

Vodafone Group Plc

Task Force on Climate-related Financial Disclosures ('TCFD') Report 2022



Together we can



A message from our Chief Executive

**Nick Read**

Chief Executive

As the COP26 UN Climate Change Conference in Glasgow highlighted, urgent and sustained action is required to address the climate emergency. At Vodafone, we believe business success should not come at a cost to the environment, and we are committed to reducing the impact of our activities. We also see a 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.

This year we reached a key milestone in our journey to net zero by 2040, achieving our goal to purchase 100% renewable electricity in all our European markets. We are working to achieve the same in Africa by 2025. As part of this commitment, we are also placing significant focus on innovative sustainable power solutions that can be deployed at scale, for example, working with external organisations to develop self-powered mobile masts and install micro turbines.

We are also aware that climate change poses risks to our business and industry, as well as broader society. As part of our commitment to operate ethically and sustainably, we strive to understand climate-related risks and opportunities and embed responses to these into our business strategy and operations.

Over the last year we continued to build on our previous climate scenario work and considered our resilience against key climate-related risks and opportunities. As this report demonstrates, we are using the insights to better understand mitigating controls, engage the relevant stakeholders across the business and identify ways to further embed climate risk into our risk management system and processes.

Reflecting the growing need to ensure our approach is integrated into our strategy, this year the Board formally approved the establishment of a new Committee of the Board, the ESG Committee. Chaired by Amparo Moraleda, the role of the Committee is to provide oversight of Vodafone's Environment, Social and Governance ('ESG') programme, sustainability and responsible business practices. The Committee also provides oversight of Vodafone's contribution to the societies we operate in under our social contract, which is the partnership we wish to develop with governments, policy makers and civil society.

Though we acknowledge there is always more we can do, we are pleased to present our progress towards meeting the recommendations of the Task Force on Climate-related Financial Disclosures ('TCFD'), in our second standalone TCFD Report.

Nick Read

Chief Executive

Overview

About the Task Force on Climate-related Financial Disclosures

The aim of the Task Force on Climate-related Financial Disclosures (TCFD) is to improve transparency of organisations' climate-related risks and opportunities so that investors can make informed decisions on where to deploy their capital. In June 2017, the TCFD released their recommendations, providing a global framework for companies and other organisations to develop more effective climate-related financial disclosures through their existing reporting processes. Since then, the global momentum behind the TCFD work has grown significantly and subsequently, multiple jurisdictions have proposed or finalised regulations which require disclosures similar or aligned to the TCFD framework.

The TCFD structures the recommendations around four thematic areas that are core elements of how organisations operate, as shown in Figure 1. Under the core elements are a total of 11 recommendations setting out the information that companies should disclose to provide transparency and stability in the face of climate-related risks and opportunities.

We recognise that climate change poses physical and transitional risks, as well as opportunities for our business. This includes both physical risks caused by the increased frequency and severity of climate and weather events, and transitional risks associated with economic, technology or regulatory changes related to the move towards a greener economy. We routinely consider the effects of climate change in our strategic and business planning so that we can maximise the value we bring to our customers, investors and the communities where we operate. We also monitor changes in the business landscape and markets to understand where there may be opportunities resulting from the transition to a low-carbon economy.

We published our first standalone TCFD Report in 2021. In this year's report we have adopted the structure from the TCFD guidance to share our progress against the recommended disclosures. During FY22, our TCFD programme focused on improving our understanding of our resilience against the material climate-related risks. We are excited to share our progress to date throughout this report.

Figure 1

Core elements of recommended climate-related financial disclosures



Recommendations of the Task Force on Climate-related Financial Disclosures, June 2017

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TCFD recommendations

We have been aligning our internal processes with the recommendations of the TCFD for the last three years and will continue to enhance our policies, processes and reporting with respect to the TCFD recommendations. We have considered our 'comply or explain' obligation under the UK's Financial Conduct Authority Listing Rules and have detailed in the table below the 11 TCFD recommendations with which we fully or partially comply. We are fully compliant with eight out of 11 TCFD recommendations for the year ended 31 March 2022.

There are certain recommendations, listed below, where we are currently only partially compliant:

– **Strategy (financial planning):** The majority of the identified material climate-related risks could impact us most significantly in the long term, whereas our current financial planning cycle extends out to five years.

As a result, we do not currently fully disclose impacts of climate-related risks and opportunities in the context of financial planning.

– **Metrics and targets (physical risks):** We currently disclose metrics and targets related to the climate-related transition risks as Planet is one of our three purpose pillars. The physical climate-related risks that we have identified are more likely to materialise over the longer term and are therefore more difficult to model. As a result, we do not currently disclose metrics and targets related to physical risks but we continue to work on improving the quality and quantity of data to address the gaps.

As industry practices evolve and our internal programme matures we will address the gaps in our climate-related risk management approach over the medium term. We will also continue to enhance our policies, processes and reporting with respect to the TCFD recommendations.

TCFD recommendations

Governance	Progress	Page number
a. Describe the board's oversight of climate-related risks and opportunities	Compliant	6
b. Describe management's role in assessing and managing climate-related risks and opportunities	Compliant	6
Strategy	Progress	Page number
a. Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term	Compliant	8
b. Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning	Partially compliant	7
c. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	Compliant	13
Risk Management	Progress	Page number
a. Describe the organisation's processes for identifying and assessing climate-related risks	Compliant	14-15
b. Describe the organisation's processes for managing climate-related risks	Compliant	15
c. Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management	Compliant	14-15
Metrics and Targets	Progress	Page number
a. Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process	Partially compliant	16-17
b. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks	Compliant	16
c. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets	Partially compliant	16-17

Our progress on climate strategy

Evolving our approach to TCFD

The timeline below shows a summary of how we have integrated the TCFD programme into our strategy and operations over the years. Similar to last year's disclosure, we have once again opted to publish a standalone TCFD Report to enable us to provide more detailed information for investors and other interested stakeholders in a more accessible format. This TCFD Report should be read in conjunction with our other disclosures on climate change and wider Environmental, Social and Governance ('ESG') commitments in the Annual Report and ESG Addendum.



Click to read our Annual Report
[vodafone.com/ar2022](https://www.vodafone.com/ar2022)



Click to read our ESG Addendum
investors.vodafone.com/esgaddendum

Figure 2

Vodafone's climate journey

TCFD gap analysis undertaken

We undertook a gap analysis of Vodafone's readiness to disclose in line with the TCFD recommendations which highlighted key areas for improvement. The outputs formed the basis of our TCFD programme.

Initial identification and assessment of climate-related risks and opportunities

We performed an initial exercise to identify climate-related risks and opportunities for Vodafone, assessed their materiality and conducted initial high-level qualitative scenario analysis.

First TCFD disclosure

Our 2020 Annual Report included a summary of the TCFD alignment, as well as an initial view of the key climate-related risks and opportunities. We also stated our commitment to continue aligning internal processes with the TCFD recommendations.

Climate scenario analysis and advanced impact modelling

We completed a climate scenario analysis for a subset of our material risks to better understand the potential impact under three different climate scenarios.



