



Our environment

Protected environment



Climate change has evolved from an ethical and environmental issue to one that also presents material, foreseeable business risks.

Climate change mitigation and adaptation

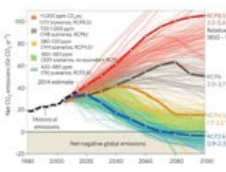
As a critical infrastructure owner and operator, NBN Co recognises the inherent risks climate change poses to its operations, network continuity and service obligations. To support the Company’s response to climate change, NBN Co is aligning risk management processes and disclosures with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

Climate change risks and opportunities

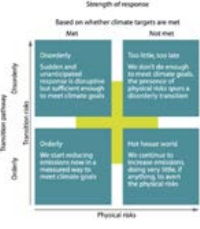
In FY22, NBN Co completed its first Company-wide climate change risk assessment. This assessed how the Company may be affected by climate-related impacts, identified the most significant risks and opportunities, and provided an action plan with proposed metrics and targets covering both the physical and transition risks of climate change.

The climate change risk assessment methodology was aligned to the International Risk Management Standard (ISO31000-2018), the TCFD recommendations and NBN Co’s existing risk management framework. It considered both physical and transition climate risks and found NBN Co is exposed to potentially material climate-related risks and opportunities.

In addition, it considered the potential financial impacts of physical climate hazards on the nbn® network by modelling asset replacement costs, impact and probability of an individual climate hazard damaging the asset. This information will inform future financial impact analysis and planning activities.



PHYSICAL CLIMATE SCENARIOS
Find out more at bit.ly/3Q07fWp
Source: Fuss et al (2014); Global Carbon Budget 2014, Global Carbon Project



NGFS CLIMATE SCENARIOS FRAMEWORK
Find out more at bit.ly/3vG1ne9
Source: NGFS Climate Scenarios for central banks and supervisors June 2020, Network for Greening the Financial System

FY2022 highlights

\$800m

Green bond

Largest Australian Dollar-denominated Green bond issued by an Australian company

100%

Renewable electricity purchase target from December 2025

SBTi¹

Commitment

Aligning emissions reductions targets with the latest climate science

Left: NBN Co Chief Development Officer, Regional & Remote, Gavin Williams and General Manager Sustainability, Stephen Smith at the solar farm in the Riverina area of NSW which is being enabled by the Company’s first Renewable Power Purchase Agreement.

1. The Science Based Targets initiative (SBTi) drives climate action in the private sector by enabling organisations to set science-based emissions reduction targets – <https://sciencebasedtargets.org/about-us>.

NBN CO CLIMATE CHANGE RISK ASSESSMENT

	Physical risk	Transition risk
Description	<ul style="list-style-type: none"> Physical risks relate to direct weather events, e.g. drought or flood, or as a result of longer-term shifts in climate patterns, including coastal inundation or soil erosion These risks may have financial implications for organisations, such as direct damage to assets. They are also more likely to impact an organisation's performance through impacts to supply chain, transport needs, and employee safety In NBN Co's case, these risks have the potential to disrupt the services to our customers. 	<ul style="list-style-type: none"> The transition climate risks are those risks arising from transitioning to a lower-carbon economy Depending on the nature, speed, and focus of these changes, transition risks may pose varying levels of financial, operational and reputational risk.
Scenarios modelled	<p>Physical climate risks were modelled for two climate change scenarios, across three time horizons (2025, 2030 and 2050):</p> <ul style="list-style-type: none"> A high emissions scenario (Representative Concentration Pathway (RCP) 8.5) A low emissions scenario (RCP2.6) and across three time horizons. 	<p>Transition risks were modelled for two low emissions (RCP2.6) scenarios, across three time horizons (2025, 2030 and 2050), noting that the transitional risks would be minimal in a high emission scenario as there would be limited global action to address climate change.</p> <p>The two scenarios were:</p> <ul style="list-style-type: none"> A low emissions orderly scenario, where action would be imminent, measured and coordinated A low emission disorderly scenario where the change is delayed and reactive but enough to meet climate goals.
Outcomes	<ul style="list-style-type: none"> The physical risks overall had a higher impact to NBN Co compared to the transition risks Eight physical risks were identified as part of the assessment Of these, five physical risks were identified as being key: <ul style="list-style-type: none"> Power dependency Extreme wind Forest fire Riverine flooding Surface water flooding 	<ul style="list-style-type: none"> 14 transition risks and eight transition opportunities were identified as part of the assessment Of these, four transition risks were identified as being key: <ul style="list-style-type: none"> Carbon pricing Costs to transition to lower emissions technology Electricity price risk Cost and access to debt Two transition opportunities were identified as being key: <ul style="list-style-type: none"> Issuance of Green Bonds Enabling markets through connectivity



