



# Vodacom South Africa Task Force on Climate-related Financial Disclosures Report 2023



2023

Further together



# Contents

## 01 Overview

- 01 Message from our leadership
- 03 Our TCFD journey

## 04 Governance of climate change risks and opportunities

- 04 Board oversight
- 05 VSA management's role in South African climate-related issues

## 06 Climate change risk management

- 06 Integration of climate-related risks into our risk management processes
- 07 VSA climate risk evaluation and prioritisation process FY23

## 08 Strategy

- 08 Approach
- 09 Time horizons
- 11 VSA response to climate risks
- 11 Resilience to physical risks
- 11 Resilience to transition risks
- 12 Customer and other stakeholder engagement
- 12 Climate change opportunities
- 13 Material climate-related opportunities

## 14 Metrics and targets

- 14 Overview
- 14 GHG emissions
- 14 Roadmap to achieving our GHG reduction targets
- 15 Energy overview
- 16 Water metrics and targets
- 16 Waste generation

## 17 Conclusion and next steps

## 18 Appendices

- 18 Appendix A – Rationale for use of SSP scenarios
- 19 Appendix B – VSA Climate Risk Register

# Message from our leadership

Vodacom South Africa (VSA) understands the importance of responding to climate change impacts, and one of the ways we do this is through the Task Force on Climate-related Financial Disclosures (TCFD) framework. The frequency and intensity of climate-related events we have witnessed in recent times demonstrate the interconnectedness of our economic, social, environmental and political systems.

**Takalani Netshitenzhe**, Chief Officer, Vodacom SA External Affairs Director  
**Sitholizwe Mdlalose**, Managing Director, Vodacom SA



It is more imperative than ever that we strengthen our commitment and coordination to effectively address the challenges posed by climate change. By doing so we can foster resilience and ensure long-term sustainability across our business and the communities in which we operate.

VSA aspires to adopt net zero targets, as we recognise the Paris Climate Agreement (2015) to limit global warming to less than 2°C and as close to 1.5°C as possible. We also acknowledge the scientific consensus that a 1.5°C world will be much more manageable than a 2°C one, and

to achieve this, global greenhouse gas (GHG) emissions have to be reduced by 45% by 2030 and reach net zero emissions by 2050.<sup>1</sup> Our parent company, Vodafone, has set carbon reduction targets (referred to as Planet Commitments) in alignment with this scientific consensus, and we are currently aspiring to meet these targets.<sup>2</sup>

Establishing ambition is easy. Much more challenging is executing the plan to achieve those ambitions and driving the necessary transition, while recognising societal requirements and the difference in levels of

international development. Following our first TCFD report in 2022, it was recommended that VSA should develop a GHG reduction roadmap (the Roadmap) that unpacks the activities required to meet the Vodafone net zero targets. The operating environment in Africa and South Africa differs from that in Europe – particularly the energy sector. As it stands, the South African government has committed to meet net zero targets by 2050, although this commitment does not give details on how the target will be met.

1. Intergovernmental Panel for Climate Change, 2018  
 2. In 2022, the Science-based Target Initiative (SBTi) approved Vodafone's Planet Targets of 100% renewable energy across all operations by 2025, elimination of all operational GHG emissions by 2030, 50% reduction in supply chain emissions by 2030 and net zero emissions across the entire Vodafone value chain by 2040.



## Message from our leadership continued

The Roadmap, developed by VSA, investigates all sources of our emissions and aligns these to the relevant Vodafone targets and timeframes. The Roadmap has key dependencies that are both internal and external. Externally, looking at the South African context, the transition from a fossil fuel-based to a low-carbon business will require an extensive decarbonisation of the existing electricity grid. Furthermore the deliberations and actions of VSA's decarbonisation strategy need to be cognisant of the social dialogues taking place throughout the country – ostensibly under the guidance of the Presidential Climate Commission (PCC) – to which the concept of a Just Energy Transition is central. All reduction initiatives activated by VSA will trigger differing consequences. These will certainly be beneficial from an environmental perspective, relating to every citizen's right to a clean and healthy environment; meeting South Africa's international climate obligations; ensuring global competitiveness in a carbon-constrained world; and, securing associated employment. However, there will be negative outcomes, such as job losses in certain sectors and geographic areas, which will impact consumer purchasing power and the resilience of communities to withstand the transition imposed on them.

**We believe business success should not come at a cost to the environment, and are committed to reducing the impact of our activities. We also recognise the key role for our digital networks and technologies in helping to address climate change. Digitalisation is key to saving energy, using natural resources more efficiently and creating a circular economy. As one of the most pressing issues of our time, climate change requires decisive action from all sectors.**

As a telecommunications company, we understand that our operations and infrastructure are not immune to the physical effects of a changing climate. Society at large and our customers specifically are reliant on the continued operations of telecommunications. As a responsible corporate citizen, VSA



is dedicated to fostering climate transparency and minimising our impact on climate change through scientifically robust measures and a considered fair share of responsibility. While we are committed to our contribution toward climate change mitigation, we also believe that we can play a vital role in developing and offering solutions to society's response to climate change, leveraging our technological expertise to enable sustainable practices, promote energy efficiency and facilitate the just transition to a low-carbon, climate-resilient economy.

In South Africa, we have faced several complex challenges, including that of loadshedding (scheduled rationing to apportion electricity demand to available supply of the grid), which has impacted our business operations and the communities that we serve. Loadshedding has placed unexpected pressures on our electricity availability and energy procurement to power our operations. As a result, our diesel purchase and consumption increased by 34% over the last year and this has changed our GHG emission profile to a degree.

In this report, which builds upon our first submission of 2022, we seek to provide a comprehensive assessment of our climate-related risks and opportunities, strategies and progress in alignment with the recommendations of the TCFD and in line with our enterprise risk management framework. We have also evaluated the climate-related risk and opportunities identified this year under different potential climate

change scenarios, and selected the most material, which the business has integrated as part of its strategy and overall business risk management. By adhering to this globally recognised framework, we seek to enhance our understanding of climate-related risks and opportunities, strengthen our resilience, and drive informed decision-making throughout our organisation. As part of our commitment to operate ethically and sustainably, we continue to strive to understand climate-related risks and opportunities and embed responses to these into our business strategy and operations. As this report demonstrates, we are using the insights to better understand mitigating controls, engage with relevant stakeholders across the business and identify ways to further embed climate risk into our risk management system and processes. Our TCFD Report offers a transparent summary of our approach to climate-related strategy in line with the TCFD framework. It details our progress and the opportunities and challenges we face in the journey to being a low-carbon, climate-resilient business.

**Takalani Netshitenzhe**  
Chief Officer  
Vodacom SA External Affairs Director

**Sitholizwe Mdlalose**  
Managing Director  
Vodacom SA



# Our TCFD journey

Our approach to the TCFD report adopts South Africa-specific realities on climate change, such as considerations on the Just Energy Transition and collaboration with relevant stakeholders. The diagram below shows our journey in phase 2 of the TCFD reporting process and how we are beginning to integrate the process as part of our strategy across all business areas.



Partnerships on the Just Transition in South Africa



## Governance of climate change risks and opportunities continued

### VSA management's role in South African climate-related issues

Within VSA, our climate change response is divided into the management of three climate-related areas: carbon emissions and energy usage, tracking our performance against relevant metrics and targets, and identifying and managing climate-related risks and opportunities.

#### Carbon and energy management

Our drive to be more energy efficient and adopt renewable energy sources is a crucial area of our climate response. The VSA Technology Director and head of the VSA Energy Performance Team has oversight in this area. The VSA Technology Director is responsible for monitoring and managing energy across the VSA network, including energy efficiency and renewable energy adoption. The VSA Technology Director is a member of the VSA Executive Committee, which meets weekly, and is also a member of the VSA Board of Directors. In addition, the VSA Head of Sustainable Development is responsible for developing and executing the South African sustainable business and ESG strategy, including climate change programmes. This position reports directly to the VSA Executive Director of External Affairs, who reports to the VSA (Exco) and also sits on the Vodacom Group SEC.



