Islamic Republic of |
| Kenya |
| Liberia |
| Namibia |

| Select country |
|---|
| Nigeria |
| Congo, Democratic Republic of the |
| Rwanda |
| South Africa |
| South Sudan |
| Sudan |
| Swaziland |
| Syrian Arab Republic |
| Uganda |
| Yemen |
| Zambia |

## 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, companies in the electric utility sector, companies in the automobile and auto component manufacturing sector, companies in the oil and gas sector, companies in the information and communications technology sector (ICT) and companies in the food, beverage and tobacco sector (FBT) should complete supplementary questions in addition to the core questionnaire.
If you are in these sector groupings, the corresponding sector modules will not appear among the options of question CC0.6 but will automatically appear in the ORS navigation bar when you save this page. If you want to query your classification, please email respond@cdp.net.
If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below in CC0.6.

**Further Information**

# Module: Management

## Page: CC1. Governance

### CC1.1

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

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

### CC1.1a

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

The responsibility for climate change within MTN Group sits with Group Board. The Group delegated the responsibility to the Social and Ethics committee, a function of the Group Board, which is responsible for ensuring that MTN, as a responsible corporate citizen, conducts its business in a sustainable manner. The Group President and CEO have delegated executive responsibility to Mr. Paul Norman, MTN Group Executive: Human Resources and Corporate Affairs, to whom the Group Sustainability function reports.

Ms. Zakhiya Rehman (Group Sustainability Manager) and Ms Lungile Manzini (Sustainability Manager) are responsible for all climate change and sustainability initiatives and issues at MTN. The Group's Sustainability function focuses on building the foundations for a more sustainable business and implements environmental or social core business projects at both Group and operational level in partnership with business functions. Please refer to
https://www.mtn.com/en/mtn-group/sustainability/Pages/default.aspx
for more information

### CC1.2

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

No

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 |
|---|---|---|---|
| | | | |

**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 | All operating countries | 1 to 3 years | The Group's risk management is assigned to Business Risk Management (BRM), which reports to four Board committees, namely the Group Audit, Risk management and Compliance, and Social and Ethics Committees, as appropriate to different components of enterprise risk management and auditing. |

| Frequency of monitoring | To whom are results reported? | Geographical areas considered | How far into the future are risks considered? | Comment |
|---|---|---|---|---|
| | | | | The BRM is responsible for the identification and overall reporting and management of the 23 Principal Risks which impact the MTN Group. Of the 23 risks at Group level, climate change is identified as part of the Principal risk 21 due to its potential threat to continuity of operations as a result of political, environmental and macro-economic events. |

**CC2.1b**

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

The Group's Business Risk Management Framework and processes govern identification and management of MTN's principal risks. Business risk managers in each MTN operation are responsible for the assessment of country- and assist-level risks. In their assessment they consider 23 principal "top down" risks, which include climate and environmental risks under Principal Risks 21 and 22. The identified risks are prioritized based on a quantified probability and impact assessment, and response strategies developed based on the nature and materiality of the risk, and reported to the local operations' executive, audit and risk compliance committees as appropriate.

The identification and mitigation processes of environmental, physical, financial and regulatory risks is managed or coordinated in conjunction with the risk owners by trained Energy and Carbon champions and other individuals within each country of operation. The Group ensures that each country's operation actively manages physical, financial and regulatory risks and impacts in a customized manner within local operating and environmental contexts by placing energy and carbon champions in technical functions where they are supported by finance, facilities, business risk management and corporate services team members.

The Group's sustainability team undertakes the consolidation and reporting of each country's activities and results through quarterly energy and carbon reporting, and through monthly/quarterly overall risk and legal reports to their Group Business Risk Management and Group Legal functions. Group level environmental risks are incorporated in sustainability, and energy and carbon reports, which are ultimately presented on a quarterly-annual basis to the various executives and to the Group Social and Ethics Committee, and more frequently if required in terms of risk quantification results to Group Risk Management, Compliance and Corporate Governance Committee within overall risk reports.

**CC2.1c**

**How do you prioritize the risks and opportunities identified?**

The Group's risk management process is set between pages 32 and 36 of the MTN Group Integrated Report for the year ended 31 December 2016, available at https://www.mtn.com/en/investors/financial-reporting/integrated-reports/Pages/default.aspx

The following sources were used to determine the sustainability risks and opportunities issues that are most applicable to MTN's sustainability:
- Feedback from internal and external stakeholders that review the annual sustainability report.
- Engagement with external stakeholders via the addresses sustainability@mtn.co.za and investor.relations@mtn.co.za
- Information gained through engagement with regulatory authorities, media organisations, civil society and community-based organisations, our customers, and general members of the public
- Feedback from and engagement with the FTSE/JSE Responsible Investment Index, the CDP, and MTN's investors, shareholders and research organisations that consult us or assess our responsible business performance
- Information from third-party questionnaires and assessments of our publicly reported performance by university organisations and other third parties not commissioned by MTN, and
- Our own internal review and research processes including industry, peer and global developments, and our risk and audit management processes.

Issues identified through this process are weighted during an internal materiality review. We also monitor the risk and impact of extreme weather events on our infrastructure and business continuity. Our risk management measures (GHG reduction and alternative energy projects) are described in subsequent sections of this response.

## 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**

Climate change management issues are partially integrated into MTN's business strategy, through the following elements.
• Integrated risk identification and management processes, and assurance processes
• The Group's Eco-Responsibility focus area which supports the Group's strategic pillar of "creating stakeholder value"
• The Group's drive to manage the carbon impact of energy use https://www.mtn.com/en/mtn-group/sustainability/Pages/default.aspx
• Quarterly oversight of the Group Executive and Social and Ethics Committees

Climate change management is not yet integrated in terms of Group-level emission reduction targets, but all MTN countries of operation drive energy efficiency programmes and activities aimed at reducing energy consumption.

Progress towards full integration will require that some climate change risks such as business continuity and broad environmental trends -already listed in the Group's risk universe- are extensively understood, managed, and reported by all operations consistently as part of enterprise risk management. The Group also needs to continue focus and accelerate innovation and rollout of ICT solutions that enable other industry sectors to manage their environmental impact or air, water, energy and other natural resources through cloud computing and dematerialisation, more cost-effectively and efficiently, although efforts in this respect have started.

**CC2.2b**

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

**CC2.2c**

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

Yes

**CC2.2d**

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

MTN South Africa's internal pricing of carbon in energy investment cases takes into account various regulated and anticipated regulatory penalties and incentives available nationally, including carbon taxes, peak and off-peak energy rates applicable to energy consumption and certain incentives available within the income tax act, amongst others.

## 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? |
|---|---|---|---|
| Global System Mobile Association (GSMA) | Consistent | GMSA's Green Power for Mobile initiative, under the "Mobile for Development" program is described at http://www.gsma.com/mobilefordevelopment/programmes/green-power-for-mobile. We support GSMA's position that our industry has a role to fulfil in managing greenhouse gas emissions, but we also believe that governments should encourage mobile machine-to-machine (M2M) communications in sectors where the potential to reduce emissions is greater. Research has identified the potential for the mobile industry to reduce the GHG emissions in other sectors — including transportation, buildings and electrical utilities — by at least four to five times its own carbon footprint. The savings principally come from smart grid and smart meter applications, and smart transportation and logistics. GSMA's full position with respect to global emission reductions is available at http://mph.gsma.com/publicpolicy/wp-content/uploads/2014/10/Mobile_Policy_Handbook_2016_EN.pdf On an interim and annual basis, MTN contributes research information to GSMA Mobile Energy Efficiency (which enables network operators to evaluate the relative energy efficiency of networks) and Green Tracker program. | GSMA Board. The GSMA represents the interests of mobile operators worldwide. MTN supports GMSA's initiative to manage greenhouse gas emissions through offering off-grid customers in Nigeria energy-as-a-service via a solar home system (SHS). This "pay as you go" (PAYG) model is enabled by the use of airtime credit and GSM-based machine-to-machine (M2M) connectivity to remotely control and monitor the solar home system's usage, billing and performance. The GSMA also produces industry-leading events such as the Mobile World Congress, Mobile World Congress Shanghai and Mobile 360 Series conference. |

**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?**

The Group's sustainability team is responsible for coordinating and managing all direct and indirect activities that influence policy on climate change. The team takes the responsibility of coordinating engagement activities around climate change across business units and geographies to ensure that we have a common approach that is consistent with MTN's sustainability (including climate change) strategy. The Group's Base Station and Networks Toolkit also sets out more environmental matters for consideration in network infrastructure implementation. In some MTN countries, Leadership in Energy and Environmental Design and/ or ISO14001 certification is in place or being worked towards.

There is an increase in awareness of the need for integration of energy, climate and other environmental matters in business planning and implementation among the Networks and Technology and Facilities teams in all operations. Each MTN operation maintains their own energy management strategy or practice, in line with the business performance and operational efficiency management requirements. This approach enables each operation to actively manage and monitor its energy use mix, costs, configuration of efficiency and reduction solutions, and other requirements within local operating and environmental contexts. The energy costs, consumption, risks and carbon intensity in terms of the Carbon Disclosure Project are monitored by many of the 44 trained energy and carbon champions across our operations. These champions are mostly positioned in technical functions, and are supported by finance, facilities, business risk management and corporate services team members.

The Group also continues to implement the network outsourcing strategy across operations in Ghana, Uganda, Cameroon, Côte d'Ivoire, Nigeria, Rwanda and Zambia. Our strategy to outsource our network also incorporates our responsibility to work with our partners and suppliers to reduce their Scope 1 and 2 emissions (which are MTN's Scope 3 emissions), and ensure that the tower management is aligned with our practices. We undertake this through ongoing engagement with our tower management partners, encouraging site managers to reduce their impacts. The tower management partners supply quarterly carbon tracking reports to MTN. These reports are consolidated for analysis by the Group, and performance is presented in sustainability reports to the executive and Group social and ethics committee, which oversees the Group's sustainability performance. Operations receive detailed feedback of performance results in order to implement required improvements and review opportunities on projects undertaken by other operations. As a result, we have seen an increase in the tower managing partners' investments in energy efficiency and low-carbon solutions. We receive excellent support from our partners, and are pleased to report that in 2016 some of our tower management partners implemented their own efficiency and reduction strategies.

Quarterly Reports are submitted by MTN's 21 operations, excluding Botswana (excluded on the basis of indirect ownership holding), Yemen, Syria and South Sudan (excluded due to energy and greenhouse gas data collection challenges associated with network management in the context of the broader macro-political situation) and Dubai (excluded due to MTN Group head office facilities).