Key climate-related physical risks

The table below outlines NBN Co's key climate-related physical risks, identified through the Climate Change Risk Assessment.

Risk	Risk rating under RCP 2.6 scenario			Risk rating under RCP 8.5 scenario			RCP 2.6 trend	RCP 8.5 trend
	2025	2030	2050	2025	2030	2050		
<p>Power dependency</p> <p>Risk type: Physical: Acute</p> <p>An increase in the frequency and severity of physical climate hazards could damage power infrastructure which may result in service disruption for power dependent assets</p>	●	●	●	●	●	●	↗	↗
<p>Extreme wind</p> <p>Risk type: Physical: Acute</p> <p>An increase in the frequency and severity of extreme wind events may lead to asset impairment which results in service disruption as well as value at risk and technical insurance premiums</p>	●	●	●	●	●	●	↗	↗
<p>Forest fire</p> <p>Risk type: Physical: Acute</p> <p>An increase in the frequency and severity of forest fire events may lead to asset impairment which results in service disruption as well as value at risk and technical insurance premiums</p>	●	●	●	●	●	●	↗	↗
<p>Riverine flooding</p> <p>Risk type: Physical: Acute</p> <p>An increase in the frequency and severity of riverine flooding may lead to asset impairment which results in service disruption as well as value at risk and technical insurance premiums</p>	●	●	●	●	●	●	↗	↗
<p>Surface water flooding</p> <p>Risk type: Physical: Acute</p> <p>An increase in the frequency and severity of surface water flooding may lead to asset impairment which results in service disruption as well as value at risk and technical insurance premiums</p>	●	●	●	●	●	●	↗	↗

Risk rating: ● Extreme ● High ● Medium ● Low

In support of the risk ratings, trend lines have been provided to illustrate changes in likelihood and/or consequence over the period to 2050.

Key climate-related transition risks

The table below outlines NBN Co's key climate-related transition risks, identified through the Climate Change Risk Assessment.

Risk	Risk rating under low emissions orderly scenario			Risk rating under low emissions disorderly scenario			Orderly trend	Disorderly trend
	2025	2030	2050	2025	2030	2050		
<p>Carbon pricing</p> <p>Risk type: Transition: Policy and Legal</p> <p>Exposure to carbon pricing (for example, emissions trading schemes, carbon tax, carbon import tax/tariffs) could increase NBN Co's operating costs and may result in higher costs for purchased goods and services if passed on by suppliers</p>	●	●	●	●	●	●	↗	↗
<p>Costs to transition to lower emissions technology</p> <p>Risk type: Transition: Technology</p> <p>Investment requirements to transition to lower emissions technology may increase NBN Co's annual capital expenditure</p>	●	●	●	●	●	●	↘	↗
<p>Electricity price risk</p> <p>Risk type: Transition: Market</p> <p>Increasing electricity prices as a result of the transition (for example, due to fossil fuel plant closures, network investment costs and electricity market reforms) may increase NBN Co's annual operating costs</p>	●	●	●	●	●	●	↗	↗
<p>Cost and access to debt</p> <p>Risk type: Transition: Market</p> <p>Failure to meet targets expected by offshore investors due to government or other constraints may result in lower access to and/or increased cost of debt</p>	●	●	●	●	●	●	→	→

Risk rating: ● Extreme ● High ● Medium ● Low

In support of the risk ratings, trend lines have been provided to illustrate changes in likelihood and/or consequence over the period to 2050.



Key climate-related transition opportunities

The table below outlines NBN Co's key climate-related transition opportunities, identified through the Climate Change Risk Assessment.