#### Monitoring ESG performance

Performance against our commitments relating to the reduction of GHG emissions, waste and water, as well as the adoption of renewable energy, is monitored and reported to the VSA Exco by the VSA Head of Sustainable Development, VSA Head of Energy Performance and the Managing Executive of the Group National Properties, who is responsible for meeting the ESG targets within our commercial property environment, inclusive of our office buildings and warehouses. ESG performance, including environmental performance, is reported to the Group SEC on a quarterly basis.



#### Managing climate-related risks and opportunities

Climate-related risks in South Africa are identified and managed through the VSA Risk Committee, which reports to the Vodacom Group enterprise risk management system.

**PG** See Risk Management section on page 6.

The VSA Risk Committee reports to the Group Risk Management Committee, chaired by the Group Chief Risk Officer, who also sits on the Vodacom Group Board's ARCC. This Committee also considers climate change opportunities such as resource efficiency and alternative sources of energy, amongst others.



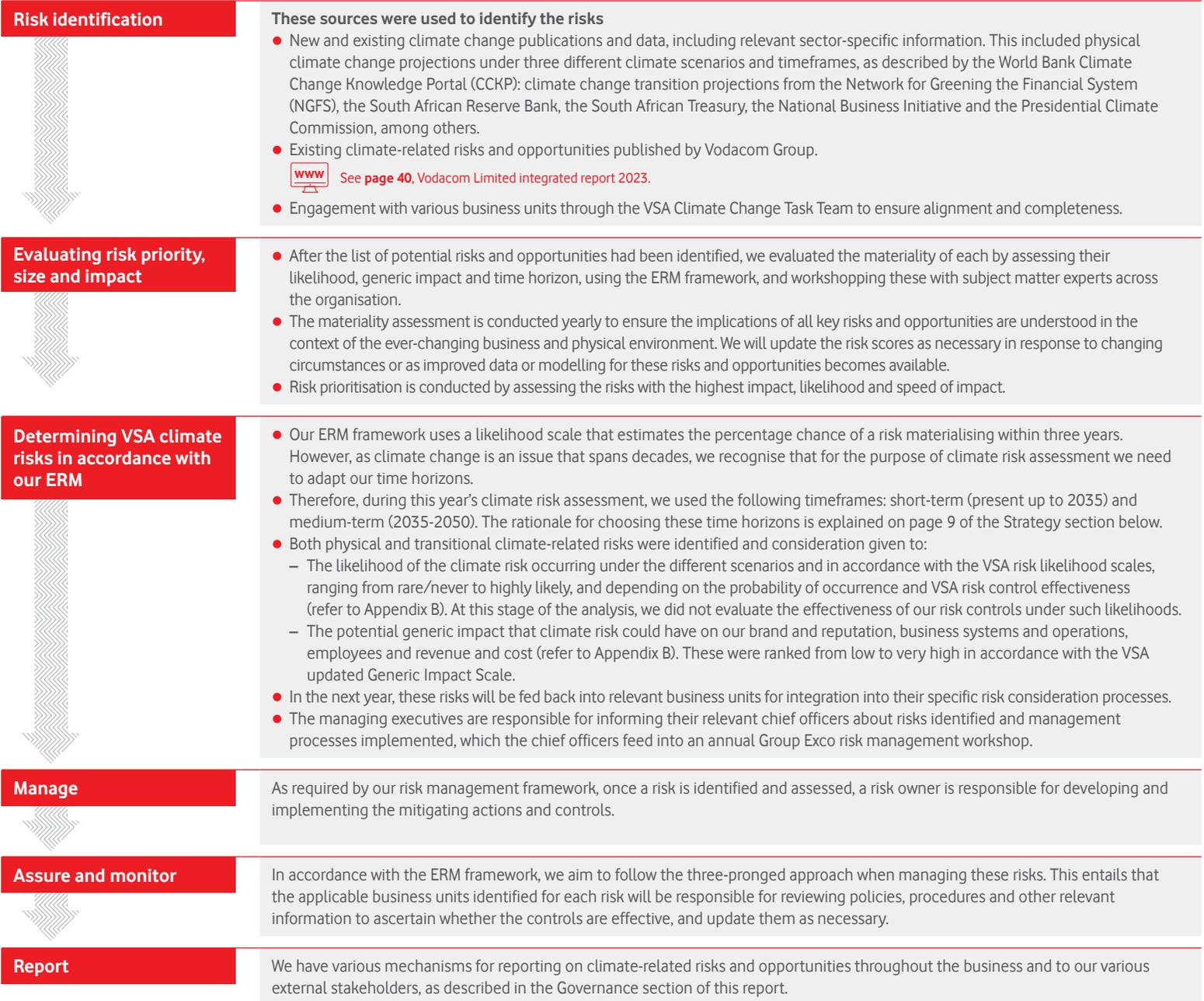


# Climate change risk management

## Integration of climate-related risks into our risk management processes

Through the VSA Risk Management Committee, we have applied our enterprise risk management (ERM) framework to identify and measure both physical and transitional climate risks. This allows us to naturally integrate climate issues into our risk thinking and balance the importance of consistency of approach, measurement and risk categorisation across the organisation. During 2023 our climate risk analysis was informed by the use of three different climate change scenarios (see Strategy section) and integrated into the VSA ERM processes in accordance with the TCFD recommendations of identifying transitional and physical climate-related risks.

The following climate-related risk identification processes were followed:





## Climate change risk management continued

### VSA climate risk evaluation and prioritisation process FY23

VSA Climate Change Task Team evaluation of three climate change scenarios under near- and medium-term timeframes (see Strategy section overleaf).



Transitional and physical climate risk evaluation and prioritisation in each scenario.



VSA Risk Committee evaluation of likelihood and generic impact of each risk on the operational, reputational and financial stability of the business.



Climate risks to be fed back to business units for consideration by each unit and incorporation into the VSA ERM process.





# Strategy

Climate change risks can be categorised into physical and transitional impacts.



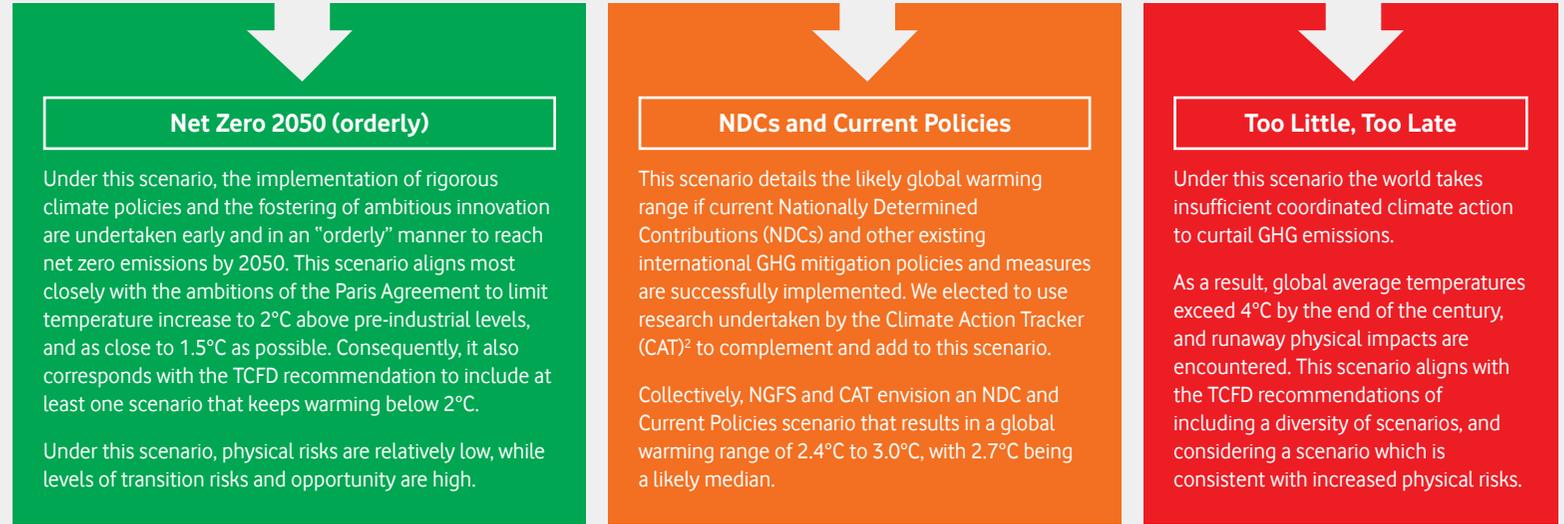
**Physical risks** and opportunities are associated with **acute** weather events, such as one-off droughts, heatwaves and floods, and **chronic** long-term climate change trends, including increasing temperatures, change in rainfall patterns, and sea-level rise.