The Group has a Social and Ethics statement, which incorporates statements with respect to our environmental responsibilities, and sets this out in terms of responsible business commitments and activities by our business partners and suppliers. This is available at https://www.mtn.com/MTN%20Service%20detail%20Document%20library/2013_Group_Social_and_Ethics_Statement.pdf

## 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?**

No

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 |
|---|---|---|---|---|---|---|---|---|---|

## CC3.1c

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

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

## CC3.1d

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

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

## CC3.1e

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

| ID | % complete (time) | % complete (emissions or renewable energy) | Comment |
|---|---|---|---|
| | | | |

## 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**

Our networks and non-network technical facilities energy use contributes a total amount of 98.3% to MTN's greenhouse gas (GHG) profile on a country-by-country basis, and is the largest energy cost component for the company. Our reasons for not having targets are as follows:
i) There is a positive correlation between our 'actual consumption' and 'cost' targets and our emissions reductions. This has been the most appropriate internal lever in addressing this issue, ensuring improved sustainability-business integration by working with and enhancing existing KPIs wherever possible. This approach also works well with our internal practices of GHG emissions and has helped us to drive operational work towards further reductions. Emissions per Subscriber are used as proxy to measure our efficiency, however it has not adopted as a formal target.
ii) Three aspects of the business will change MTN's GHG profile (the net and cumulative impacts of these have not been assessed. We expect to see the following changes in our emissions over the next 5 years:
a) GHG Emissions reductions: Our reliance on energy to power network, data centre, switch and remote hub operations is the largest contributor to the Group's GHG emissions. We therefore actively focus on improving electricity and diesel use efficiency, and we continually invest in alternative and less carbon-intensive forms of energy to power our operations, improving our resilience and ultimately reducing our impact on the environment. As a result of energy efficient and alternative energy investments implemented since 2011, we have achieved total savings of 68 055 tonnes of GHG emissions in order to reduce the impact of our operations. More details may be located within this report, and on our website at https://www.mtn.com/en/mtn-group/sustainability/eco-responsibility/Pages/energy-and-climate.aspx; https://www.mtn.com/en/mtn-group/sustainability/more-on-sustainability/Pages/Case-studies.aspx
b) Transfer of GHG emissions from Scope 1 & 2 to Scope 3: the impact of MTN's BTS outsourcing strategy will result in the transfer of some emissions from Scope 1 (and to a smaller extent Scope 2) to Scope 3, changing the emissions profile of the company as has been seen with Cameroon, Ivory Coast, Ghana, Nigeria, Rwanda, Uganda and Zambia.
c) Increase in GHG emissions: The Company's growth in enterprise service offerings and increased investment in 3G and 4G services will require on going investments in data centre infrastructure, which is expected to result in relatively small increases in the Group's GHG emissions profile. Despite the fact that these new technologies and facilities are planned for optimal and efficient energy consumption during construction and operation, increases will occur as a result of increased investments in infrastructure.

## 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 |
|---|---|---|---|---|---|---|
| Company-wide | According to industry projections on the 'Internet of Things' (IoT), it is expected that by 2020, 30 billion devices or connected things will be in use and interacting with the environment and providing actionable data or services. This development is one of the key opportunities shaping how MTN conducts business and contributes societal value. We are actively working on bundling our connectivity services with solutions that can reduce some of the daily problems faced in our African and Middle Eastern territories. As a result we launched our IoT platform in 2015. This enables us to offer services to a wide range of industries, connecting an otherwise fragmented population of devices and | Avoided emissions | Evaluating the carbon reducing impacts of ICT | | | MTN Group invests in the research and development of all its products which includes IoT products and services. This amount of R&D allocated specifically for IoT products and services is not available separately as this it forms part of the broader R&D budget for all products and services within the Group. The % Revenue from low carbon products is not quantified separately from the total Group Revenue |

| 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 |
|---|---|---|---|---|---|---|
| | systems through an open platform that enables networked devices to exchange information and perform actions, responding intelligently to their environments without human intervention. MTN's Machine2Machine (M2M) solutions include enterprise mobility management platforms, fleet and private vehicle management and asset tracking, fuel and utilities management, and security solutions, among others. The global economy is being forced to transition to new consumption models, given increasing resource constraints and negative environmental impacts. As an ICT operator, we are aware of the role we can fulfil in assisting our customers to reduce the number of physical materials they use in their homes and businesses, and to mitigate the negative environmental impacts associated with manufacturing, use and disposal of products. MTN is particularly concerned about resources such as water, energy, food, biodiversity and wildlife, among others. We operate in emerging markets where the need to adapt to changing environmental conditions, coupled with the lowest levels of financial and other resources, is becoming increasingly evident. We are, therefore, well placed to offer products that support resilience in the face of these challenges, while representing commercial opportunities for us. Our smart energy meters monitor electricity consumption via a remote application infrastructure, providing insight into | | | | | |

| 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 |
|---|---|---|---|---|---|---|
| | how, when and where energy is used, allowing effective management of this scarce and generally greenhouse gas (GHG) intensive resource. https://www.mtn.com/en/mtn-group/sustainability/sustainable-economic-value/Pages/transforming-enterprises.aspx | | | | | |

**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 | 1 | 0 |

| Stage of development | Number of projects | Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *) |
|---|---|---|
| To be implemented* | 1 | 37 |
| Implementation commenced* | 4 | 759 |
| Implemented* | 2 | 74 |
| Not to be implemented | 0 | 0 |

**CC3.3b**

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

| Activity type | Description of activity | Estimated annual CO2e savings (metric tonnes CO2e) | Scope | Voluntary/ Mandatory | Annual monetary savings (unit currency - as specified in CC0.4) | Investment required (unit currency - as specified in CC0.4) | Payback period | Estimated lifetime of the initiative | Comment |
|---|---|---|---|---|---|---|---|---|---|
| Low carbon energy installation | In 2010 MTN South Africa launched a Gas-Waste Heat Capture-Cooling (tri-generation) plant at the 14th Avenue Test Switch and Data Centre. The plant includes a 2 MW methane gas (natural gas) generator that uses the waste heat generated to chill water for cooling purposes enabling electrical/ thermal fuel efficiency by supplying combined primary energy, heat and cooling. The tri-generation in 14th Avenue Fairlands is | 75400 | Scope 1 Scope 2 (location-based) | Voluntary | 15300000 | 75000000 | 1-3 years | 3-5 years | The capital costs of the Doornfontein site is R13.3m and the Newlands site is R40m. Together with the R22m this amounts to a total capital |

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| | quadgeneration-ready and can be installed with a carbon capture system. The 14th Avenue Fairlands tri-generation system was originally implemented with a capacity of 2 MW, however there are plans to extend the electricity capacity by 5 MW, to make it 7 MW. In 2012 tri-generation plant was the first tri-generation facility to be registered for carbon credits on the United Nations' Clean Development Mechanism (UNCDM) (more information found here: https://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1356796875.32/view ) Following the successful implementation of the Concentrated Solar Power (CSP) technology programme at MTN's 14th Avenue campus, MTN has proceeded with the installation of two off-gas powered generators that will power the MTN Doornfontein site and MTN Newlands site in 2015 and 2016 respectively. The two off-gas powered generator installed in both Doornfontein (1MW) and Newland (6MW) sites have a tri-generation system, consisting of a LG Absorption Chiller and two Evapco Hybrid Cooling towers to utilise the hot water generated by the gas powered generators to provide chilled water to the site, thus making maximum use of the available energy -which would otherwise | | | | | | | | cost of R75m invested in tri-generation plants at MTN South Africa. The maximum total savings associated with all three sites once fully operational is estimated at 75 400 tCO2e per year. |

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| | be wasted. This type of tri-generation system ensure maximum energy savings and maximum greenhouse gas emissions reductions. Both the Doorfontein and Newlands plants were in operation since 2016, however there were some technical challenges that resulted in the inconsistencies in the generation of power which are currently being addressed.. Emission savings will be reported in the 2017 CDP response. | | | | | | | | |
| Energy efficiency: Processes | The overall CAPEX investment programme is geared towards network modernisation, capacity upgrade, and energy cost and utilisation reduction. Initiatives relate to optimisation and improved energy efficiency of processes at data centres and BTS sites, waste heat reduction and installation of clean energy generating facilities. In 2016 specifically, savings reported have resulted from solutions which mainly include fuel efficiency optimisation solutions such as the installation of variable speed engines in BTS sites which reduce the overall consumption of diesel fuel. Through energy efficiency processes in 2016, we improved 228 sites with the assistance of our tower management patners. | 760 | Scope 1 Scope 2 (location-based) | Voluntary | 437453 | 1042241 | 1-3 years | 6-10 years | The GHG reductions from these projects are included in the total annual reductions from projects implemented in 2016 of 833 tCO2e. The investment required is included in CAPEX and other initiatives: not available |

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | separately for this report. These investment costs also include an estimate of costs incurred by our tower management partners who continue to assist us in implementing energy efficiency initiatives in outsourced sites. |
| Low carbon energy installation | Alternative energy investments in MTN Group networks in 2016 include 5 092 projects in MTN outsourced sites. These include solar hybrid in our outsourced Nigeria sites. | 73.3 | Scope 1 | Voluntary | 199135 | 731040 | 1-3 years | 6-10 years | The GHG reductions from these projects are included in the total annual reductions from projects implemented in 2016 of 833 tCO2e. |

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | The investment required is included in CAPEX and other initiatives: not available separately for this report. These investment costs also include an estimate of costs incurred by our tower management partners who continue to assist us in implementing energy efficiency initiatives in outsourced sites. |

**CC3.3c**

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

| Method | Comment |
|---|---|
| Dedicated budget for energy efficiency | To reduce emissions, save operating costs, and mitigate the impact of climate change on physical, financial and regulatory risk profiles, MTN has continued to modernise the existing network, and to ensure that new infrastructure investments are energy-efficient and more resilient. |
| Lower return on investment (ROI) specification | As part of business case development, MTN determines the breakeven point and return on investment period. This applies to all projects, including energy and carbon reduction projects, which must meet internal return on investment criteria. |

CC3.3d

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

**Further Information**

## Page: CC4. Communication

**CC4.1**

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

| Publication | Status | Page/Section reference | Attach the document | Comment |
|---|---|---|---|---|
| In voluntary communications | Complete | MTN Group Sustainability Report 2016 – Group Executive Chairman's | https://www.cdp.net/sites/2017/46/12546/Climate Change 2017/Shared Documents/Attachments/CC4.1/MTN Group Sustainability Report 2016.pdf | |

| Publication | Status | Page/Section reference | Attach the document | Comment |
|---|---|---|---|---|
| | | statement (Page 5); Energy and Climate (Page 17 – 19); Environmental Management (Page 20 – 22) Annual Sustainability Value Add Statements (Page 30 – 49) | | |
| In voluntary communications | Complete | MTN Group GRI G4 Content Index for year ending 31 December 2016 found in the MTN Group Sustainability Report 2016 (Page 33 to 49) | https://www.cdp.net/sites/2017/46/12546/Climate Change 2017/Shared Documents/Attachments/CC4.1/MTN Group Sustainability Report 2016.pdf | |
| In voluntary communications | Underway - previous year attached | MTN Group UN Global Communication of Progress Report for year ending 31 December 20156.(Complete Report) | https://www.cdp.net/sites/2017/46/12546/Climate Change 2017/Shared Documents/Attachments/CC4.1/MTN Group UN Global Compact Communication on Progress Report_2015.pdf | Please note, at time of submission, the MTN Group UN Global Compact Communication of Progress Report for the year ending December 2016 had not been published. However, the report for the year ending December 2015 was attached to show that this report is published annually. |