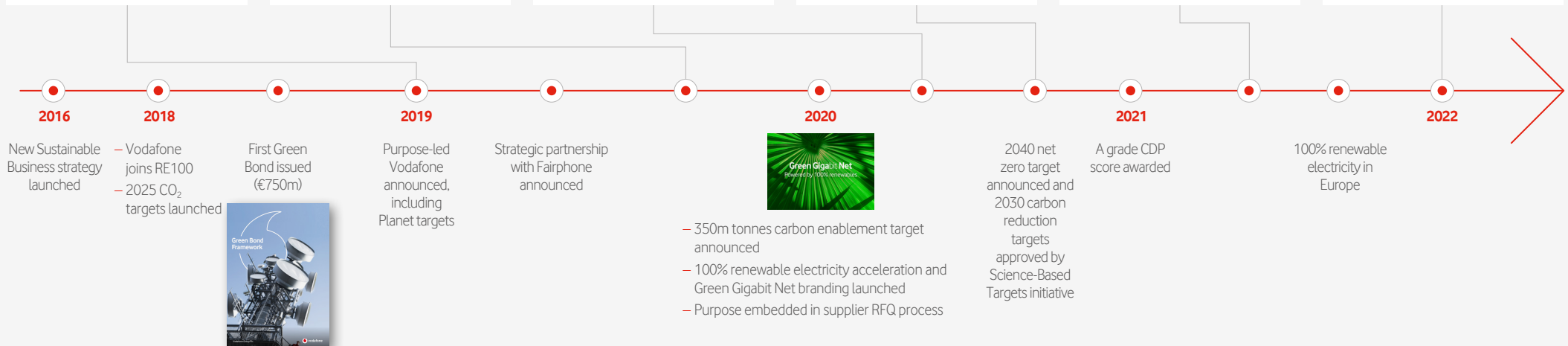
More information on this can be found on pages 10-12

First TCFD Report

We published our first standalone TCFD Report in 2021 to detail the progress made to date to align with the TCFD recommendations, with a breakdown of each TCFD element.

TCFD disclosure mandatory in the UK

As of 2022, companies with a premium listing on the London Stock Exchange ('LSE') are required to publish climate-related disclosures on a 'comply or explain' basis.

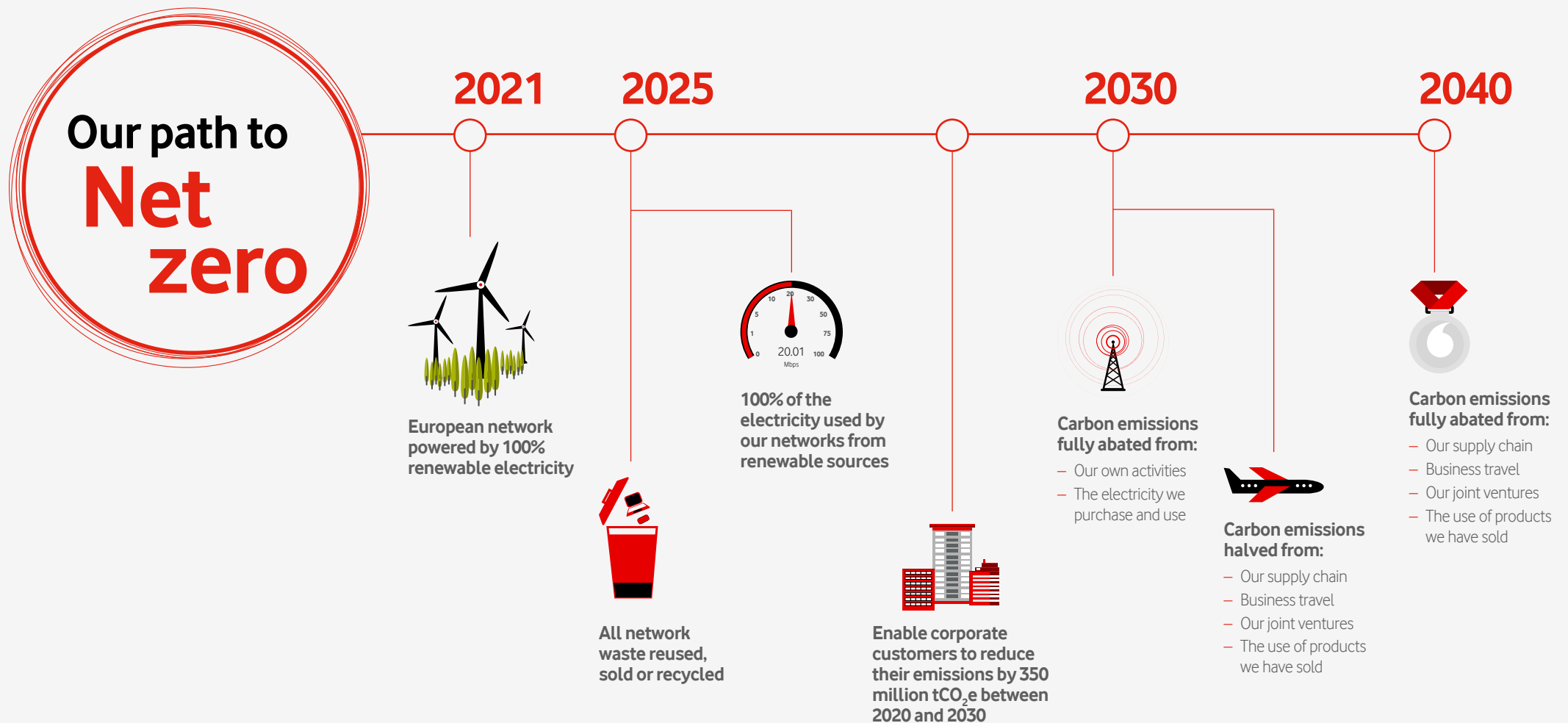


Our progress on climate strategy continued

Committed to reaching net zero

We are committed to reaching net zero for our own operations by 2030, and for our full carbon footprint by 2040. Our 2030 carbon reduction targets have been approved by the Science Based Targets initiative as in line with reductions required to keep warming to 1.5°C, the most ambitious goal of the Paris Agreement.