Opportunity	Risk rating under low emissions orderly scenario			Risk rating under low emissions disorderly scenario			Orderly trend	Disorderly trend
	2025	2030	2050	2025	2030	2050		
<p>Issuance of Green bonds</p> <p>Opportunity type: Market</p> <p>The issuance of Green bonds will expand NBN Co's investor base and provide a source of capital which may be lower cost than comparable regular debt issuance</p>	High	High	Medium	High	High	Medium	Decreasing	Decreasing
<p>Enabling markets through connectivity</p> <p>Opportunity type: Market</p> <p>Enabling current (e.g. agriculture) and emerging (e.g. smart grid) markets through connectivity to reduce emissions and mitigate climate risk may increase demand for NBN Co's bitstream data service</p>	Medium	High	High	Medium	Medium	High	Increasing	Increasing

Risk rating: ● Extreme ● High ● Medium ● Low

In support of the risk ratings, trend lines have been provided to illustrate changes in likelihood and/or consequence over the period to 2050.



CASE STUDY

NBN Co's first Green bond

NBN Co generated proceeds of \$800 million after successfully issuing its first Green bond in April 2022 as part of the Company's commitment to reduce emissions and support the nation's transition to a net-zero carbon economy.

See more online

at nbn.tm/GreenBonds

Addressing climate risks – managing impact through mitigation

ENERGY USE AND EMISSIONS

While NBN Co has initiated strategies to reduce energy use and emissions, both have increased in line with the growth of the **nbn**® network and connection of customers across Australia.

The evolution of the **nbn**® network, through the network investment plan, enables long-term reductions in network power demand, with the transition to more energy efficient technologies.

NBN Co's emissions under operational control primarily come from:

- Electricity use (Scope 2), the majority of which is related to the network itself
- Fuel combustion (Scope 1), which is related to diesel use in leased fleet vehicles.

Indirect emissions outside of NBN Co's operational control (Scope 3) relate to the Company's supply chain, network equipment in customer premises, and waste.

To drive emissions reductions, the Company's Towards-Zero Carbon Program and three-year roadmap was publicly announced in December 2021. To reduce emissions, NBN Co has committed to:

- Reducing annual energy use by 25GWh by December 2025
- Purchasing 100 per cent renewable electricity from December 2025
- Using electric or hybrid vehicles, where suitably available, by 2030.

NBN Co has begun to introduce electric or hybrid vehicles into its fleet, and at 30 June 2022, has 50 hybrid vehicles in use. The Company plans to phase in more hybrid or electric vehicles as suitable models and supporting infrastructure becomes available.

In support of the Company's renewable electricity target, NBN Co announced its membership of the global RE100 renewable energy initiative, becoming the first Australian telecommunication company and first government business enterprise to do so.

COMMITTING TO SCIENCE BASED TARGETS

Underpinning the Towards-Zero Carbon program and further strengthening the Company's commitment to reducing emissions, in March 2022, NBN Co committed to setting science-based emissions reduction targets via the Science Based Targets initiative (SBTi) - a global body enabling businesses to set emissions reductions targets in line with the latest climate science.

NBN Co is part of a growing number of companies to register with the SBTi in Australia and joins more than 2,000 leading companies worldwide targeting Scope 1, Scope 2 and Scope 3 emissions. The Company expects to provide its science-based targets to the SBTi for validation in the second half of 2022.

In FY22 progress has been made in assessing opportunities for reducing indirect emissions associated with the Company's products and supply chain (Scope 3 emissions).

CASE STUDY



Sourcing renewable energy

NBN Co has committed to 100 per cent renewable electricity purchases from December 2025. Supporting this commitment, the Company's first renewable power purchase agreement is enabling construction of a new solar farm in the Riverina area of New South Wales.

at nbn.tm/SolarFarm



Mitigation performance

During FY22 NBN Co progressed action across its three-year roadmap¹.