**Transition risks** and opportunities are those associated with the transition to a low-carbon, climate-resilient economy aimed at reducing the impacts of global warming by reducing or eliminating human-induced GHG emissions into the atmosphere and adapting to the effects of climate change that remain locked in.

## Approach

We examined the physical and transitional risks and opportunities which could materialise under three climate change scenarios across our value chain. The scenario selection was adopted from the **NGFS**<sup>1</sup>, a network of central banks that teamed with leading scientists and economists to design a set of possible climate change scenarios.



To understand the physical climate change of these three scenarios, we adopted the Shared Socioeconomic Pathways (SSPs) of the Intergovernmental Panel on Climate Change (IPCC), which were published in the IPCC's most recent assessment report (AR6)<sup>3</sup>. There are five broad SSP scenarios, each with several sub-narratives which are designed to consider a range of possible social, economic, political, environmental and technological changes between the present and 2100.

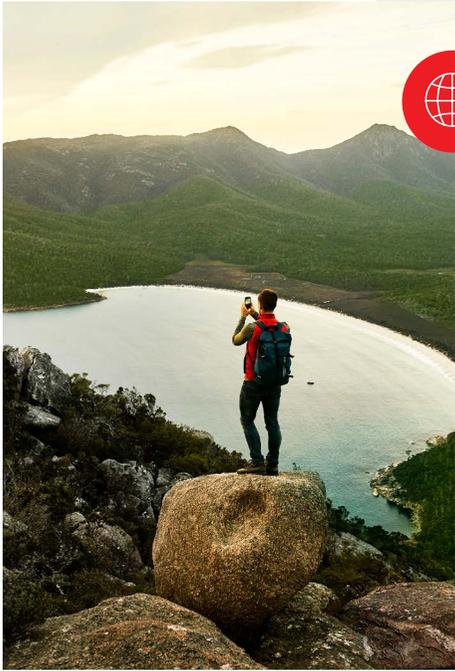
We chose those SSP scenarios that most closely aligned with the selected NGFS scenarios based on the following criteria:

- 1** Average warming temperature projections.
- 2** Associated emissions (e.g. net zero by 2050).
- 3** Similarity in descriptive overview and narrative/outcome.

1. NGFS. (n.d.). NGFS Scenarios Portal. Available at: <https://www.ngfs.net/ngfs-scenarios-portal/> (Accessed 28 May 2023).  
 2. Climate Action Tracker. (n.d.). Climate Action Tracker. Retrieved from <https://climateactiontracker.org/> (Accessed 28 May 2023).  
 3. IPCC, 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [V. Masson-Delmotte, P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. In Press



## Approach continued



Based on these criteria, the following SSPs were used:

### Selected SSP scenarios for physical risk and opportunity analysis

	SSP1-1.9	SSP2-4.5	SSP5-8.5
<b>Scenario type</b>	Very proactive action to combat climate change – ambitious scenario	Middle-of-the-road scenario	Fossil fuel-driven development scenario
<b>Associated emissions</b>	Net zero by 2050	Net zero not reached by 2100	CO <sub>2</sub> emissions double by 2050
<b>Average global warming temperatures (2100)</b>	<b>≤ 1.5°C</b> (Paris Agreement-aligned)	Temperatures rise by <b>± 2.7°C</b>	Temperatures rise by as much as <b>4.4°C</b>
<b>Descriptive overview</b>	A very optimistic scenario where societies adopt immediate environmentally friendly practices, with the focus of development shifting away from economic growth and toward inclusive socioeconomic development and well-being.	Socioeconomic factors follow their historical social, economic and technological trends, with no significant change and progress toward sustainable development.	The “worst-case scenario” where the global economy grows rapidly, relying heavily on the exploitation of fossil fuels and energy-intensive lifestyles. Climate change, biodiversity loss and pollution continue unabated.
<b>Comparative NGFS global warming scenario</b>	● Net Zero 2050 (Orderly)	● NDCs/Current Policies	● Too Little, Too Late

## Time horizons

We have refined our risk time horizons to ensure they are aligned with available data on physical climate change as described by the IPCC. In terms of the transition risks and opportunities, these timeframes have been aligned with the context of South Africa’s NDC commitments and consolidated information from the various research documents we have used.



Physical risks



**Short-term**  
2020-2035



**Medium-term**  
2035-2050

These time horizons allow us to distinguish between specific future periods of climate impact, while considering the increasing severity of physical risks linked to climate change that may unfold over a timeframe that is relevant to the business strategically. These time horizons also cover sufficient time to highlight meaningful climatic changes and shifts.



Transition risks



**Short-term**  
2020-2030



**Medium-term**  
2030-2050

These time horizons align with South Africa-specific anticipated transition risk and opportunity factors, such as energy price volatility, NDCs and climate-related legislation. These time horizons are informed by current research carried out in the South African socioeconomic environment with consideration for South Africa’s Just Energy Transition framework.



### VSA's material physical and transition risks

Following the selection of appropriate time horizons and scenarios, we developed a climate risk and opportunity register for our South African operations as described on page 19. Impact was based on VSA's generic risk impact scale on customers, business systems, employees, stakeholders, brands, revenues and costs to the business. The impact scales range include low, medium, high and very high impact.



For further detail on how we measure risk impact and likelihood, please see our IR FY23, page 36.

