



TCFD Report 2023

Task Force on Climate-related
Financial Disclosures (TCFD)

Acknowledgement of country

AusNet acknowledges Aboriginal and Torres Strait Islander people as the Traditional Custodians of the lands on which we live and work. We pay respects to Elders past and present, and celebrate their continuing connection to Country.



About the artist

As part of our reconciliation action plan we have commissioned an artwork by the artist Bitja (also known as Dixon Patten). A proud descendant of the Gunnai, Gunditjmara, Dhudhuroa, and Yorta Yorta tribes, with blood ties to Wiradjuri, Yuin, Wemba Wemba, Wadi Wadi, Monaro and Djab Wurrung, Bitja is deeply connected to his roots.

The artwork honours the strength in being part of a community, it honours our commonality as humans, but honours our diversity also and by having different views and experiences.

[See AusNet's Reflect Reconciliation Action Plan](#)





Contents

7

10

11

13

15

18

23

25

28

38

41

44

47

62

65

67

69

71

75

77

79

80

83

85

87

91

95



About this report

In 2021, we released our first Task Force on Climate-related Financial Disclosures (TCFD) report to assist our stakeholders understand our approach to identifying and managing climate-related risks and opportunities.

In this, our second TCFD Report, we outline the next steps to understand and prepare for climate-related risks and opportunities. This report has been prepared having regard to the TCFD recommendations 2017 and the 2021 TCFD 'Annex' updates¹ that supersede the 2017 version of 'Implementing the Recommendations of the TCFD'.

This report follows the recommended TCFD framework, with disclosures around governance, strategy, risk management, and metrics and targets. The Task Force on Climate-related Financial Disclosures Index at the end of this document provides a reference to specific disclosures. For further information on the TCFD framework, visit www.fsb-tcfid.org/

This report covers operations and actions since the release of our first TCFD Report to the year ending 30 June 2023.

Emissions reporting

AusNet Pty Ltd (AusNet) provides National Greenhouse and Energy Reporting (NGER) submissions as required under the NGER Act 2007. AusNet is committed to ensuring its processes are robust and provide accurate information that meets the requirements as defined by the Act and its associated Technical Guidelines 2008.

AusNet is required to include emissions from facilities for which it has operational control using the definition of operation control under NGER as described by the Clean Energy Regulator.² Corporations are required to lodge reports on emissions by 31 October each year in reference to the 1 July to 30 June regulatory reporting period. The results covering the 1 July 2021 to 30 June 2022 reporting period are used throughout this report as the baseline for our emissions targets and goals.

Our emissions measurements are prepared annually by a third-party consultant, with data provided by AusNet. Emissions reporting is audited periodically, as required, to comply with NGER legislation. The most recent audit report was completed in 2019, which involved the verification of methodology.

The position statements, strategy, governance and targets referenced in this document apply to AusNet Pty Ltd and its subsidiaries and controlled entities. They are subject to significant assumptions, qualifications and uncertainties, and must be read in the context of this entire report, including the important information on forward-looking statements notice, scenario development, and metrics and targets sections of this report.

Important information on forward-looking statements

This report has been prepared by AusNet based on the information available as at the date of this report. The information in this report is subject to change (without notice) and AusNet assumes no obligation to update the information, including forward-looking statements.

This report contains certain forward-looking statements, including the outcomes and other aspects of the Scenario Analysis. The forward-looking statements are based on information available to AusNet as at the date of this report and are subject to significant assumptions, risks and uncertainties (known and unknown), many of which are outside the control of AusNet and are not reliably predictable.

Actual results, outcomes or impacts may differ materially to those described in the forward-looking statements in this report. This report has not been prepared as financial or investment advice, or to provide any guidance in relation to the future performance of AusNet. Past performance is not an indicator of future performance.

All statements in this report (other than statements of historical fact) relating to the Scenario Analysis, forecasts, business strategy, plans, expectations, objectives or future activities are forward-looking statements. In addition, the words 'guidance', 'view', 'forecast', 'estimate', 'expect', 'anticipated', 'aim', 'target', 'goal' and similar words are intended to identify forward-looking statements.

The information in this report has not been audited, independently reviewed, or verified. Readers are cautioned against reliance on any forward-looking information.

¹ TCFD: Recommendations of the TCFD, 2017, Annex, 2021.

² The Clean Energy Regulator: Reporting Thresholds.

Message from the CEO

AusNet is committed to enabling the transition to a low-carbon future and is responding to the risks and opportunities climate change presents for our business.

I am pleased to deliver our second Task Force on Climate-related Financial Disclosures report to assist our stakeholders in understanding our approach to identifying and managing climate-related risks and opportunities.

As part of this report, we have undertaken a high-level scan of climate-related risks and opportunities associated with our business. This has identified six key risks and four opportunities for immediate attention and further investigation (see 'The major climate-related risks and opportunities' section).

This review reconfirms the view in our 2021 report that our business model will generally remain resilient.

Managing our risks and opportunities concurrently, efficiently and transparently is a priority. As a result, climate-related risks and opportunities are integrated into our strategy, governance and operations.

As part of our strategy, this year we have committed to a goal of net zero Scope 1 and 2 emissions by 2045. To achieve this, we have set an interim target³ to reduce our total Scope 1 and 2 emissions by 50 per cent by 2030 relative to a 2022 baseline.

We will communicate our progress against two emissions categories, making a clear distinction between the emissions we directly control, as well as our broader role enabling the decarbonisation of Victoria's energy system. This includes connecting new renewable energy generation, building new electricity transmission and distribution network infrastructure, and integrating consumer energy resources such as rooftop solar and electric vehicles onto our network, as well as reducing our own 'in-house' emissions.

We acknowledge there is much more to do, and we are investing in resources, systems and information to help us and our customers prepare for and deliver the energy transition.

TONY NARVAEZ, Chief Executive Officer



³ For definition and distinction between a goal and target see 'Approach to setting emissions targets' section.

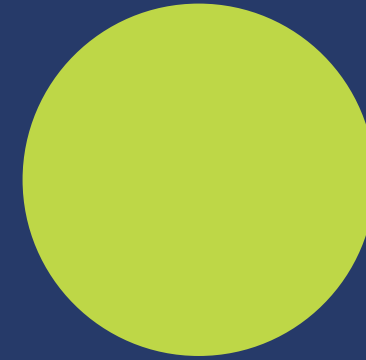
Our journey towards a low carbon future



▲ Figure 1 | Timeline of climate change key actions

[Link to relevant chapter](#)

Highlights



Executive summary

Energy is in transition

Governments have set ambitious targets to reduce emissions. The pace of change is ambitious, and AusNet's role is critical to success.

We outline how the energy transition will affect each of our key business areas – electricity distribution, gas distribution and the Victorian electricity transmission network.

- [Energy in transition](#)
- [Strategy](#)

Climate action commitments

We recognise the consensus that human activities are the driving force behind climate change, and support targets aligned with the Paris Agreement.

We have set a goal to reach net zero by 2045, and an interim emissions target of a 50% reduction in Scope 1 and 2 emissions by 2030.

We have also released our Climate Change Position Statement.

- [Our position on climate change](#)
- [Metrics and targets](#)

Decarbonisation plan

We will deliver on our interim target by focusing on two emissions sub-categories:

- Network loss emissions (97% total)
- In-house emissions (3% total)

Reporting in this way provides a clear distinction between our broader role building grid infrastructure to enable state-wide decarbonisation, and our internal emission reduction efforts.

Our network loss emissions comprise the bulk of our emissions, and are significantly impacted by market and policy factors.

We cannot reduce these directly, but are working as quickly and prudently as possible to build the new network capacity required to enable the transition and to connect new renewable generation.

While our in-house emissions are a small part of our overall emissions, they are still significant (~60 kt CO₂-e), principally from sulphur hexafluoride (SF₆) gas leaks, our fleet and building energy.

We can reduce these directly, and we outline our plans to reduce these in line with our 50% overall reduction target.

- [Our focus areas and actions](#)
- [Metrics and targets](#)

Our top 5 focus areas

We manage the risks and opportunities of climate change around 5 key focus areas:

1. Supporting our customers to navigate the energy transition
2. Improving the resilience of our network to extreme weather
3. Building grid infrastructure that enables state-wide decarbonisation
4. Directly reducing our in-house emissions
5. Enhancing transparency and disclosure on climate performance

- [Our focus areas and actions](#)

Climate-related risks

Managing physical climate-related risks is not new to AusNet and we have managed it as part of our core business for many years (e.g. bushfire mitigation plans).

In 2023 we identified the critical climate hazards that can impact our local networks, recognising that the frequency and intensity of these events may increase as the climate continues to warm.

We are doing further detailed mapping on how these hazards will impact our assets.

- [Risk management](#)

Business resilience and opportunities

We have refreshed our climate scenarios in line with the latest IPCC guidance, and used this as context to complete a high-level scan of major climate-related risks and opportunities for our business.

This found that our business model will generally remain resilient. Moreover it reinforced the significant opportunity for AusNet to grow by delivering the new energy infrastructure to support the transition.

- [The major climate-related risks and opportunities](#)
- [Strategy](#)

Enhanced climate disclosures

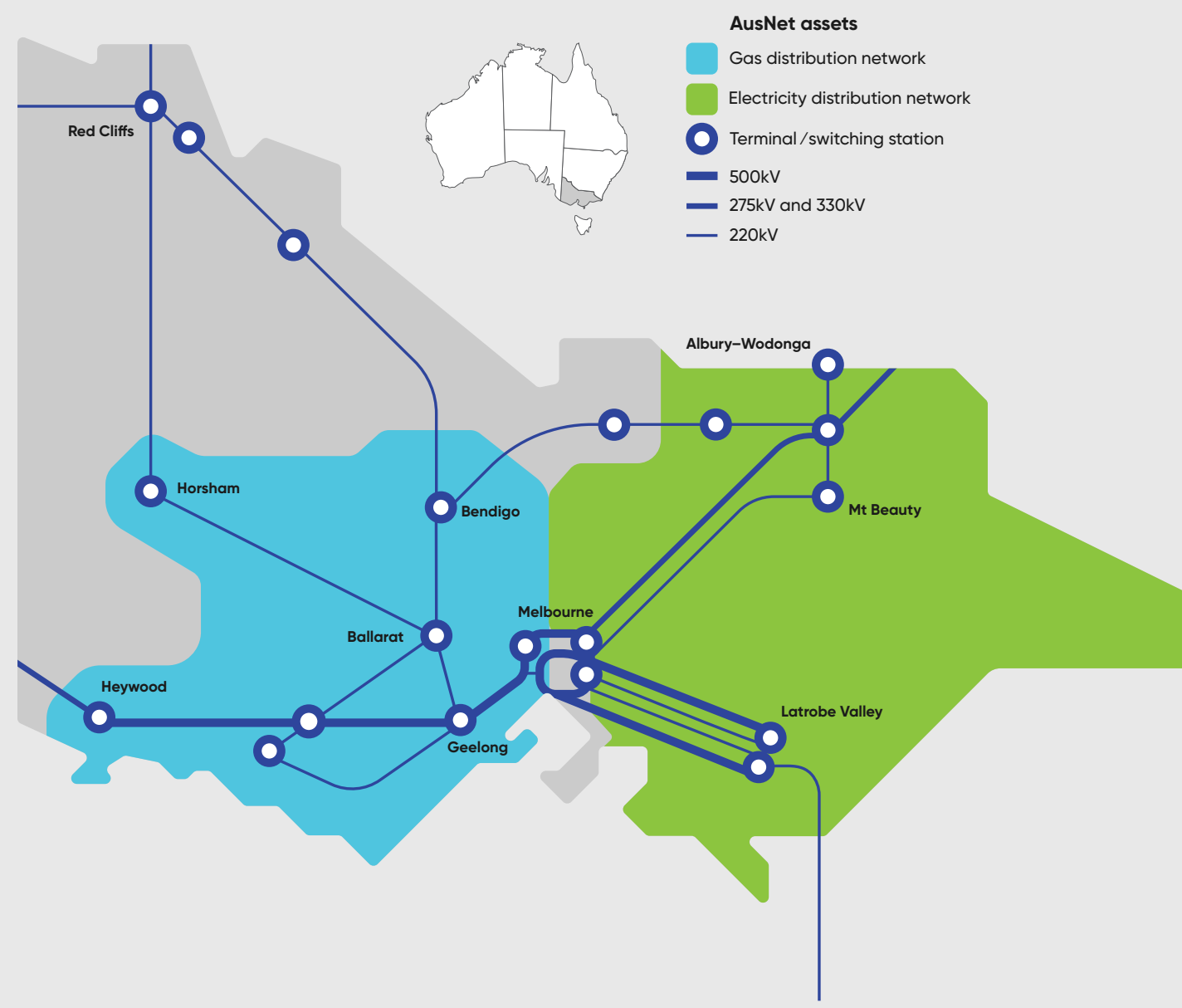
In 2023, we have significantly uplifted our climate disclosures, following the recommended TCFD framework.

We are committed to increasing the transparency and disclosure of our climate performance over time, and have outlined a roadmap of future activities.

- [Risk management](#)
- [Governance](#)

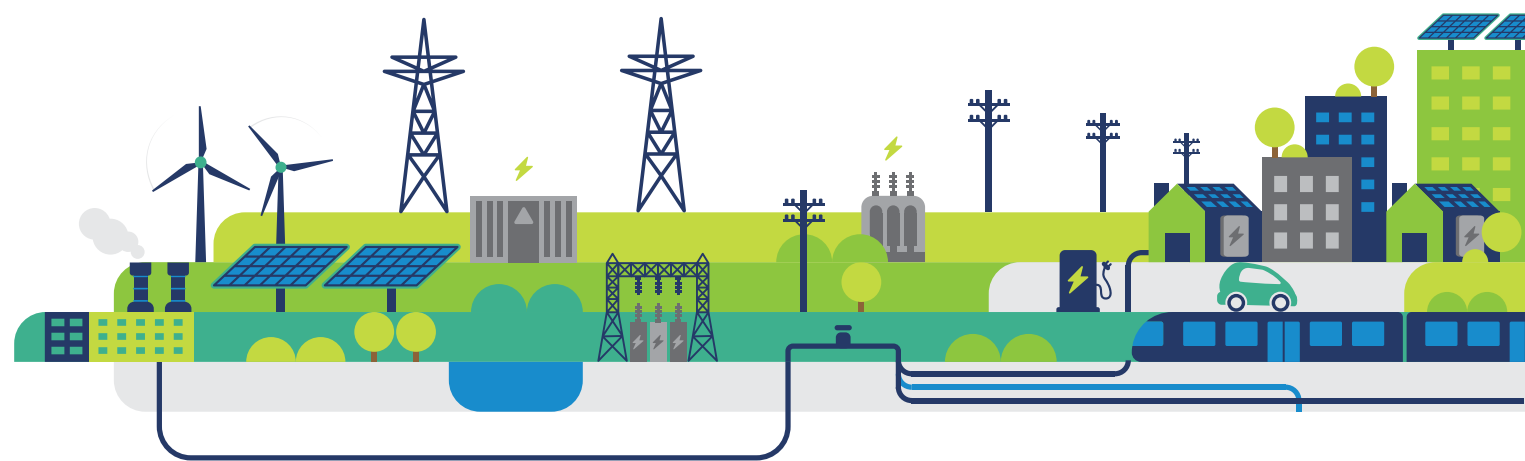
[Link to relevant chapter](#)

Location of our networks



▲ Figure 2 | AusNet network map

▼ Figure 3 | AusNet's business and assets (2022)



Energy in transition

We believe that the transition to net zero is a shared responsibility. AusNet is at the centre of the energy transition and we are committed to working closely with our customers and partners to create a more sustainable future.

The Victorian Government has set a commitment to reduce emissions by 75 to 80 per cent below 2005 levels by 2035 and achieve net zero emissions by 2045.⁴ An integral part of these emission reduction targets is the decarbonisation of the electricity sector and the electrification of other sectors such as gas, transport and industrial loads. The Victorian Government has set a target for 95 per cent of electricity to be produced by renewable energy sources by 2035⁴, which requires a significant reconfiguration of the existing transmission and distribution networks.

So far, energy decarbonisation has occurred largely within the capacity of existing network infrastructure, but grid constraints are starting to limit further renewable connections. Without significant augmentation and modernisation of the electricity networks, and progress of gas decarbonisation pathways, Victoria's renewable energy goals will not be achieved.

AusNet has a unique position in the Victorian energy supply chain, and we have an opportunity to build a reliable and affordable network faster than has ever been achieved before. AusNet owns and operates three core regulated networks: electricity distribution,

gas distribution and the primary Victorian electricity transmission network, as well as a significant portfolio of contracted energy infrastructure (see Figure 2). We also own and operate several energy and technical services businesses (which trade under the name Mondo).

AusNet plays a pivotal role in the decarbonisation of the energy sector in Victoria. We will continue to do this through:

- delivering network augmentations and new transmission projects such as Western Renewables Link (see case study 1)
- connecting wind, solar and battery projects to the grid (see case study 2)
- upgrading the electricity distribution network to support new consumer energy resources (CER) such as rooftop solar, storage and electric vehicles (EVs)
- decarbonising the gas sector through one of two pathways – the introduction of renewable gas or electrification (see table 3).

By 2025, the NEM aims to be capable of running at “100% instantaneous penetration of renewable energy... This is uncharted territory for a large, independent grid anywhere in the world.”⁵

⁴ DEECA: Victoria's 2035 Emissions Reduction Target, 2023.
⁵ Daniel Westerman: AEMO CEO Daniel Westerman's CEDA keynote address: 'A view from the control room', 2021.