PROGRESS ON KEY ACTIONS TOWARDS-ZERO CARBON PROGRAM AND THREE-YEAR ROADMAP

Energy efficiency	Renewable electricity	Fleet
<p>Reduce energy consumption across the nbn® network and facilities</p> <ul style="list-style-type: none"> Continued implementation of existing network energy efficiency projects and commencement of new projects including aggregation network evolution Power centre of excellence and governance of program established <p>Maximise energy efficiencies through nbn® network investment plan</p> <ul style="list-style-type: none"> Further fibre upgrades in FY22 through the FTTP network upgrade program 	<p>Source renewable electricity through further Power Purchase Agreements (PPAs) and contracts for renewables</p> <ul style="list-style-type: none"> Construction commenced on a solar farm in New South Wales, which NBN Co has contracted to take 80 GWh p.a. through a renewable Power Purchase Agreement, forecast to contribute around 19 per cent of power demand in FY23 NBN Co has also made significant progress in assessing further PPAs to meet our 100 per cent Renewable Electricity Purchases target. 	<p>Integrate hybrid and electric vehicles where suitably available</p> <ul style="list-style-type: none"> As at the end of FY22, 50 hybrid vehicles were part of NBN Co's fleet.

1. Existing energy efficiency and renewable energy projects supporting NBN Co's first emissions reduction program and target (established in FY20) have been included in the Towards-Zero Carbon Program.

In FY22, the Company's energy use is estimated to be in line with FY21, with Scope 1 emissions estimated to be in line with FY21, and Scope 2 emissions expected to decrease - reflecting updated greenhouse gas accounting factors and improved measurement methods for electricity use, agreed with electricity network service providers and in line with the Greenhouse Gas Accounting Protocols.

NBN Co is subject to the reporting requirements in the National Greenhouse and Energy Reporting Act 2007 and the Company will submit its final, externally-assured report for FY22 energy and greenhouse gas (GHG) emissions data to the Clean Energy Regulator in October 2022.

CLIMATE CHANGE MITIGATION KEY INDICATORS

Indicator	Unit of measure	FY19	FY20	FY21	FY22
Scope 1 GHG emissions ²	ktCO ₂ -e	5	5	4	4
Scope 2 GHG emissions ²	ktCO ₂ -e	259	294	325	314
Scope 3 GHG emissions ³	ktCO ₂ -e			1,332	1,158
Emissions intensity - Scope 1 and 2 ⁴	ktCO ₂ -e/TB			9.5	7.4
Energy intensity - Scope 2 ⁵	kWh/TB			11.7	9.3
Installed capacity of renewable energy	MW	1.75	1.75	1.75	2.41
Contracted Renewable energy	GWh	-	-	80	80
Renewable energy purchases ⁶	% of total purchases	17.3%	19.0%	18.9%	18.5%

2. FY22 Scope 1 GHG emissions and Scope 2 GHG emissions numbers are estimates. Final emissions data to be submitted to Clean Energy Regulator in October 2022.

3. All Scope 3 GHG emissions numbers are high-level estimates based on supplier spend data.

4. FY22 emissions intensity number is an estimate. It includes Scope 1 and 2 emissions. Final emissions data to be submitted to Clean Energy Regulator in October 2022.

5. FY22 energy intensity is an estimate based on total electricity use.

6. Renewable energy purchases are estimates and include Clean Energy Regulator's renewable energy target.

Addressing climate risks – adaptation and resilience

To support the resilience of the **nbn**[®] network and the individuals, communities and businesses that rely on it, the Company needs to understand and proactively manage the risks of climate change.

Over several years, actions to support adaptation to physical climate risks have included NBN Co's business resilience framework, enhancing the Company's natural disaster readiness capabilities (e.g. deploying disaster response solutions to ensure communications and power resiliency across the country), and continual improvements in Temporary Network Infrastructure (TNI). In FY22, this continued with deployment of additional hybrid power cubes, which combine solar, battery and compact diesel generator technologies, and keep Fixed Wireless facilities operating when the power grid goes down.

The Company's Climate Change Risk Assessment has improved NBN Co's understanding of the physical and transition risks to the **nbn**[®] network and business, and is driving adaptation and actions to increase resilience.

This was demonstrated in the response to the February and March 2022 floods in New South Wales and Queensland. A cross-functional team was established during network recovery activities, with climate risk considerations a key input informing recommendations related to network hardening, to increase resilience.

Future focus – our climate transition plan

During FY23, in response to the Climate Change Risk Assessment and to further support adaptation and resilience of the **nbn**[®] network and business, a Climate Transition Plan will be developed, to be governed through the Sustainability Sub-Committee of the Executive Committee and the Sustainability Program.