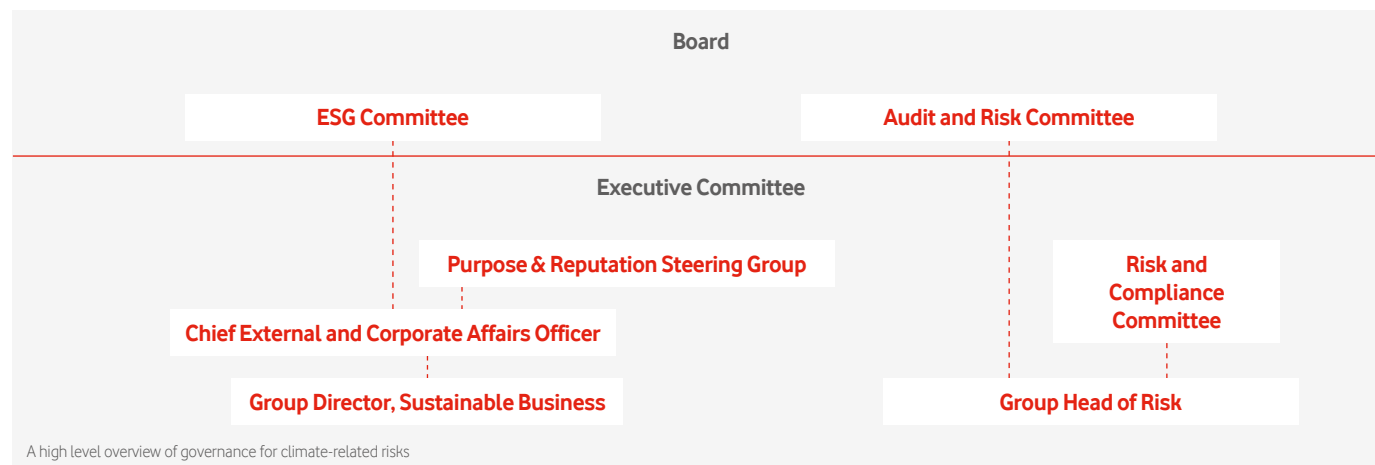
By 2030, we will fully abate all carbon emissions from our own activities and from energy we purchase and use (Scope 1 and 2). We will also halve carbon emissions from Scope 3 sources, including joint ventures, all supply chain purchases, the use of products we have sold and business travel. By 2040, we will have fully abated Scope 3 emissions – bringing forward by 10 years our original 2050 ambition to reach net zero across our full carbon footprint.



Governance

Ensuring accountability and responsibility for climate-related risks and opportunities

Climate governance



Governance is defined in the TCFD recommendations as “a set of relationships between an organisation’s management, its board, its shareholders, and other stakeholders. Governance provides the structure and processes through which the objectives of the organisation are set, progress against performance is monitored, and results are evaluated.” It is recommended that organisations establish and disclose appropriate internal governance processes for climate-related risks and opportunities.

Board oversight

Our strategy is approved by the Board, and as part of this the Board has reviewed Vodafone’s purpose and Planet commitments to reduce our environmental impact, such as reaching ‘net zero’ emissions by 2040. The Board oversees progress against our strategic targets on an ongoing basis and approves disclosures contained in the Annual Report.

To ensure the Board has sufficient oversight of Vodafone’s sustainable business strategy and performance, including climate-related targets, the Board established an Environment, Social, and Governance (‘ESG’) Committee in 2021. The Committee is chaired by Amparo Moraleda, a Non-Executive Director, and is responsible for approving the ESG strategy, including climate-related targets and KPIs, and monitoring progress.

On an annual basis, the proposed principal risks, watchlist risks and emerging risks are reviewed and approved by the Executive Committee (‘ExCo’) before being submitted to the Board’s Audit and Risk Committee (‘ARC’) and the Board. In addition, the ARC has oversight of the material climate-related risks, as well as an overview of the level and effectiveness of key controls in place to manage the risks, which are reported on an annual basis.

Management’s role

The Chief External and Corporate Affairs Officer, a member of the Executive Committee, is the sponsor for the Planet agenda as part of our purpose-led strategy and has overall accountability for climate change action within the Group. This includes providing updates to the Board on the progress towards our climate-related goals.

Reporting to the Chief External and Corporate Affairs Officer is the Group Director, Sustainable Business & Foundation, who has accountability for the sustainable business strategy, including the UN Sustainable Development Goals (‘SDG’) agenda. The Head of Sustainable Business is responsible for developing and executing the strategy and providing updates that include any climate-related issues of relevance to Vodafone that can be communicated to the Executive Committee when required.

The Head of Sustainable Business manages the Sustainable Business team that includes the Environment Manager, whose responsibilities include creation, monitoring and reporting on climate change programmes and targets, such as our carbon reduction goals, Science-Based Targets commitment, and Planet agenda actions.

Given energy usage is a material part of our climate change impact, the Chief Technology Officer (‘CTO’) has the responsibility for energy use and managing the performance of the network, including overseeing energy efficiency improvements. In addition, as the most significant physical risks to Vodafone are the damage to infrastructure and interruption or reduction in the quality of our services, our CTO is ultimately responsible for managing the physical climate-related risks.

Covering the climate impacts to our business, the Group Head of Risk has led the TCFD programme that is discussed throughout this report. Climate change risk and progress on aligning the TCFD recommendations have been reported to the Executive Committee and other key stakeholders through our annual principal risk assessment process and through meetings with the sponsoring executives.

Next steps in our TCFD programme:

We will continue evolving our governance and decision-making related to climate-related risks and opportunities. We are also looking to introduce joint ESG Committee and ARC meetings, when appropriate, to review broader ESG disclosures as well as climate-related risks.

Strategy

Building climate resilience into our business strategy

Strategy is defined in the TCFD recommendations as: “an organisation’s desired future state. An organisation’s strategy establishes a foundation against which it can monitor and measure its progress in reaching that desired state. Strategy formulation generally involves establishing the purpose and scope of the organisation’s activities and the nature of its businesses, taking into account the risks and opportunities it faces and the environment in which it operates.” It is recommended that organisations disclose the nature and impact of their material climate-related risks and opportunities, as well as the resilience of their strategy under each climate scenario chosen.

We recognise that both climate-related risks and opportunities have the potential to impact our business. We have therefore taken the necessary steps recommended by the TCFD to identify and assess the potential materiality of the risks and the opportunities, so we can maximise the positive impacts and minimise the negative impacts on our business.

In 2019, we conducted an initial identification and assessment of climate-related risks and opportunities. We identified 11 climate-related risks and three climate-related opportunities that we had assessed to have the potential to materially impact our business. Material risks are those that could have a significant effect on our operations, strategy, and financial planning if they are not managed appropriately. Material opportunities, when taken, will improve not just our financial performance, but also reduce our impact on the planet and in some cases, enable other organisations and individuals to reduce their impact as well.


Following the initial climate risk assessment, we adopted three scenarios in line with the Bank of England’s reference climate scenarios, as outlined in their consultation document released in December 2019 as described in

Figure 9. We chose the following time horizons for the scenario analysis: short-term (2020-2025), medium-term (2026-2035), and long-term (2036-2050). We used the outputs of the high-level impact analysis for all material climate-related risks identified under the three different scenarios and over different time horizons to better understand the potential impact of climate-related risks and opportunities on our business. We have also carried out more advanced scenario modelling for the potential impact of seven of these risks in our largest markets: Germany, Italy, the United Kingdom, Spain and South Africa. The top risks used for the scenario analysis for the Group as well as the five key markets are listed in Figure 4.

The scenario analysis allowed us to be more targeted in understanding the current resilience we have against climate related-risks and focus on developing the right further mitigation strategies at the Group, as well as in our local markets where necessary. Figures 5, 6 and 7 summarise the findings and highlight, at the Group level, the magnitude and potential impact of each risk and opportunity and how they respond under the different scenarios and different time horizons.