Category	Description	Potential impact before mitigation	Description of mitigation strategy	Scenario in which risk could materialise	Time Horizon
Physical risks	Increase in global temperatures leading to an increase in the consumption of energy for cooling	Increase in operating costs	Continue to roll out energy efficiency programmes to optimise energy use	<ul style="list-style-type: none"> <li>Too Little, Too Late</li> <li>NDC and Current Policies</li> </ul>	<ul style="list-style-type: none"> <li>Short-term</li> <li>Medium-term</li> </ul>
	Damage to infrastructure caused by increased frequency and severity of extreme weather events, such as wildfires, flooding and storms	Increased capital costs to replace damaged assets	Improve climate resilience of network assets at highest risk	<ul style="list-style-type: none"> <li>Too Little, Too Late</li> <li>NDC and Current Policies</li> </ul>	<ul style="list-style-type: none"> <li>Short-term</li> <li>Medium-term</li> </ul>
	Potential impact on customers, employees and communities as a result of extreme weather events	Impact on purchasing power of customers, revenue and business continuity	Remote working, digitisation of critical sectors, affordable products and services	<ul style="list-style-type: none"> <li>Too Little, Too Late</li> <li>NDC and Current Policies</li> </ul>	<ul style="list-style-type: none"> <li>Short-term</li> <li>Medium-term</li> </ul>
	Supply chain disruption due to acute and chronic physical climate impact on key suppliers	Disruption to business continuity, increased operating costs	Engage suppliers to promote actions to strengthen their climate resilience, and improve supply chain resilience, for example through diversification of suppliers	<ul style="list-style-type: none"> <li>Too Little, Too Late</li> <li>NDC and Current Policies</li> </ul>	<ul style="list-style-type: none"> <li>Short-term</li> <li>Medium-term</li> </ul>
Transition risks	Emerging carbon regulations, national targets and carbon taxation	Increased operating costs	Consider the transition of our business to net zero in our full value chain (Scope 1, 2 and 3) by 2040 to minimise risk exposure  Engage with policymakers to advocate for appropriate carbon regulation and fiscal measures	<ul style="list-style-type: none"> <li>Net Zero (Orderly)</li> <li>NDC and Current Policies</li> </ul>	<ul style="list-style-type: none"> <li>Short-term</li> <li>Medium-term</li> </ul>
	Increasing stakeholder scrutiny over our environmental performance, impacting revenue, market share and reputation	Loss of revenue and/or market share and increased cost of capital	Improve transparency and disclosure of ESG data and climate transition plans to meet stakeholder expectation	<ul style="list-style-type: none"> <li>Net Zero (Orderly)</li> <li>NDC and Current Policies</li> </ul>	<ul style="list-style-type: none"> <li>Short-term</li> <li>Medium-term</li> </ul>
	Energy security as a result of over-reliance on the national grid	Increased operating costs, loss of revenue and market share	Continue to roll out energy efficiency programmes to minimise risk exposure  Increase electricity procured through long-term renewable energy power purchase agreements (to provide greater certainty on energy costs)	<ul style="list-style-type: none"> <li>Net Zero (Orderly)</li> <li>NDC and Current Policies</li> </ul>	<ul style="list-style-type: none"> <li>Short-term</li> </ul>
	Impact of the energy transition on South African society and the country's economy	Economic pressures and impacts such as unemployment and inequalities in affected economic sectors and communities	Partnerships with the PCC and the National Business Initiative on the Just Transition. Our Planet Commitment Roadmap takes into consideration issues relating to South Africa's Just Energy Transition Framework	<ul style="list-style-type: none"> <li>Net Zero (Orderly)</li> <li>NDC and Current Policies</li> </ul>	<ul style="list-style-type: none"> <li>Short-term</li> <li>Medium-term</li> </ul>

Short-term  
 Medium-term



## VSA response to climate risks



### Building climate resilience into our business strategy

As part of our ongoing climate response strategy, we engage with various business units to understand the current policies and mitigation processes that are in place to mitigate climate change risks and to capture opportunities. Our current financial planning period extends to three years, enabling risk mitigation actions for our immediate climate-related risks (0-3 years) to be incorporated. Our financial planning process incorporates the allocation of capital for operations, which includes the purchase of new or replacement equipment. Decisions in this area increasingly consider climate-related risks and opportunities such as energy efficiency or the potential to reduce our carbon footprint. This is evident in our strategic initiatives, such as our partnership with Eskom to develop the virtual wheeling platform. Whilst medium-term climate-related risks (up to 2050) are not captured as part of our financial planning process, we identify and monitor them so that we have a view of how our business could be impacted as the world moves towards net zero by 2050.

## Resilience to physical risks

We have controls in place, across the business, which build resilience against the impacts of physical climate risks. These are centred on damage to our infrastructure and disruption to network services, especially our 15 297 base stations located around the country. Mitigation measures are built into the key stages of each asset's life cycle, from acquisition to maintenance, and cover climate adaptation as well as damage response. During the acquisition of new assets, we have policies and guidance in place to incorporate the assessment of environmental risks. Our internal technology resilience policy also requires each asset to go through a physical risk assessment on a yearly basis, which includes evaluating environmental risks. We also have reactive measures related to asset maintenance in place, such as processes and teams dedicated to disaster recovery and business continuity.

Lastly, we have insurance policies designed to mitigate the financial impact of physical risks, which cover claims on asset loss and damage.



### Case in point

## Flooding events in SA

In April 2022, parts of the KwaZulu-Natal and Eastern Cape coastline and inland areas were devastated by severe flooding that caused the loss of 450 lives, left 44 000 people homeless and resulted in R17 billion in infrastructural damage. This included more than 300km of railroad being damaged and significant disruptions to operations at the Durban port. During this event more than 400 of our towers were affected due to power outages, which negatively impacted our network quality. Emergency power supply to the towers was also hampered due to access roads being damaged by heavy rains.

## Resilience to transition risks

### Emissions reductions

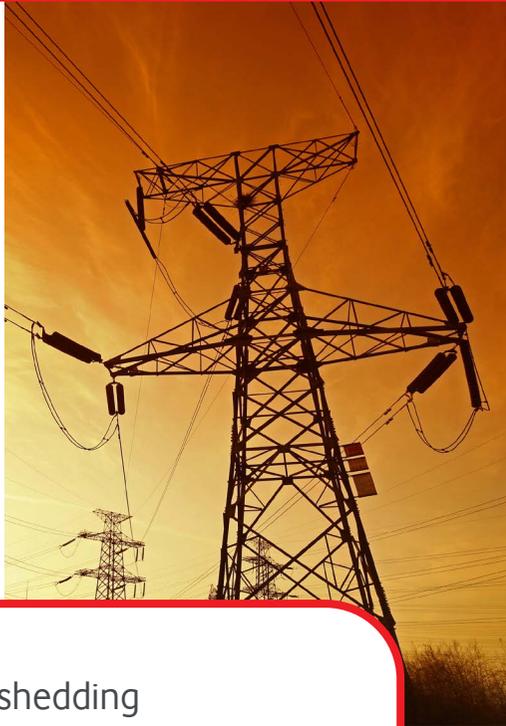
VSA has controls in the business to ensure resilience against transition risks. Under consideration is the adoption of the Vodafone Planet Commitments (see Introduction). Building into our 2025 targets we have committed to reducing our GHG emissions by 25% through the LTI ESG targets. These targets are approved by the Board and sit at the centre of our VSA planet strategy. We have successfully completed a Net Zero Roadmap which helps us to define the actions to be implemented to meet the Vodafone net-zero targets, if adopted. We are aware that transitioning our business model to become net zero by 2040, if practically possible in the South African context, will help minimise our exposure to certain transition risks.



**Resilience to transition risks** continued

**Policy and regulation**

If the global transition to a low-carbon society is achieved, we can expect this to be driven by significant changes in policy and regulation, including such initiatives as an increasingly punitive carbon tax regime. Our external affairs team and legal and tax teams monitor any new or emerging climate-related regulation. We actively engage in energy policy-making processes, both bilaterally and with others, through industry forums to understand, prepare for and respond to changing policy and regulation using our social contract as a basis for these discussions.



**Case in point**

**Our response to Eskom loadshedding**

VSA has encountered a multitude of challenges stemming from South Africa's energy crisis, which has been characterised by frequent rolling blackouts (loadshedding). These power disruptions have significantly impacted our operations and services. In response, we have undertaken strategic measures to address the situation and ensure uninterrupted connectivity for our customers. During this reporting year we have disclosed expenditure of R300 million on diesel, security and maintenance aimed at safeguarding service continuity. Furthermore, since 2020 we have allocated over R4 billion towards critical items such as batteries and generators. Vodacom's CEO, Shameel Joosub, stated that these investments played (and continue to play) a crucial role in ensuring that its customers remain connected 94% of the time during loadshedding. The detrimental effects of loadshedding are not only limited to our company but have consequences for South Africa as a whole. In acknowledgment of the urgent need to address the country's energy crisis, VSA has taken proactive steps. Last year, we announced a collaborative pilot programme with Eskom aimed at sourcing electricity from renewable independent power producers and simultaneously contributing power to the national grid. By engaging in this initiative, Vodacom aims to play a role not only in mitigating the impact of South Africa's energy challenges, but also ensuring uninterrupted service for our customers. Looking ahead, we are committed to sustaining our investment spending, allocating up to 14.5% of group revenue to capital expenditure to maintain connectivity. Furthermore, we intend to invest more than R60 billion over the next five years to enhance network resilience, accelerate 5G coverage and address the digital divide between urban and rural areas.