**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 National Treasury first introduced the possibility of a carbon tax in a discussion document in 2010. The design was then proposed in 2013 followed by the publication of a Draft Bill late in 2015 which announced the expected start date (delayed) as 2017. The | Increased operational cost | 1 to 3 years | Direct | Virtually certain | Medium-high | MTN could potentially expect a tax rate of around R 48 per tCO2e for Scope 1 emissions which would result in a potential maximum liability of R15.1 million (based on MTN South Africa's 2016 Scope 1 emissions). It is expected that Scope 1 emissions associated | MTN is reducing the impact of a potential Carbon Tax by optimising energy efficiency at its technical and non-technical sites and looking to implement alternative energy at these sites as well. Currently, the carbon tax only poses a direct threat to MTN South Africa; however it may become a | Following the successful implementation of the Gas-Waste Heat Capture-Cooling (tri-generation) plant at MTN's 14th Avenue campus in 2010, which was also registered for carbon credits on the United Nations' Clean Development Mechanism (UNCDM) (see https://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1356796875.32/view); MTN South Africa has proceeded with the installation of two off-gas powered generators that power the MTN Doornfontein site and MTN Newlands site in 2015 and 2016 respectively. The implementation cost at these sites is estimated to be R13,3 million and R40 million for Doornfontein and Newlands, respectively. Plans are in place to extend the energy capacity at the 14th Avenue Campus to 7 MW. MTN South Africa has also in 2014 |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | implementation of the tax has been delayed for over two years. The Finance Minister has announced in his 2015 and 2016 Budget Speeches further engagements and comments on the Draft Bill and during the 2017 Budget Speech, that a revised Carbon Tax Bill will be published for public consultation and tabled in Parliament by mid-2017. This risk currently only affects MTN South Africa; however MTN Cyprus and | | | | | | with gas trigeneration plants at 14th Avenue, Doornfontein and Newlands, and diesel consumptions associated with diesel generators (which exceed 10MW capacity) will be taxed, requiring that emissions be reported in line with Department of Environmental Affairs' reporting requirements. It is understood that any tax passed on through the liquid fuel cost would be considered in calculating how much tax | reality in other countries. Solar, wind, gas and fuel cell energy is used at 28 off-grid sites in South Africa and tri-generation power is used at the head office (14th Avenue) as well as at the Doornfontein and Newlands sites). . Other energy reduction initiatives in South Africa include the use of heat wheel technology; investment in battery cabinets with active cooling, sodium metal chloride batteries and free cooling in BTS sites as well as temperature setting | implemented the Linear Fresnel Concentrated Solar Power (CSP) technology programme at MTN's 14th Avenue campus at an estimated cost of R5 million. |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | MTN Zambia also report increasing legislative activity with respect to carbon taxes in those countries. While MTN South Africa is one of the largest operations in the MTN Group, the financial impact of this tax is estimated at less than 0.7% of MTN's overall energy costs, at prevailing figures. The original design included a tax rate initially levied at R120 per tonne of CO2e, expected to increase by 10% annually. | | | | | | to pay based on generation capacity in order to prevent double taxation. A carbon tax on electricity (Scope 2 emissions) may passed on to MTN South Africa. However National Treasury has indicated that adjustments will be made to ensure a net zero impact on the electricity tariff although it is not clear how this will be done. | adjustment; and in 2014 the operationalisation of a concentrated solar power plant with a peak cooling capacity of 330 kW. These measures aim to reduce GHG emissions, increase energy security, and reduce financial costs associated with future carbon tax risks. The Group Sustainability Manager also engages in policy dialogue and advocacy to ensure that carbon budgets and the design of the tax captures the operational realities of the sector and company. MTN | |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | The tax is expected to relate to a company's direct (Scope 1) emissions. The electricity sector will also be taxed which presents a risk of pass-through costs to consumers, and there is still uncertainty whether the tax process will generate sufficient revenue to subsidise electricity prices to negate this, as per National Treasury's intention, primarily in the first round of implementation. Free | | | | | | | Cyprus is also monitoring possible Carbon Tax regulatory developments nationally, and has in 2015 replaced air-conditioning units with a free cooling system which has contributed to 5% energy reduction and over 4 tCO2e emissions reductions. | |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | allowances (i.e. emissions not subject to the tax) include: a basic 60% of annual Scope 1 emissions (accruing until 2020, after which the threshold will be gradually reduced), up to 10% fugitive emissions allowance, up to 5% for participating in the carbon budget process, up to 5% reduction based on a company's carbon efficiency performance against its peers, a 10% trade exposure allowance, and the | | | | | | | | |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | potential to purchase 5% - 10% offsets depending on the sector. During the 2017 Budget Speech, the Finance Minister announced that a revised regulation for the carbon offset allowance will be published alongside the Carbon Tax Bill. There is uncertainty in timing this risk since the implementation date has not been confirmed; however MTN is not expected to pay any carbon tax before 2018. | | | | | | | | |
| Cap and | The South | Increased | 1 to 3 | Direct | Likely | Medium | Although | Although we do | Following the successful |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| trade schemes | African Government's National Climate Change Response Policy (NCCRP), published in October 2011, defines a benchmark range, the 'Peak, Plateau and Decline' (PPD) trajectory, for national Greenhouse Gas (GHG) emissions. This policy also outlines Desired Emissions Reduction Outcomes (DEROs) for the long (2050), medium (2030) and short (2020) terms. Long term DEROs, | operational cost | years | | | | there has been an indication of a 5% Carbon Tax allowance should a company participate in the carbon budgets process, MTN has not been approached by DEA to submit any carbon budgets. We have not been identified as one of the priority emitters in South Africa and are therefore unlikely to be significantly affected financially by developments in this regards, more especially within the first phase of | not anticipate significant impacts from the evolving regulatory environment, MTN continues to reduce the impact of a potential Carbon Tax and carbon budgets by optimising energy efficiency at its technical and non-technical sites and looking to implement alternative energy at these sites as well. The Carbon Tax only poses a direct threat to MTN South Africa; however it may become a reality in other countries. Solar, wind, gas and fuel cell energy is used at 28 off-grid | implementation of the Gas-Waste Heat Capture-Cooling (tri-generation) plant at MTN's 14th Avenue campus in 2010, which was also registered for carbon credits on the United Nations' Clean Development Mechanism (UNCDM) (see https://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1356796875.32/view); MTN South Africa has proceeded with the installation of two off-gas powered generators that power the MTN Doornfontein site and MTN Newlands site in 2015 and 2016 respectively. The implementation cost at these sites is estimated to be R13,3 million and R40 million for Doornfontein and Newlands, respectively. Plans are in place to extend the energy capacity at the 14th Avenue Campus to 7 MW. MTN South Africa has also in 2014 implemented the Linear Fresnel Concentrated Solar Power (CSP) technology programme at MTN's 14th Avenue campus at an estimated cost of R5 million. |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | expressed as a range, will be aspirational, while short term DEROs will be more realistic and based on currently available technology. DEROs will be absolute GHG reductions at the sector and sub-sector level. Furthermore, other developments within the GHG mitigation regulatory environment include carbon budgets which will form one mechanism to achieve the DEROs. The carbon budget at a company | | | | | | implementation. | sites in South Africa and tri-generation power is used at the head office as well as at the Doornfontein and Newlands sites). Other energy reduction initiatives in South Africa include the use of heat wheel technology; investment in battery cabinets with active cooling, sodium metal chloride batteries and free cooling in BTS sites as well as temperature setting adjustment; and in 2014 the operationalisation of a concentrated solar power plant with a | |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | level represents a cap or limit on what a company can emit over a specific time period. It is anticipated that the National Government will start engaging with the necessary companies to agree on carbon budgets that will be applied in the first phase of the programme. Should a company be requested to submit carbon budgets, a Pollution Prevention Plans (PPPs) will also be requested t. All the above measures are | | | | | | | peak cooling capacity of 330 kW. These measures aim to reduce GHG emissions, increase energy security, and reduce financial costs associated with future carbon tax risks. The Group Sustainability Manager also engages in policy dialogue and advocacy to ensure that carbon budgets and the design of the tax captures the operational realities of the sector and company. Other MTN operations that may face carbon tax regulations are Cyprus, Cameroon and Guinea- | |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | championed under the Department of Environmental Affairs (DEA). However, since MTN has not been identified as a priority emitter, these regulatory changes may not present a direct material risk on us in the first phase of implementation. | | | | | | | Conakry. All MTN countries of operations continue to invest extensively in energy efficiency. | |
| Fuel/energy taxes and regulations | Increasing general costs of (mainly fossil fuel-based) energy, and global and national energy security, and pricing dynamics pose financial risks to us. | Increased operational cost | 1 to 3 years | Direct | Virtually certain | Medium | The Group has not quantified the financial impact of this, due to the significant variances in this risk element across its 21 countries of operation. However, an | Investments in energy efficiency and alternative energy sources are being driven strategically and operationally to mitigate risks like energy security, costs and environmental | As of 2015 until current reporting period, the Group invested more than R29 billion in CAPEX alone, and similarly has been extensively investing in infrastructure CAPEX programs since 2009. Specifically, over R1 million was invested in the solar BTS site project and diesel hybrid solutions in Ghana, Guinea Bissau and Nigeria in 2016. |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | The risks MTN experiences include increasing grid power, gas and diesel costs. Some of these costs are due to national energy landscapes, while other costs are due to evolving international energy demand-supply dynamics. These impact MTN operations in various ways e.g. in Nigeria, fuel subsidies were removed in 2011 and the recent low oil prices will have a significant impact on growth in the | | | | | | overall Group and detailed country operating cost reduction target has been set, and energy cost reduction is a key element of this target. | impact. To save operating costs, and mitigate financial and regulatory risk profiles, MTN has continued to modernise the existing network, and to ensure that new infrastructure investments are energy-efficient and more resilient. The Group's CAPEX investment in modernisation and infrastructure and energy cost efficiency drive as described previously are the key methods by which this risk is being mitigated. Between 2011 and 2016, we implemented energy efficiency | |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | country; in Iran the Energy Subsidies Elimination program has been active for the past 5 years; in Ghana, electricity tariffs increased in 2014 and have continued to increase in 2015 and 2016; in Cyprus, peak hour power usage pricing was introduced in Benin, although energy costs are subsidized, increased costs are anticipated as a result of upgrading of national | | | | | | | solutions at approximately 5331 network sites, as well as at data centres, switches, hubs and office buildings. In 2016, an additional 492 sites were improved. We now operate 342 solar and solar-hybrid sites (2015: 329). MTN also operates a handful of wind, gas and other 'green-powered' sites. | |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | energy supply infrastructure. Given the importance of energy and the contribution of energy costs to the overall operating cost of the Group, improving energy use and efficiency is a key component of the Company's overall cost-efficiency drive. | | | | | | | | |
| Cap and trade schemes | Carbon pricing uncertainty in the international carbon market is regarded as a regulatory climate change risk to MTN, but also poses potential | Reduction in capital availability | 1 to 3 years | Direct | Likely | Medium | Under ZAR 1 million per annum. | The Group does not foresee further participation in cap-and-trade schemes in the short term. This position is regularly reviewed and may be amended as required. There | CAPEX for tri-generation test switch and data centre for MTN South Africa: R22m in 2010. |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | financial opportunity as the majority of countries in which we operate are classified as emerging countries, and some also hold Least Developed Country status. In 2011 MTN South Africa sold 15,284 CERs from the first tri-generation plant EDF Energy. Generation of CDM credits in MTN is not a priority given the current status of international pricing, and the value of MTN's saved or avoided emissions in | | | | | | | exists regulatory uncertainty at this stage. MTN Group continues to focus on efforts to reduce emissions where possible (as described in CC3.3). | |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | mitigating our carbon taxes liability or leveraging other national tax benefits. | | | | | | | | |