This year, we undertook an exercise to refresh the top climate-related risks and opportunities to ensure that we are incorporating any changing climate trends or science, as well as new risks and opportunities. We updated the timeframes for this year’s materiality review, compared to what we used for the previous year’s assessments and the high-level scenario analysis covered in this report. During this exercise we considered the following time horizons: short-term (2022-2024), medium-term (2024-2027), long-term (2027-2032), and very long-term (2032-2050). We considered a number of factors to select actionable time frames, including the rapid change we have seen in the last couple of years with new climate-related legislation, the volatility of energy prices, the latest United Nations Intergovernmental Panel on Climate Change (‘IPCC’) report, and COP26. The short-term time horizon better aligns to our risk management framework. Medium-term is more appropriately aligned to the timeframes used internally for planning purposes. The long-term time horizon was chosen to capture the pivotal change year of 2030.

The exercise confirmed that the identified risks and opportunities remain largely unchanged from the previous assessment, although some require more attention in the short term due to the macroeconomic environment.



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Key highlights
100% renewable electricity in Europe – This year we reached a key milestone in our journey to net zero by 2040, achieving our goal to purchase 100% renewable electricity in all our European markets from July 2021. We are working to achieve the same in Africa by 2025.

We also added a new opportunity during this year’s assessment in relation to sustainable procurement which was not identified back in 2019. The latest list of material climate-related risks and opportunities is outlined in Figure 3.

As the COP26 UN Climate Change Conference in Glasgow highlighted once again, urgent and sustained action is needed. We have already been progressing through a multi-year plan to respond to climate change as part of our Planet agenda, one of the three pillars of our purpose. ESG issues are an integral part of our purpose and strategy to be a new generation connectivity and digital services provider for Europe and Africa, enabling an inclusive and sustainable digital society. Our responses to the challenges caused by climate change have been incorporated in various business activities. For example, we have been measuring and reporting on energy and carbon emissions since 2001 and have been responding to CDP’s climate change questionnaire since 2010. In addition, as part of our commitment to sustainability, we have designed a Sustainable and Sustainability-linked Framework under which we can issue green, social, sustainability and sustainability-linked funding instruments to finance or refinance projects enabling us to meet our environmental and/or social objectives.

We also recognise that the long-term nature of some of our climate-related risks as well as data modelling challenges make it difficult to make assumptions to further embed climate-related risks in our financial planning process. We will look for ways to mature our TCFD programme to address these challenges.

Strategy continued

Figure 3 Vodafone's material climate-related risks and opportunities

Category	Category overview	Risk/ Opportunity	Time horizon
Physical risks	Risks related to the physical impacts of climate change, both event driven (acute) and longer-term shifts (chronic) in climate patterns, and which may have financial implications for organisations.	Damage to infrastructure caused by increasing frequency and severity of extreme weather events, including wildfires, flooding, and storms	●
		Damage to infrastructure caused by sea level rise	●
		Interruption or reduction in the quality of our wireless services due to increased precipitation	●
Transition risks	Growing external pressures and demands for action negatively impact revenues from those companies late to react, and trigger an increase in taxation and energy prices.	Changing consumer preferences impacting our revenues and market share	●
		Increasing energy consumption due to increased global temperatures	●
		Changing cost of carbon impacting costs to meet our net zero target	●
		Increasing risk of litigation around climate action	●
		Increase in carbon taxation	●
		Changes in regulation over infrastructure efficiency	●
		Increasing scrutiny by investors and failure to meet environmental targets impacting reputation	●
		Third-party dependency impacting our ability to meet carbon targets and improve efficiencies	●
Opportunities	A shifting business landscape in a net zero world opens new market and investment opportunities.	Improvement in market valuation as a result of changing investor expectations with regard to climate change and our broader ESG performance	●
		Improvement in access to capital due to our sustainability performance	●
		Increasing consumer attractiveness and ability to meet net zero targets through increased energy efficiency and enablement qualities of products and services	●
		Reduced costs through sustainable procurement	●

- Short-term
- Medium-term
- Long to very long-term

Strategy continued

Figure 4

Vodafone's climate-related risks and opportunities by market

This page highlights the top material climate-related risks and opportunities under a business as usual scenario across the Group and the five markets reviewed as part of the climate modelling project. This is the current climate trajectory and represents risks under a worst case impact to Vodafone scenario.

Top Group risks**Top Group opportunities**

Target failure compliance cost

Improvement in Vodafone's share price as a result of sustainability performance

Change in cost of carbon offsets

Change in availability and cost of capital as a result of sustainability performance

Damage to/ loss of infrastructure from sea level rise

Improvement in energy efficiency of products

UK:**Top risks****Top opportunities**

Damage to/ loss of infrastructure from sea level rise (high level analysis only)

Improvement in energy efficiency of products

Change in energy consumption in infrastructure

Development of new product lines enabling customers to better manage climate-related impacts

Damage to infrastructure from flooding

Damage to infrastructure from fire

Spain:**Top risks****Top opportunities**

Damage to/ loss of infrastructure from sea level rise

Improvement in energy efficiency of products

Change in energy consumption in infrastructure

Development of new product lines enabling customers to better manage climate-related impacts

Damage to infrastructure from fire

Damage to infrastructure from flooding

Germany:**Top risks****Top opportunities**

Damage to/ loss of infrastructure from sea-level rise

Improvement in energy efficiency of products

Change in energy consumption in infrastructure

Development of new product lines enabling customers to better manage climate-related impacts

Damage to infrastructure from fire

Damage to infrastructure from flooding

Italy:**Top risks****Top opportunities**

Damage to/ loss of infrastructure from sea level rise (high level analysis only)

Improvement in energy efficiency of products

Damage to infrastructure from fire

Development of new product lines enabling customers to better manage climate-related impacts

Damage to infrastructure from flooding

Change in energy consumption in infrastructure

South Africa:**Top risks****Top opportunities**

Damage to infrastructure from fire

Improvement in energy efficiency of products

Damage to infrastructure from flooding

Development of new product lines enabling customers to better manage climate-related impacts

Change in energy consumption in infrastructure

Damage to/ loss of infrastructure from sea level rise (high level analysis only)



Please note the information on this page is based on the high-level scenario analysis conducted in FY21

Strategy continued

Figure 5

Transition risk impact on Vodafone by time horizon and climate scenario

	Climate factor	Risk	Scenario	Time horizons		
				Short-term (2020-2025)	Medium-term (2025-2035)	Long-term (2035-2050)
Risk: Transition	Consumer preferences	Loss of customers	1	●	●	●
			2	●	●	●
			3	●	●	●
	Temperature	Cooling utilities consumption	1	●	●	●
			2	●	●	●
			3	●	●	●
	Offsets	Emissions offset cost	1	●	●	●
			2	●	●	●
			3	●	●	●
	Litigation	Climate litigation	1	●	●	●
			2	●	●	●
			3	●	●	●
	Carbon taxation	Carbon taxation	1	●	●	●
			2	●	●	●
			3	●	●	●
	Regulation	Energy efficiency regulation	1	●	●	●
			2	●	●	●
			3	●	●	●

As a technology-based business, transition risks pose a significant threat to our organisation and as a result, we need to ensure we maintain pace in the transition to a low-carbon world. Scenario analysis has highlighted the increased risk of failure to comply with emerging regulation and carbon taxation as well as litigation risk in the event of failing to meet our net zero targets. These risks are the highest under our Scenario 1 (Early policy action: Smooth transition) and Scenario 2 (Late policy action: Disruptive transition). This is driven by the heightened likelihood of stricter regulations around carbon and energy as well as the increased scrutiny of target achievements through increased market and consumer pressure.