**Customer and other stakeholder engagement**

We communicate and report clearly and transparently on our ambitious climate strategy in order to manage our exposure to reputational risks. Lastly, we also have multiple ways of tracking consumer preferences through the research team that sits in our Consumer Business Unit (CBU). Vodacom Group monitors investor and stakeholder sentiment in relation to sustainability and takes action based on the feedback, when appropriate, for all the markets including VSA.

**Climate change opportunities**

The most significant opportunity climate change presents our business relates to developing new product lines that enable our customers (particularly enterprise customers) to decarbonise, and helping to deliver a twin digital and green transformation through our digital networks and technologies. Our connectivity solutions can help our customers, and wider society, to achieve energy and resource efficiency improvements through the use of the Internet of Things (IoT) and connected solutions. Our IoT products and services enable carbon savings, such as smart metering and fleet management. There is further potential for our products, both IoT and wider digital connectivity solutions, to accelerate the green digital transition, opening up potentially significant markets and tapping into new markets.

**Case in point**

**Ensuring affordability of our products and services**

The impacts of climate change could negatively affect the purchasing power of certain groups of our customers. Examples include the inability of rural and subsistence farmers to adequately adapt to changing climatic conditions, thereby reducing their agricultural output, while sectors of society will certainly be disrupted during the transition to low-carbon energy generation. In the South African context such sectors include the coal and transportation value chains.

Our goal is to democratise digitisation. We believe that owning a mobile phone can enhance an individual's physical and economic security; provide access to education, skills and employment opportunities; and support good health and well-being. All these factors help reinforce greater societal resilience to climate change.



Our CBU continually focuses on ensuring the affordability of our products and services, particularly to the lower Living Standards Measure (LSM) groups within our customer base as well as small and start-up business enterprises. We have introduced numerous financial solutions ranging from individual offerings such as data advancements and refurbished and/or subsidised handsets (Easy2own, Good as New, Just 4 You), local data access dependent on location (Just4Your Town), and small, medium and micro enterprise offerings (VodaLend and VodaTrade).



See our IR FY23 for more information on our tailored products and services in South Africa.



Strategy continued

**Material climate-related opportunities**

The information and communications technology (ICT) sector will play a pivotal role in global climate change mitigation and adaptation. This impact will be evident in the ability to facilitate resource efficiencies across the value chain, the adoption of clean energy sources, the development of relevant products and services that can be deployed through the use of mobile technologies and access to new sources of climate-related financing, for example. Within the VSA environment, we are pursuing the top three material opportunities (in order of priority) and have highlighted the climate change scenarios in which we believe they are most likely to be enacted.

Opportunity	Description	Potential impact	VSA response	Net Zero (Orderly)	NDC/Current Policies	Too Little; Too Late
<b>Products and services</b>	Develop climate-related solutions, enabling our customers to better manage the impacts of climate change on their lives and businesses.	Opening of new markets and customers.	IoT, Mezzanine, etc.	✔	✔	✔
		Increased revenue diversification.	Development of mobile information services responding to acute physical risks.	✔	✔	✔
		Competitive advantage.	Smart asset management and metering solutions.	✔	✔	
<b>Clean energy sources</b>	Increased use of renewable energy sources.	Ability to meet VSA GHG targets (see Metrics and Targets section).	100% renewable electricity target by 2025. On-site renewable energy generation.	✔	✔	
		Reduce our reliance on fossil fuel electricity.	Purchasing of renewable energy certificates (RECs). Negotiation for virtual wheeling platform.	✔	✔	
		Reduce energy-related operational costs.	Research and development (R&D) into alternative liquid fuels for generators and vehicles.	✔	✔	
			Integration of target key performance indicators (KPIs) into LTIs.	✔	✔	
<b>Resilience</b>	Stakeholder engagement.	Increased trust of stakeholders.	Stakeholder engagement on government's NDC and access to renewable energy.	✔	✔	
	Infrastructure resilience.	Resilience of buildings and network infrastructure to acute and chronic physical risks.	Green Building Standards for commercial buildings and green framework development for all buildings.	✔	✔	✔
	Community resilience.	Transfer of skills that enable communities to thrive using technology.	Supporting and enhancing Science, Engineering, Technology and Maths (STEM) skills in the country.	✔	✔	
			Supporting mentorship and training through digital means.	✔	✔	
Green finance.	Exploring opportunities for green funding such as green bonds.	ESG loan with Standard Bank.	✔	✔		

Case in point

**Combating climate change through digital technology, products and services**

VSA is at the forefront of this connection revolution, acting as both an enabler and an innovator. Our network systems provide the infrastructure for the IoT to function, while subsidiary companies such as IoT.nxt, Mezzanine, Xlink and Nexio are creating and innovating products that directly address many of the world's challenges, including necessary responses to climate change. Through our IoT connections, we estimate that in FY23 around 1m tonnes (FY2022: 1.6m tonnes) of CO<sub>2</sub> emissions were avoided across Africa. These avoided emissions, as calculated by the Carbon Trust, result primarily from the use of our fleet management and smart metering solutions. Already, we have introduced MyFarmWeb, which allows farmers to gather and analyse agricultural data from their operations; co-developed smart asset management and metering solutions that drive energy and other resource efficiencies across cities, large and small businesses, homes and individual customers, so reducing GHG emissions across wide value chains; and created shared distribution networks that drive carbon efficiencies in the transportation and logistics industry. Other industries that we are currently providing digital solutions for include mining, fast-moving consumer goods, health and waste.

We are currently in negotiations with the South African electricity utility, Eskom, to introduce a virtual wheeling platform that, if implemented, will equip Eskom, independent renewable energy power producers and low-voltage energy consumers to monitor and match clean energy generation and corresponding consumption in real time. This will allow Eskom, energy generators and the private sector to enter into financial arrangements that will directly address companies' GHG emission reduction targets and climate change mitigation ambitions.



# Metrics and targets

## Overview

The climate-related metrics that we monitor encompass various aspects of our operations, including energy consumption, GHG emissions, renewable energy adoption and resource efficiency. To drive improved operational efficiency in these areas, we have set targets that are both realistic but ambitious, and aligned to what we believe is best practice, including the Paris Agreement, to limit global warming to less than 2°C and as close to 1.5°C as possible. By setting clear targets, we demonstrate our commitment to making measurable progress in both mitigating and adapting to climate change risks, enhancing energy efficiency, reducing emissions and fostering a low-carbon future. We recognise that achieving these targets requires collaboration and innovation, and we remain dedicated to engaging with our stakeholders to drive meaningful change.

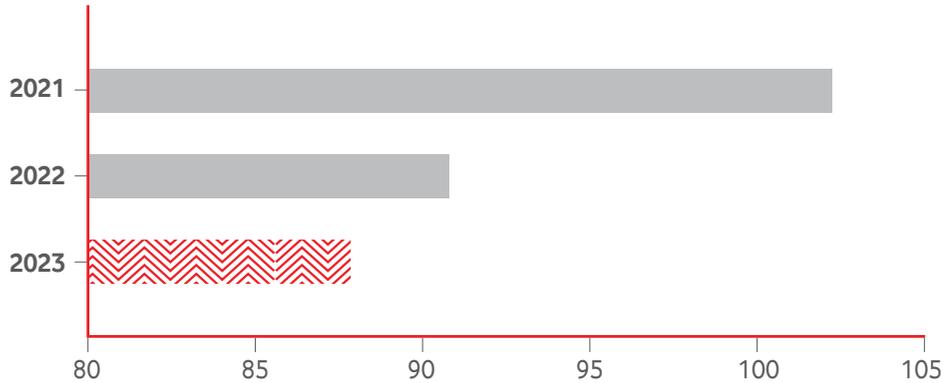
## GHG emissions

Since 2008, we have been reporting our annual GHG emissions in accordance with the internationally recognised GHG Protocol Corporate Accounting and Reporting Standard. All emissions are reported as tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e), an accepted unit of measurement used to standardise the climate effects of different GHGs.