🌱➤➤➤ CASE STUDY 1

Western Renewables Link project

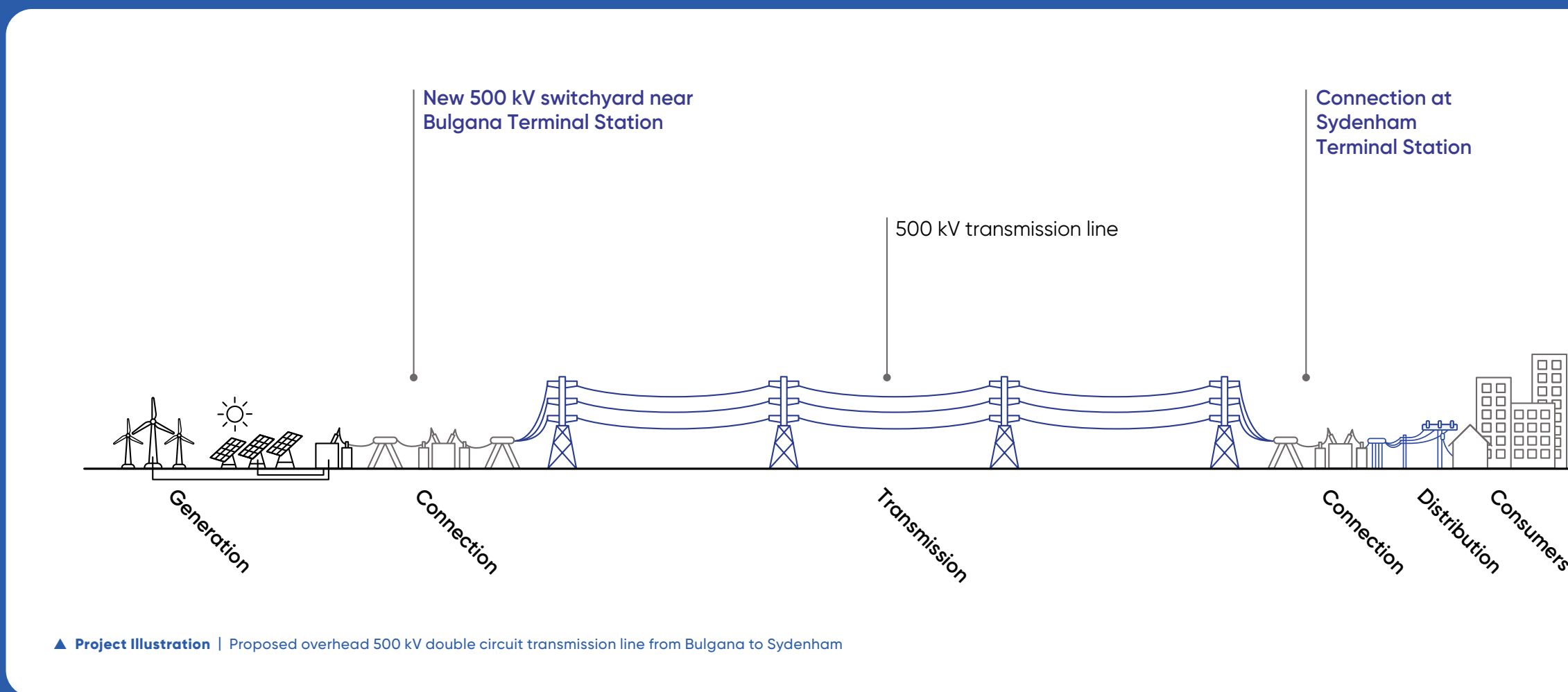
AusNet is performing a critical upgrade of the Victorian transmission network through the proposed Western Renewables Link project, a new approximately 190 km long 500 kV transmission line. This project is the first new large scale transmission line to be built in Victoria in over 40 years.

The proposed Western Renewables Link will contribute to the successful transition from coal by connecting large scale wind and solar in western Victoria to power up to 1 million homes and reduce congestion on the existing transmission network. The transmission line will be capable of carrying more than 3,000 MW and unlocking an estimated \$9 billion in solar and wind projects in western Victoria. The Western Renewables Link is the longest linear project to go through the Victorian planning and approvals system.

The project will involve major economic investment in western Victoria and AusNet is partnering with surrounding local communities, Traditional Owners and regional leaders to understand needs, reduce impacts and establish mutually beneficial relationships, including developing an industry-leading social licence framework.

This project is still in the planning, design and approvals stage, with construction currently expected to be completed in 2027. For further information see the project website:

westernrenewableslink.com.au



▲ Project Illustration | Proposed overhead 500 kV double circuit transmission line from Bulgana to Sydenham

3,000 MW

Capable of carrying more than 3,000 MW of energy

1m

Capable of delivering enough clean energy for more than 1 million homes

\$9b

Unlocking \$9 billion in wind and solar projects in western Victoria

650

650 jobs in construction

The scale of the challenge

The scale of the transformation of the energy grid is unprecedented and driven by the development of large-scale renewable generation, ongoing strong uptake of CER and the withdrawal of synchronous generation. The infrastructure footprint to supply this energy is also changing, from large thermal (predominantly coal and gas) generators in centralised locations like the Latrobe Valley, to many smaller grid-scale renewable generators, regionally located to harness Australia’s abundant wind and solar resources, as well as on homes and businesses across the country.

In 2021, coal supplied around 63 per cent of Victoria’s electricity needs.⁶ All of this remaining coal generation will generally need to be retired by 2035 to support the achievement of the Victorian Government’s 95 per cent renewable energy target. The build out of new renewable generation and battery storage, as well as a reconfiguration of the electricity poles and wires (transmission and distribution) to connect and transport these new sources of supply, will be critical. The pace and scale of the required electricity infrastructure investment is unprecedented. For example, more than 10,000 km of new high voltage transmission lines across the National Electricity Market (NEM) need to be built in less than 30 years.⁷

Figure 4 illustrates the forecast change in NEM generation to 2050 in the Australian Energy Market Operator (AEMO) central Step Change scenario⁷ and four key trends: the growth in generation capacity, the displacement of fossil with new renewable generation, the rapid uptake of CER connected to the distribution network, and the reduced share of ‘dispatchable’ generation.

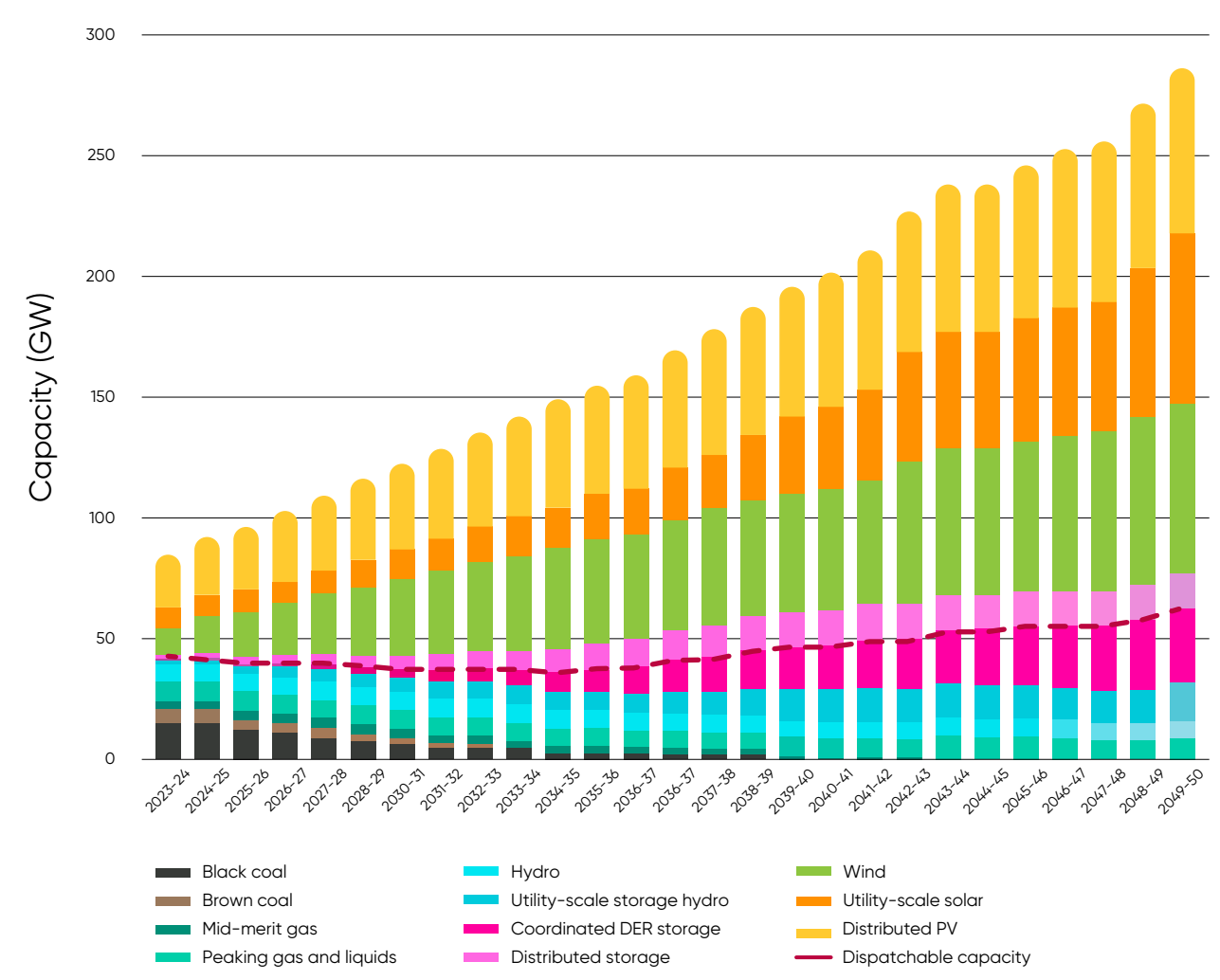
AusNet plays a pivotal role in meeting these challenges, with a long-term investment pipeline focused on delivering the key energy network infrastructure and services needed to enable the energy transition.

We consider long-term transitional impacts in our investment and planning, including:

- doubling of underlying electricity demand by 2050⁷ driven by the electrification of transport, industry and gas
- retirement of large-capacity generation (primarily coal and gas) as new renewables come online
- additional transmission infrastructure needed to unlock further renewable generation and reduce curtailment
- changes to the electricity distribution network enabling increased local and community energy self-sufficiency
- resilience of our assets to manage climate change and changes to extreme weather events
- the changing role of gas for industry and households.

How the energy transition is expected to affect each of AusNet’s key business areas is outlined in ‘Our networks – core to the energy transition’.

Forecast NEM capacity to 2050 (GW)
Step Change scenario, AEMO Integrated System Plan 2022



▲ Figure 4 | Forecast NEM capacity to 2050 (GW)

By 2050...

3x Growth in generation capacity as customer demand grows

7x Increase in grid-scale wind and solar

40% Of capacity will be distribution connected

22% Of capacity will be dispatchable

⁶ DCCEEW: Australia’s emissions projections, 2022.
⁷ AEMO: 2022 Integrated System Plan, 2022 (Step Change scenario).

Our position on climate change

We recognise the widely accepted scientific consensus that human activities are the driving force behind climate change, and support the global efforts and Paris-aligned targets to limit global warming to no more than 2°C, while striving for 1.5°C.

We believe

- There is an increasingly urgent need to address climate change in alignment with the goals of the Paris Agreement. Transitioning to a net zero economy is necessary to limit global warming to below 2°C.
- Climate change and how it will impact our business in the future is inherently uncertain and our strategies and governance must be able to adapt.
- The path to net zero should prioritise least cost abatement for the whole energy system, including consideration of the interactions between electricity, gas and liquid fuels. This may include offsets, provided those methods and activities are credible.
- Our investment decisions need to have regard to the long-term interests of consumers with respect to emissions reductions alongside price, quality, reliability, safety and security of supply.⁸
- Customers will need reliable and safe gas distribution services for decades to come, even as we move to greater levels of electrification in our homes and industries, and customer gas consumption continues to moderate.
- The transformation of the energy system must be fair and affordable, and it relies on the support of our customers and local communities.

We commit to

- integrating consideration of climate change risk into our governance, risk management, and strategic and financial planning. We will have regard to the TCFD framework as a reference for best practice reporting (and other recognised frameworks as they evolve)
- enhancing transparency and disclosure of our mitigation strategies and performance on climate change metrics to enable stakeholders to make informed decisions. This includes updating long-term and interim targets in line with any material performance, market, policy, regulatory, or other relevant changes
- continuously evaluating and responding to the physical and transitional risks and opportunities related to climate change, as new information becomes available
- setting and annually reporting against GHG emissions (Scope 1 and 2) targets that provide a clear distinction between our broader role building network infrastructure that enables state-wide decarbonisation, and our in-house emission reduction efforts
- supporting a fair and affordable transition. AusNet is a signatory to the Energy Charter, and we commit to its purpose of delivering better energy outcomes for customers and communities.

[See AusNet's Climate Change Position Statement](#)

⁸ In line with updates to the National Electricity Objective and National Gas Objective.

⁹ For definition and distinction between a goal and target see 'Approach to setting emissions targets' section.

¹⁰ We will continue to report annually on emissions across our networks, in accordance with the requirements of the NGER Scheme, and update long-term and interim targets in line with any material performance, market, policy or regulatory changes.

¹¹ Actual emissions as reported to the Clean Energy Regulator. Forecast emissions trajectory is indicative, and for illustrative purposes only. This shows a linear reduction between the key target years, where in reality we expect our actual emissions profile to fluctuate on an annual basis around this overall downward trend.

¹² DEECA: Climate Action Targets & DCCEE: Australia's emissions projections 2022, 2022.

¹³ DEECA: Victoria's 2035 Emissions Reduction Target, 2023.

Emissions reduction target

We commit to an overall goal of net zero GHG emissions by 2045 for our Scope 1 and 2 emissions and an interim target⁹ of 50 per cent reduction by 2030 relative to a 2022 baseline (Figure 5).

We intend to achieve the interim target by focusing on two emissions categories:

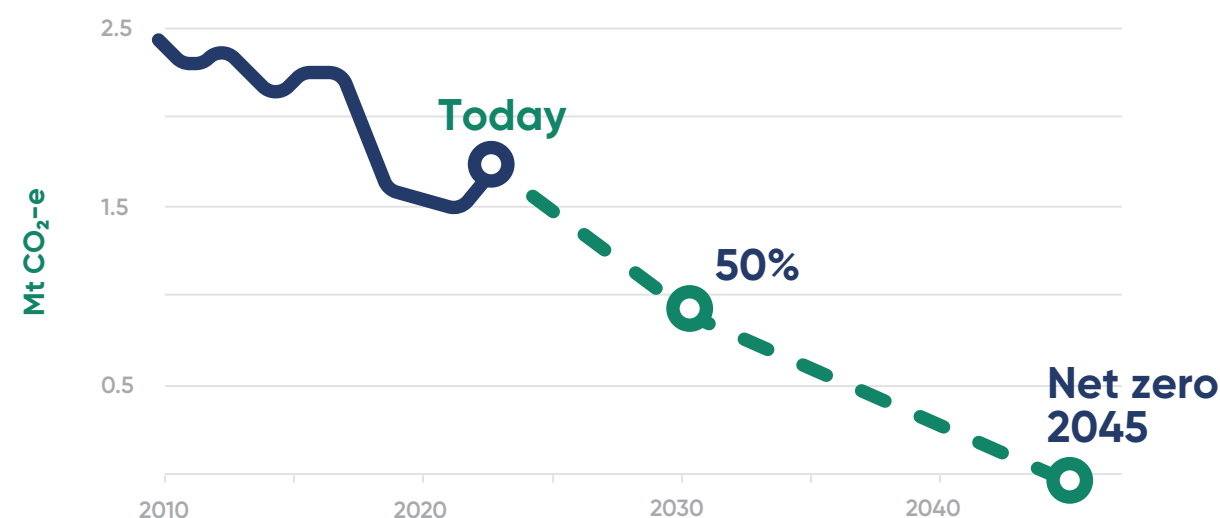
- **Network loss emissions:** GHGs driven primarily by market factors which are comprised of line losses from our electricity transmission and distribution networks (Scope 2) and fugitive emissions from our gas network (Scope 1). The reduction in network loss emissions is significantly influenced by economic, market and regulatory factors that influence overall energy demand, as well as Federal and State Government energy and climate policies.
- **In-house emissions:** The main source of our emissions associated with AusNet's in-house activities include emissions from the use of SF₆ in electrical equipment, building electricity use and vehicle use (fuel). We have much greater influence over our in-house emissions.

Reporting on our targets against these two categories provides a clear distinction between our broader role building grid infrastructure to enable state-wide decarbonisation (which will indirectly reduce emissions from network losses), and our in-house efforts.¹⁰ For further information on our major emissions sources see 'Metrics and targets'.

AusNet's target and goals align with the commitments of the Paris Agreement to limit warming to below 2°C and we support global ambitions to limit warming to 1.5°C. Our corporate target is also consistent with the Victorian Government's legislated target of a 50 per cent reduction of emissions below 2005 levels by 2030, and aligned with the Federal Government's climate change projections for the energy sector which maps a 50 per cent reduction by 2030.¹²

The bulk of our emissions (network losses) are intrinsically and inextricably linked to the decarbonisation of Victoria's electricity network. In 2023, the Victorian Government announced a more ambitious 65 per cent by 2030 and 95 per cent by 2035, renewable electricity generation target for Victoria (yet to be legislated)¹³. These more ambitious targets should drive more low emissions generation into the network, which may allow us to further increase our emissions reduction targets in the future, particularly looking towards 2035. For further information on our approach to setting targets and underlying assumptions see 'Approach to setting emissions targets'.