Given the nature of transition risks, their materiality is low under Scenario 3 (No policy action: Business as usual) as there is projected little or no change to current regulation and litigation pressures.



Key highlights

Scope 1 and 2 GHG emissions reduction – This year our total Scope 1 and 2 GHG emissions decreased by 20% to 1.09 million tonnes of CO₂e (carbon dioxide equivalent), due to our ongoing focus on energy efficiency and an increase in the proportion of renewable electricity purchased.

Our climate scenarios

1. Early policy action: <2 °C
Smooth transition

2. Late policy action: <2 °C
Disruptive transition

3. No policy action: <3 °C
Business as usual

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Increasing magnitude of risk before mitigation activities

Strategy continued

Figure 6

Physical risk impact on Vodafone by time horizon and climate scenario

	Climate factor	Risk	Scenario	Time horizons		
				Short-term (2020-2025)	Medium-term (2025-2035)	Long-term (2035-2050)
Risk: Physical	Fire	Wildfires	1	●	●	●
			2	●	●	●
			3	●	●	●
	Flooding	Flooding	1	●	●	●
			2	●	●	●
			3	●	●	●
	Sea level	Sea level rise	1	●	●	●
			2	●	●	●
			3	●	●	●
	Sea surface temperature	Storms	1	●	●	●
			2	●	●	●
			3	●	●	●
	Precipitation	Rainfall	1	●	●	●
			2	●	●	●
			3	●	●	●
	Precipitation	Service quality	1	●	●	●
			2	●	●	●
			3	●	●	●

Our climate scenarios

1. Early policy action: <2 °C
Smooth transition

2. Late policy action: <2 °C
Disruptive transition

3. No policy action:
Business as usual

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Increasing magnitude of risk before mitigation activities

We are a large owner of telecommunications infrastructure across the markets we operate in. This increases exposure to the physical risks of climate change due to the increased risk of asset damage or loss. As part of the climate impact identification and materiality assessment work, we identified the key climate drivers most likely to impact our assets and infrastructure.

In contrast to transition risks, physical risks are most severe under Scenario 3 (No policy action: Business as usual) given this scenario sees a world where warming exceeds a 3°C threshold. Based on the latest scientific studies, we know this is the scenario under which physical climate-related events will be more frequent and severe, therefore increasing the impact on Vodafone. However, we still observe some impacts of physical climate risk given there is a 1.5°C-2°C level of warming under Scenario 1 (Early policy action: Smooth transition) and Scenario 2 (Late policy action: Disruptive transition).

Physical risks would also have a significantly bigger impact to the business long-term compared to short-term as the levels of warming rise regardless of the scenario.



Key highlights

Carbon enablement - We are committed to helping our business customers reduce their carbon emissions by a cumulative total of 350 million tonnes of carbon globally between 2020 and 2030. To date we have saved our customers 15.7 million tonnes.


Strategy continued

Figure 7

Opportunity impact on Vodafone by time horizon and climate scenario

	Climate factor	Opportunity	Scenario	Time horizons		
				Short-term (2020-2025)	Medium-term (2025-2035)	Long-term (2035-2050)
Climate-related opportunities	Market valuation	Share price	1	●	●	●
			2	●	●	●
			3	●	●	●
	Sustainable financing	Sustainable financing	1	●	●	●
			2	●	●	●
			3	●	●	●
	Environmental performance	Product efficiency	1	●	●	●
			2	●	●	●
			3	●	●	●

Our climate scenarios

1. Early policy action: <2 °C
Smooth transition2. Late policy action: <2 °C
Disruptive transition3. No policy action:
Business as usual
 Read more
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Increasing magnitude of risk before mitigation activities

We have identified three key opportunities for our business relating to climate change. These opportunities are enabled by the transition to a low carbon economy and therefore the potential positive impact is the highest under Scenario 1 (Early policy action: Smooth transition) and Scenario 2 (Late policy action: Disruptive transition).

We continue to communicate and engage with investors on the ESG strategy through our comprehensive ESG reporting suite (Annual Report, ESG Addendum, TCFD Report, press releases and website), as well as direct engagement at meetings, roadshows and conferences. Vodafone already performs well against external ESG benchmarks used by investors, however we continue to focus on ensuring our ESG strategy and the impact it has on our financial performance is well understood. We recognise that the availability and cost of capital provided by investors is, in part, dependent on our ESG performance.



Key highlights

Eco-SIMs – In October 2021 we committed to roll out new Eco-SIMs, which are made out of recycled plastic and are half the size of a traditional SIM card holder.

Strategy continued

Strategy resilience

Given the uncertainty of the transition to a low-carbon economy and the temperature increase limits achieved globally, the results of the scenario analysis, summarised in Figures 5, 6 and 7, enable us to better understand and build resilience to prepare for the potential worst-case impacts of climate change. From our analysis we know that transition risks could potentially be most significant under Scenario 1 (Early policy action: Smooth transition) and Scenario 2 (Late policy action: Disruptive transition) though there are differences in their timings and materiality of financial impacts. On the other hand, Scenario 3 (No policy action: Business as usual) could have the biggest financial impact due to the physical climate-related risks.

This year, we built on our previous climate scenario work and considered our resilience against key climate-related risks and opportunities. We engaged the relevant stakeholders from across the business to understand the current processes and policies in place which enable us to mitigate and/or monitor climate-related risks and capture climate-related opportunities. For each material risk and opportunity, we mapped the current controls in place and the strength of those controls. Overall, we have controls in place for all identified key risks, and this helps build resilience against the potential impacts on the business.

Physical risks

We have controls in place across the business which build resilience against the impacts of physical climate risks, which are centered around damage to our infrastructure and disruption to services due to the nature of our business. Various mitigating activities, owned by multiple teams across the organisation, are built into the key parts of the asset lifecycle, from acquisition to maintenance, adaption as well as damage response. During the acquisition of assets, including buildings and network equipment, we have policies and guidance in place to incorporate the assessment of environmental risks. We also have reactive measures related to the 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.

Transition risks

We also have controls in place across the business which build resilience against transition climate-related risks. We have been working on our net zero strategy and have set targets to enable us to reach net zero by 2040. Our emissions reduction targets and plans support us in reducing the exposure to carbon pricing risk. Our tax team is also monitoring emerging regulations so that we are acting as necessary. Our legal teams across the Group, as well as in local markets, continually scan the environment for any new emerging climate-related regulation. We also have a policy on legal risk in place which covers litigation risk. Vodafone has an ambitious climate strategy with leadership targets as well as transparent reporting on performance and progress to reduce litigation and reputational risks.