Three-year trend analysis of total GHG emissions			
Description	Metric tonnes of CO <sub>2</sub> e		
	FY2023	FY2022	FY2021
Stationary fuel	40 129	25 544	16 098
Fugitive gas	2 554	2 234	2 314
Mobile fuel	1 199	1 214	1 100
<b>Total Scope 1</b>	<b>43 882</b>	<b>28 991</b>	<b>19 513</b>
<b>Total Scope 2-purchased electricity (market-based)</b>	<b>430 851</b>	<b>558 034</b>	<b>541 162</b>
<b>Total Scope 1 and 2</b>	<b>474 733</b>	<b>587 025</b>	<b>560 675</b>

Three-year trend in normalised GHG emissions			
Full-time employees	5 401	6 465	5 493

Scope 1 and 2 emission per FTE (in mtCO<sub>2</sub>)



## Roadmap to achieving our GHG reduction targets

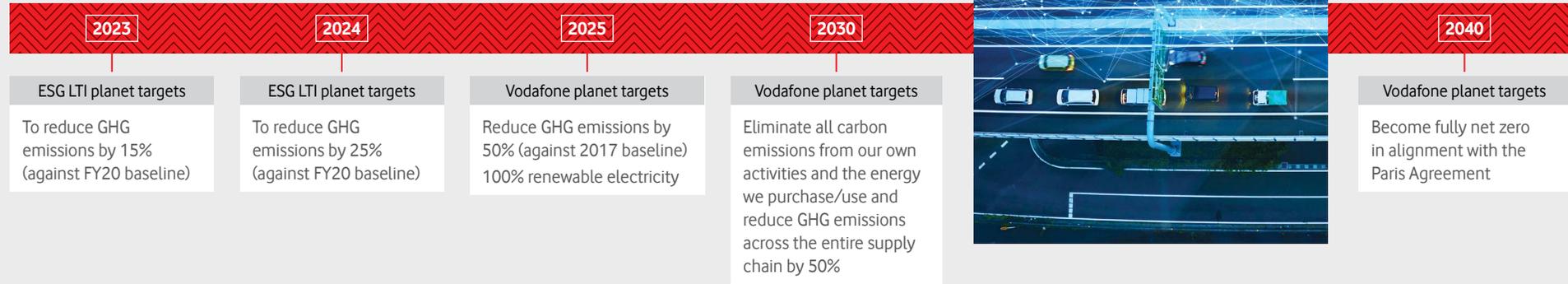
During FY23, we drew up a roadmap to help us consider the adoption of the ambitious GHG reduction targets that have been set by the Vodafone Group's science-based Net Zero target. These targets, such as using 100% renewable electricity by 2025 and eliminating all direct operational emissions by 2030, are particularly challenging in South Africa's carbon-intensive energy environment.

### The roadmap exercise covered six main areas of analysis:

- 1 A peer benchmark review across the global ICT industry and a review of technology developments in appropriate trade media.
- 2 A full gap analysis of our carbon footprint to ensure we are covering all emissions associated with our value chain.
- 3 Evaluation of GHG reduction initiatives currently being implemented, such as the on-site renewable energy installations at our Midrand campus, Techno Centre in Bellville, Century City offices and various network base stations.
- 4 Evaluation of GHG reduction potential of initiatives under investigation. This includes various energy efficiency transitions, alternative fuels and the replacement of high global warming potential and refrigerant gases.
- 5 Research and investigation into the viability of alternative reduction initiatives, especially in our upstream and downstream supply chain.
- 6 The Just Transition implications of all initiatives under consideration in meeting the targets.



Where possible, the roadmap has identified the potential contribution of all these initiatives to the VSA targets and apportioned responsibility for implementation to relevant business units. **The Vodafone targets are as follows:**



## Energy overview

We are significant energy users and are aware of the associated GHG emissions. Approximately 91% of our South African operational GHG emissions relate to our electricity consumption. It is imperative that we constantly improve our energy efficiencies and increase our consumption of clean sources of energy. In our efforts to do so, we track various energy-related usages and costs. The VSA energy profile shows energy consumption by various business areas in FY23 compared to FY22:

Source (%)	FY2023	FY2022
Access network	78	76
Core network	11	11
Data centres	7	9
Offices	4	4

## Energy metrics

	Units	FY2023	FY2022	FY2021
<b>Activity data</b>				
Base stations	Number of stations	15 297	14 982	14 635
Network traffic	Terabytes (TB)	1 155 688	837 878	646 022
<b>Energy metric</b>				
Electricity consumed	kWh	414 279 966	527 817 708	533 748 140
Diesel consumed	Litres	12 550 251	9 636 604	6 107 790
Petrol consumed	Litres	0	173 432	143 389
Renewable energy purchased	kWh	1 001 926	1 371 000	1 183 898
On-site generation of renewable energy	kWh	568 630	823 495	889 277

**Energy targets**

Sourcing  
100%

of our network electricity from renewable sources by 2025

Activity	Units	FY2023	FY2022	FY2021
Total renewable energy consumed	kWh	101 601 926 <sup>1</sup>	2 194 495	2 073 175
% of renewable energy consumed	%	20%	0.35	0.39

1. Includes RECs.

## Water metrics and targets

South Africa is a water-stressed country and under all future climate change scenarios will become more so. For this reason, the management of our water consumption is vital to ensure that we do not waste water and have adequate on-site supplies of water for our operations and employees. While marginal, water consumption also contributes to our carbon footprint.

	Units	FY2023	FY2022	FY2021
Total water consumed	Kilolitres	98 952	91 396	86 686

### Target

**75%**

reduction against a 2017 baseline by 2025.

(Water consumption for 2017 was 382 483 kl.)



### Waste management targets by 2025

**100%**  
reuse, resell or recycling of our network waste

**80%**  
reduction of single-use plastic waste

**100%**  
recycling of paper waste in offices

**90%**  
of food waste to compost

## Waste generation

Waste generated through our services and operations and the products we sell contribute towards our GHG emissions and places an additional burden on South Africa's limited waste landfill sites. Waste generation occurs both upstream (in the construction of infrastructure) and downstream (through the end-of-life treatment of sold goods, etc.) in our value chain. Our waste management policy prioritises the reuse or recycling of unwanted equipment, safely and responsibly. All our local markets are required to keep records of their e-waste and use recycling suppliers that are regulated and licensed, or have been assessed and approved through our supplier qualification processes.

### Waste metrics

Activity	Units	FY2023	FY2022	FY2021
E-waste collected for incineration	Tonnes	11.64	198	1066
E-waste collected and recycled	Tonnes	364	275	362
Batteries rejuvenated	Tonnes	5.58	112	132
Devices repaired	Number of devices	362 950	321 266	311 077
Phones recycled	Number of devices	5 105	6 398	6 538



## Conclusion and next steps

Climate change has the potential to carry profound and far-reaching implications for our society and the global economy. VSA is not immune to this and acknowledges the real and tangible risks associated with climate change phenomena which could impact operations, infrastructure, our stakeholders and our customers.

This second TCFD report represents our continued dedication to climate-related financial disclosures and, of course, responding meaningfully and strategically to climate change. Building upon the previous report, VSA has this year conducted a comprehensive scenario analysis which has allowed for greater clarity regarding potential climate-related risks and opportunities, allowing for informed decision-making and strategic planning. Challenges unique to the South African context, such as loadshedding, have made our commitment to reducing emissions arduous. Yet, we are still firm and resolute in our journey to continue implementing initiatives to enhance energy efficiency, increase the use of renewable energy sources, and minimise water and waste generation.