Emissions reductions journey 2010 to 2045



▲ Figure 5 | AusNet's overall emission reduction target and goal¹¹

AusNet's interim emissions target and net zero goal

Target

50% net

emissions reductions

by 2030 (FY22 base)

Goal

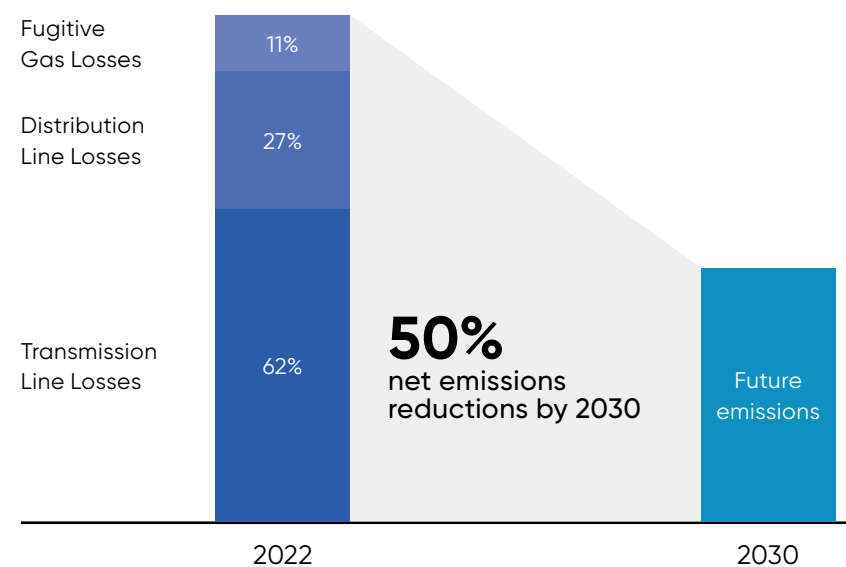
Net zero

emissions by 2045

Interim 2030 target focuses on two emissions subcategories

Network loss emissions

97% of AusNet's total is 1.67 Mt CO₂-e



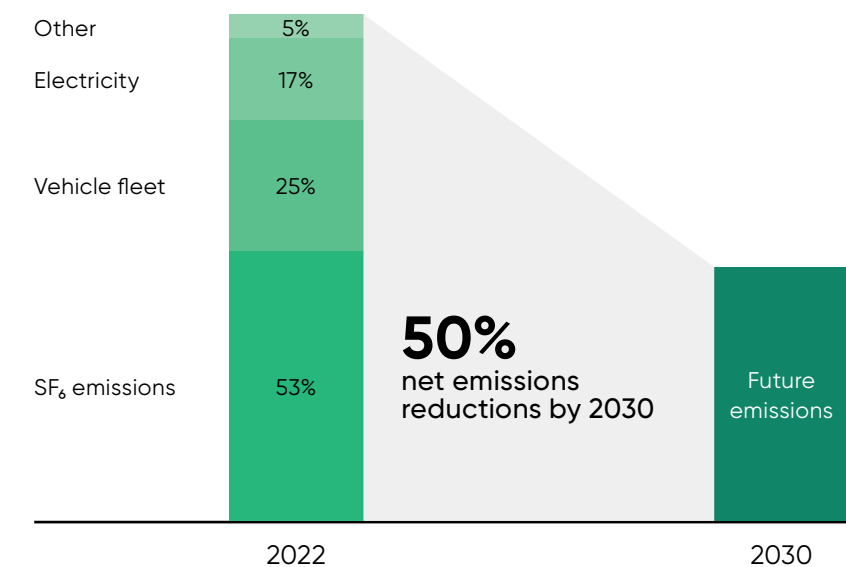
↓ 0.84 Mt CO₂-e by 2030

Direct and indirect actions

- Gas pipeline replacement
- Network upgrades and modernisation
- New transmission build
- Replacement of fossil generators (market-driven)
- Offsets

In-house emissions

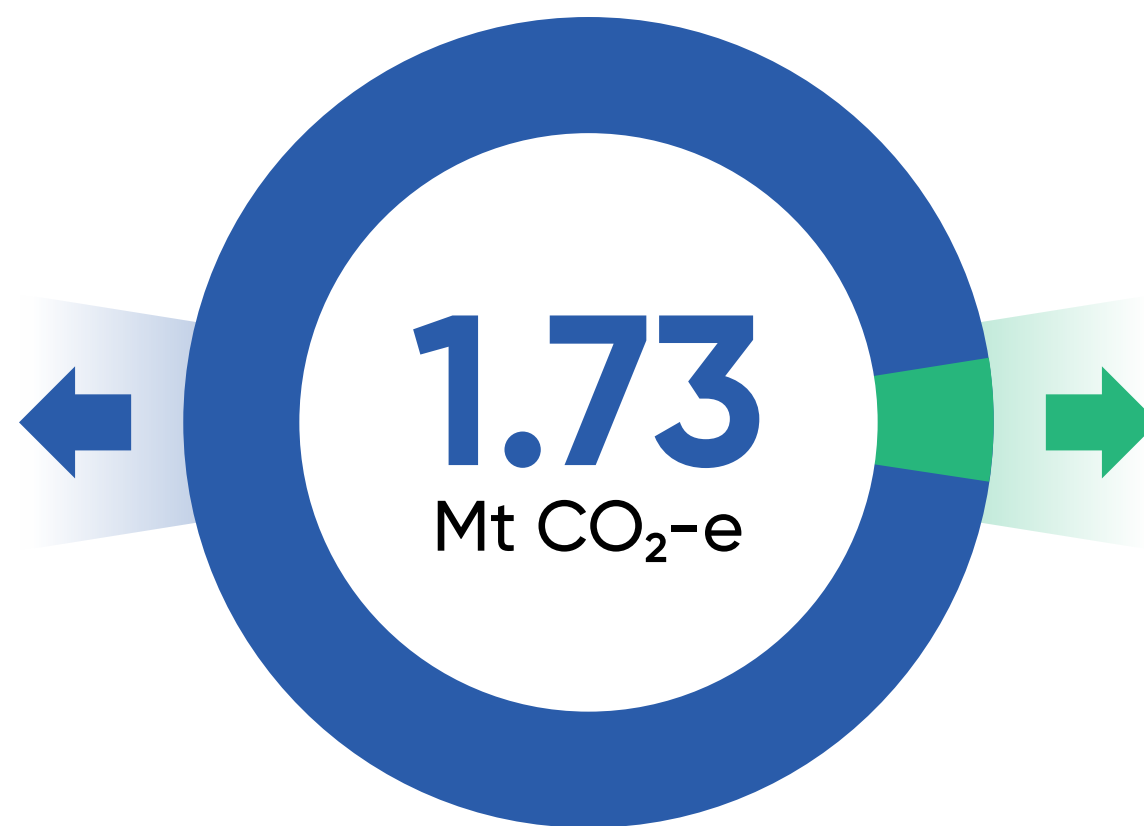
3% of AusNet's total is 0.06 Mt CO₂-e



↓ 0.03 Mt CO₂-e by 2030

Direct actions

- Net zero electricity procurement
- Electric vehicle trials
- Terminal station refurbishments



2022 baseline total reportable greenhouse gas emissions (Scope 1 and 2)



Our focus areas and actions

We manage the risks and opportunities of climate change around five key focus areas

Climate change impacts every part of our business and we have integrated consideration of climate change within our business, in line with the TCFD framework. Figure 7 illustrates the process by which climate-related risks and opportunities are assessed and then considered within our organisational strategy, risk management and financial investment processes.

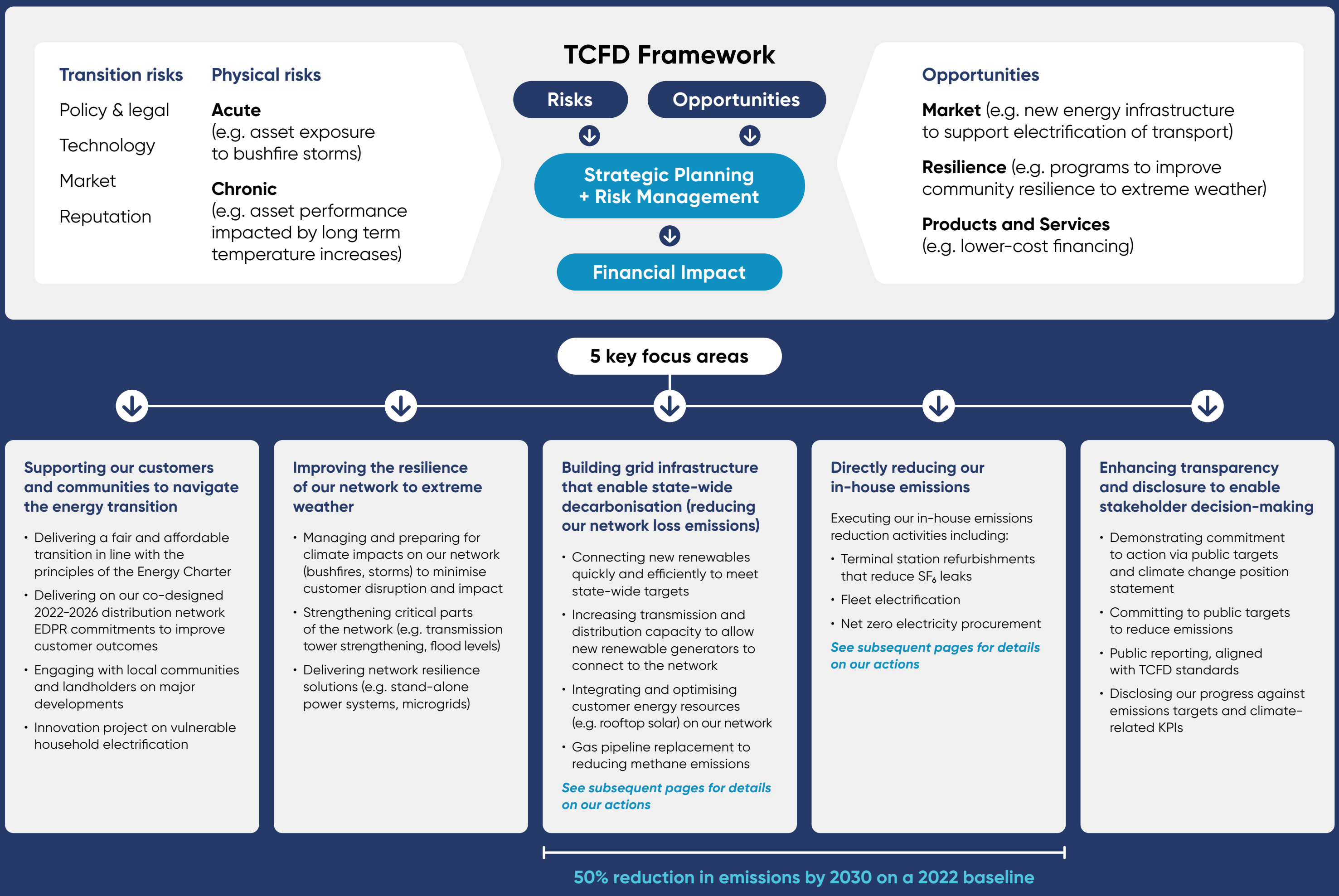
We are taking a proactive approach to monitoring, understanding and preparing for climate change impacts, and the five key focus areas on the following page highlight the past and current actions that we are taking. Our aim in future reports is to disclose some of the material financial impacts and opportunities in quantitative terms.

Further information on key projects underway are shown as case studies throughout this report, and more details can be found on AusNet's website:

Current and completed major projects

Community Hub and customer interactions monitoring

AusNet sustainability website



▲ **Figure 7** | Key focus areas to manage climate-related risk and opportunities

Our actions to reduce network loss emissions

For the Scope 1 and 2 emissions we cannot directly control, AusNet is committed to delivering a 50 per cent net reduction by 2030 relative to 2022. The bulk of these emissions reductions (from transmission and distribution line losses) will occur as the electricity grid decarbonises. While we cannot directly influence the carbon intensity of the electricity that we transport (see 'Performance against metrics' section), we can work hard to build the new network capacity and optimise the speed of network connections to allow the addition of new renewable generation capacity as quickly and prudently as possible.

We are actively taking steps to reduce network loss emissions by connecting new renewables, increasing network capacity through new high voltage transmission, and integrating CERs onto our distribution network (including more than 27 per cent of customers with rooftop solar). We are also reducing methane leaks on the gas network by replacing ageing pipelines with modern polyethylene pipes (see case study 7), which are hydrogen-ready should the need arise. We commit to future disclosure on these actions to demonstrate our progress in delivering against our 2030 targets.

Importantly though, AusNet is not directly in control of the planning and decision-making about what and when investments are made – neither for the build of new renewable generation nor the supporting network infrastructure. The speed of transition, and therefore need for new network infrastructure, is principally determined by market and policy drivers underpinned by Federal and State Government targets. For AusNet, these investments must generally be approved by the regulator (see 'Strategy' section).

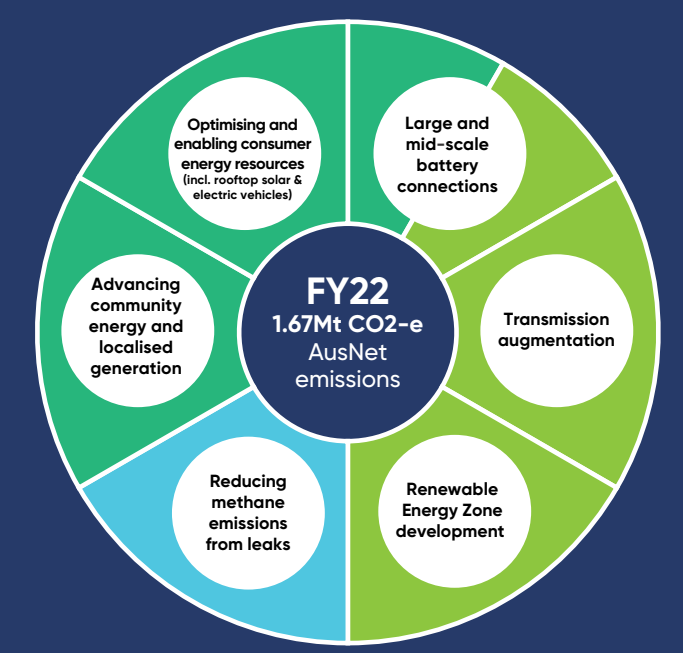
The state-wide targets and timeframes are also ambitious. Without significant augmentation and modernisation of Victoria's electricity networks, emission reduction targets will not be met, and this will directly impact AusNet's ability to achieve our committed targets. AusNet has a critical role to play in enabling decarbonisation of the electricity and gas sectors. We recognise the urgency for action and are actively working to unlock new renewables capacity and enable the transition.

In 2023, the Victorian Government announced a renewable electricity generation target of 65 per cent by 2030 and 95 per cent by 2035, for Victoria. These ambitious targets should drive more low emissions generation into the network, which may allow us to further increase our emissions reduction targets in the future, particularly looking towards 2035. For further information on our approach to setting targets and underlying assumptions see 'Approach to setting emissions targets'.

Key priority areas

Building grid infrastructure that enables state-wide decarbonisation

- Electricity Transmission
- Gas Distribution
- Electricity Distribution



Progress to date

- Over the last 6 years, AusNet has connected more than 2.2 GW of new wind and solar farms in Victoria including the Stockyard Hill (530 MW) and Dundonnell (340 MW) wind farms in 2020, 2021 which at the time were Victoria's largest new wind farms
- In 2023, we completed the Victoria – New South Wales interconnector upgrade, increasing export capability between states by 170 MW and allowing excess renewable energy power to be shared between states
- In 2021, we connected the 300 MW Victorian Big Battery which was at the time the biggest in Australia
- We have connected 650 MW of renewable generators to our distribution grid and more than 860 MW of residential rooftop solar PV systems (27 per cent of our customer base)
- In 2023, we delivered the (5 MW / 10 MWh) Phillip Island Community Energy Storage System providing local network support over the three hottest weeks of the year and removing the need to seasonally locate diesel generators as back-up for network peak demand. (see case study 5)
- Since 2009, replaced >800 km of ageing low and medium pressure gas pipelines to reduce leaks, and without which our company-wide Scope 1 emissions would be 25 per cent higher (see case study 7)
- Unaccounted for Gas Management Strategy, including leakage surveys, KPI monitoring, network pressure optimisation to reduce leaks
- Support development of renewable gases such as hydrogen

Further actions underway

- Leading the development of the Western Renewables Link. The transmission line will be capable of carrying more than 3,000 MW and unlocking an estimated \$9b in solar and wind projects in western Victoria. This project is the first new large-scale transmission line to be built in Victoria in over 40 years (see case study 1)
- Working with the Victorian government on the Renewable Energy Zone development plan phase 1 projects, addressing grid constraints and adding more than 1,500 MW network capacity within the existing transmission network (see case study 4)
- Currently delivering connections for new wind and solar generators including the 750 MW Golden Plains Stage 1 (see case study 2) and 315 MW Ryan Corner and Hawkesdale wind farms and the 130 MW Glenrowan Solar farm
- Investing to improve rooftop solar PV hosting capacity for our customers. This will maximise local generation thereby avoiding network loss emissions
- Maximising renewable connections on our distribution network, thereby overcoming near-term capacity and delivery constraints on the transmission network
- To support a reduction in transport emissions, AusNet is developing a network and tariff strategy that enables EV charging in a way that optimises use of the existing network and minimises unnecessary augmentation
- Replacement of a further 375 km low-pressure and medium-pressure pipeline to further reduce Scope 1 emissions
- Development of an offsets strategy to meet our requirements under the Safeguard Mechanism

▲ Figure 8 | Actions by which we are enabling state-wide decarbonisation (indirectly reducing our own emissions)

Our actions to reduce in-house emissions

For the emissions we can directly control, AusNet is committed to delivering an equivalent 50 per cent net reduction for in-house Scope 1 and 2 emissions by 2030, relative to a baseline of 2022. These in-house emissions predominantly comprise emissions from the use of SF₆ in electrical equipment, building electricity use and vehicle use (fuel). While our in-house emissions (3.5 per cent) are small relative to our electricity and gas network loss emissions (96.5 per cent), we are directly responsible for these emissions, and it is a significant volume to manage (58 kt CO₂-e in 2022).

We have delivered, or are developing, a suite of initiatives aimed at reducing these emissions, including refurbishment, or replacement of high leaking SF₆ equipment (see case study 3), EV trials within our own fleet, and exploring the procurement of 100 per cent renewable electricity for use in our buildings.

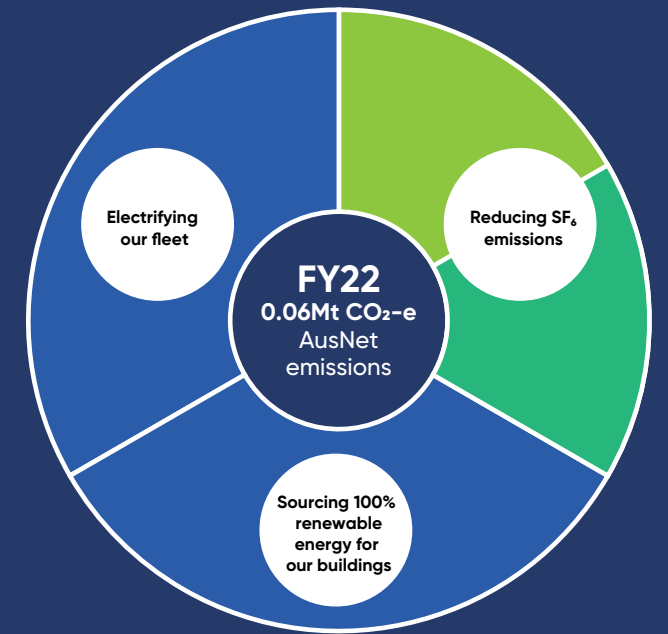


▲ Image | 1.2 MW solar array installed at Rowville terminal station to decarbonise our own supply.