Energy efficiency is a key area of focus for Vodafone. We have dedicated energy teams within our markets to monitor and achieve energy reductions. We also have implemented processes to ensure that we regularly and proactively review physical site assessments and upgrade the infrastructure to ensure energy efficiencies are maintained.

Lastly, we have multiple ways of tracking consumer preferences in relation to sustainability and take action based on the feedback when appropriate.

Opportunities

Whilst the telecommunications industry is a large consumer of energy, we consider ourselves well placed to help mitigate climate-related risks. We see a huge opportunity in helping to deliver a twin digital and green transformation and support climate action 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 Internet of Things (IoT) and connected solutions. We are committed to working closely with other ICT sector companies to drive investment in digital solutions in action against climate change.

Next steps in our TCFD programme:

We recognise that there is improvement needed on disclosing the impact of climate-related risks and opportunities on the financial planning and we plan to address it in the medium-term. In addition, we have secured resources to conduct a climate risk modelling pilot, which will provide a view on the changing nature of our physical exposure over time in relation to our key assets.

Eco Rating

81/100

Durability	<div><div></div></div>	Climate efficiency	<div><div></div></div>
Reparability	<div><div></div></div>	Resource efficiency	<div><div></div></div>
Recyclability	<div><div></div></div>		


© 2021

Key highlights

Eco Rating labelling – In May 2021, we launched a new Eco Rating labelling scheme jointly with other major European operators. This is a pan-industry initiative to help consumers identify and compare the most sustainable mobile phones on the market, whilst also encouraging suppliers to reduce the environmental impact of devices.

Find out more about Eco Rating at www.ecoratingdevices.com.

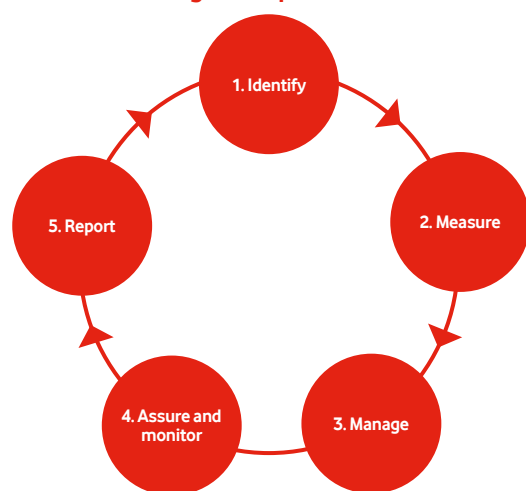
Risk Management

Embedding climate into our risk management framework

Risk management is defined in the TCFD recommendations as “a set of processes that are carried out by an organisation’s Board and management to support the achievement of the organisation’s objectives by addressing its risks and managing the combined potential impact of those risks.” It is recommended that organisations disclose their processes for identifying, measuring and managing climate-related risks, as well as describing how these processes are integrated into the organisation’s overall risk management.

Figure 8

Vodafone’s risk management process



Year-on-year increase in climate impact understanding and quality of stakeholder engagement

Integration of climate-related risks into our risk management processes

We have been on a journey of establishing an iterative process for climate-related risk management since the beginning of the TCFD programme. When considering both physical and transitional climate risks, we benefit from the enterprise risk management framework already in operation. The framework is defined centrally and implemented in each of our markets. This approach allows risk management and reporting to balance the importance of having consistency of approach, measurement, and risk categorisation across the organisation, together with the value of having local expertise and risk action plans.

Climate change is discussed and considered during the principal risk assessment process and this year it was placed on our risk watchlist, which includes material risks to Vodafone Group which fall outside of our principal risks list. In addition, due to the nature of the material climate-related risks to our business and strategy, many elements are already captured in existing principal risks, such as extreme weather events leading to technology failure, or adverse policy environment. This approach enables us to capture a more holistic picture of the climate-related risks.

The process we have established for climate-related risk management is outlined in Figure 8. We have aligned it to our Group risk management framework stages: Identify, Measure, Manage, Assure and Report.

1. Identify

We use the following sources to identify potential climate-related risks and opportunities:

1. Any new and relevant climate change publications and data;
2. Relevant sector literature outlining potential impacts of climate change on the telecommunications industry;
3. TCFD guidance on potential risks and opportunities;
4. CDP risk and opportunity disclosures from telecommunications sector companies;
5. Existing climate-related risks and opportunities identified by Vodafone and disclosed in our Annual Report.

2. Measure

After the list of potential risks and opportunities is put together and updated, we evaluate the materiality of each by assessing their likelihood, impact and time horizon using our Group risk management framework and involving subject matter experts across the organisation. Our risk management framework uses a likelihood scale that estimates a percentage chance of a risk materialising within three years. However, as climate change is an issue that spans decades, we recognise that for the purpose of climate risk assessment, we need to adapt our time horizons. This year, based on our experience to date, we updated them to focus on short-term (2022-2024), medium-term (2024-2027), long-term (2027-2032), and very long-term (2032-2050). The rationale for choosing these time horizons is explained on page 7.

The materiality assessment will be conducted regularly to ensure the implications of all key risks and opportunities are appropriately understood in the context of the ever-changing business and physical environment. We will update the risk scores, as necessary, due to the changing circumstances or as improved data or modelling for these risks and opportunities becomes available.

During FY21, we also conducted scenario analysis, using three climate scenarios described in Figure 9 to explore and assess the resilience of our business to climate change. This helped us to better understand which of the identified and prioritised climate-related risks could potentially have the largest impact on Vodafone across different time horizons and informed our efforts to better manage and monitor the risks.

Risk Management continued

We used external datasets on climate drivers and internal datasets on our business activities to model a timeseries for the potential impact of material risks under each scenario between 2020 and 2050.

In addition, we focused on seven risks for a more advanced impact scenario analysis and modelled these for Germany, Italy, the United Kingdom, Spain and South Africa, in addition to the overall Group. We selected which risks to model based on the materiality assessment during the initial identification phase.

3. Manage

As required by our risk management framework, once the risk is identified and assessed, a risk owner is responsible for developing and implementing the mitigating controls. Since the identified top climate-related risks to Vodafone are those that the business had been already managing, we have spent this year capturing the controls using the broader TCFD programme of work to help us prioritise future improvement opportunities for further mitigating actions as necessary.

4. Assure and monitor

We use a three lines model as detailed in the Group risk management framework when managing risks. The control owners are responsible for reviewing the policies, procedures, and other relevant information to check whether the controls are effective and update them as necessary.

5. Report

We have various mechanisms for reporting on climate-related risks and opportunities. As described in the Governance section of this report, the Group Risk team reports material climate-related risks to the Audit and Risk Committee once a year. In addition, we have local risk and compliance committees, as well as functional risk and compliance committees ('RCC') where key risks are reported. Any material and relevant climate-related risks can be reported to RCCs if and when appropriate.



Further information on our risk management process associated with those risks can be found in the **Annual Report: [vodafone.com/ar2022](https://www.vodafone.com/ar2022)**

Figure 9

Vodafone's climate scenarios

1. Early policy action: Smooth transition

<2 °C

What it means?