### Our steps forward:

- In accordance with TCFD recommendations the financial analysis of highest-priority climate-related risks and opportunities for VSA
- Consideration on implementation of the recommendations of our GHG Reduction Target Roadmap
- Engagement with suppliers on our supply chain GHG reduction strategy
- Increased procurement of renewable energy sources and pursuing virtual wheeling platform with Eskom
- Continued participation in stakeholder forums including the RAiSE Hub, the PCC and Alliances for Climate Action South Africa (ACA-SA).

We are excited to carry forward our TCFD journey, deepening our collaboration with investors and stakeholders to address the effects of climate change on our company and our actions in response. Our dedication to being a constructive and forward-thinking corporate entity in the pursuit of the transition to a just and environmentally sustainable future remains unwavering.

# Appendices

## Appendix A – Rationale for use of SSP scenarios

In our first TCFD report (2022) we elected to use three representative concentration pathway (RCP) scenarios to aid our climate change scenario analysis: i) RCP2.6 ii) RCP4.5 and iii) RCP8.5. The primary reason for this was that, at the time of publication, RCPs were the most widely available and commonly used set of scenarios in the wake of the IPCC’s AR5 report<sup>1</sup>.

RCPs are GHG concentration pathways that focus specifically on the radiative forcing of the Earth’s climate system, with radiative forcing being the measure of excess energy trapped in the Earth’s atmosphere as a result of the presence of GHG concentrations which trap heat. RCPs are used in climate modelling to assess the physical impacts of climate change, such as changes in temperature, precipitation patterns, sea-level rise and extreme weather events.

As highlighted in the body of this report, SSPs were incorporated into the most recent phase of climate modelling, CMIP6, which was used to inform the IPCC’s most recent assessment report (AR6). The SSPs represent a more holistic set of scenarios, which in addition to considering radiative forcing levels, also take into account socioeconomic factors. In this way, SSPs facilitate the integrated analysis of future climate impacts, vulnerabilities, adaptation and mitigation, inclusive of socioeconomic factors.

By using the SSP scenarios, VSA was able to perform a more extensive scenario analysis that examines and considers not only physical climate changes but also the societal, economic and policy implications associated with different future global warming pathways.

While RCPs provide a clearer understanding of physical climate impacts, SSPs offer a more comprehensive analysis by considering the socioeconomic context within which those impacts occur. This combination allows for a more holistic assessment of risks and opportunities, helping organisations develop strategies that are robust across a range of potential futures.



1. IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland.



## Appendix B – VSA Climate Risk Register

### Physical risks



Identified physical risks under different climate change scenarios with potential material impact

IPCC SSP comparative scenario	Net Zero 2050 (Orderly)		NDC/Current Policies		Too Little, Too Late	
	SSP 1-1.9		SSP 2-4.5		SSP 5-8.5	
Timeframe	Near-term (2020-2035)	Medium-term (2035-2050)	Near-term (2020-2035)	Medium-term (2035-2050)	Near-term (2020-2035)	Medium-term (2035-2050)
<b>Physical risk (acute)</b>						
<b>Increased number of very hot days in a year above 35°C</b>	Possible likelihood Low-medium impact	Possible likelihood Medium-high impact	Possible likelihood Medium-high impact	Possible likelihood High	Possible likelihood High	Possible likelihood High
<b>Drought</b>	Possible likelihood Low impact	Possible likelihood Low impact	Possible likelihood Low impact	Possible likelihood Medium-high impact	Possible likelihood Medium-high impact	Possible likelihood High impact
<b>Wildfires</b>	Possible likelihood Low impact	Possible likelihood Low impact	Possible likelihood Low-medium impact	Possible likelihood Medium impact	Possible likelihood High impact	Possible likelihood High impact

**Potential medium to high generic impact on business**

**Brand:** Reputational damage if VSA perceived as unresponsive to stakeholder needs arising from impacts of very hot days – e.g. employees exposed to health risks such as heat exhaustion

**Customers:** Health risks, disruptions in quality of service due to power outages due to increased energy use for cooling

**Employees:** Heat discomfort leading to lower levels of productivity

**Opex, Capex and capital allocation:** Higher energy costs due to higher levels of cooling and maintenance costs, higher costs due to need to purchase new and more efficient cooling systems

---

**Stakeholders and brand:** Reputational damage if VSA operations seen as water intensive

**Opex, Capex and capital allocation:** Higher energy costs due to higher levels of cooling, increased maintenance costs (e.g. infrastructural damage which may emerge as a result of drought), costs due to need to purchase new and more water systems (e.g. cooling/hygiene systems), potential for increase in fire-proofing protection measures

---

**Stakeholders and brand:** Risk if not well managed by VSA

**Customers:** Disruptions in quality and coverage of service due to fire-damaged infrastructure (e.g. cell towers, fibre optic cables, etc.)

**Employees:** Safety risks and health risks

**Opex, Capex and capital allocation:** Risk if repairs to infrastructure are required, emergency response measures/contingency planning required, investment in infrastructure resilience/hardening/upgrades, need to increase fire-proof protection measures

**Access to capital:** If not well managed by VSA, potential Exists of lack of access to green capital



## Appendix B – VSA Climate Risk Register continued

### Physical risks continued



Identified physical risks under different climate change scenarios with potential material impact

IPCC SSP comparative scenario	Net Zero 2050 (Orderly)		NDC/Current Policies		Too Little, Too Late	
	SSP 1-1.9		SSP 2-4.5		SSP 5-8.5	
Timeframe	Near-term (2020-2035)	Medium-term (2035-2050)	Near-term (2020-2035)	Medium-term (2035-2050)	Near-term (2020-2035)	Medium-term (2035-2050)
<b>Physical risk (acute)</b>						
<b>Heavy rainfall events (&gt;20 mm in a day)</b>	Possible likelihood Low impact	Possible likelihood Low impact	Possible likelihood Low impact	Possible likelihood Medium impact	Possible likelihood Medium impact	Possible likelihood High impact
<b>Physical risk (chronic)</b>						
<b>Rising mean temperatures</b>	Possible likelihood Low impact	Possible likelihood Low impact	Possible likelihood Low impact	Possible likelihood Low-medium impact	Possible likelihood Medium-high impact	Possible likelihood Medium-high impact

**Potential medium to high generic impact on business**

**Customers:** Disruptions in quality of service due to power outages/damaged infrastructure  
**Operations:** Risk if not well managed by VSA, additional maintenance requirements due to damaged infrastructure  
**Employees:** Work site inaccessibility/safety risk (needing to work at flooded sites/replacing damaged infrastructure)  
**Opex, Capex and capital allocation:** Risk if VSA property impacted and repairs/maintenance needs to be undertaken, emergency response measures/contingency planning, increased costs relating to flood-proofing infrastructure, investment in infrastructure resilience/hardening/upgrades, additional back-up power systems  
**Access to capital:** If not well managed by VSA, potential exists of lack of access to “green” capital

**Potential medium to high generic impact on business**

**Stakeholders and brand:** Reputational damage if not well managed by VSA  
**Customer:** Potential of loss of purchasing power  
**Operations:** New systems required (especially cooling) and more maintenance of systems  
**Employees:** Heat discomfort resulting in lower productivity  
**Opex and Capex:** Higher energy costs due to higher levels of cooling, increased maintenance/repair costs, higher costs due to need to purchase new and more efficient cooling systems and general infrastructure upgrades  
**Access to capital:** If not well managed by VSA, potential exists of lack of access to “green” capital



## Appendix B – VSA Climate Risk Register continued

### Transition risks



Identified transition risks under different climate change scenarios with potential material impact