**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 | All MTN countries of operation are included in this section. In general, mean annual temperatures are projected to increase across Africa. Indeed, over the past five decades, temperatures in | Increased operational cost | | Direct | Very likely | Low-medium | Uncertain | A number of MTN operations have implemented measures to improve the energy efficiency of cooling at their operations. Measures include the deployment of outdoor BTS sites, use of free | In 2016 the Group did not invest in this regard; however in 2015, MTN Cyprus invested 1000 Euros in free cooling systems to replace air conditioning units. Costs associated with |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | Africa have increased by 1.5 times the observed global. average of 0.65°C reported by the IPCC. Future temperature increases will likely be higher in the interior regions of the continent compared with the coastal regions for short, medium and long terms. Climate models project increases in short term (2015 – 2025) of between 1° C and 2°C, in the medium term (2040 – 2060) of between 2°C and 3°C and in the long term (2080 – 2100) of between 2.5° C and 5°C, relative to 1970 – 2005. Some scenarios project temperatures | | | | | | | cooling, and investment in more energy efficient air-conditioning units, and technical equipment that has already been designed to be as energy-efficient as possible. This will help to reduce energy consumption for cooling and associated costs. In addition, a number of MTN operations are designing BTS sites such that they are able to withstand higher temperatures. For example, MTN Nigeria has invested in extractor fans at Indoor BTS sites in order to help manage the direct impact of high temperatures on | the deployment of extractor fans in 2014 in MTN Nigeria were N189 505 per site. |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | higher than 5° C for the long term in the southern Africa interior regions for all seasons. The risk is an increased mean surface temperature. The risk and associated financial costs will be greater for BTS sites, switches and data centres than for other infrastructure due to the required optimal operating temperatures of the equipment used at these sites. Operating countries in the Middle East are especially at risk to this change in surface temperature. However, other countries will be affected: MTN Nigeria has identified risks | | | | | | | equipment. | |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | relating to poor performance of voice and data equipment as a result of high temperatures. By 2100, temperature could have risen by up to 5 degrees Celsius, adding increased cost to management of BTS sites. The increased costs are particularly around increasing energy costs for cooling. | | | | | | | | |
| Change in precipitation extremes and droughts | All MTN countries of operation are included in this section. The risk is of increased precipitation and/or increased precipitation intensity and flooding as are result of climate change. The risk and associated | Increased operational cost | Up to 1 year | Direct | Virtually certain | Medium | An increase in events coupled with rising repair prices and/ or insurance costs could have a financial impact on MTN. | Operating equipment, such as generators, have been raised above the flood level in some MTN countries/ regions most at risk. In addition, future site planning has adopted the lessons learned about defending | These costs have not been quantified. |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | financial costs will be greater for BTS sites than for other infrastructure. The floods brought about by the rainy season in certain areas threaten access to power. In all countries in which MTN operates the power grid is unstable/ insufficient/ unreliable and backup generators are necessary for between 10%-70% of the time. Increased flooding due to increasing precipitation intensity has the potential to reduce accessibility to sites, requiring diesel and infrastructure maintenance. Specific examples of | | | | | | | against floods. During 2014 and 2015 Swaziland undertook a project to install 8 hours of back-up power for 40 BTS sites to improve site availability when grid power is not available, and budget is set aside each year to pave access roads to remote sites to help ensure that the sites are accessible during / following severe weather events. In Zambia, equipment has been procured to help extract flood water from buildings. In our outsourced sites, we continue to engage with our partners on solutions that will assist in reducing our risks, and this | |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | previous impacts include extensive flooding that affected MTN Nigeria's operations in FY12 as well as the more recent floods experienced by MTN South Africa in FY16 after an intense drought season. In Guinea Conakry, severe storms have resulted in reduced operating capacity as well as failure of installations.. Zambia has also reported increased flooding as a result of heavy rainfall which has resulted in more power failures and increased fuel consumption and costs associated with the use of | | | | | | | has been done in Zambia. | |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | back-up generators. In the past year, climatologists have recorded the worst El Nino cycle, negatively affecting many African countries. In 2015/2016 El Nino has resulted in heavy rainfalls coupled with extreme droughts in the different regions of Africa, with many of the countries in which we operate in being affected. | | | | | | | | |
| Other physical climate drivers | All MTN countries of operation are included in this section. The risk is an increased incidence of lightning strikes and high winds during storms as a result of increased storm intensity linked | Reduction/disruption in production capacity | Up to 1 year | Direct | Very likely | Medium-high | An increase in events coupled with rising repair prices and/ or insurance costs could have a financial impact on MTN. | All operations maintain technical and disaster recovery plans. The Group's crisis management toolkit, updated in 2015, sets out the basic principles and frameworks to deal with | Costs associated with creating a database of infrastructure have yet to be fully realised as the process is still in its infancy. Costs associated with managing how sites are built |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | to climate change. There is an increase in peak wind intensity, which increases erosion and damage to buildings and infrastructure. On an annual basis, climate change is predicted to cause stronger surface wind speed in tropical and subtropical regions in Africa. Shifting probabilities of extreme wind speeds have also been evident in some studies. In the Southern African region, a number of studies indicate possible changes in circulatory systems or the components impacting them. The risk and associated | | | | | | | abnormal or unstable situations which will include the risk of extreme weather events with the potential to disrupt critical technical and other infrastructure. MTN manages existing weather related risks by ensuring that sites are developed in a manner which reduces the risk e.g. raising the level of the site or key equipment and ensuring adequate drainage to reduce the risk of flooding. For example, in Nigeria, at risk sites are designed with flood water risks in mind, ensuring sites are backfilled and suitably located. | and the technology and materials used form part of CAPEX costs that cannot be isolated. |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | financial costs will be greater for BTS sites, switches and data centres than for other infrastructure. | | | | | | | In Cyprus, sites are designed to withstand higher wind load levels in response to increasing and higher intensity wind gusts, and in Cote d'Ivoire provisions are in place to increase the resilience of sites to storms (for example, major cables are buried underground and fire extinguishers are installed). These actions do not necessarily give rise to significant costs if done in the planning stages. | |
| Other physical climate drivers | Changes in precipitation patterns (and overall precipitation volumes) are relevant for our entire business operations. Increased precipitation, | Reduction/disruption in production capacity | Up to 1 year | Direct | More likely than not | Medium-high | Uncertain | We actively focus on improving the efficiencies we extract from the use of energy, and we invest in alternative and less carbon-intensive forms of energy to | Since 2011, MTN has spent approximately R0.35 billion in renewable energy installations and about R22 million on the installation of a trigeneration |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | storms and flooding may affect the power supply. Power outages and subsequent revenue losses would result. On the adverse side, some regions that we operate in may experience a net drying effect across the southern regions of the African continent. More especially in South Africa, mean annual precipitation is projected to decrease in the eastern regions and increase in the western regions of South Africa. At the 50th percentile, the northern and north-eastern regions of South Africa are likely to receive reductions between 5 and | | | | | | | power our operations, improve our resilience and ultimately reduce our impact on the environment and the communities in which we operate. For example, hybrid battery-diesel, gas, wind, and solar power systems are being rolled out at various locations. Energy security is maintained for all operations through primary or back-up diesel power. These investments mitigate unstable power supply at network sites. We also recognize that energy efficiency solutions also result in water efficiency solutions where for example in | plant. |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | 20 mm/year of mean rainfall in the short term, according to dynamically downscaled projections from the LTAS. In the past two years, the southern regions of the African continent have experienced immense water shortages as a result of the ending cycle of ENSO. | | | | | | | our Trigeneration Test Switch and Data Centre in South Africa, 46kL per annum of grey water is generated from the cooling towers at the trigen plant and is used in campus ablution facilities instead of drinkable potable water. This further mitigates any risks associated with water shortages. | |

**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 | Investor pressure and perceived or real inadequate | Reduced stock price | 1 to 3 years | Direct | Likely | Low | It is difficult to estimate the potential loss as a | We have retained our listing on the FTSE/JSE Responsible Investment | The costs of such mitigation |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | environmental and climate change performance poses a reputational risk to MTN. With growing climate change concerns, increasing pressure has been placed on companies to minimise their environmental impact. The number and scope of regulatory requirements impacting MTN's operations are increasing, and while the operations are currently operating in accordance with these voluntary and regulatory standards, stakeholder and client expectations are constantly evolving and generally becoming more rigorous. As a | (market valuation) | | | | | result of broader Reputational risk. MTN could face reputational risks with Socially Responsible Investors (SRI) Index of the FTSE/JSE if performance and policy commitments fall short of expectations for a leading and diverse company, creating a negative impression with stakeholders and investors. In addition, MTN could experience losses in sales should consumers believe that we are not acting in an environmentally responsible manner. | index and are committed to understanding and reporting on its sustainability performance and GHG emissions and responding to the CDP survey annually. To date, MTN has participated in and met the requirements of the FTSE/JSE Responsible Investment index for the past 11 years. In order to manage overall sustainability performance MTN regularly engages with stakeholders and produces an annual integrated sustainability report. An example of a mitigation strategy implemented by our OpCos comes from MTN Cote d'Ivoire, who are communicating their investments in telecommunications infrastructure that is less energy intensive (e.g. fibre optics and the use of wireless technologies). MTN South Africa has also communicated it's | measures are difficult to quantify. |

| Risk driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | result, in addition to compliance costs, MTN may be exposed to increased insurance costs and unforeseen environmental expenses. The perceived failure to act in a socially responsible manner could impact MTN's score on the Environmental component of FTSE/JSE Responsible Investment Index. | | | | | | | investments in implementing energy efficiency and alternative energy solutions. | |