- Early decisive action by society to reduce global emissions
- Coordinated policy action towards low-carbon economy
- Actions sufficient to limit global warming well below 2°C in line with the Paris Agreement

What is the impact?

- High level of transition risks compared to business as usual scenario
- Physical risks are limited compared to business as usual scenario

2. Late policy action: Disruptive transition

<2 °C

What it means?

- Delay in the policy response needed to reduce global emissions
- Severe policy changes required to compensate late start
- Ultimately, global warming is limited to 2°C
- Late, sudden action means that risk velocity is greater

What is the impact?

- Highest level of transition risks compared to other scenarios
- Physical risks are limited compared to business as usual scenario

3. No policy action: Business as usual

>3 °C

What it means?

- Governments fail to introduce further policies to address climate change beyond those already known and in place
- Global temperatures increase above 3°C

What is the impact?

- Limited transition risks compared to other scenarios
- Physical risks are highest under this scenario

These scenarios were selected because they:

- Meet the TCFD recommendations to assess business resilience under different climate-related scenarios, including a 2°C or lower scenario
- Are aligned to the Bank of England's reference climate scenarios that are used to stress test the UK financial system against climate change
- Are modelled to a 30-year timespan to 2050 that aligns to the Paris Agreement and other governmental net zero 2050 targets
- Are referenced by the International Energy Agency ('IEA') that uses policy pathways in its analysis of climate scenarios
- Consider macroeconomic impacts of physical and transition risks with some granularity
- Are applicable to a business context



Further details on the assumptions and input parameters on each of our scenarios are outlined in **Appendix 1** of this report.

Next steps in our TCFD programme:

As we mature and evolve our Group risk management framework, we will continue aligning climate-related risk management practices.

Metrics and Targets

Measuring and managing climate impact

Metrics and targets are used to assess and manage material climate-related risks and opportunities. The TCFD recommends that organisations disclose the metrics and targets they use to assess and monitor climate-related risks and opportunities, including their Scope 1, 2 and, if appropriate, 3 emissions.

Climate-related risks and opportunities are engrained in our financial, operational, technological, and wider ESG performance, and we therefore use a wide variety of metrics to measure the current and potential impact.

Greenhouse gas emissions

We are committed to measuring and reducing our share of global greenhouse gas ('GHG') emissions in line with the Paris Agreement and have been reporting on energy and carbon emissions since 2001. Our main carbon emissions metrics are also subject to independent limited assurance. Our latest emissions footprint and targets can be found in Figures 10, 11 and 12 and in our latest ESG Addendum.

At the 2020 AGM shareholders approved the current Remuneration Policy which incorporates our ESG priorities in the executive long-term incentive plan. For awards granted in FY22, this measure included a specific greenhouse gas reduction ambition linked to our 2025 aim of reducing our emissions by 50% from the FY17 baseline. For awards to be granted in FY23, this measure will include a specific carbon emission reduction ambition linked to our 2030 aim of reaching net zero for own operations (Scope 1 and 2) from the FY20 baseline. Read more about how ESG is incorporated into our executive remuneration arrangements on page 96 of our Annual Report.



Click here to read our Annual Report:
investors.vodafone.com/ar2022



Click here to read more in our ESG Addendum:
investors.vodafone.com/esgaddendum

Figure 10

Our targets

2030 target Fully abate all carbon emissions from our own activities and from energy we purchase and use (Scope 1 and 2)

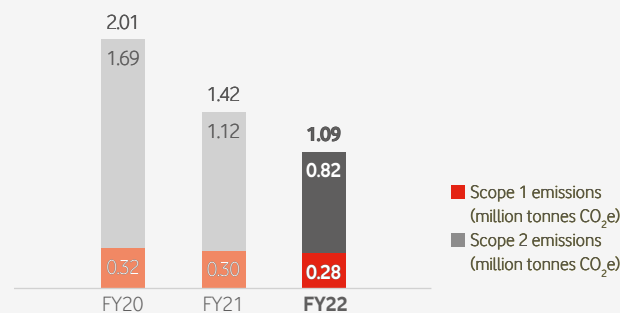
Halve carbon emissions from our carbon footprint (against a 2020 baseline), including joint ventures, all supply chain purchases, the use of products we have sold and business travel (Scope 3)

2040 target Fully abate Scope 3 emissions to reach 'net zero' across our full carbon footprint

Figure 11

Scope 1 and 2 GHG emissions

(mn tCO₂e)

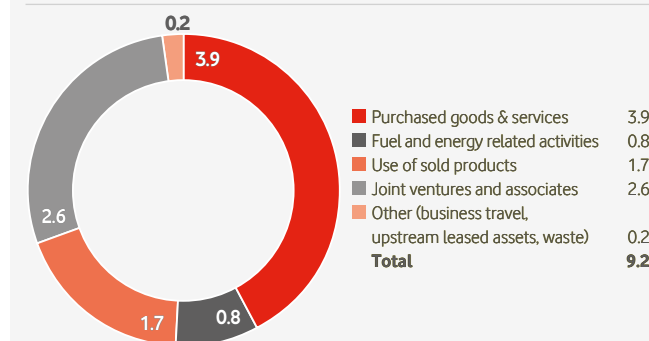


Please note rounding causes differences in total number

Figure 12

Scope 3 emissions sources

(mn tCO₂e)



Environmental metrics

Underpinning our net zero emissions target, we have targets to reduce the impact of our emissions-generating activities. Reductions in emissions are also part of our climate-related risk and opportunity management. For example, increasing the energy efficiency of our infrastructure reduces both GHG emissions and lessens the potential impact of increasing infrastructure cooling costs as average ambient temperatures increase due to global warming. Figure 13 provides a summary of the environmental targets set.



More detail can be found in the Annual Report:
vodafone.com/ar2022

Metrics & Targets continued



Key highlights

Network waste – This year 99% of our network waste was sent for reuse and recycling (excluding hazardous waste). We are committed to reuse, resell or recycle 100% of our network waste by 2025.

Next steps in our TCFD programme:

As we use a different time horizon when we focus on climate-related risks compared to our planning period, accessing and using effective data can be a challenge. We will continue looking for ways to improve how we track climate-related risks as the process and the information we can access mature. We will also look for ways to incorporate more metrics related to the physical climate risks in our monitoring systems.