IPCC SSP comparative scenario	Net Zero 2050 (Orderly)		NDC/Current Policies		Too Little, Too Late				
	SSP 1-1.9	SSP 2-4.5	SSP 2-4.5	SSP 2-4.5	SSP 5-8.5	SSP 5-8.5			
<b>Timeframe</b>	Near-term (2020-2035)	Medium-term (2035-2050)	Near-term (2020-2035)	Medium-term (2035-2050)	Near-term (2020-2035)	Medium-term (2035-2050)			
<b>Transition risk</b>	<b>Risk description</b>								
<b>Policy and regulation</b>	Increase of carbon tax implications		Likely Low-medium impact	Likely High impact	Possible Low-medium impact	Possible Unknown impact	Rare/Never Low impact	Rare/Never Low impact	<b>Potential medium to high generic impact on business</b>  <b>Brand:</b> Reputational damage if paying high carbon taxes <b>Revenue:</b> Decreased revenue due to higher taxation costs <b>Capital allocation:</b> Capital directed towards low-carbon infrastructure and assets <b>Access to capital:</b> Unavailability of “green” finance if seen as carbon-intensive  <b>Brand:</b> Reputational damage if not contributing towards national ambitions <b>Operations:</b> Introduction of new low-carbon operations and systems in response <b>Capital allocation:</b> Capital directed towards low-carbon infrastructure and assets  <b>Employees:</b> Employees may need to adapt to new systems <b>Operations:</b> Adoption of energy-efficient and low-GHG systems <b>R &amp; D investment:</b> R&D development costs into energy-efficient and low-GHG systems <b>Capex:</b> Costs in alternative energy/low-GHG assets <b>Acquisitions and divestment:</b> Might affect investment decisions due to potential high-GHG emitting entities  <b>Stakeholders and brand:</b> Reputational and brand loss if seen as a carbon-intensive company and not meeting GHG reduction targets <b>Customers:</b> Reputational and brand loss might translate into customer loss <b>Operations:</b> Disruption to systems in effort to meet GHG targets <b>Opex and revenue:</b> Inability to capture low-energy savings, revenue could decrease due to increased costs of energy <b>Access to capital:</b> Inability to access green or climate finance. Low credit ratings
	Increased ambition in national GHG reduction targets		Highly likely Low-medium impact	Highly likely High impact	Highly likely Low-medium impact	Highly likely Unknown impact	Rare/Never Low impact	Rare/Never Low impact	
<b>Technology risks</b>	Increased and new costs of equipment to transition to low-carbon economy, including increased costs to obtain RECs		Likely Medium impact	Likely Medium impact	Possible Low-medium impact	Possible Low-medium impact	Rare/Never Low impact	Rare/Never Low impact	
	Increased energy use and GHG emissions in rollout of 5G and additional spectrum		Likely High impact	Likely High impact	Likely Low impact	Likely Low-medium impact	Likely Low impact	Likely Low impact	



## Appendix B – VSA Climate Risk Register continued

### Transition risks continued



Identified transitional risks under different climate change scenarios with potential material impact

IPCC SSP comparative scenario	Net Zero 2050 (Orderly)		NDC/Current Policies		Too Little, Too Late				
	SSP 1-1.9	SSP 2-4.5	SSP 1-1.9	SSP 2-4.5	SSP 5-8.5	SSP 5-8.5			
Timeframe	Near-term (2020-2030)	Medium-term (2030-2050)	Near-term (2020-2030)	Medium-term (2030-2050)	Near-term (2020-2030)	Medium-term (2030-2050)			
Transition risk	Risk description								
<b>Technology risks</b> (continue)	Continued loadshedding by national electricity utility	Likely High impact	Likely High impact	Likely High impact	Likely High impact	Likely High impact	Likely High impact	<b>Potential medium to high generic impact on business</b>  <b>Customers:</b> Unknown – potential for costs to be passed on to customer <b>Operations:</b> Disruption to systems in effort to meet GHG targets <b>R&amp;D investment:</b> Investment in alternative energy might be associated with high R&D investment <b>Opex, Capex and capital allocation:</b> Impact of costs of running generators, UPS backup and diesel and other backup technologies; cost of energy; redirection of capital towards alternative energy sources and backup technologies <b>Acquisitions and divestment:</b> Might affect investment decisions due to potential high-GHG-emitting entities	
<b>Market</b>	National investment required in energy transition	Very likely Medium-high impact	Very likely Medium-high impact	Possible Medium impact	Possible Medium impact	Rare/Never Low impact	Rare/Never Low impact		<b>Customers:</b> Unknown – depends on economic health of country and Just Transition <b>Operations:</b> Transition to low-GHG systems <b>Employees:</b> Employees needing to adapt to new low-GHG systems <b>R&amp;D investment:</b> R&D into energy-efficient and low-GHG systems <b>Opex, Capex and capital allocation:</b> Cost of energy could increase, significant expenditure on energy-efficient and low-GHG systems <b>Revenue:</b> Impact of Capex and Opex
	Negative impact on GDP	Possible Low impact	Possible Low impact	Possible Low impact	Possible Low-medium impact	Likely Medium impact	Likely Medium impact		
<b>Reputational</b>	Pressure from stakeholders to “decarbonise” products and services	Likely High impact	Likely High impact	Possible Medium-high impact	Possible Medium-high impact	Rare/Never Medium impact	Rare/Never Medium impact	<b>Stakeholders and brand:</b> Reputational loss if unable to meet GHG reduction targets, greenwashing allegations if VSA claims to reduce GHG emissions through unverified mechanisms <b>Operations:</b> Transition to low-GHG systems <b>Employees:</b> Employees need to adapt to new low-GHG systems <b>R&amp;D investments:</b> R&D into energy-efficient and low-GHG systems <b>Opex, Capex and capital allocation:</b> Expenditure on low-GHG technologies and systems <b>Access to capital:</b> Increase in cost of capital if VSA perceived as a climate risk	



**Appendix B – VSA Climate Risk Register continued**

Opportunity	Description	Potential impact	VSA response	Net Zero (Orderly)	NDC/Current Policies	Too Little, Too Late
<b>Products and services</b>	Develop climate-related solutions, enabling our customers to better manage the impacts of climate change on their lives and businesses	Opening of new markets and customers	IoT, Mezzanine, etc	✓	✓	✓
		Increased revenue diversification	Development of mobile information services responding to acute physical risks	✓	✓	✓
		Competitive advantage	Smart asset management and metering solutions	✓	✓	
<b>Clean energy sources</b>	Increased use of renewable energy sources	Ability to meet VSA GHG targets (see Metrics and targets section)	100% renewable electricity target by 2025	✓	✓	
			On-site renewable energy generation	✓	✓	
		Reduce our reliance on the national electricity grid	Purchasing of RECs	✓	✓	
			Negotiation for virtual wheeling platform	✓	✓	
		Reduce energy-related operational costs	R&D into alternative liquid fuels for generators and vehicles	✓	✓	
			Integration of target KPIs into LTIs	✓	✓	
<b>Resilience</b>	Stakeholder engagement	Increased trust of stakeholders	Stakeholder engagement on government's NDC and access to renewable energy	✓	✓	
	Infrastructure resilience	Resilience of buildings and network infrastructure to acute and chronic physical risks	Green Building Standards for commercial buildings and green framework development for all buildings	✓	✓	✓
	Community resilience	Transfer of skills that enable communities to thrive using technology	Supporting and enhancing STEM skills in the country Supporting mentorship and training through digital means	✓	✓	
<b>Resource efficiency</b>	Improved energy, water and waste efficiencies of buildings, equipment and network	Lower resource use	Adopt Green Building Standards for commercial buildings and green framework development for all buildings	✓	✓	
		Lower GHG emissions		✓	✓	
		Reduced resources costs	Implement energy and carbon management systems	✓	✓	
		Reduced carbon taxation per unit of output	Free cooling of base stations	✓	✓	
<b>Markets</b>	Access to green finance	Lower cost of capital	Achieving and maintaining high ESG ratings through various ESG rating agencies such as MSCI, ISS and Sustainalytics	✓	✓	
		Favourable finance for GHG reduction projects		✓	✓	