## 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 changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure**

### CC5.1f

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

**Further Information**

## Page: CC6. Climate Change Opportunities

### CC6.1

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

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

### CC6.1a

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

| Opportunity driver | Description | Potential impact | Timeframe | Direct/Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| International agreements | MTN has operations across Africa, the Middle East, and southern Europe, a number of which are in Least Developed Countries (LDCs). There has been an indication from climate change negotiations that carbon credits from LDC countries will still be in demand and as such represents a potential opportunity for MTN. Moreover there has been progress with regard to securing finance for non-Annex 1 (developing) countries. Although not a LDC, South Africa's 2-megawatt (MW), methane-driven tri-generation power plant at the 14th Avenue Head Office is the first of its kind on the African continent and resulted in a new methodology approved by the United Nations Framework Convention on Climate Change (UNFCCC) | Reduced capital costs | Unknown | Direct | Likely | Medium | CDM projects generated 15 292 saleable certified emission reduction (CER) credits. The credits were sold in May 2012, on a forward-sale basis over 5 years starting 2013, at 94% of the spot price. Other cost reductions associated with international regulations are likely to accrue in the | The annual carbon footprint enables us to determine the consumption patterns of various sites (including the tri-generation facility) and to identify cost and GHG emission reduction opportunities. It also helps us identify the effectiveness of projects that fall under the scope of CDM or related mechanisms. Benin has identified the opportunity for MTN to partner with the private sector in industrial waste, green energy and other projects | Following the successful implementation of the Gas-Waste Heat Capture-Cooling (tri-generation) plant at MTN's 14th Avenue campus in 2010, which was also registered for carbon credits on the United Nations' Clean Development Mechanism (UNCDM) (see https://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1356796875.32/view); MTN South Africa has proceeded with the installation of two off-gas powered generators that power the MTN Doornfontein site and MTN Newlands site in 2015 and 2016 respectively. The implementation cost at these sites is estimated to be R13,3 million and R40 million for Doornfontein and Newlands, respectively. Plans are in place to extend the energy capacity at the 14th Avenue Campus to 7 MW. MTN South Africa has also in 2014 implemented the Linear Fresnel Concentrated Solar Power (CSP) technology programme at MTN's 14th Avenue campus at an estimated cost of R5 million. |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | Clean Development Mechanism (CDM) Executive Board. The success of this project has led to the construction, of two additional plants at the Doornfontein and Newlands sites. MTN is considering ways of benefiting from similar opportunities in other non-Annex 1 countries. | | | | | | future. | that can be classified as CDM projects. This will be done in collaboration with the Climate Technology Centre and Network (CTCN). | |
| Other regulatory drivers | There are a number of tax incentives, research and development incentives and government grants in the area of energy and climate change which MTN could take advantage of. These are mainly available in South Africa, but other MTN countries of operation review if similar regulatory incentives are available locally as well. South African incentives being explored by MTN include: Income Tax Act, Section 12.k: | Increase in capital availability | Up to 1 year | Direct | About as likely as not | Low | MTN is currently saving approximately 18 000 MWh of electricity per year in South Africa from energy efficiency and low carbon energy initiatives. A portion of this | As energy consumption and the management thereof is so important, tax incentives, research and development incentives and government grants will be looked into in order to aid the occurrence of energy efficiency measures at MTN South African and | The cost associated with Monitoring & Verification can be substantial. However, we have not undertaken detailed costing assessment for this activity. |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | Carbon credits generated by Clean Development Mechanism projects will be exempt from normal tax. Section 12.l: An income tax allowance is available for energy efficiency savings. The 12l tax rebate is an incentive for increased energy efficiency, available in the form of an allowance/deduction allowed from taxable income on the basis of demonstrable energy efficiency savings created through the implementation of energy efficiency measures. The tax incentive is available for savings in all energy forms and not only electricity. The rebate is equivalent to 95 cents per kilowatt hour or kilowatt hour equivalent of energy saved. In addition, because MTN South Africa earns carbon credits from the CDM project there is the | | | | | | saving is therefore available for an income tax allowance in terms of Section12l L of the Income Tax Act. MTN is currently in the process of applying for a rebate and this could result in a potential saving for MTN annually, excluding the cost required for measurement and verification | then look at opportunities to scale up to other MTN countries of operation. MTN South Africa is in the process of securing benefits for energy efficiency investments under Section 12L of the Income Tax Act. MTN proactively engages with regulators in the different operating countries which puts the company in a position to take advantage of any regulatory opportunities that may develop. For example, in Sudan, MTN is | |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | potential for tax related savings. MTN South Africa participated in the Private Sector Energy Efficiency (PSEE) programme, and has reviewed its energy policy identifying further opportunities for energy efficiency investments, and assessing the financial penalties and incentives available from local regulatory authorities for energy efficiency investments. In addition, there are growing pressures within other regions to comply with environmental legislation in order to continue to be the leading telecommunications company in the region. | | | | | | | the only company within the telecommunications sector that is part of the Supreme Committee for Environmental Affairs. | |
| Fuel/energy taxes and regulations | Regulations are affecting the cost of energy for customers. The Internet of Things (IoT), including smart devices, Machine-to-Machine (M2M) and | Increased demand for existing products/services | Unknown | Indirect (Client) | Virtually certain | Low | Unknown (and isolating the increase in demand associate | It is suggested by industry projections that the IoT market will grow from an installed base | Not available (isolating the component of the investment in innovative products that relate specifically to climate change drivers is not feasible). |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | cloud-based solutions, enables a wide range of industries to connect networked devices that exchange information, perform actions and respond intelligently to the environments without direct human intervention. This transforms devices into intelligent assets offering a range of possibilities to improve business efficiency, performance, effectiveness, accuracy, and provide other economic benefits. Demand for ICT solutions offered by MTN that enable clients to reduce their energy consumption/GHG emissions is likely to increase. This could include contributions to smart systems (smart grids, smart transport, smart logistics etc.) or 'smart working' (working remotely). MTN is particularly concerned about resources such | | | | | | d with climate change regulation-related drivers is not feasible). | of 75.4 billion devices in 2025, and that that by 2020 annual revenues could exceed $470 billion for the IoT vendors selling the hardware, software and comprehensive solutions. We launched our IoT platform in 2015. This enables us to offer services to a wide range of industries, connecting an otherwise fragmented population of devices and systems through an open platform that enables networked devices to | |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | as water, energy, food, biodiversity and wildlife, among others. We operate in emerging markets where the need to adapt to changing environmental conditions, coupled with the lowest levels of financial and other resources, is becoming increasingly evident. We are, therefore, well placed to offer products that support resilience in the face of these challenges, while representing commercial opportunities for us. More information can be obtained at https://www.mtn.com/en/mtn-group/sustainability/sustainable-economic-value/Pages/transforming-enterprises.aspx | | | | | | | exchange information and perform actions, responding intelligently to their environments without human intervention. MTN's Machine2Machine (M2M) solutions include enterprise mobility management platforms, fleet and private vehicle management and asset tracking, fuel and utilities management, and security solutions, among others. As an ICT operator, we are aware of the role we can fulfil in | |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | assisting our customers to reduce the number of physical materials they use in their homes and businesses, and to mitigate the negative environmental impacts associated with manufacturing, use and disposal of products. Our smart energy meters monitor electricity consumption via a remote application infrastructure, providing insight into how, when and where energy is used, allowing effective management | |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | of this scarce and generally greenhouse gas (GHG) intensive resource. | |

**CC6.1b**

**Please describe your 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 |
|---|---|---|---|---|---|---|---|---|---|
| Other physical climate opportunities | Technologies such as artificial intelligence, digital currencies, crowdsourced innovations, 3D printing and the Internet of Things (IoT) are changing industrial and economic ecosystems. As the digital economy evolves, these opportunities are also forcing new ways of thinking around how people's spaces and assets are used, how | New products/business services | Unknown | Indirect (Client) | About as likely as not | Unknown | This opportunity is yet to prove material. The Group is not seeing material demand for products at this stage and has therefore not estimated | Through our partnerships, we have explored opportunities which include agricultural solutions; animal tracking and anti-poaching initiatives; and health | Not available (isolating the component of the investment in innovative products that relate specifically to climate change drivers is not feasible). |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | people express their views and what talents are needed in the data age. The ability to improve resource efficiency in a climate-stressed world can be enabled through the use of smart devices. MTN has the opportunity to develop innovative products using mobile wireless systems, sensors etc. that can provide customers with access to information that could contribute towards greater resilience in the face of changing climatic conditions. These could include up-to-date information on weather and access to the latest planting/growing/harvesting information for farmers; early warning systems for communities; group communication platforms in times of disasters, resource monitoring programmes  We are actively developing new products and partners with value—add service providers to address the requirement for climate-centric ICT solutions. Our IoT solutions include enterprise mobility | | | | | | financial implications. | solutions. For example, the MTN Smartcam available in Ghana combines a video camera and a security system in one solution, ensuring real-time alerts and live monitoring from smart cameras to mobiles devices. Efficient fuel use is associated with reduced greenhouse gas emissions, and improved cost management. Vehicle tracking location solutions have been implemented in Uganda | |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | management platforms, vehicle management and asset tracking, fuel and utilities management, connectivity, and security solutions. | | | | | | | and Cameroon in 2015. In 2016, fleet monitoring solutions were extended to Uganda, Benin, Zambia and Ivory Coast, and we plan to extend this to other countries such as Botswana, Ghana, Namibia, Swaziland and Zambia in 2017. We successfully concluded a smart water-metering proof of concept service in South Africa. This solution enabled automated gathering of utility meter data through | |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | sensors installed on meters to enable customers to monitor their water consumption, improve consumption efficiency and identify water pipeline leakages in real time. Following successful proof of concept tests in 2015 and 2016, we also launched a smart energy metering solution in South Africa and Cameroon primarily targeted at enterprises and public sector consumers, enabling users to | |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | monitor energy consumption, and potentially reduce indirect greenhouse gas (GHG) emissions. | |