This will be a strategic planning instrument to enable effective management of mitigation and adaptation actions. It will define and document responsibilities and accountabilities across the Company for climate transition actions and support the development of specific metrics and targets to measure the implementation and effectiveness of adaptation actions and resilience of the network.

Environmental protection

The construction, operation and maintenance of the **nbn**[®] network has the potential to adversely impact natural environments and cultural heritage values.

NBN Co's approach to environment protection is supported by its Health, Safety and Environment Policy, which is reviewed annually and approved by the Board, and the integrated Health, Safety and Environment (HSE) Management System, which is certified to ISO 14001:2015 Environmental Management Systems.

The Company's Indigenous Cultural Heritage Framework includes policies and supporting documents relating to protecting places and sites of cultural significance.

To monitor compliance with risk management controls, NBN Co undertakes activities including in-field inspections. At the network design and planning stage, due diligence is applied to identifying areas of environmental significance including Indigenous and non-Indigenous cultural heritage.

FY22 PERFORMANCE AND FUTURE FOCUS

In FY22, as the volume of network construction decreased, the overall number of incidents declined. The most common types of incidents related to spills, pollution events, waste mishandling and harm to the environment from civil works activities.

During FY22, NBN Co did not receive any official cautions or prosecutions under any environmental or cultural regulations. However, a \$1,500 Penalty Infringement Notice was received from the then New South Wales Department of Planning, Industry and Environment (now the Department of Planning and Environment), in relation to obligations under the National Parks and Wildlife Act 1974 (NSW).

In FY23, NBN Co will continue to monitor the effectiveness of environmental protection controls through assurance activities.



FY22 WASTE SUMMARY - WASTE RECYCLED AND WASTE TO LANDFILL¹

Operational waste

FY22 Waste diversion target rate - waste recycled vs landfill - for select NBN Co facilities	55%
FY22 Waste diversion actual rate - waste recycled vs landfill - for select NBN Co facilities	62%
Recycled -	
ULAB - used lead acid batteries (tonnes)	11.9t
Recycled - technical waste - e-waste, scrap metal, cable (tonnes)	8.6t
Recycled - cardboard/paper, secure paper (tonnes)	59.2t
Recycled - mixed containers - plastics, aluminium, metal, glass (tonnes)	38.2t
Waste recycled - total (tonnes)	119.6t
General waste to landfill - total (tonnes)	72.0t
Total waste generated	192.0t

1. Waste from NBN Co operational sites, depots and select offices, for which there is complete and reliable data.

Waste management

The evolution, operation and maintenance of the **nbn**[®] network generates waste including construction waste, scrap network cable, batteries and e-waste, that needs to be managed to minimise impact on the environment and community.

Waste management is integrated into NBN Co's HSE Management System, through a Waste Management Standard. This is supported by a waste minimisation program.

In FY22, the waste minimisation program focused on:

- Improving diversion and reducing contamination rates to maximise recycling
- Implementing NBN Co's sustainable packaging guidelines
- Partnering with e-waste Connection, a social enterprise employing people with disabilities to recycle more than 10 tonnes of Fixed Wireless Network Termination Devices (NTDs)
- Implementing a program to recover from the community FTTC/FTTP NTDs for reuse with new customers or as replacement for faulty devices
- Continuing a partnership with Work Ventures, a social enterprise to reuse NBN Co devices for training or to be refurbished and made available to disadvantaged communities.

NBN Co commenced a trial of soft plastics collection and recycling, with further sites to be included in FY23.

FY22 PERFORMANCE AND FUTURE FOCUS

The waste diversion rate for FY22 (based on a 12-month rolling average) was 62 per cent, against a target of 55 per cent. This metric captures waste from NBN Co operational sites, depots and select offices, for which there is complete and reliable data.

Factors that contributed to the improvement in waste diversion in FY22 include, staff awareness, correct use of recycling bins, and changes to packaging received from suppliers.

In FY23, there will be a focus on waste minimisation practices at operational sites, with the installation of new onsite directional signage and establishment of designated waste locations.

FUTURE FOCUS

- Reduce annual energy use by 25GWh by December 2025
- Commitment to purchase 100% renewable electricity from December 2025
- Use electric or hybrid vehicles where suitably available by 2030