Key priority areas

Reducing our own in-house emissions

- Electricity Transmission
- Corporate
- Electricity Distribution



Progress to date

- Refurbishment program at two major terminal stations (Rowville and Newport), which were the highest leakage assets on our network. The refurbishments are expected to significantly reduce SF₆ emissions from these sites. Further plans are in development to consider replacing these assets with SF₆-free equipment at the Rowville site. (see case study 3)
- Operational improvements to tracking and management of SF₆ assets and inventory
- Prioritisation of hybrid vehicles within the AusNet fleet where practical
- 1.2 MW solar array installed at Rowville terminal station to decarbonise our own supply

Further actions underway

- Development and planning for two rebuilds at the Sydenham and South Morang terminal stations will upgrade SF₆ equipment to low-leak technology
- Review of SF₆ disposal and recycling options
- EV pilot program within our fleet to trial useability and charging requirements
- Strategy to transition to 100% zero carbon energy for AusNet facilities
- Site energy audits under ISO 55001

▲ Figure 9 | Actions to reduce our in-house emissions

 **CASE STUDY 3**

Emissions Reduction (SF₆ gas)

AusNet is working to reduce SF₆ leakage from the electricity network. Leakages from SF₆ comprise almost 50 per cent of AusNet's annual in-house emissions – predominantly from higher volume transmission switchgear.

SF₆ is a potent fluorinated greenhouse gas. It is approximately 23,500 times more potent than CO₂, and is extensively used on transmission and distribution networks as an insulating medium and as a high-performing arc extinguishing medium for circuit breakers.

Given the large volumes of SF₆ in our network, management of gas losses is paramount, and AusNet is progressing repair and replacement of gas-insulated switchgear equipment at priority sites.

In 2022, AusNet completed major refurbishments at two terminal stations (Rowville and Newport), which were the highest leakage assets on our network. The refurbishments are expected to significantly reduce SF₆ emissions from these sites. Further plans are in development to consider the replacement of these assets at the Rowville site with SF₆-free technology.

Development and planning are underway for a further two terminal station rebuilds that will upgrade SF₆ equipment to low-leak technology.

 **CASE STUDY 2**

Connecting Australia's largest wind farm

(1,330 MW Golden Plains Wind Farm, Victoria)

AusNet has been engaged by WestWind Energy and TagEnergy, to connect the first stage of the Golden Plains Wind Farm to the electricity grid – a state-significant project that will be Australia's largest wind farm to date.

AusNet will design, build, own and operate the transmission assets for the windfarm including two new terminal stations at Golden Plains and at Cressy, and 7 km of new 220 kV transmission line.

When the second stage is complete, the Golden Plains Wind Farm will have a capacity of 1,330 megawatts (MW), enough to power more than 750,000 homes a year, or every home in regional Victoria.

The Golden Plains Wind Farm will prevent more than four and a half million tonnes of carbon dioxide from being emitted to the atmosphere annually – equivalent to 3 per cent of Victoria's total greenhouse gas emissions.

For more information, visit the Golden Plains Wind Farm website

[Golden Plains Wind Farm website](#)





The major climate-related risks and opportunities














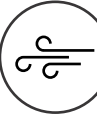




AusNet's climate-related risk and opportunities register has matured over time. In 2023, AusNet refreshed our climate-related risks and opportunities register by conducting a series of workshops with key stakeholders across the business, including from the Finance, Strategy, Network Management, Regulation, Operations, Legal, and Health, Safety and Environment (HSE) departments. Table 1 provides an overview of the five key risks and four opportunities identified during the 2023 TCFD risk assessment which have the highest potential impact on the business. In total, 19 risks and six opportunities were identified and added to the climate-related risks and opportunities register. Each risk has been allocated to an owner with controls and mitigation plans identified and monitored on a periodic basis.

Although the process is continuing to mature, several risks presented by climate change are not new to AusNet and have been managed as part of our core business for many years. For example, AusNet actively monitors climatic predictions for upcoming summers to ensure bushfire risk mitigation processes and procedures are calibrated to the level of predicted risk (see case study 8). Examples of mitigation strategies currently in place include ongoing investment in network resilience and strengthening our annual Bushfire Mitigation Plan. In addition, measures such as liability insurance and the pass-through mechanism for natural disasters assists in planning AusNet's investments and financial resilience.

AusNet has a significant opportunity from the energy transition, as shown by the largest blue dot in the graphic below (Scale of impact). It is a general view within AusNet that the scale of the transition opportunity well exceeds the cumulative risks associated with other parts of our business (highlighted by the medium-sized grey dots).




The refresh of our register reconfirmed the central message in our 2021 TCFD Report, that the AusNet business model would generally remain resilient if careful management of climate-related physical risks is in place, and pass-through of costs is continued to be allowed by the regulatory regime. As highlighted in the table below, the biggest risks are the impact of extreme weather events on community safety and the reliability of our network. This includes bushfires potentially caused by the AusNet distribution network, which is one of our enterprise material risks.

In the future, more detail will be added to many of the high-level risks and opportunities identified. There is work currently underway, in collaboration with industry peers, to further investigate the physical climate-related risks to our assets (see the 'Risk management' section).



		TCFD risk category	Relevant scenarios	Risk/opportunity	Impact to transmission	Impact to distribution	Impact to gas	Scale of impact	Existing management response	
Risks	PHYSICAL	 Acute risk	Runaway >4°C	Operational or equipment failure due to increased frequency of extreme weather events (e.g. bushfires, heatwaves)		Safety, reliability, reputation impacts from a bushfire caused by AusNet assets			<ul style="list-style-type: none"> Develop program to monitor forecasts and climate change physical impacts on AusNet networks Seek approval for necessary network and technology investments in price reviews Assess and enhance network design standards 	
		 Chronic risk / acute risk	Runaway >4°C	Operational or equipment failure due to sustained climatic changes (e.g. warmer climate, rainfall)	Increase in capital costs, higher insurance premiums, and increased operational costs in responding to catastrophic events; prolonged and more frequent power outages to customers					<ul style="list-style-type: none"> Maintain asset inspection & maintenance programs Retain public liability and general insurance Maintain emergency response, disaster recovery plans
	TRANSITIONAL	 Policy and legal	Accelerated <2°C	Energy and climate change policy changes		Policy uncertainty, and role and intervention of govt./market bodies within energy and climate policy e.g. changing renewable energy targets, contestability framework can lead to material business changes		Policy-led transition away from gas is faster than forecasts; emissions tax burden		<ul style="list-style-type: none"> Advocacy strategy with industry and government stakeholders Pass-through mechanism for regulated networks (e.g. emissions Safeguard Mechanism)
		 Market	Accelerated <2°C	Redundant or stranded assets		Reduced value of assets that serve traditional energy sources (esp. in the Latrobe Valley), and that can not be repurposed		Inability to fully recover the regulated asset base		<ul style="list-style-type: none"> Proactive engagement in market reforms and government policy Annual review of the 10 year demand forecast and integration into network planning
			Accelerated <2°C	Changes in customer behaviour and adoption of new technologies		Unanticipated uptake in behind-the-meter echnologies (e.g. rooftop solar) reduces demand for grid-supplied energy. Network reliability and stability impacts		Reduced demand for gas (faster than forecast)		<ul style="list-style-type: none"> In-depth customer research and engagement within price review process Economic modelling to support revenue proposals Secure accelerated depreciation for Gas (precedent set in 2023-2028 GAAR)
 Reputation	Accelerated <2°C	Loss of social license to operate		Loss of landholder and community trust on new projects leads to project suspension or delays, and/or negatively impacts AusNet's brand and reputation				<ul style="list-style-type: none"> Targeted stakeholder engagement plan on major projects informed by best practice Improve credentials as good corporate citizen 		
Opportunities	TRANSITIONAL	 Market	Accelerated <2°C	Demand growth from electrification		Investment in new energy infrastructure and technology to support the transition, e.g. connect new renewables, expand network capacity and integrate CER			<ul style="list-style-type: none"> Various investments, business models, trials and network/industry research underway Close collaboration with Government, AEMO and other stakeholders in the planning of future investment 	
		 Resilience	Accelerated <2°C Runaway >4°C	Build network resilience to extreme events		Investment to enhance grid resilience, e.g. SAPS, microgrids, rooftop solar and portable community resilience assets				<ul style="list-style-type: none"> Standalone Mondo business to pursue new commercial energy services and solutions
		 Products and services	Accelerated <2°C	Lower-cost finance for sustainable investments		Improved ESG credentials maximise demand for AusNet debt; Opportunity to access green financing				<ul style="list-style-type: none"> Improve AusNet environmental credentials Embed and improve disclosure on ESG
Accelerated <2°C	Government partnerships			Accelerated approvals or reduced funding costs				<ul style="list-style-type: none"> Advocacy strategy with stakeholders 		

The most relevant of our 3 climate scenarios related to each risk/opportunity – for further information, see the 'Scenario Development' section.

SCALE OF IMPACT:

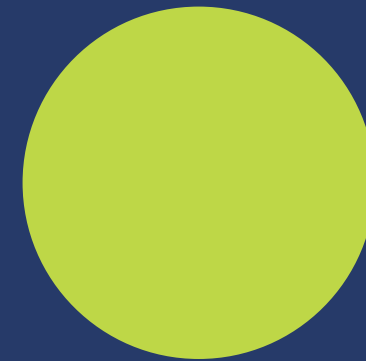
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NATURE OF IMPACT:

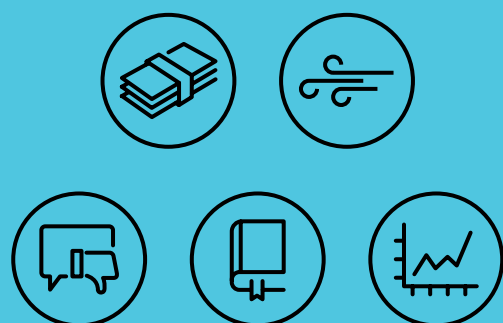
 Negative  Positive

01

Strategy



Definition of climate risks



Transitional risks

Include any risk related to the transition to a lower-carbon economy and risks arising from policy, regulatory, legal, technological, market and society.

For our business this could include the introduction of certain policies which affects the way we operate including changes to the market we operate in.



Physical climate risks

Are tangible events that relate to the physical impacts of climate change.

For our business this could include damage to assets as a result of events such as storms, bushfire or flooding.

Our organisational strategy

Our purpose is to 'connect communities with energy and accelerate a sustainable future'. Our strategy is to 'own and operate the best energy networks, growing through connecting people with new energy'. AusNet plays a critical role in shaping Australia's energy future, and our stakeholders rely on us to act responsibly and with integrity. We believe our management of key environmental, social, and government risks and opportunities, including climate change, will support our long-term growth and create long-term value for our customers, communities, and investors.

A key pillar of our corporate strategy is to grow through the energy transition. This means investing in network infrastructure that unlocks renewables capacity and enables the transition towards a high-renewables, high-CER future. Electricity and gas are essential services that power our homes, businesses and industries, enabling us to meet our basic needs and fuel economic growth. We earn the right to grow through investing efficiently, and have a responsibility to create resilient, reliable and safe networks that meet communities' energy needs today and in the future.

We consider climate change within our strategic planning

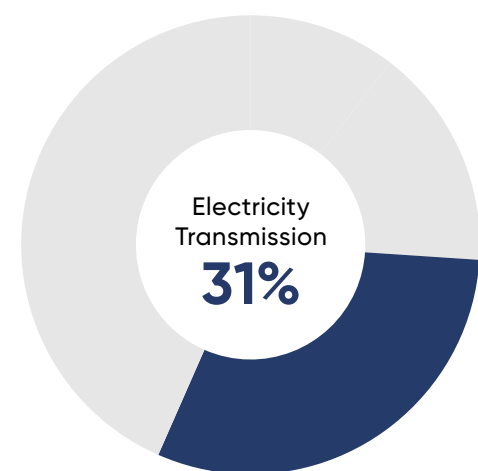
- (transitional) market and policy-driven changes to the types of energy people use (e.g. electrification of gas)
- (physical) impacts to our assets and operations (e.g. from more extreme weather events)
- reducing our own emissions – both directly and indirectly through enabling state-wide decarbonisation
- the need to support our customers and communities to deliver a fair and equitable transition.

Climate change and how it will impact our business in the future across each of these dimensions is inherently uncertain, and our strategies and governance must be able to adapt. Given that AusNet designs, builds and manages long-term assets, it is important that we consider a range of plausible futures. No one knows the exact pathway of future global warming or the frequency and severity of climate hazards, including regional variations. Forecasts also become more uncertain the further we look forward.

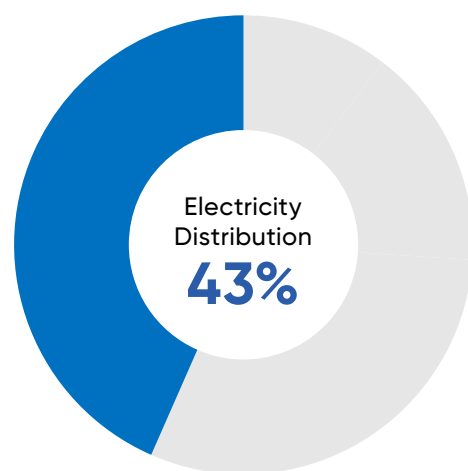
To manage this uncertainty, AusNet plans and considers strategic approaches with consideration across different timeframes and scenarios. We base our network planning and strategy on agreed industry reference cases (such as the AEMO Integrated System Plan (ISP) scenarios¹⁴). We play an active role in shaping these based on our knowledge and management of the network. For our internal planning, these NEM-wide forecasts are appropriately tailored for the Victorian energy sector and our assets, and include long-term demand and peak load forecasts, including the long-term electrification of transport and domestic gas. We are also working hard to understand detailed transitional and physical risks (see Text Box 1 for definition) and opportunities of climate change across three Intergovernmental Panel on Climate Change (IPCC) scenarios (see 'Scenario development' section).

AusNet Group's revenues by network

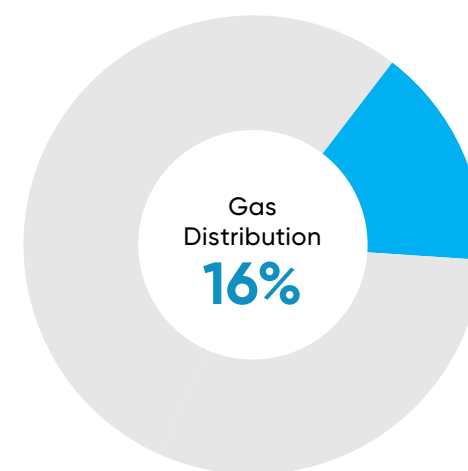
(nine months ended 31 Dec 2022)



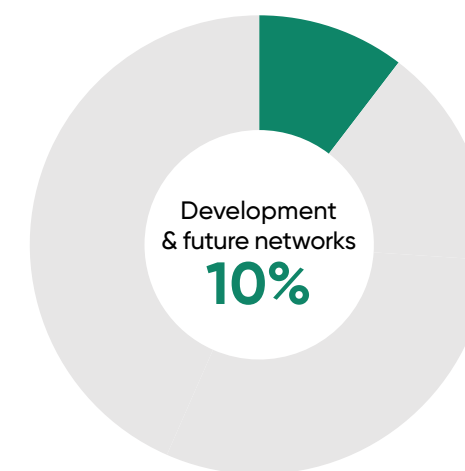
Our transmission network transports electricity from where it is generated, through terminal stations and high-voltage powerlines across the state, to Victoria's five lower-voltage distribution networks.



Our electricity distribution network feeds lower-voltage electricity to customers across all of eastern and north-eastern Victoria, and in Melbourne's north and east.



Our gas distribution network supplies natural gas to residential and business customers in western Melbourne, central Victoria and western Victoria, through our network of underground gas pipelines.



Development and Future Networks (DFN) provide contracted infrastructure asset, energy and utility services. DFN builds, owns and operates assets that fall outside the regulated asset base.

Regulated

Our business model is generally resilient

AusNet's electricity and gas networks are highly regulated. The Australian Energy Regulator (AER) approves our revenue or prices for each regulatory period, and we must demonstrate prudence, efficiency and engagement with our customers as part of this process. This regulated part of our business represented 92 per cent of the value of our business in 2022 and covers electricity distribution, gas distribution and the state-wide electricity transmission network (Figure 10). We also have an unregulated part of our business which has a significant portfolio of contracted energy infrastructure. This is mostly associated with the connection of new renewable generation and the build of new transmission infrastructure.

We have an obligation under the National Electricity Objective (NEO) and National Gas Objective (NGO) to invest efficiently to deliver quality, safe, reliable and secure supply in the long-term interests of consumers, including as the climate and energy system change. This includes involving the regulator, Government, and customers in developing and approving our investment plans, which in turn reduces the risk of future climate-related policy actions. The AER assesses our regulatory proposals for prudence and efficiency and will endorse new assets if the net economic benefit of the proposal is positive. Additionally, there are regulatory mechanisms in place under which, in certain circumstances, we may apply to the AER for a cost pass-through to recover the operational and capital costs incurred as a result of extreme weather events. Being a predominantly regulated business assists AusNet's resilience to climate change.

In 2023 the federal government legislated to include a new emissions reduction objective within the NEO. While these rules are still being finalised, we expect they will allow us to consider emissions reduction benefits as a value stream in future expenditure proposals.

For the unregulated part of our business (the remaining eight per cent), AusNet either insures or self-insures our assets and is not covered by a pass-through mechanism. We expect to review this as the share of our unregulated asset base grows, and, in particular, for any mega projects, including the development of Renewable Energy Zones (REZs).

Predominantly unregulated

We have managed climate-related risk for decades

We have decades of experience managing climate impacts like bushfire and have a strong track record in preparing for extreme weather events. There is also a longstanding link between energy demand and weather (peak winter and summer loads). AusNet has long been involved in assessing and preparing for varied weather outcomes, including through our asset management planning and strategies, as well as revenue forecasting.

One example is the way we manage and prepare for the risk of bushfires. We operate in one of the world's highest bushfire risk areas and maintain a comprehensive mitigation plan that utilises climate-driven bushfire risk modelling to prioritise and target the application of new network innovations, technology and operations to mitigate bushfire risks. This is reflected in our network design, where the highest bushfire prone areas are progressively being fully insulated, making the network more resilient. We also have network operational protocols that have enhanced electrical protection sensitivity settings on days of high fire danger.