**CC6.1c**

**Please describe your 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 |
|---|---|---|---|---|---|---|---|---|---|
| Other drivers | Electronic and electrical waste (e-waste) results in significant amounts of wasted materials if not re-used or recycled. E-waste contains materials such | Wider social benefits | >6 years | Indirect (Supply chain) | Very likely | Medium | Not Available | We worked with other organisations to raise awareness, facilitate collection and improve waste management standards among handlers, albeit on a very small scale. Our partnerships with Deutsche Gesellschaftfür Internationale Zusammenarbeit (GIZ) in South Africa and with | Between 2011 and 2014 , R4,6million was jointly invested by MTN South Africa and GIZ |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | as ferrous metals, gold, glass, mercury, plastic and other manufactured elements that generate an economic value when extracted. Unfortunately, these materials can also be toxic to human and environmental health if not managed and disposed of responsibly. E-waste is a particularly concerning matter in Africa, where the industry is largely unregulated, has a general low level of awareness, and lacks facilities and oversight by | | | | | | | Ericsson's Ecology Management (ECOM 2.0) programme in Benin and the Côte d'Ivoire have helped us make a difference. In 2016, 5 371 tonnes of e-waste were handed over for extraction, recycling or safe disposal in South Africa and 0,063 tonnes of e-waste were handed over for extraction, recycling or safe disposal in Cameroon. The e-waste comprises network equipment (85,93%), mobile phones (14%) and computing equipment (0,07%). A total of 18 full-time and 16 part-time jobs were created by e-waste handlers due to the volume of e-waste supplied by MTN South Africa. Four organisations support MTN SA to manage e-waste effectively. Another organisation, which is also SERI R2-certified, processed e-waste shipped from Benin and Ivory Coast to South Africa (due to the lack of facilities for such processing in these countries).As a result of the success achieved from this initiative, the programme will | |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | authorities. Reuse of materials reduces the energy input to make future products reducing the overall energy intensities of electronic life cycles. | | | | | | | in the near future be implemented in other regions of our operations. | |
| Changing consumer behavior | Closing the digital divide provides an indirect opportunity associated with efforts to grow economies, reduce poverty and inequality and provide communities with access to services and opportunities in a way that would contribute to more climate resilient societies. For example more | Increased demand for existing products/services | 3 to 6 years | Direct | Likely | Medium-high | Not Available | MTN offers access to affordable, solar-powered phone charging solutions in a number of our markets. In South Africa, World Panel's Sunstream portable solar charging device and free airtime package was launched in a limited number of MTN stores in 2016. We expect to roll it out across the country over time. In Nigeria, the MTN Lumos Smart Solar solution was also launched in 2016. This enables residential and small business customers, healthcare facilities etc. to substitute their use of batteries and, generators with solar power for lights, cellphones, fans and other small electronic devices.. | Costs are considered as business development costs and are therefore difficult to estimate. |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | people have access to mobile technology than to electricity and to water globally. Low-income groups are often excluded from leveraging the socio-economic and other benefits of digital innovation because they cannot afford internet-enabled phones and devices. Our products can help educate, inform, change habits, and improve access to opportunities. | | | | | | | Based on a pay-as-you-go model, Small and Medium Enterprise (SME) customers and individual users can lease to own this solution over a period of five years. These solutions are available in Uganda and Rwanda, which allow customers to access and pay for power consumption using MTN Mobile Money. To address high costs for internet enabled devices MTN-branded smart phones and devices have been available since 2014.MTN's smart phones range in price between US$27 and US$50. In 2016 we made available approximately 400 000 smart phones in Cameroon, Nigeria, Congo and Liberia. To increase smart phone accessibility, we also partnered with Samsung and Standard Chartered Bank to offer micro loans for purchases of smart phones in Nigeria and Zambia. Sponsored data services were made available in Ghana in 2016, enabling companies to pay for data usage by customers who use some of their services. | |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| Reputation | Climate change has increasingly become an area of concern for business with many growing regulations governing climate change mitigation efforts. MTN recognises the reputational benefits that arise from proactively managing and mitigating climate change impacts and demonstrating good corporate citizenship. By proactively managing our climate change impacts, and communicating this to stakeholders, | Investment opportunities | 3 to 6 years | Indirect (Client) | Likely | Low-medium | Not Available | MTN Group has invested extensively in energy efficiency and alternative energy solutions across its operations. Our energy efficient and alternative energy investments over time since 2011 resulted in a reduction and avoidance of 833 tCO2e in 2016. MTN is also proactive in engaging with its stakeholders on sustainability issues and performance, for example through its annual Sustainability Report, dedicated pages on its website, and through its CDP response. Various MTN operations are engaging with stakeholders on climate change issues; for example, MTN Sudan is a member of the Supreme Committee for Environmental Affairs, MTN Cameroon has been proactive in conducting environmental audits to ensure compliance with local regulations, MTN Benin is engaging with the Minister for Environment to understand opportunities arising from CDM projects. | Not quantifiable |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | MTN has an opportunity to improve the brand's image with regulators, customers, and the wider public. | | | | | | | | |
| Other drivers | MTN Group has recognised various potential energy efficiency and management opportunities that could be implemented across MTN operations in the future. The main drivers for implementing these measures are cost savings, energy efficiency, and energy security for business continuity and | Reduced operational costs | 1 to 3 years | Direct | Very likely | High | Not Available | MTN Group continues to implement various strategies to achieve cost savings from opportunities in energy efficiency enhancement and energy management. These are extensively described at https://www.mtn.com/en/mtn-group/sustainability/eco-responsibility/Pages/energy-and-climate.aspx and include, for example: our tower sharing and BTS outsourcing strategy which led to the transferring of some emissions from Scope 1 (and to a smaller extent Scope 2) to Scope 3, changing the emissions profile of the company as has been seen with Cameroon, Cote d'Ivoire, Ghana, Nigeria, Rwanda, Uganda and Zambia. Other strategies include public-private and independent | Not available |

| Opportunity driver | Description | Potential impact | Timeframe | Direct/ Indirect | Likelihood | Magnitude of impact | Estimated financial implications | Management method | Cost of management |
|---|---|---|---|---|---|---|---|---|---|
| | customer service provision. | | | | | | | power producer partnerships for investment in alternative energy; the use of virtualisation, consolidation and other solutions; technologies to reduce energy costs; implementing ISO14001 and Leadership in Energy and Environmental Design standards in one large building; and many more. See https://www.mtn.com/en/mtn-group/sustainability/eco-responsibility/Pages/energy-and-climate.aspx for more information. | |

## 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 changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure**

CC6.1f

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

**Further Information**

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

### Page: CC7. Emissions Methodology

**CC7.1**

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

| Scope | Base year | Base year emissions (metric tonnes CO2e) |
|---|---|---|
| Scope 1 | Tue 01 Jan 2013 - Tue 31 Dec 2013 | 769471 |
| Scope 2 (location-based) | Tue 01 Jan 2013 - Tue 31 Dec 2013 | 636184 |
| Scope 2 (market-based) | | |

## CC7.2

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

| Please select the published methodologies that you use |
|---|
| IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition) |

## CC7.2a

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

## CC7.3

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

| Gas | Reference |
|---|---|
| CH4 | IPCC Second Assessment Report (SAR - 100 year) |
| N2O | IPCC Second Assessment Report (SAR - 100 year) |
| HFCs | IPCC Second Assessment Report (SAR - 100 year) |

| Gas | Reference |
|---|---|
| PFCs | IPCC Second Assessment Report (SAR - 100 year) |
| Other: R22 | IPCC Second Assessment Report (SAR - 100 year) |
| Other: R502 | IPCC Second Assessment Report (SAR - 100 year) |
| Other: Fire Suppression Equipment | IPCC Second Assessment Report (SAR - 100 year) |
| CO2 | IPCC Second Assessment Report (SAR - 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 |
|---|---|---|---|
| Motor gasoline | 69.3 | Other: kg/CO2/GJ | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| Motor gasoline | 0.033 | Other: kg CH4/GJ | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| | 0.003 | Other: kg N20/GJ | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| | 20.20 | Other: kg C/GJ | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| | 0.003 | Other: Tonnes CH4/GJ | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| | 0.0006 | Other: Tonnes N20/GJ | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| | 43 | Other: MJ/kg | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| | 47.30 | Other: MJ/GJ | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |

| Fuel/Material/Energy | Emission Factor | Unit | Reference |
|---|---|---|---|
| | 17.20 | Other: C/GJ | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| | 0.001 | Other: kg CH4/GJ | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| | 0.0001 | Other: kg N20/GJ | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| | 48 | Other: MJ/kg | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| | 15.30 | Other: C/GJ | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| | 0.001 | Other: kg CH4/GJ | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| | 0.0001 | Other: kg N20/GJ | IPCC Guidelines for National Greenhouse Gas Inventories, 2006 |
| | 746.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 720.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 200.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 437.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 230.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 732.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 215.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 527.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 527.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 578.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 294.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 527.00 | Other: gram | IEA Statistics 2012 |

| Fuel/Material/Energy | Emission Factor | Unit | Reference |
|---|---|---|---|
| | | CO2/kWh) | |
| | 237.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 433.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 527.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 1003.00 | Other: gram CO2/kWh) | Eskom - Statistical Table 5: http://www.eskom.co.za/IR2015/Documents/Eskom_fact_sheets_2015.pdf |
| | 204.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 340.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 527.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |
| | 3.00 | Other: gram CO2/kWh) | IEA Statistics 2012 |

**Further Information**

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

**CC8.1**

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

Financial control

**CC8.2**

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

315603

## CC8.3

**Please describe your approach to reporting Scope 2 emissions**

| Scope 2, location-based | Scope 2, market-based | Comment |
|---|---|---|
| We are not reporting a Scope 2, location-based figure | We have no operations where we are able to access electricity supplier emissions factors or residual emissions factors and are unable to report a Scope 2, market-based figure | |

## CC8.3a

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

| Scope 2, location-based | Scope 2, market-based (if applicable) | Comment |
|---|---|---|
| 755109 | 0 | |

## CC8.4

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

Yes

## CC8.4a

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

| Source | Relevance of Scope 1 emissions from this source | Relevance of location-based Scope 2 emissions from this source | Relevance of market-based Scope 2 emissions from this source (if applicable) | Explain why the source is excluded |
|---|---|---|---|---|
| Scope 1, 2 and 3 emissions from the following operating countries are not included: MTN Syria, Mascom Botswana; MTN Ethiopia; MTN Dubai Head Office; MTN Yemen; MTN South Sudan | Emissions are relevant but not yet calculated | Emissions are relevant but not yet calculated | Emissions are not evaluated | • MTN South Sudan, MTN Syria and MTN Yemen (challenges associated with network management in the context of the broader macro-political situation) • MTN Group Head in UAE, Dubai (MTN does not offer ICT services directly in the UAE) • Mascom Botswana and MTN Ethiopia have been excluded on the basis of indirect ownership holding and recent acquisitions, respectively. |