Figure 13

Vodafone's environmental targets

Energy

We monitor how efficiently we use energy, and where the energy is sourced from. In 2018, we joined RE100, and committed to purchasing 100% of the electricity we consume globally from renewable sources by 2025. We prioritise the following actions that will allow us to reach our energy target:

1. Energy efficiency
2. On-site renewables
3. Power-purchase agreements ('PPA')
4. Renewable electricity certificates ('REC')

Target: Purchase 100% renewable electricity from July 2021 in Europe
Target achieved.
100% renewable electricity by 2025 in all markets

Carbon enablement

Our biggest contribution to mitigating climate change is the way our products and services are helping our customers to reduce their own environmental impact. For example, we are helping our customers to manage energy more efficiently and reduce their emissions via the following IoT services:

1. Smart Logistics & Fleet Management
2. Smart Metering
3. Health Care
4. Smart Cities

Target: Help business customers reduce their own carbon emissions by a cumulative total of 350 million tCO₂e between 2020 and 2030

E-waste

Since 2013, Vodafone's waste policy has prioritised reuse, recycling and responsible disposal of all network waste. We minimise our environmental impact by:

1. Keeping resources in use as long as possible and extracting the maximum value from items
2. Using only certified specialist waste contractors
3. Encouraging customers to repair/return their old devices and routers

Target: Reuse, resell or recycle 100% of our network waste by 2025

This summary does not include our GHG emissions targets, which are displayed in Figure 10

Appendices

Appendix 1: Climate scenario parameters

			Early, smooth transition <2 °C	Late, disruptive transition <2 °C	Business as usual, no additional action >3 °C
Overview			Transition to a carbon-neutral economy starts early and the increase in global temperatures stays well below 2 degrees, in line with the Paris Agreement.	Global climate goal of keeping temperatures well below 2 degrees is met but the transition is delayed and must be more severe to compensate for the late start.	Where no policy action beyond that which has already been announced is delivered, resulting in above 3 degrees of warming. Therefore, the transition is insufficient for the world to meet its climate goal.
Assumptions			There is early and decisive action to reduce global emissions in a gradual way, with clearly signposted government policies implemented relatively smoothly.	To compensate for the delayed start a deeper adjustment is required, as evidenced in a steeper increase in global carbon prices in a late attempt to meet the climate target. Under this scenario, physical risks increase more quickly than in the early policy action scenario and transition risks are severe.	This scenario tests the organisation's resilience to both chronic changes in weather (e.g. rising sea levels), as well as more frequent and extreme weather events (e.g. flash floods). Therefore, under this scenario, there are limited transition risks, but physical risks are significant.
Parameters	Physical	Global & regional temperature trends	Global temperatures increase to between 1.5-2 -degrees above pre-industrial levels	Global temperatures increase to between 1.5-2 -degrees above pre-industrial levels	Global temperatures increase to over 3 degrees above pre-industrial levels
		Frequency & severity of climate-related physical impacts e.g. extreme weather, humidity etc.	Increase in physical climate-related impacts	Increase in physical climate-related impacts	Significant increase in physical climate-related impacts resulting in damages, displacement and economic instability
	Transition	Carbon price pathway	Estimated range – \$135-\$6,050 USD/tCO ₂ e in 2030, \$245-\$14,300 USD/tCO ₂ e in 2050 (IPCC SR1.5)	Estimated range – \$135-\$6,050 USD/tCO ₂ e in 2030, \$245-\$14,300 USD/tCO ₂ e in 2050 (IPCC SR1.5)	Estimated range – \$15-\$220 USD/tCO ₂ e in 2030, \$45-\$1,050 USD/tCO ₂ e in 2050 (IPCC SR1.5)
		Carbon-related policy/regulation	Early global policy response. Increase in carbon price	Delayed and disjointed policy response. Lack of certainty for businesses. Significant jump in carbon price beyond 2030	No further policy action. Current country level commitments are maintained.
		Emission pathway	Global emissions decline 45% by 2030, reaching net zero by mid-century	Global emissions continue to increase, before rapidly decreasing in order to reach net zero by 2050	Global emissions continue to increase, before rapidly decreasing in order to reach net zero by 2050
		Commodity and energy prices	Significant increase in energy prices	Significant increase in energy prices. Likely that changes will be sudden and disruptive.	Energy prices maintained
		Energy mix	Significant increase in renewable energy mix by 2050 – nearly all fossil fuels replaced	Significant increase in renewable energy mix by 2050 – nearly all fossil fuels replaced	Share of renewable energy mix increases but fossil fuels remain the largest source of energy.
		Technology	Rapid increase in investment in mitigation technologies (e.g. energy efficiency, demand management)	Increase in investment in mitigation technologies (e.g. energy efficiency, demand management)	Modest investment in mitigation technologies. Greater investment in adaptation technologies.
		Consumer preferences	Consumer preferences continue to shift towards low-carbon products and services	Consumer preferences continue to shift towards low-carbon product and services	No change in demand for low-carbon goods and services. Increase in adaptation services required.
	Underlying climate models used		Transition risk modelling: REMIND-MAGPIE 1.7-3.0 – Immediate 1.5C with CDR (Orderly, Alt) Physical risk modelling: CMIP5 mean model from the World Meteorological Organisation – RCP 2.6	Transition risk modelling: REMIND-MAGPIE 1.7-3.0 – Delayed 2C with CDR (Disorderly, Alt) Physical risk modelling: CMIP5 mean model from the World Meteorological Organisation – RCP 2.6	Transition risk modelling: REMIND-MAGPIE 1.7-3.0 – Nationally determined contributions (NDCs) (Hot house world, Alt) Physical risk modelling: CMIP5 mean model from the World Meteorological Organisation – RCP 8.5

Appendices continued

Appendix 2: Glossary

Task Force for Climate-related Financial Disclosures ('TCFD')	TCFD is an organisation that was established in December of 2015 with the goal of developing a set of voluntary climate-related financial risk disclosures which can be adopted by companies so that those companies can inform investors and other members of the public about the risks they face related to climate change. The organisation was formed by the Financial Stability Board ('FSB') as a means of coordinating disclosures among companies impacted by climate change.
Climate-related opportunity	Potential positive impact related to climate change on an organisation. Efforts to mitigate and adapt to climate change can produce opportunities for organisations, such as through resource efficiency and cost savings, the adoption and utilisation of low-emission energy sources, the development of new products and services, and building resilience along the supply chain. Climate-related opportunities will vary depending on the region, market, and industry in which an organisation operates.
Climate-related risk	Potential negative impact of climate change on an organisation. Physical risks emanating from climate change can be event-driven (acute) such as increased severity of extreme weather events (e.g., cyclones, droughts, floods, and fires). They can also relate to longer-term shifts (chronic) in precipitation and temperature and increased variability in weather patterns (e.g., sea level rise). Climate-related risks can also be associated with the transition to a lower-carbon global economy, the most common of which relate to policy and legal actions, technology changes, market responses, and reputational considerations.
Greenhouse gas (GHG) emissions scope levels	Scope 1 refers to all direct GHG emissions. Scope 2 refers to indirect GHG emissions from consumption of purchased electricity, heat, or steam. Scope 3 refers to other indirect emissions not covered in Scope 2 that occur in the value chain of the reporting company, including both upstream and downstream emissions. Scope 3 emissions could include: the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g., transmission and distribution losses), outsourced activities, and waste disposal.
Three lines model	Industry standard which helps to articulate the risk management roles and responsibilities of individuals across the Group by creating three independent lines that react with and manage risks differently.
Science-Based Targets initiative ('SBTi')	A partnership between CDP, the United Nations Global Compact, World Resources Institute ('WRI') and the World Wide Fund for Nature ('WWF'). SBTi drives ambitious climate action in the private sector by enabling organisations to set science-based emissions reduction targets.

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