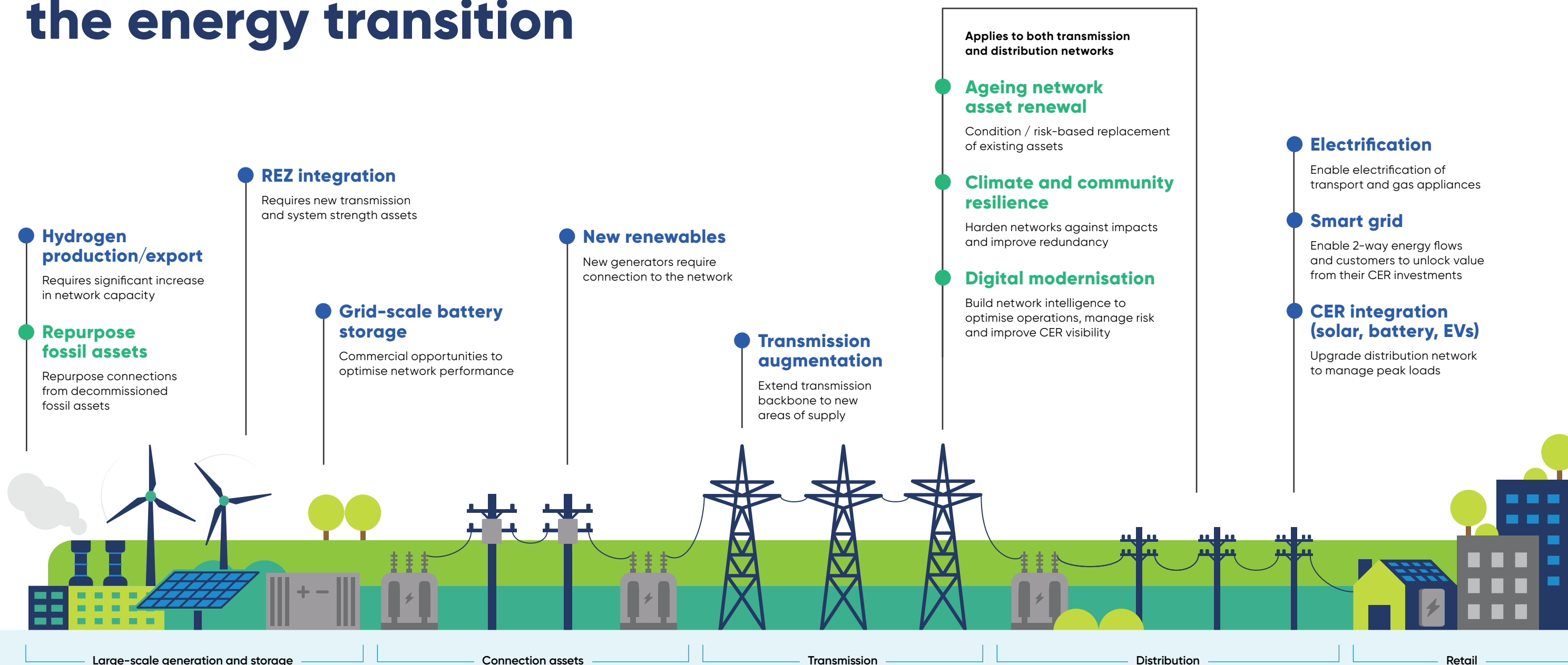
Following the 2009 Victorian Bushfires Royal Commission, we have implemented step changes in managing bushfire risk on our network. This includes the introduction of aerial inspections, a fire-loss consequence model, mandated insulated conductors in the highest fire-loss consequence areas, remote-controlled Automatic Circuit Reclosers, and a world's first deployment of Rapid Earth Fault Current

Limiters (REFCL) technology designed to mitigate powerline-related ignition risks, that is scheduled for completion by 1 November 2023 (see case study 8). Our bushfire mitigation plans and actions continue to be re-evaluated and refined on an ongoing basis, considering emerging climate science and the increased frequency of extreme weather events. We also have liability insurance which specifically provides cover for bushfire liability and we review this annually.

Actions to manage climate-related risks and opportunities are embedded within our five-year Strategic Plan and annual priorities. Furthermore, we are developing a Decarbonisation Action Plan, a fundamental and strategic piece of work that will shape our asset management strategies, future network planning activities, and regulatory proposals. This, in turn, informs our emissions reduction targets and metrics. For more information on our roadmap see 'TCFD disclosure progress and future activities'.

We have learned a lot over the past decades about planning for, and responding to, climate hazards on our network. We recognise that these impacts will intensify and become more frequent as the climate continues to warm. Further development of existing risk assessments are likely to be needed as new information and forecasts become available. We are currently working in collaboration with industry peers to investigate in further detail the physical climate-related risks to our assets (discussed in the 'Risk management' section).

Our networks – core to the energy transition



The energy industry is changing at a rapid pace and our strategy reflects this transition. AusNet’s role as Victoria’s primary electricity transmission network operator, alongside gas and electricity distribution, makes us central to the overall success of the energy transition.

To meet the Victorian Government’s recently announced net zero target by 2045, industry modelling suggests that a clean energy future will require more than a doubling in electricity demand as we electrify transport and gas loads, which will require further network augmentation.

We embrace our role as a provider of essential services which play a critical role in keeping the lights on for our customers and communities. Core to our strategy is meeting future customer needs and delivering the key energy network infrastructure and services to enable the transition.

Because of the regulated nature of the gas and electricity markets and the unique position we play in their reconfiguration in Victoria, the transformation of the energy markets in response to climate change is a significant opportunity for AusNet.

The following sections highlight key climate impacts for each of our key businesses (electrical transmission and distribution, and gas distribution), and some of the ways we are already responding.

modernisation and replacement

Existing networks have ageing infrastructure in need of renewal, in addition to modernisation and strengthening for the impact of extreme weather events.

new network

Networks need to evolve to manage new renewable generation, bi-directional flows and to deliver increased capacity to meet new demand from electrification.



Electricity transmission

No transition without transmission

AusNet's electricity transmission network plays a crucial role in moving high voltage electricity from large-scale electricity generators to lower voltage electricity distribution networks and end users. As fossil fuel generators retire over the coming decades, transmission infrastructure will play an increasingly important role in moving renewable electricity to consumers, while also increasing system resilience by connecting regional and interstate grids. New large-scale renewable generation is installed in locations with good sun and wind resources, not always close to the existing transmission network. Therefore, the transition to cleaner electricity increases the need for, and utilisation of, our existing transmission infrastructure as well as driving the need for new transmission infrastructure.

Meeting the Victorian Government's target for 95 per cent renewables by 2035, will require the closure of all 4.8 GWs of Victoria's remaining brown coal fleet.¹⁵ This will create demand for new renewable electricity generation and storage solutions, which will contribute significantly to the achievement of Victoria's 2030 and 2035 emissions reduction targets. We also need to meet increased demand that will be driven by the multi-sector electrification of existing energy sources, such as fuels for the transport sector and household gas. The scale and speed of the new electricity network transition build needed to meet government targets is 'once in a generation', and the timeframes are challenging.

Transmission augmentation timeframes

Despite transmission network augmentation providing a huge opportunity for AusNet, there are also some challenges we are working hard to manage. Our electricity network has remained largely unchanged for decades and we have not seen this level of build and reconfiguration since the 1960s-1980s when most of the high voltage transmission network was built.¹⁶ So far, energy decarbonisation has occurred largely within the capacity of existing network infrastructure. Wind and solar farms have been connected to existing sections of transmission network, and households (more than 200,000 in AusNet's electricity distribution network alone) have installed rooftop solar. However, grid constraints are starting to limit the addition of further renewable electricity generation in both the distribution and transmission networks.

Timelines for planning and delivering network infrastructure are longer than those required for developing new generation, making network infrastructure the critical step to achieving full energy decarbonisation. Progress can be exacerbated by challenges in securing the workforce, materials and land for new projects. These long lead times involved in building new transmission networks make the issues of planning and delivery especially time sensitive at this phase of the transition.

Once complete, this new network infrastructure will deliver additional network capacity and services to improve system security which is necessary to meet new patterns of renewable generation, such as the high-voltage projects being supported by the Victorian Government's Victorian Renewable Energy Targets and Offshore Wind Targets, or increased CER uptake on the low-voltage network.

¹⁵ AEMO: 2022 Integrated System Plan, 2022.
¹⁶ AER: State of the Energy market, 2022.



▲ Figure 12 | Victoria's Renewable Energy Zones

🌱🔌➡️ CASE STUDY 4

AusNet's delivery of enabling works for Victoria's Renewable Energy Zones

The Victorian Government has set an ambitious agenda to rapidly expand the state's renewable energy generation capacity. Six REZs have been identified as areas within the state with the greatest potential for delivering reliable renewable energy, as shown in Figure 12. The REZs will allow new renewable energy projects to be connected in a timely manner, reducing risk premiums for investors, while achieving better energy affordability and reliability outcomes for consumers.

AusNet has worked closely with the Department of Energy, Environment and Climate Action (DEECA) and AEMO on near-term grid remediation investments to support REZ development in Victoria. AusNet has played a role in Stage 1 of the REZ Development Plan (RDP) by investing in system strengthening projects to:

- reduce renewable electricity generator curtailment on congested parts of the network, thereby increasing the contribution that existing generators can make
- increase hosting capacity of the existing network, thereby fast-tracking the connection of new generators.

Examples from the RDP Stage 1 that AusNet is currently working on are shown in Table 2. For further examples on transmission developments underway, see 'Our focus areas and actions'.

Project	Benefits ¹⁷
Minor Grid Augmentations as cost-effective solutions to address network constraints	Increase thermal capacity within the existing transmission network and reduce renewable generator curtailment <ul style="list-style-type: none"> • Murray River (V2): 43–67 MW of added network capacity • South West (V4): 25–40 MW of added network capacity • Central North (V6): 18 MW of added network capacity
Mortlake Power Station Turn-in: Connection of second existing 500 kV circuit to the Mortlake terminal station	This will balance power between the two circuits, improving the voltage stability of the line, allowing for higher utilisation of existing network capacity in southwest Victoria, including the VIC-SA Heywood interconnector. <ul style="list-style-type: none"> • South West (V4): Up to 1,500 MW of added network capacity

▲ Table 2 | AusNet's contribution to the Victorian REZ Development Plan Stage 1



¹⁷ DEECA: Victorian renewable energy zones development plan directions paper, 2021.

Electricity distribution

An evolving role to meet future customer needs

Electricity distribution networks are vital to the decarbonisation of the energy sector through enabling cross-sector electrification of transport and natural gas. This electrification will increase electricity demand and require investment in network augmentation. However, AusNet's distribution network is also undergoing a period of unprecedented transformation following a rapid deployment of large-scale renewable generation, and the increased uptake of new CER technologies such as rooftop solar, energy storage and EVs.

AEMO's modelling projects that by 2050, CER will produce enough electricity to meet a fifth of the NEM's total underlying demand, including 65 per cent of detached homes having rooftop solar PV.¹⁸ This has led to evolving maximum and minimum demand patterns, and system stability challenges across the network, which are expected to continue as the switch to EVs accelerates.

“Australia has nearly 20 million registered vehicles and sometime soon – as we are seeing in countries all over the world – millions of motorists will make the switch to rechargeable EVs. And how we manage those charging cycles will have a profound effect on the grid.”¹⁹

These profound changes to the system create challenges in how we operate and maintain our network today. They also unlock the potential for us to transform and improve our operations to deliver more value for customers and meet their future energy needs. The ongoing focus on CER and the supporting regulatory frameworks help network operators to manage the increase in customer demand that will occur due to the electrification of gas and transport.

There is a risk that we fail to expand our electricity distribution network capacity sufficiently to keep pace with the growing demand and complexity of the grid, limiting the pace of the transition. For example, insufficient capacity may hinder the electrification of natural gas or installation of EV fleet chargers.

The traditional network that transports one-way electricity from centralised generators to consumers will evolve into one where network operators take an active role in facilitating customers' two-way energy flows and ensuring efficient integration of CER assets.

This will require investments in smart-grid technologies to enable real-time monitoring, control and optimisation of the distribution system. Collaboration with customers and other market participants will help to maximise customer value, promote clean energy generation, and facilitate the transition to a sustainable and resilient energy system.



¹⁸ AEMO: 2022 Integrated System Plan, 2022.

¹⁹ Daniel Westerman: AEMO CEO Daniel Westerman's CEDA keynote address: 'A view from the control room', 2021.



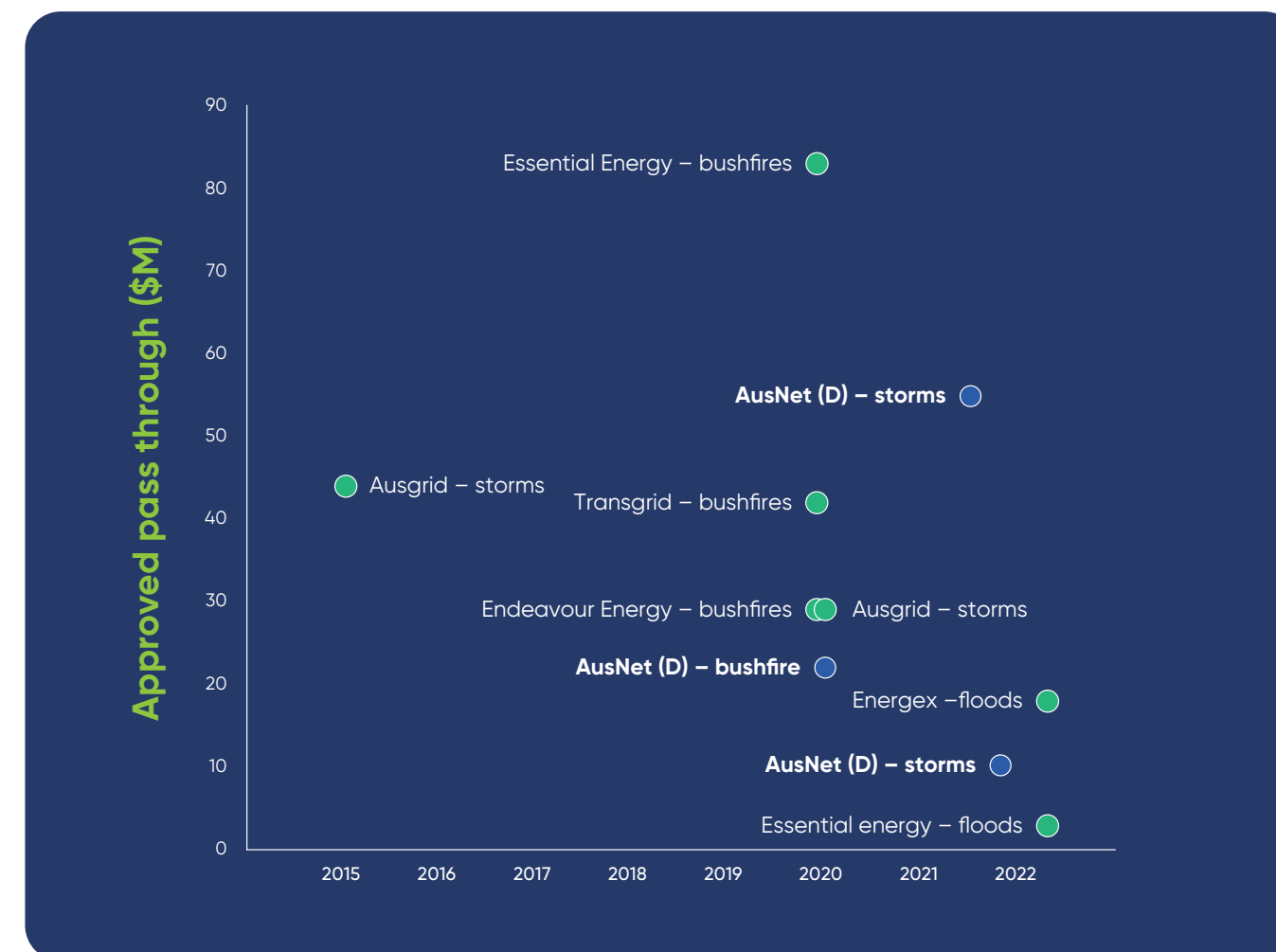
■ ■ ■ CASE STUDY 5

Phillip Island Community Energy Storage System

In June 2023, the \$10 million Phillip Island Community Energy Storage System (PICCESS) was officially opened to provide greater stabilisation for the local network to respond more effectively to seasonal peaks in power demand – such as during summer months and holidays.

The battery will remove the existing need to seasonally locate diesel generators to meet peak electricity demand thereby reducing emissions, noise and the cost of running diesel generators throughout the year. This is a foundational milestone for Phillip Island, in their shift towards a greater renewables focused electricity network.

▼ Figure 13 | Occurrences of pass through due to natural disaster (NEM)²⁰



Network resilience to extreme weather events is a growing concern

We expect that the frequency and severity of extreme events impacting our network will increase as the climate continues to warm. The physical impacts of climate change will be felt more strongly in the electricity distribution as compared to the transmission and gas networks network for increasing climate hazards such as wind, fire and inundation.

As shown in Figure 13, climate change is resulting in more severe weather events having significant impact on networks. Since 2015 there have been more than \$350 million in natural disaster-related pass-throughs in the NEM, including \$116 million for events on AusNet’s networks.²⁰ In particular, bushfire risks are expected to increase and recent events have seen some insurers withdraw from the market and premiums rise – a secondary impact we call out within our top climate-related risks and opportunities (see ‘The major climate-related risks and opportunities’ section).

Community resilience to prolonged power outages caused by extreme events has emerged as a very important issue for our customers following the 2019/20 bushfires and the severe storms of June and October 2021 which caused extensive damage to our network. These events were very extreme; the bushfires led to the first ever State of Disaster being declared in Victoria and the two storms were the largest storms experienced since privatisation in 1994.

Long-term investments to bolster network and community resilience to prolonged power outages will be a key consideration in distribution planning decisions, requiring support by the regulatory framework. New technologies such as microgrids and stand-alone power systems (SAPS) can ensure critical community infrastructure has a continued power supply despite extensive network damage. AusNet is working to identify opportunities to improve network resilience, including detailed climate-hazard risk mapping for our network (see ‘Risk management’ section). In addition, we are engaged with the Victorian Government following the recommendations of the Electricity Distribution Network Resilience Review Expert Panel. A selection of AusNet resilience projects undertaken or underway are outlined on the following page.

²⁰ AER: Cost pass throughs.

CASE STUDY 6

Key resilience opportunities in progress across our network



- Further detailed assessments are being conducted as part of our investment proposals for the 2026–31 EDPR.
- We are also conducting willingness to pay studies for resilience projects in these communities to inform investment plans.

Our actions

Electricity distribution networks will play a key role in decarbonising the electricity and transport sectors and helping our customers manage extreme weather events. We are already preparing for, and responding to, these changes, including through:

- enabling households and business customers to electrify transport and gas appliances
- managing high penetration and (where customers desire) orchestration of CER to enable customers to unlock more value from their investments, including solar PV and EVs
- developing smart ways to integrate and accelerate the uptake of EVs and charging infrastructure
- investing in network resilience solutions (e.g. SAPS) to strengthen critical parts of the network, and reduce the likelihood and customer impact of prolonged power outages caused by more frequent extreme weather events.