## CC8.5

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

| Scope | Uncertainty range | Main sources of uncertainty | Please expand on the uncertainty in your data |
|---|---|---|---|
| Scope 1 | More than 5% but less than or equal to 10% | Data Gaps<br>Metering/ Measurement Constraints<br>Other: Constraints by the largest operating units and non-reporting of less material operating units | The uncertainty will continue to decrease as the carbon footprint data collection process becomes more institutionalised. The increased training and awareness will ensure that more MTN operations report each year. Overall the uncertainty has decreased compared to 2015. In 2015 and 2016, PwC undertook assurance readiness assessments and reviews on data reported by specified OPCO's to Group. This process informed recommendations to improve data collection and reporting processes. These recommendations have informed a refined approach in 2017 with the intention of further improving the Group carbon footprint. We are aiming to conduct internal reviews again in 2017, and external assurance on some of our material countries and infrastructures that most contribute to our carbon footprint in 2017 or 2018. |
| Scope 2 (location-based) | More than 5% but less than or equal to 10% | Data Gaps<br>Metering/ Measurement Constraints<br>Other: Constraints by the largest operating units and non-reporting of less material operating units | The uncertainty will decrease as the carbon footprint data collection process becomes more institutionalised. The increased training and awareness will ensure that more MTN operations report each year. Overall the uncertainty has decreased compared to 2014. In 2015 and 2016, PwC undertook assurance readiness assessments and reviews on data reported by specified OPCO's to Group. This process informed recommendations to improve data collection and reporting processes. These recommendations have informed a refined approach in 2017 with the intention of further improving the Group carbon footprint. We are aiming to conduct internal reviews again in 2017, and external assurance on some of our material countries and infrastructures that most contribute to our carbon footprint in 2017 or 2018. |
| Scope 2 (market-based) | | | |

## CC8.6

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

No third party verification or assurance

## CC8.6a

**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 (%) |
|---|---|---|---|---|---|---|

## CC8.6b

**Please provide further details of the regulatory regime to which you are complying that specifies the use of Continuous Emission 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**

No third party verification or assurance

## 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 (%) |
|---|---|---|---|---|---|---|---|

## CC8.8

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

| Additional data points verified | Comment |
|---|---|

## CC8.9

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

No

## CC8.9a

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

## Further Information

## Page: CC9. Scope 1 Emissions Breakdown - (1 Jan 2016 - 31 Dec 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 |
|---|---|
| Afghanistan | 49040 |
| Benin | 9149 |
| Cameroon | 3360 |
| Congo, Republic of the | 10956 |
| Cote d Ivoire | 2701 |
| Cyprus | 1288 |
| Ghana | 6708 |
| Guinea-Bissau | 3951 |
| Guinea | 16162 |
| Iran, Islamic Republic of | 3661 |
| Kenya | 145 |
| Liberia | 14312 |
| Namibia | 0 |
| Nigeria | 97968 |
| Rwanda | 1556 |
| South Africa | 33786 |

| Country/Region | Scope 1 metric tonnes CO2e |
|---|---|
| South Sudan | |
| Sudan | 54493 |
| Swaziland | 249 |
| Uganda | 3657 |
| Zambia | 2461 |

**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) |
|---|---|
| Mobile combustion | 24512 |
| Stationary combustion(Diesel) | 258443 |
| Stationary combustion(LPG) | 226 |
| Stationary combustion(natural gas) | 16557 |
| Refrigerant Use | 15845 |

**Further Information**

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

### CC10.1

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

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) |
|---|---|---|---|---|
| Afghanistan | 13033 | 0 | 17470 | 0 |
| Benin | 12560 | 0 | 17445 | 0 |
| Cameroon | 7738 | 0 | 17514 | 0 |
| Congo, Republic of the | 1253 | 0 | 5449 | 0 |
| Cote d Ivoire | 18446 | 0 | 14736 | 0 |
| Cyprus | 1 | 0 | 12181 | 0 |
| Ghana | 15689 | 0 | 21766 | 0 |
| Guinea-Bissau | 509 | 0 | 966 | 0 |
| Guinea | 18999 | 0 | 18425 | 0 |
| Iran, Islamic Republic of | 140914 | 0 | 243797 | 0 |
| Kenya | 218 | 0 | 742 | 0 |
| Liberia | 0 | 0 | 0 | 0 |
| Namibia | 26 | 0 | 1105 | 0 |
| Nigeria | 21130 | 0 | 47569 | 0 |

| 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) |
|---|---|---|---|---|
| Rwanda | 3559 | 0 | 6753 | 0 |
| South Africa | 459135 | 0 | 447232 | 0 |
| South Sudan | 0 | 0 | 0 | 0 |
| Sudan | 54182 | 0 | 72631 | 0 |
| Swaziland | 3437 | 0 | 10111 | 0 |
| Uganda | 9997 | 0 | 19019 | 0 |
| Zambia | 28 | 0 | 9506 | 0 |

**CC10.2**

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

By facility

**CC10.2a**

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

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

## CC10.2b

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

| Facility | Scope 2, location-based (metric tonnes CO2e) | Scope 2, market-based (metric tonnes CO2e) |
|---|---|---|
| BTS Sites | 526419 | 0 |
| Offices (Head Regional & Technical) & warehouses | 62523 | 0 |
| Data Call and Service Centres and Switches | 166167 | 0 |

## CC10.2c

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

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

## Further Information

# Page: CC11. Energy

## CC11.1

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

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

## CC11.2

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

| Energy type | MWh |
|---|---|
| Heat | 0 |
| Steam | 0 |
| Cooling | 0 |

## CC11.3

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

## CC11.3a

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

| Fuels | MWh |
|---|---|
| Diesel/Gas oil | 2514085 |
| Motor gasoline | 38014 |
| Liquefied petroleum gas (LPG) | 1041 |
| Natural gas | 122127 |

## CC11.4

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

| Basis for applying a low carbon emission factor | MWh consumed associated with low carbon electricity, heat, steam or cooling | Emissions factor (in units of metric tonnes CO2e per MWh) | Comment |
|---|---|---|---|

## 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 |
|---|---|---|---|---|---|
| 1201988 | 1166680 | 35309 | 35309 | 35309 | As a result of continued investment in alternative energy projects, MTN produced 35 MWh electricity in 2016 across its operations. Total electricity produced includes renewable electricity production. |

## Further Information

# Page: CC12. Emissions Performance

## CC12.1

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

Decreased

**CC12.1a**

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

| Reason | Emissions value (percentage) | Direction of change | Please explain and include calculation |
|---|---|---|---|
| Emissions reduction activities | 0.06 | Decrease | Emission reduction initiatives implemented during 2016 resulted in a saving of 833 tCO2e, equivalent to 0.06% of MTN's 2015 combined Scope 1 and 2 emissions. |
| Divestment | 18.90 | Decrease | As a result of the outsourcing of BTS sites to TowerCos in Ghana, Uganda, Cameroon, Cote d'Ivoire, Nigeria, Rwanda and Zambia, a total 245 000CO2e shifted from MTN's Scope 1 + 2 emissions to Scope 3 emissions. This represents 18.90% of MTN's 2016 Scope 1 + 2 emissions. |
| Acquisitions | 0 | No change | |
| Mergers | 0 | No change | |
| Change in output | 2.54 | Increase | In 2016, MTN's total, Scope 1 and 2 emissions decreased by 225 949 tCO2e. The change in emissions as a result of emission reduction initiatives, the change in boundary, and divestment of BTS sites is 19 889 tCO2e. The remaining 32 897 tCO2e (to bring the overall change in emissions in 2016 up to the total - 225 949 tCO2e ) is attributed to the expansion of the network and increased installations of 3G, 4G and LTE technologies. This 110 204 tCO2e represents 7.94% of MTN's 2014 Scope 1 + 2 emissions. |
| Change in methodology | 0 | No change | |
| Change in boundary | 1 | Decrease | Scope 1 and 2 emissions from MTN South Sudan emissions were excluded. |
| Change in physical operating conditions | 0 | No change | |
| Unidentified | 0 | No change | |
| Other | 0 | No change | |

## 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?**

## 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 |
|---|---|---|---|---|---|---|
| 0.0000070 | metric tonnes CO2e | | Location-based | 14.79 | Decrease | In 2016, Scope 1 + 2 emissions decreased (for the reasons described above) whilst total revenue also decreased compared to 2015. This has resulted in a 14.79% decrease in emissions per unit revenue. However, the net negative trend has occurred because emissions decreased proportionately more than Revenue. Emissions intensity (emissions unit total revenue) would have been greater were it not for the emission reduction activities successfully implemented across the Group. |

## CC12.3

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

| Intensity figure = | Metric numerator (Gross global combined Scope 1 and 2 emissions) | Metric denominator | Metric denominator: Unit total | Scope 2 figure used | % change from previous year | Direction of change from previous year | Reason for change |
|---|---|---|---|---|---|---|---|
| 0.0059 | metric tonnes CO2e | Other: GHG intensity per subscriber | | Location-based | 20.24 | Decrease | Scope 1 and 2 emissions have decreased 17%) as a result of increased outsourcing, and our subscriber numbers have increased by 3.53% compared to the previous year. |

**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 CO2e) | Number of credits (metric tonnes CO2e): Risk adjusted volume | Credits canceled | 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 | 535661 | We have an ongoing implementation of our strategy to outsource our base station or network sites to tower management companies. This has contributed to the increase in out our scope 3 emissions. Given that we are now a lessee at these sites, our ability to control efforts to improve energy efficiency and reduce GHG emissions is limited. In 2015, 25% of MTN's network sites have been outsourced in Cameroon, Congo-Brazzaville, Ghana, Ivory Coast, Nigeria, Rwanda, Uganda and Zambia. In 2016 this figure increased to 31% our sites being outsourced. We continue to account for energy consumption at these sites, as costs are passed onto MTN either directly or as part of a consolidated site usage fee. As we report GHG emissions according to the operational control boundary, outsourcing results in a shift in the classification of emissions from Scope 1 (direct) to Scope 3 (indirect) emissions. Given our reliance on these outsourced sites, we will regard these Scope 3 emissions as material over the medium to long term (while Scope 1 emissions will decline materially). However, we are unable to get data in sufficient detail from our business partners to undertake assurance on this material contributor to our energy costs and emissions. We maintain constructive and ongoing discussions with our tower management partners about their efforts to reduce relative energy | 100% | Our energy management strategy has been evolving alongside our changing infrastructure investment and management strategy. Leasing infrastructure is resulting in a gradual shift in the classification of our GHG emissions from Scope 1 (direct) to Scope 3 (indirect) emissions. Given our reliance on leased sites, we regard Scope 3 emissions as material over the medium to long term, while Scope 1 emissions may decline materially. These changes also inform our efforts on the types of facilities (network, non-network technical, buildings, etc.) we manage, how we reduce energy consumption and GHG emissions, and which facilities we select for internal and external assurance. |

| 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 |
|---|---|---|---|---|---|
| | | | consumption, improve efficiencies and invest in alternative energy solutions. | | |
| Capital goods | Not relevant, explanation provided | | | | This category, in accordance with WRI/GHG Protocol guidance, has been excluded due to lack of available data and the insignificance in size of emissions relative to the other categories. |
| Fuel-and-energy-related activities (not included in Scope 1 or 2) | Relevant, not yet calculated | | | | |
| Upstream transportation and distribution | Relevant, not yet calculated | | | | |
| Waste generated in operations | Relevant, not yet calculated | | | | |
| Business travel | Relevant, calculated | 2801 | Business travel includes both flights (local and international) for business purposes as well as kilometres travelled in hire cars. The methodology followed to estimate the emissions involved multiplying activity data for mode of transport (e.g. distance travelled) by an applicable emission factor for that mode of transport (e.g. t CO2/km). Flights were categorised as being either long- (> 1600km) or short-(<1600 km) haul flights. DEFRA default factors were used for all emission factors (0.11 for short haul, and 0.12 kg CO2/km for long haul). | 100% | MTN obtains all business travel data from a contracted Travel Agent. |

| 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 |
|---|---|---|---|---|---|
| | | | Hire cars were categorised according to fuel type as well as by the engine capacity of the car. Petrol vehicles were categorised as either small (<1.4 litres), medium (>1.4 litres) or large (>2.0 litres). | | |
| Employee commuting | Relevant, not yet calculated | | | | |
| Upstream leased assets | Relevant, not yet calculated | | | | |
| Downstream transportation and distribution | Relevant, not yet calculated | | | | |
| Processing of sold products | Relevant, not yet calculated | | | | |
| Use of sold products | Relevant, not yet calculated | | | | |
| End of life treatment of sold products | Relevant, not yet calculated | | | | |
| Downstream leased assets | Relevant, not yet calculated | | | | |
| Franchises | Relevant, not yet | | | | |

| 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 |
|---|---|---|---|---|---|
| | calculated | | | | |
| Investments | Relevant, not yet calculated | | | | |
| Other (upstream) | Not evaluated | | | | |
| Other (downstream) | Not evaluated | | | | |

## CC14.2

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

No third party verification or assurance

## 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 (%) |
|---|---|---|---|---|---|---|

**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 | Divestment | 84 | Increase | In 2016 we continued to outsource BTS sites in Cameroon, Congo-Brazzaville, Ghana, Ivory Coast, Rwanda, Uganda and Zambia, and mostly in Nigeria. The outsourcing resulted in an 84% increase in scope 3 emissions from 290 656 tCO2e in 2015 to 535 661 tCO2e in 2016. |
| Business travel | Other: There has been a reduction in car rentals as well as air travel. | 9 | Increase | Emissions for business travel increased due to increased local and international air travel |

## CC14.4

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

Yes, our suppliers
Yes, our customers

## CC14.4a

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

Following the sale of MTN's BTS towers in Cameroon, Cote d'Ivoire, Ghana, Nigeria, Rwanda Uganda and Zambia some of our reported Scope 1 and Scope 2 emissions are now classified as Scope 3. We are neither the majority shareholder nor maintain operational control of these assets.
Given our reliance on leased sites, we regard Scope 3 emissions as material over the medium to long term, while Scope 1 emissions may decline materially.
We engage directly with infrastructure owners/asset managers, requiring them to provide information on energy costs and consumption of the assets we lease or use, energy reduction initiatives or activities and climate change risks and mitigation efforts. We also provide training and include these businesses in our efforts to gather better data and improve the management of climate related risks and opportunities with respect to the towers being managed by these businesses.
We engage with customers through the review of our annual sustainability report, communications with media organisations, ESG and SRI investors and analysts, information from third-party questionnaires and assessments of our publicly reported performance by university organisations and other third parties not commissioned by MTN and our own internal review and research processes including industry, peer and global developments, and our risk and audit management processes.

## CC14.4b

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

| Type of engagement | Number of suppliers | % of total spend (direct and indirect) | Impact of engagement |
|---|---|---|---|
| Active engagement | 2 | 48.3% | The total energy costs from our outsourced BTS operations in Cameroon, Congo-Brazzaville, Ghana, Ivory Coast, Nigeria, Rwanda, Uganda and Zambia was 2.1 billion ZAR in 2016. This represents 48.33%of MTN's total energy spend. |

CC14.4c

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 |
|---|---|---|
| Zakhiya Rehman | Group Sustainability Manager | 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"**

MTN is an ICT operator, offering services in over 24 countries in Africa, and the Middle East and Southern Europe, including cloud computing services. These services are enabled through data centres. Emissions from data centres include emissions from switches and remote hubs. MTN data centres, switches or remote hubs are locations dedicated to hosting ICT infrastructure for internal or external (customer) use, located at a mixed-use or dedicated facility. Emissions from data centres, including switches and remote hubs, accounted for 21% of our total scope 1 + 2 emissions in 2016- the second highest contributor to the Group's carbon footprint after BTS sites which account for 66% of our total scope 1 + 2 emissions.

**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 | 59800 | 166167 | 248735.22 | Other: Meter as well as electricity bills from municipality | Note that these emissions are for data centres, switches and remote hubs, as per our carbon footprint data collection process. |

**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 |
|---|---|
| | Unavailable |

**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)**

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 |
|---|---|---|---|---|
| | | | | |

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**

**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 |
|---|---|---|
| Implemented | Cooling Efficiencies | In 2016 the Group did not invest in this regard; however, in 2015 Cyprus replaced air-conditioning units with a free-cooling system which has reduced energy consumption by 5% at its data centres. The system costed an estimated amount of 1000 Euros in free cooling systems. Numerous other OpCos have invested in energy efficiency projects at data centres. Notably, MTN South Africa's free cooling project, implemented in 2014, resulting in annual electricity savings of 2 628 MWh (and associated emissions savings of 2 636 tCO2e); and MTN Nigeria who invested N189 505 per site for the deployment of extractor fans in 2014. |

**ICT1.8**

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

Yes

**ICT1.8a**

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

| Scheme name | Level/certification (or equivalent) achieved in the reporting year | Percentage of your overall facilities to which the scheme applies |
|---|---|---|
| LEED | LEED Scheme and a Silver level for MTN SA main premises | |
| Other: ISO 14001 | MTN SA and Cyprus are ISO 14001 certified | |

**ICT1.9**

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

No

**ICT1.9a**

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

**ICT1.10**

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

Yes

**ICT1.10a**

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

Most clients do not request this information, but for tenders or sales processes, information on MTN's energy/ climate/ sustainability efforts is shared. This information is also available in our annual Sustainability Report https://www.mtn.com/en/mtn-group/sustainability/Pages/default.aspx

**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**

In 2010 MTN South Africa launched a Gas-Waste Heat Capture-Cooling (tri-generation) plant at the 14th Avenue Test Switch and Data Centre. The plant includes a 2 MW methane gas (natural gas) generator that uses the waste heat generated to chill water for cooling purposes enabling electrical/ thermal fuel efficiency by supplying combined primary energy, heat and cooling. The tri-generation at 14th Avenue Fairlands is quad generation-ready and can be installed with a carbon capture system. In 2012 the tri-generation plant was the first tri-generation facility to be registered for carbon credits on the United Nations' Clean Development Mechanism (UNCDM). MTN South Africa has proceeded with the installation of two off-gas powered generators that power the MTN Doornfontein site and MTN Newlands site in 2015 and 2016 respectively. The two off-gas powered generator installed in both Doornfontein (1MW) and Newland (6MW) sites have a tri-generation system, consisting of a LG Absorption Chiller and two Evapco Hybrid Cooling towers to utilise the hot water generated by the gas powered generators to provide chilled water to the site, thus making maximum use of the available energy -which would otherwise be wasted. This type of tri-generation system ensures maximum energy savings and maximum greenhouse gas emissions reductions. It is estimated that these initiatives have resulted in more than 15,000 tCO2e annual greenhouse gas emissions avoided permanently. Both the Doorfontein and Newlands plants were in operation since 2016, however there were some technical challenges that resulted in inconsistencies in the generation of power which are currently being addressed.

At MTN's 14th Avenue Fairlands Campus, there are plans to extend the current 2 MW installed capacity to 5 MW, resulting in a total of 7 MW installed capacity at the campus.
MTN South Africa has also in 2014 implemented the Linear Fresnel Concentrated Solar Power (CSP) technology programme at MTN's 14th Avenue campus. The plant has a peak cooling capacity of 242 kW, an annual gross heat production of 391MWh, and comprises 242 solar mirrors tracking the sun from an area of 484 m2. The mirrors follow the movement of the sun, based on the GPS location, orientation and the date and time. The mirrors concentrate the reflection on the central absorber tube which heats water in the tube up to 180°C. The hot, high pressure water in turn powers absorption chillers that produce chilled water circulated into the data centre for cooling of IT equipment. The absorption chillers use a lithium bromide water solution as the refrigerant resulting in a zero global warming potential (GWP=0) and no ozone depletion potential (ODP = 0).

**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"**

MTN is an ICT operator, offering services in over 24 countries in Africa and the Middle East, including cloud computing services. These services are enabled through network and connectivity including a network submarine and terrestrial cables, satellite, wireless and all other forms of network connectivity.

## 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 | | | | | |

## ICT2.3

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

| Intensity figure | Metric numerator | Metric denominator | % change from previous year | Direction of change from previous year | Reason for change | Comment |
|---|---|---|---|---|---|---|
| 0.0000070 | metric tonnes CO2e | | 14.79 | Decrease | In 2016, Scope 1 + 2 emissions decreased (for the reasons described above) whilst total revenue also decreased compared to 2015. This has resulted in a 14.79% decrease in emissions per unit revenue. However, the net negative trend has occurred because emissions decreased proportionately more than Revenue. Emissions intensity (emissions unit total revenue) would have been greater were it not for the emission reduction activities successfully implemented across the Group. | |

## ICT2.4

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

The intensity metric was calculated in accordance with the Greenhouse Gas Protocol. The numerator is the sum of Scope 1 and 2 emissions within our boundary and this data is obtained from our different operations. The denominator is the number of subscribers as determined by the activity on the network. Both the numerator and denominator are not estimations. It is important to note that Scope 1 and 2 emissions exclude emissions from outsourced sites.

## 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**

No

ICT5.1

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

ICT5.2

Please provide your absolute Scope 1 and 2 emissions and electricity consumption for the business services (office based activities) component of your business

| Business activity | Scope 1 emissions (metric tonnes CO2e) | Scope 2 emissions (metric tonnes CO2e) | Annual electricity consumption (MWh) | Electricity data collection method | Comment |
|---|---|---|---|---|---|

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 |
|---|---|---|---|---|---|---|
| | | | | | | |

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 |
|---|---|---|---|---|---|---|
| | | | | | | |

**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