In addition, the potential to connect large-scale renewable generators to Victoria's sub-transmission (66 kV) and distribution (22 kV) networks represent a significant opportunity to overcome near-term capacity constraints on the transmission network. While additional investment in distribution capacity will be required, distribution connections have a smaller footprint, and a simpler, faster development process. These projects range from 5 MW to 120 MW in size and are predominantly located within Victoria's Gippsland, Central North and Ovens Murray REZs.

Solution	Description	Completion Date
DEECA Community Microgrids and Sustainable Energy Program	AusNet is currently undertaking preliminary works for various energy solutions to improve resilience in areas impacted by 2019/20 bushfires Solution: Multiple combined solutions including islandable microgrids, behind the meter systems and heat pumps	Implementation in progress Energy Resilience Solutions for Essential Services and Businesses – scheduled for completion in 2024 Corryong Islandable Microgrid – project to commence in late 2023 with a scheduled completion of 2025
Stand-Alone Power Systems (SAPS)	2-year trial of 17 SAPS in regional and rural locations of the network after which (if successful) these customers will be disconnected from the grid and the lines decommissioned Solution: SAPS	Completed June 2023
DEECA Energy Resilience Design Studies	Design studies for energy resilient infrastructure for 11 areas impacted by 2021 storms and at risk of future prolonged power outages Solution: Microgrids and SAPS	Implementation in progress – scheduled for completion in 2024
Phillip Island Community Energy Storage	AusNet are installing a Grid-Scale Battery Energy Storage Solution (BESS) to support peak demand during the summer months (see case study 5) Solution: Battery Energy Storage Solutions	Completed in June 2023



Gas distribution

Approximately four in five households in our service area are connected to the gas network of approximately 12,000 km of main pipelines. As an essential service, the network has been built over decades with long-term investments. These investments have been consistently made despite (stable) low returns because the capital recovery of efficient investment is guaranteed by customers through the regulatory regime.

However, the domestic gas market is facing several challenges arising from meeting Victoria's net zero emissions reduction target.²¹ Conscious that developing a strategy for the future of gas networks would benefit from a whole-of-industry approach, we partnered with our fellow Victorian networks, Australian Gas Networks (AGN) and Multinet Gas Networks (MGN), to convene a panel of independent industry experts to design potential future scenarios that Victorian gas networks could consider. This group determined that customers are best served by keeping both decarbonisation pathways—hydrogen and electrification—open as possibilities. See Table 3 for what these two options might look like in practice.

While it is currently more environmentally friendly to use gas than non-renewable electricity from the grid, the Victorian gas sector contributes around 17 per cent of the state's net emissions.²² We expect a significant shift away from gas to electricity with some decommissioning of the gas network.

This was confirmed in July 2023 when the Victorian Government announced that, from 1 January 2024, new residential developments requiring planning permits would be unable to connect to the gas network.²³ A significant pipeline of new residential connections that do not require planning permits will continue to be able to connect to the gas network. While this will eventually limit and then reverse growth on the gas network, how quickly this will happen, and to what extent, remains unclear given its dependence on government subsidies to incentivise switching. We continue to support the development of renewable gases, such as hydrogen, which remain crucial to decarbonising hard-to-abate industrial and commercial sectors remaining connected to the gas network.

One of the key benefits of this approach is that once there is sufficient certainty, AusNet can quickly start to develop plans that are consistent with the known direction and, where required, undertake the necessary investment or disinvestment. Taking this more flexible, adaptive approach helps us to manage future uncertainties.

Table 3 | Considering what net zero emissions means for gas distribution networks

Hydrogen used as a zero-carbon substitute for natural gas	Full electrification where households and businesses no longer have a gas option
<ul style="list-style-type: none"> Hydrogen – made by splitting water molecules using electricity – is a zero-emissions fuel. When burnt, it returns to water vapour Technology is still being developed – future cost is unclear May result in lower energy costs and faster decarbonisation than electrification, particularly for hard to abate sectors Potential for hydrogen to become a major export industry, and useful storage for excess renewable generation (like big batteries) Customers would retain the choice of having gas and electricity, or electricity only Investment required to make the gas network hydrogen-compatible. 	<ul style="list-style-type: none"> All household gas load would be moved to the electricity network (and distribution gas networks decommissioned) Significant costs associated with closing gas networks before they reach end of life Requires major upgrades to electricity generation and networks (approximately doubling the capacity) Would need to be well-planned, as rushing to electrification would substantially increase bills and emissions Hydrogen may play a minor role, or no role, in Australia's energy system, or only as an export industry.

Our actions

Some things are evident now and we are taking the following 'no-regrets' actions, including:

- recovering our investment over a shorter timeframe in our current Gas Access Arrangement Review (GAAR) 2023–27. This will help us keep long-term prices stable for customers if future demand on the network falls, while also reducing our investment risk
- ensuring our BAU investments (e.g. ageing mains safety replacement program) get the network ready for renewable gas at no extra costs to customers
- preparing for the implementation of the Safeguard Mechanism²⁴ (see Text Box 2) and potential offsets strategy
- supporting industry trials to demonstrate a technically feasible and economic pathway to decarbonisation through renewable gases.

Notwithstanding the recently announced residential connection ban from 2024, the gas network remains a critical component of Victorians' energy security. We anticipate that customers will need reliable and safe gas distribution services for decades to come, even as we move to greater levels of electrification in our homes and industry, and customer gas consumption continues to moderate.

Safeguard Mechanism requires us to reduce our gas network emissions by approximately 30 per cent by 2030.

In 2023, the Federal Government set more ambitious 2030 emissions targets, requiring changes to Australia's principal emissions compliance policy – the Safeguard Mechanism. This applies to approximately 215 facilities with Scope 1 emissions of more than 100,000 t CO₂-e per year.

The Safeguard Mechanism only applies to our gas network (Scope 1) emissions of approximately 185,000 t CO₂-e per year and not either of our electricity networks (predominantly Scope 2) or contestable business. It will require us to reduce emissions by approximately 4.9 per cent per year or surrender Australian Carbon Credit Units capped at \$75/tonne, increasing with CPI plus two per cent per year.

It is anticipated that further legislation will be introduced to reach the Federal Government's net zero emissions target by 2050.

Given the future uncertainty around the gas network, there are limited opportunities for AusNet to reduce emissions beyond existing programs (see Our actions, above), and therefore we will be required to purchase offsets almost immediately. This has been recognised by the AER with these costs recoverable through the regulatory regime.

²¹ DEECA: Victoria's 2035 Emissions Reduction Target, 2023.

²² DEECA: Victoria's 2035 climate action target: driving growth and prosperity, 2023.

²³ Premier of Victoria: 'New Victorian Homes To Go All Electric from 2024' media release, 2023.

²⁴ DCCEEW: Safeguard Mechanism Reforms factsheet, 2023.

Scenario development

Given the inherent uncertainty of climate change, the associated socio-economic changes, and the long-term impacts on our networks, scenario analysis helps us to develop strategic responses that are more flexible and robust to different, plausible future outcomes. To gain deeper insights into the potential climate-related risks and opportunities of these different states, AusNet has tailored three climate scenarios over different future timeframes to 2050²⁶ from a variety of sources.

The scenarios were developed to support future initiatives and help identify physical and transitional climate change impacts and opportunities for different, plausible future warming outcomes. To the extent possible, key relevant characteristics of each scenario were developed to provide descriptions of what each scenario means to AusNet's market drivers, strategic positions, risk management processes, and organisational resilience (see highlights in Tables 4 and 5). The scenarios provide a reference point for future work and align with IPCC scenarios. They also consider previous work completed in our 2021 TCFD Report.

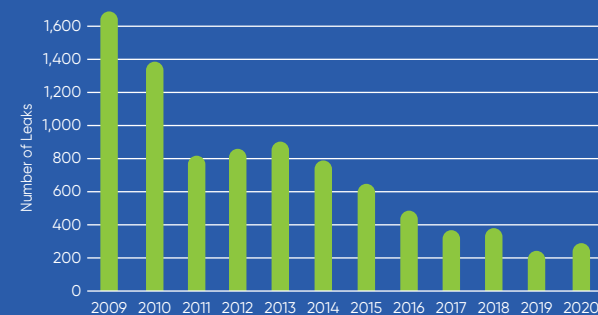
The Runaway scenario references two IPCC Shared Socioeconomic Pathways (SSP)/Representative Concentration Paths (RCP) and includes SSP5/RCP 8.5 and SSP4/RCP 7.0. RCP 8.5 is generally viewed as the worst-case scenario as it assumes no additional efforts to constrain emissions. It is included to consider a worst-case physical risk impact on our assets. SSP2.6 – RCP 4.5 is believed to be more plausible (accounting for current global policies).²⁷

CASE STUDY 7

Gas mains replacement program – a 31% reduction in fugitive emissions

AusNet's ongoing gas mains replacement program has been a long-term project that has removed over 830 km of cast iron and unprotected steel pipes from our low and medium-pressure network. This program of work to replace deteriorating and ageing assets will result in a safer network with reduced GHG emissions. The newly installed polyethylene pipes also have the capacity to transport hydrogen in the future if required.

Between 2009 and 2022, we have reduced emissions by 57,580 t CO₂-e, which equates to a reduction of 31 per cent of the total gas system fugitive emissions for 2022 (or 25 per cent of the total organisation-wide Scope 1 emissions). By 2030, the total emission reductions attributed to the pipe replacement program will have grown to 64,930 t CO₂-e. Over the next five years, we forecast to spend an additional \$134 million on mains replacement (including on the medium and high-pressure network).²⁵ This is expected to reduce gas system emissions by approximately a further 6.5 per cent and is incorporated within our emissions modelling.



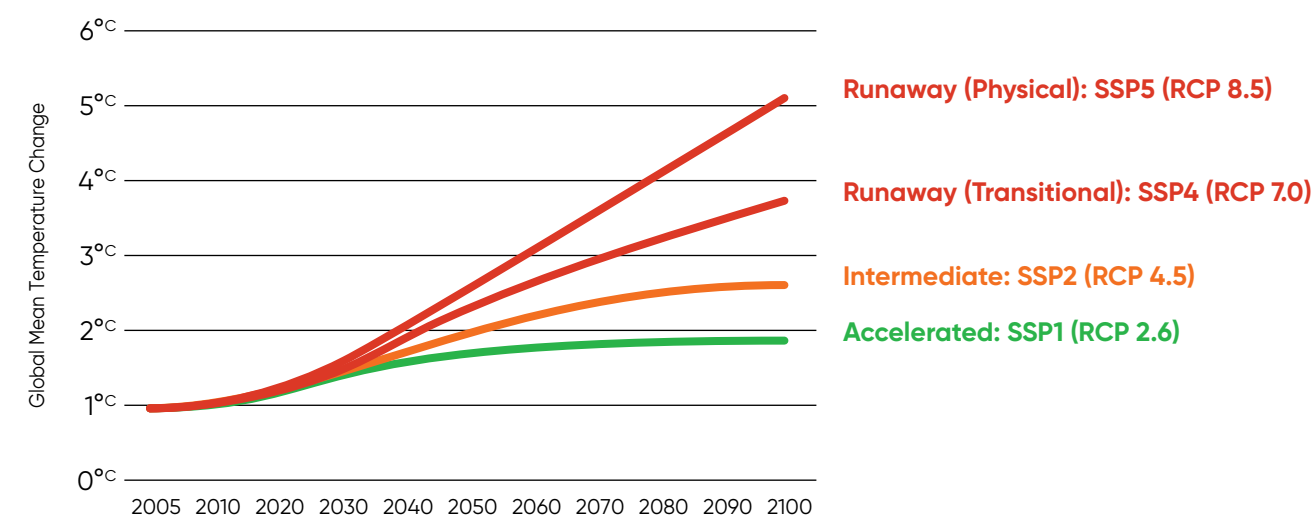
▲ Figure 14 | Annual low pressure gas leaks on AusNet network

²⁵ AusNet: Gas access arrangement review 2024–28, 2023.

Runaway >4°C – aligned with SSP4/RCP 7.0 (transitional risk context) and SSP5/RCP 8.5 (physical risk context)

Intermediate <3°C – aligned with SSP2/RCP 4.5

Accelerated <2°C – aligned with SSP1/RCP 2.6



▲ Figure 15 | Scenario assessment boundary²⁸

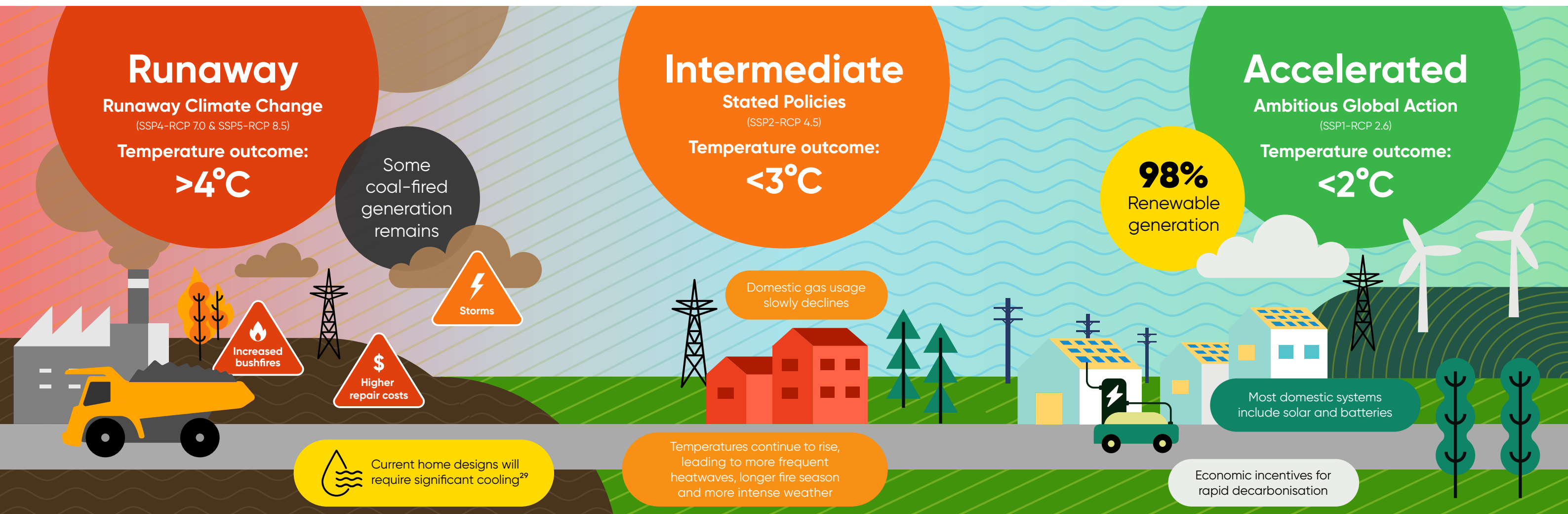
Table 4 and Table 5 outline climate impacts relevant to the Australian energy sector and to the broader community under each of the three scenarios. Furthering these scenarios, AusNet is working jointly with the other Victorian distribution businesses on a climate change risk

assessment to understand exposure of electrical assets, to climate hazards (see 'Risk management' section). This will be used to inform our investment proposals in the 2026–31 Electricity Distribution Price Review (EDPR) and to create a more resilient electrical network across Victoria.

²⁶ The Scenario Analysis is subject to significant assumptions, risks and uncertainties (both known and unknown), many of which are beyond our control. The outcomes and other aspects of the Scenario Analysis are not predictions, forecasts, definitive outcomes, preferred views, or statements of fact. Actual outcomes or impacts may differ materially to the Scenario Analysis.

²⁷ Climate Action Tracker: 2100 Warming Projections, 2022 (Accessed July 2023).

²⁸ Figure 15: IPCC: Climate Change 2023 Synthesis Report of the IPCC sixth Assessment Report (AR6), Longer Report, 2023.



← Business more impacted by climate change

Business more impacted by policy change →

Runaway Utilises AEMO Slow Change	Intermediate Utilises AEMO Progressive Change	Accelerated Utilises AEMO Step Change
<ul style="list-style-type: none"> Less reliable electricity distribution network, with a greater number and severity of network issues Cost-of-living increases due to physical impacts affecting supply chains Weather impacts are more pronounced than other scenarios 	<ul style="list-style-type: none"> Investment to upgrade transmission networks to support the utility scale renewables growth Slower uptake in batteries and EVs Uncoordinated global policies result in inequalities among different countries, with more developed countries benefiting from greater resilience, and less developed countries suffering from climate impacts²⁹ 	<ul style="list-style-type: none"> Ambitious transition across all sectors of the economy Early closure of coal-fired generation Most domestic systems complemented by battery energy storage by 2050 Faster uptake of DER, batteries, EVs, renewables, storage and off-grid solutions Less pronounced changes in climate and less severe weather events

▲ Table 4 | Qualitative characteristics of IPCC core scenarios relevant to the energy sector in Australia

	Runaway		Intermediate		Accelerated	
	2030	2050	2030	2050	2030	2050
Demand						
Road transport that is EV (%) ³¹	2	36	5	84	12	99
Electrification (TWh) (All sectors, including transportation) ³²	0.39	9.33	1.84	45.31	10.68	45.11
NEM Total Underlying Consumption (TWh)	163	213	201	394	222	336
Supply						
Coal Generation (% of total electricity)	32	5	38	2	21	0
Underlying consumption met by distributed energy resources (%)	24	27	20	19	20	24
Household daily consumption potential stored in batteries (%)	3	5	5	22	12	38
Emissions						
NEM Emissions (Mt CO ₂ -e)	53.3	13.0	77.2	22.4	48.1	6.8

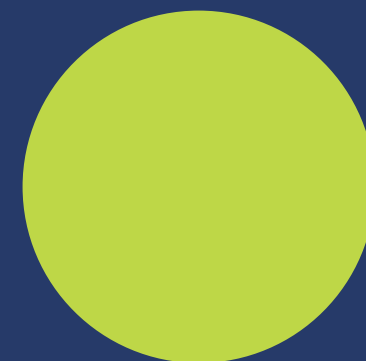
▲ Table 5 | Quantitative characteristics of scenarios relevant to the energy sector

²⁹ Asha, N. Future Proofing Residential Development to Climate Change, 2022.
³⁰ Deloitte: Climate Scenarios and Consumer Business - Four futures for a changing sector, 2020.

³¹ AEMO: 2022 Integrated System Plan, 2022.
³² AEMO: Forecasting Assumptions update workbook, 2022.

02

Risk management



Overview of risk management at AusNet

Management of risk is an integral part our business, and the effective management of uncertainty is central to our continued growth and success. AusNet is committed to understanding and effectively managing risk for its shareholders, employees, customers, suppliers, and the communities in which it operates.

AusNet has been managing climate-related risk for over a decade. Understanding the potential impacts of the physical climate and the changing energy sector, in response to carbon reduction, is actively managed operationally, strategically, and through stakeholder and regulatory conversations.

Risk Management Framework

AusNet’s guiding principle of risk management is ‘to enhance strategic and operational decision-making to optimise business performance by managing exposures’.

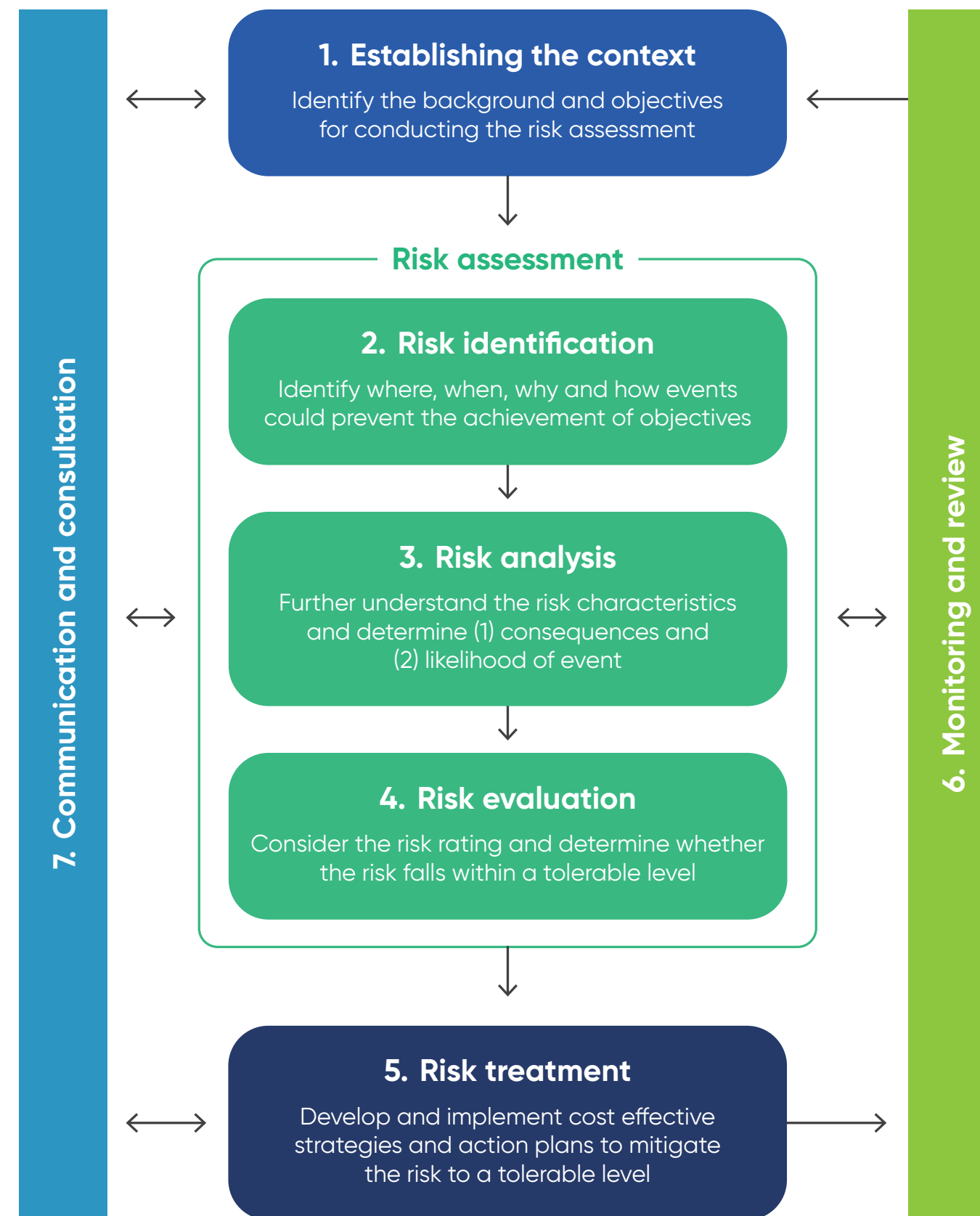
We have an Enterprise Risk Management (ERM) Framework which is designed to identify, assess and mitigate risks to minimise their potential impact on the achievement of the organisation’s strategy. AusNet’s ERM Framework aligns to ISO 31000:2018. Climate-related risks and opportunities are included in the scope of our ERM Framework, processes and reporting. The diagram below represents the ERM Framework.



Risk management process

AusNet adopts a structured and consistent process for recognising, understanding and responding to risk. All employees are responsible for the management of risk in accordance with the Risk Management Policy. Management is responsible for embedding sound risk management practices across all business activities, and all employees and contractors are expected to proactively identify, manage, review and report risks.

AusNet uses its risk management capabilities to maximise the value from its assets, projects, and other business opportunities. Risks faced by AusNet (including climate-related risks) are managed on an enterprise-wide basis and are identified, analysed, evaluated, and prioritised in a consistent manner using common systems and methodologies. All risks, including climate change risks identified through the AusNet Risk Management Framework, are ranked and prioritised based on the potential likelihood and consequence of the risk occurring. The Audit and Risk Committee (ARC) supports the Board in its consideration of the adequacy and effectiveness of AusNet’s Risk Management Framework, including risk identification and management processes (see 'Governance' section).



▲ Figure 16 | AusNet Risk Management Process

AusNet's climate-related risk assessment journey

Climate change risk management is a dynamic and integrated process across the AusNet business. There are three levels of key risk assessment processes and each is outlined in different sections of the report. They include:

- **Enterprise risk register** (see Text Box 3)
- **Climate-specific risk register** (see 'Highlights - The major climate-related risks and opportunities' section)
- **Asset level climate-risk analysis** which is critical to adequately managing climate-related risk to our assets and maintaining the services we provide. This work has begun with our industry colleagues and further detailed work will be required to understand temporal and regional risks to our assets (see 'Physical risks of climate change' section).

In 2021, we undertook an initial high-level climate change scenario analysis which was refreshed in 2023 following multiple targeted workshops with senior internal stakeholders. This analysis identified key areas of climate-related risk and opportunities under the three climate scenarios based on stakeholders' knowledge about the organisation. For the summary of the climate-related risk and opportunities register, see Table 1.

Our climate-related risk assessments to date have been largely qualitative. We know that climate-related risks and opportunities have financial implications. The most obvious financial implication is when we have funded significant restoration and clean-up associated with major storms or bushfires. Loss of power can also lead to significant costs and lost revenue for our customers.

Quantifying the costs and benefits of climate change in dollar terms is difficult because there are often elements that have no obvious dollar value, or may continue in the long-term, for example, stress and fatigue of staff during an emergency.

Our aim in future TCFD Reports is to disclose (at least some) material financial impacts and opportunities related to climate change. In the meantime, this, our second TCFD Report, paves the way in understanding how climate change is affecting every aspect of our business, and the efforts we are making to prepare.

Enterprise Risk Register – climate change considered within our top material risks

Within the Enterprise Risk Register, AusNet has a top 10 material risk list that is monitored by the Board. Due to its broad scope, climate change is not individually identified as a specific risk but rather four of these material risks have been identified as having a potential to be impacted or exacerbated by climate change.

These include:

- policy and regulation
- catastrophic asset failure
- catastrophic bushfire
- natural disasters.

These risks are actively managed and monitored by the Executive Group Risk Committee (EGRC). Controls and mitigations have been identified in line with the Enterprise Risk Management Framework to ensure the residual risk is within acceptable parameters.



Physical climate-related risks to our network

Understanding the impact of physical climate hazards on our networks

AusNet's management of physical climate-related risks is not new and has been managed as part of our core business for many years, and this process is continuing to mature.

In 2009, AECOM was engaged to conduct an assessment to understand the likely impacts of climate change on the AusNet network.³³ This report considered the material consequence of these impacts and provided advice for how AusNet should adjust the way it operates and develops its network in response to these risks.

The report found that extreme heat, windstorms and bushfires were the types of extreme weather which would most significantly affect AusNet's system reliability during the considered period. Based on this information, we made changes to operational expenditure forecasts for that regulatory period, considering the likelihood of both acute and chronic climatic impacts to network assets. These included:

- extreme weather event impacts on network performance and operating costs
- potential effects on asset lifespan and/or maintenance costs
- changes to asset design requirements and capability
- changes to bushfire management.

In 2023, the five Victorian electricity distribution businesses engaged AECOM to conduct a study on Victorian climate change, to inform steps required to create a more resilient electricity network. This report will inform the way we plan, design, construct and maintain our distribution and transmission electricity networks, considering hazards caused by climate change.

At the time of publication, this analysis was still underway, however, Table 6 outlines the initial results of the study, highlighting the different climate-related hazards and the potential impact to different types of network assets (e.g. poles, towers, substations).³⁴ The hazard analysis is modelled using IPCC's RCP scenarios of RCP 8.5 (4°C) and RCP 4.5 (2.7°C), in line with the qualitative scenarios developed by AusNet (see 'Scenario development' section). In most cases, the level of physical risk is greater in a 4°C scenario than a 2.7°C scenario. This modelling will form the basis for a more focused assessment, narrowing the hazard risk type to specific assets and locations on AusNet's network. We expect to provide further detail in subsequent TCFD Reports.

▼ **Table 6** | Changes in climate-related hazards that can affect Victoria's electricity networks³⁵

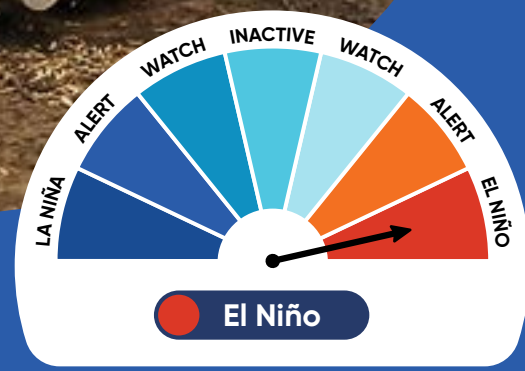
Climate hazard	Network and asset risk and vulnerability
Temperature There is a projected increase in the number of extreme heat days and more frequent heatwaves across Victoria.	<ul style="list-style-type: none"> • Extreme temperatures can have impacts on both overhead transmission and distribution lines, causing sagging of the lines and necessitating derating, which may lead to network outages. • Temperatures above operational standards can result in the need to derate substations and cause faults in communications equipment. • Heatwaves can cause extended duration of overload to distribution transformers, substations and underground cables, leading to damage and/or early asset failure.
Wind For southern Australia and eastern Australia, the median results from the ensemble modelling projected a 7% to 8% increased frequency for severe convective winds. <i>Note – Low confidence</i>	<ul style="list-style-type: none"> • Extreme wind presents risk to overhead transmission and distribution lines. There is the potential to cause damage from debris contact, or from increased structural loads that exceed safe design limits of overhead structures. • Extreme wind and debris contact presents a risk to poles, towers and communications equipment, as it can damage or destroy the asset and has the potential to impact customer supply.
Bushfires³⁶ Under a high emissions scenario, the number of high-risk bushfire days per year in 2070 is projected to increase by between approximately 10 to 20 fire days across much of the state.	<ul style="list-style-type: none"> • The increased intensity and frequency of bushfires was considered to present direct risks to all transmission and distribution asset categories except underground lines and cables. • Most of the identified risks related to bushfires were associated with damage or destruction of the asset.
Precipitation Much of Victoria is projected to experience more frequent and intense extreme rainfall events, however the frequency of events varies by region across the state.	<ul style="list-style-type: none"> • Increased intensity and frequency of extreme rainfall was considered to present risks to overhead transmission and distribution lines, poles, towers, substations, and communications equipment. • Flooding can cause the destabilisation of the foundations of towers, poles, and substations resulting in damage to the asset. • It was also identified that flooding can limit access to assets, limiting the ability to undertake repair works, prolonging network disruptions. • Flooding can cause communications equipment and substations to be inundated, potentially damaging low-lying assets.
Sea level rise Sea levels across Victoria's coast are projected to rise approximately 24 cm by the 2050s and could be as much as 54 cm by 2070.	<ul style="list-style-type: none"> • Sea level rise primarily presents risks to poles, underground cables and substations. • Poles may be inundated, resulting in the erosion and destabilisation of the asset's foundations. • Sea level rise, in combination with winds, may cause increased sea spray, hastening corrosion of metal assets. • Coastal inundation may also cause erosion in underground assets. • Underground cables' armouring may be exposed to more saline groundwater, leading to failure.

³³ AECOM, Assessment of Climate Change Impacts on SP AusNet Electricity Networks for 2011-2015 EDPR, 2009.

³⁴ AECOM climate change report, Climate Change Study for Victorian Electricity Distribution Businesses – Phase 1, 2023.

³⁵ AECOM climate change report, Climate Change Study for Victorian Electricity Distribution Businesses – Phase 1, 2023.

³⁶ The assessment only considers the risk of bushfire to assets. It does not consider the risk of assets igniting or causing a bushfire or grassfire, noting that the 2009 Victorian Bushfires Royal Commission found transmission networks have never started a bushfire, 2020 (Accessed August 2020).



CASE STUDY 8

Managing physical risks in a cyclical climate – bushfires and the REFCL program

The El Niño and La Niña cyclical weather patterns can cause periods of high fire danger and impact vegetation growth. At the time of writing, an El Niño climate pattern had recently been declared, with climate model outlooks suggesting it would continue until at least the end of the southern hemisphere summer 2023–24.³⁷ This weather pattern typically means reduced rainfall, warmer temperatures, and an increased bushfire danger in Southeast Australia.³⁸

Since 2017, AusNet has progressed the Rapid Earth Fault Current Limiter (REFCL) program, which will assist with the management of increased bushfire risk during the dry El Niño season.

REFCLs operate like a giant safety switch in the electricity network, reducing the amount of energy released when an earth fault occurs on a powerline. Earth faults on powerlines have been proven to start some bushfires. Originally developed in Europe to provide reliability benefits, REFCLs are now being deployed across regions of Victoria most susceptible to bushfires.

In a high-voltage, three-phase system, an earth fault occurs when a powerline contacts a tree, touches the ground, or wildlife touches the pole and powerline at the same time. When REFCL operates, it significantly limits the energy flow on the affected powerline, while increasing the voltage on the two remaining lines. This significantly reduces the possibility of a fire, damage to property, or electric shock to a nearby person or animal, while maintaining power supply to surrounding homes and businesses.

AusNet will build REFCLs in 22 locations in outer Melbourne and across northern and eastern Victoria in areas identified as posing a high bushfire risk, as depicted in Figure 17, below. As of July 2023, 21 REFCL systems are already operating and successfully reducing the risk of bushfires in our communities. The final remaining REFCL system is planned and under construction in Benalla, with a projected completion date of 1 November 2023.



³⁷ Bureau of Meteorology: El Niño Southern Oscillation outlook (Accessed July 2023).
³⁸ Bureau of Meteorology: What is El Niño and how does it impact Australia? (Accessed July 2023).

▲ Figure 17 | Aerial inspections on our distribution network (top), and AusNet REFCL program map upon completion (bottom)

03

Metrics and targets



Performance against metrics

We are committed to enhancing transparency and disclosure of our mitigation strategies and performance on climate change metrics. The metrics outlined in Table 7 disclose progress against our overall emissions target, as well as actions to reduce emissions across our two emissions sub-categories. This information forms our 2022 baseline, which we will report against in subsequent years.

We also intend to expand our reporting to include those metrics marked with an asterisk in Table 7 and relevant cross-industry metrics as per the TCFD guidance.

Over and above decarbonisation-related metrics, in 2023 we became a signatory to the Energy Charter. We commit to its purpose of delivering better energy outcomes for customers and communities, and will provide future disclosure of our progress against its principles on our community hub.

[AusNet's Community Hub](#)

Metric	Unit of Measurement	Metric Value (2022)
Total Greenhouse Gas Emissions (Network loss emissions and in-house emissions)		
Absolute Scope 1 and 2 emissions – AusNet Group	t CO ₂ -e (absolute)	1.73 M
Offsets purchased or surrendered	ACCU or equivalent	0
Net Scope 1 and 2 emissions (less offsets)	t CO ₂ -e (net)	1.73 M
Absolute Scope 3 emissions – AusNet Group	t CO ₂ -e (absolute)	**
Targets and KPIs on emissions sub-categories		
Reduction in total operational Scope 1 and 2 emissions, cumulative compared with base year	% and t CO ₂ -e (net)	** base year
Network loss emissions (Scope 1 and 2) – indirectly reduced		
Reduction in network loss emissions, cumulative compared with base year	% and t CO ₂ -e (net)	** base year
Renewable generator and storage systems connected by AusNet to the Victorian grid		3.7 GW
• Transmission ³⁹	GW connected	0.65 GW
• Distribution and sub-transmission (large-scale generators) ⁴⁰		0.9 GW
• Distribution (rooftop solar PV) ⁴¹		
New connections (contracted) for large-scale renewable generators ⁴²	GW connected	2.2 GW delivered 1.6 GW under construction
New transmission infrastructure built to unlock renewable energy capacity, e.g. for Renewable Energy Zones ⁴³	GW of new capacity unlocked	3 GW under development (Western Renewables Link)
Reduction in fugitive gas emissions from mains replaced (low/medium pressure), cumulative	km replaced, and t CO ₂ -e reduction	830 km since 2009 57,580 CO ₂ -e
In-house emissions (Scope 1 and 2) – directly reduced		
Reduction in in-house emissions, cumulative compared with base year	% and t CO ₂ -e (net)	** base year
Electric vehicles in AusNet fleet	% of fleet	**
Net zero carbon electricity as a percentage of total electricity consumed by AusNet	%	**

▲ **Table 7** | AusNet climate-related performance and KPIs^{39 40 41 42}

³⁹ Non-contestable cut-in interface works to the primary Victorian Transmission network operated by AusNet.

⁴⁰ Renewable generator and storage (>1.5 MW) connected to the high and medium voltage Distribution network.

⁴¹ Rooftop solar PV connected to our low-voltage Distribution network (behind-the-meter).

⁴² Contestable shared network or connection assets to connect renewable generators to the medium and high voltage Transmission network.

⁴³ New transmission 'backbone' infrastructure to connect and allow export from new areas with renewable development (e.g. Renewable Energy Zones) to the rest of the network.

Our major emissions sources

Transmission and distribution electricity network loss emissions

(Scope 2) are the emissions associated with energy lost as it travels through our networks. On our networks, approximately two per cent of total electricity is lost in transmission and six per cent in distribution. Transmission networks experience lower losses due to the higher voltage at which electricity is transported. While the expected growth in electricity demand will increase network losses overall, the emissions associated with these losses will reduce as the carbon intensity (emissions factor) of the electricity transported on our networks is falling. This is primarily because of the displacement of fossil fuel generation by renewable generation which we enable through our network infrastructure.

Importantly, losses may vary dramatically from year to year due to variability in generator dispatch, consumption patterns, system configuration changes and climatic conditions.

Fugitive gas emissions

(Scope 1) result from the leakage of gas as it is transported through our pipelines. Emissions from our gas network are not impacted by the volume of gas delivered, but are a function of gas pressure and the inherent system design that allows for gas releases to maintain network safety. Therefore, even if gas usage declines, losses will not reduce until sections of the network are decommissioned.

Given the uncertainties around the long-term future of the network, our focus remains on prudent replacement of ageing gas mains to minimise leaks and maintain safety, as well as the exploration of carbon offsets/credits to meet our regulatory requirements under the Safeguard Mechanism.

Sulphur hexafluoride

(SF₆ – Scope 1) is a gas commonly used across electricity networks around the world as an electrical insulating medium to prevent short circuits in transmission and distribution switchgear. Although used in small amounts, it has a greenhouse warming potential 25,000 times higher than CO₂-e. Today, SF₆ is technically challenging to replace. Future opportunities for non-SF₆ switchgear are being piloted internationally and AusNet will keep a close watch on developments. Meanwhile, our focus is on minimising losses from new equipment by ensuring it uses ultra-low loss seals, and replacing ageing high-leak equipment during major terminal station refurbishment projects.



AusNet emissions profile

2021/22 reporting year

We currently report our Scope 1 and 2 GHG emissions under Australia's NGERs Scheme across all of AusNet's business groups⁴⁴, for the financial year 1 July to 30 June.

There has been a long-term reduction in AusNet's reported overall emissions, resulting in an approximate 25 per cent reduction in reported 2021/22 total emissions compared to those reported in 2014/15.⁴⁵

In 2021/22, however, there was an increase in AusNet's reported emissions of 182 kt CO₂-e (11.7 per cent) compared to 2020/2021, as shown in Table 8. By far the greatest contributor to this increase is the emissions attributable to transmission network losses (20.9 per cent increase). The increase in emissions has occurred despite an approximate two per cent reduction in the emissions factor applied by the Clean Energy Regulator.

An internal review found that the increase could not be attributed to any single cause, but was rather a combination of:

- increased electricity transmission through the system from previous years due to higher demand
- increased utilisation of renewable energy sources at locations requiring longer transmission distances and at lower voltages than traditional coal-fired generation sources
- increased interstate transfers to supplement the shortfall in existing coal-fired generation in Victoria
- potentially higher transformer losses than previous years, specifically related to the different voltages for electricity transfers between South Australia and Victoria, and between New South Wales and Victoria.

These findings demonstrate the complexity of forecasting network losses and the associated emissions. This is because, at any point in time, they are dependent upon the system configuration, dispatch instructions by the market operator, and generation and load profiles.

Network losses are a function of resistance, and are present in all electricity networks, making it inherently complex and expensive to reduce. However, AusNet can reduce the emissions caused by network losses over the medium-term through connecting new renewable generation and building the transmission infrastructure where new generation is being built. We intend to report on these enabling actions as part of our progress in achieving our interim 50 per cent reduction by 2030 target (see 'Performance against metrics' section).

▼ **Table 8** | AusNet's historical Scope 1 and 2 emissions

Year ended 30 June ⁴⁶	2018/19	2019/20	2020/21	2021/22	% Change 20/21 vs 21/22
Scope 1 GHG emissions	207,841	210,866	229,917	231,682	+0.4%
Scope 2 GHG emissions	1,395,115	1,352,484	1,319,230	1,499,364	+13.7%
Total emissions (Scope 1 and 2 – absolute)	1,602,956	1,563,350	1,549,147	1,731,046	+11.7%
Network loss emissions	1,540,244	1,499,154	1,491,354	1,672,615	+12.2%
Electricity transmission	877,496	869,954	859,952	1,039,839	+20.9%
Electricity distribution	503,349	468,544	449,914	450,854	+0.2%
Gas fugitive emissions	159,399	160,656	181,488 ⁴⁷	181,922	+0.2%
In-house emissions	62,712	64,196	57,793	58,431	+1.1%

⁴⁴ Energy produced and consumed by the corporate group that comprises Australian Energy Holdings No1 Pty Ltd and its subsidiaries or controlled entities, including AusNet Pty Ltd and its subsidiaries and controlled entities.

⁴⁵ Performance as publicly reported to the Clean Energy Regulator – unadjusted for methodology changes applied by the regulator.

⁴⁶ AusNet National Greenhouse and Energy Reporting Section 19 – Emissions and Energy Report 2021-2022.

⁴⁷ The increase in gas fugitive emissions (Scope 1) was primarily due to a methodology change applied by the Clean Energy Regulator that increased the global warming potential (GWP) factor for methane from 25 to 28.

Approach to setting emissions targets

Consistency with science-based targets

The Science Based Targets initiative (SBTi) aims to help companies set and achieve ambitious climate targets aligned with the Paris Agreement goal of limiting global warming to below 2°C above pre-industrial levels.

We have used the SBTi online calculator to assess and align our 2030 target to a 1.5°C pathway, and have used an absolute contraction approach.⁴⁸ This is a widely used approach involving an absolute reduction in the organisation's total emissions in a linear trajectory to meet interim and long-term targets.

AusNet's interim target of a 50 per cent reduction in Scope 1 and 2 emissions by 2030 relative to a 2022 baseline is above the ambition required to be consistent with the requirements under the absolute contraction approach. However, there are additional criteria (including for Scope 3⁴⁹) that would need to be met by AusNet to be able to submit and have a target reviewed, validated and formally published by SBTi. We will consider this once we have completed a Scope 3 assessment.



There are major uncertainties that will impact our trajectory (both up and down)

Modelling of the energy demand and decarbonisation trajectory underpinning our targets is based on the latest publicly available information from the Australian Government and market bodies. These are subject to significant assumptions, risks and uncertainties (both known and unknown), many of which are beyond our control. Actual outcomes may differ materially from those forecasts.

Figure 18 illustrates a representative emissions reduction pathway to reach AusNet's 2030 and 2045 commitments. While this shows a linear reduction in emissions between the key target years, it is likely that the pathway of our emissions reduction will not be linear and may fluctuate from year to year depending on a range of factors including:

- variability in annual gas and electricity demand caused by, among other factors, weather (e.g. colder winters), economic conditions, customer energy saving behaviour, and availability of adequate supply
- annual generation, load profiles and dispatch instructions by the market operator (e.g. see 'AusNet emissions profile – 2021/22 reporting year' for an explanation for the spike in emissions due to transmission line losses in 2021/22).

Similarly, through to our interim 2030 target and beyond, the reduction pathway for our 97 per cent network loss emissions will be directly impacted by market factors that influence the speed of decarbonisation of the Victorian grid, including:

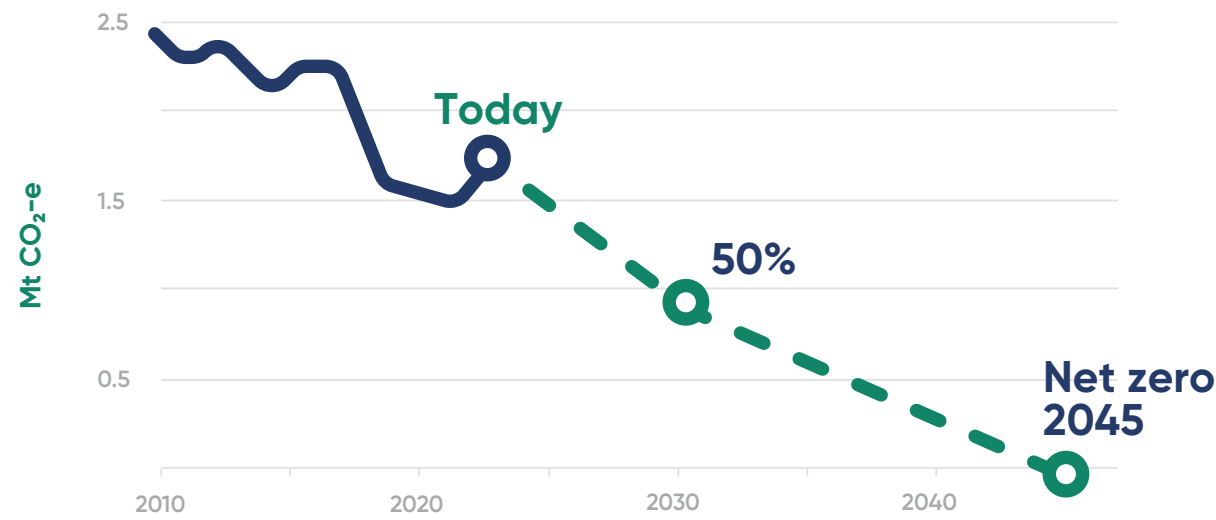
- timing for coal power station closures
- timing for new renewable generation developments, including offshore wind
- timely delivery of new transmission infrastructure
- climate change and related regulations and policies that impact the broader energy market (e.g. the Safeguard Mechanism, electrification incentives, vehicle fuel efficiency standards).

Further information is outlined in 'Key sources and assumptions'.

⁴⁸ The SBT absolute reduction approach prescribes a 4.2 per cent minimum linear annual reduction rate using a 2020 baseline. The Sector Decarbonisation Approach (SDA) for Power and Utilities, published in June 2020, provides specific guidance for companies in this sector, however, it includes an exemption for transmission and distribution (T&D) companies that do not generate electricity and should instead primarily adhere to the general Absolute Emission Reduction requirements outlined by the SBTi.

⁴⁹ If a company's relevant Scope 3 emissions are 40 per cent or more of total Scope 1, 2 and 3 emissions, then they must be included in near-term science-based targets.

Emissions reductions journey 2010 to 2045



▲ Figure 18 | Representative target and goal trajectory⁵⁰

Key definitions

To provide clarity about our approach to reducing emissions, AusNet has adopted the following definitions, in line with industry peers:⁵¹

- **Target:** An intended outcome about which we have identified one or more pathways for delivery of that outcome, subject to certain assumptions or conditions.
- **Goal:** An ambition to seek an outcome for which there is no current pathway(s) but for which efforts will be pursued towards addressing that challenge, subject to certain assumptions or conditions.

Actions to achieve our targets

We are actively taking steps to reduce network loss emissions by connecting new renewables as quickly and efficiently as possible, increasing network capacity through new high voltage transmission, and integrating CERs onto our distribution network (including more than 27 per cent of residential customers with rooftop solar). We are also reducing methane leaks on the gas network by replacing ageing pipelines with modern polyethylene pipes, which are hydrogen-ready should the need arise.

For our in-house emissions, we will continue to invest in projects to directly reduce emissions from switchgear, progressively decarbonise our vehicle fleet, and transition our electricity usage to renewable energy, commencing with our largest sites. More detail on our current actions and a selection of current projects underway for both network loss emissions and in-house emissions is contained in the 'Highlights' section, and in case studies throughout this report.

When considering our emissions abatement, we will adopt a technology-neutral approach, underpinned by analysis such as marginal abatement cost curves to inform options. We believe the path to net zero should prioritise least cost abatement for the whole energy system, including consideration of the interactions between electricity, gas and liquid fuels. This may include offsets, provided those methods and activities are credible, and we will investigate these where applicable to meet our Safeguard Mechanism requirements and to offset in-house emissions that cannot be directly avoided.



Scope 3 emissions

Scope 3 emissions are indirect GHG emissions that are generated in the wider economy. They occur because of the activities of a company, but from sources not owned or controlled by them – such as the actions of suppliers, distributors, and end use of products by consumers. Scope 3 emissions are an important element of limiting global emissions and we recognise the need to set targets and reduce these emissions where practical to do so.

Scope 3 emissions often account for the largest proportion of an organisation's emissions and are often the last source of emissions to be included in corporate targets and initiatives. The fundamental reason why Scope 3 emissions are so difficult to manage is because they include emissions we have little or no direct control over. Therefore, developing an accurate account is difficult due to a lack of reliable, accurate and specific data.

For AusNet, the majority of our Scope 3 emissions are associated with customers using the gas that is transported through our network in their homes. The other major source is the emissions embodied in the assets we build (e.g. manufacturing and transportation of steel and concrete), and during construction of network infrastructure. Scope 3 emissions are also in the products and services we use.

In future, we will seek to clarify AusNet's ability to influence these emissions, our role and responsibility considering respective roles for those who produce the energy we transport, or who provide inputs into our assets. For example, the Scope 3 emissions associated with the gas that flows through our network could be reduced in several ways:

- closer to the source by improving production efficiencies at the wellhead
- through an electrification or a hydrogen pathway (see Table 3).

Despite these challenges, there is a lot we can do, such as collaborating on emissions reduction projects with our suppliers, and in the delivery of our assets. While we have not yet created a corporate target, we are working to map our Scope 3 emissions and expect to be able to report on this in the future.

⁵⁰ Actual emissions as reported to the Clean Energy Regulator. Forecast emissions trajectory is indicative, and for illustrative purposes only. This shows a linear reduction between the key target years, where in reality we expect our actual emissions profile to fluctuate on an annual basis around this overall downward trend.

⁵¹ BHP Climate Transition Action Plan 2021, APA Climate Transition Plan 2022.



Key sources and assumptions

As part of the preparation of this report, the appropriate use of the major assumptions underpinning our targets was independently reviewed.

AusNet's emissions reduction targets rely on a range of Federal Government and Regulator generated (public) sources to inform and forecast emissions reduction performance. These include the Australian Energy Market Operator Integrated System Plan step change scenario, and the Department of Climate Change, Energy, the Environment and Water (DCCEEW) forecast for the emissions intensity of the Victorian electricity grid through to 2030.

The achievement of our interim 2030 target assumes that these trajectories are broadly realised. Major deviations to these trajectories and underlying assumptions could influence the achievability of our targets, in particular, for the network loss emissions that we cannot directly control. While many of these assumptions are beyond our control, we commit to updating our targets in line with any material performance, market, policy or regulatory changes.

Key assumptions underpinning our 2030 interim target and net zero goal

Achievement of Federal and State Government climate and renewable energy targets

Australia has recently updated its Nationally Determined Contribution (NDC) under Article 4 of the Paris Agreement, demonstrating an increased ambition in its 2030 target. The revised commitment sets a clear single-year goal of achieving an economy wide 43 per cent emissions reduction by 2030 target and an 82 per cent renewable energy target by 2030.⁵²

Similarly, the Victorian Government's Climate Change Act 2017 has legislated an economy-wide net zero GHG emissions target by 2050 (2005 baseline) and a 28 to 33 per cent reduction by the end of 2025 as an interim target.

They have also legislated a 50 per cent Victorian Renewable Energy Target (VRET) by 2030.⁵³

The achievement of our corporate emissions target and goal will be supported by the recent announcement by the Victorian Government of more ambitious targets⁵⁴:

- reduce emissions by 75 to 80 per cent below 2005 levels by 2035
- achieve net zero emissions by 2045
- for 95 per cent of electricity to be produced by renewable energy sources by 2035.

Electricity demand and grid intensity forecasts

DCCEEW provides an emission factor for each Australian state and territory, which is used to forecast the emissions associated with Scope 2 electricity emissions, including our line losses. We use the emissions factor for Victoria, which forecasts that the emissions intensity of the electricity we transmit and distribute is forecast to fall by 56 per cent by 2030 on a 2022 baseline.⁵⁵

We have also used the 2022 AEMO Electricity Statement of Opportunities Central (step-change) scenario as the basis for future demand growth, which projects an approximate 15% increase in electricity demand over the same period, principally due to the electrification of gas and transport.⁵⁶ The ES00 is updated annually, and we will integrate subsequent releases in future target forecasting.

Gas demand and emissions intensity forecasts

We do not expect significant reductions in network losses (Scope 1) from the gas network due to the fact that emissions are primarily a function of pressure and pipeline length, and not usage. We have not assumed any changes in pipeline length (e.g. through decommissioning), nor changes to the emissions intensity of the gas currently transported through our network. This may change in the future, for instance if a renewable gas target was implemented.

The impacts of the Safeguard Mechanism have not yet been integrated into our modelling given that the final baseline methodology is still under development. However, we expect the Safeguard Mechanism to make our 2030 target more achievable, by mandating an approximate 4.9 per cent annual reduction (see Text Box 2) which is higher than our existing assumptions. Given the timing of this report, the implications from the Victorian Government's July 2023 announcement that new residential developments will be unable to connect to the gas network⁵⁷ is not yet considered within our modelling.

⁵² DCCEEW: Australia's Emissions Projections 2022, 2022 – Victoria.

⁵³ DEECA: Victorian electricity sector renewable energy transition – energy market modelling, 2022.

⁵⁴ DEECA: Victoria's 2035 Emissions Reduction Target, 2023.

⁵⁵ DCCEEW: Australia's Emissions Projections 2022, 2022 – Victoria.

⁵⁶ AEMO: Electricity Statement of Opportunities 2022.

⁵⁷ Premier of Victoria Media Release, 28 July 2023 – New Victorian Homes To Go All Electric from 2024.

TCFD disclosure progress and future activities

Since 2021, AusNet has made significant progress towards aligning with the TCFD. We are committed to increasing transparency and disclosure of our climate change performance over time to support stakeholder decision-making. Table 9 is a summary of the progress we have made to date and the key activities we intend to undertake in the future.



2023 Progress HIGHLIGHTS

Focus on disclosure of updated climate-related risks and opportunities and integrate these into strategy and risk management processes. Disclose emissions targets

Key actions addressed in this report include:

Governance

- Documented the Board’s leadership and oversight of climate-related risks and opportunities, and Management’s responsibilities
- Released climate change position statement

Strategy

- Refreshed reference scenarios to latest IPCC guidance
- Disclosed the results of climate-related risks and opportunities high level assessment
- Described how climate-related risks and opportunities are integrated into the AusNet’s strategy

Risk management

- Integrated processes for identifying and assessing, climate-related risks into AusNet’s overall risk management process
- Identified existing controls and management response around material climate risks

Metrics and targets

- Disclosed emission reduction targets (scope 1 & 2)
- Disclosed pipeline of actions to reduce emissions and metrics for monitoring

Currently in dev. HIGHLIGHTS

Further qualify the impacts of both transitional and physical risks and opportunities, including localised climate-hazard mapping and physical risk assessment against our assets. Formalise our Decarbonisation Action Plan and enhance tracking, monitoring and disclosure of progress

Key roadmap actions include:

Governance

- Establish a formal cadence to enhance monitoring of climate-related risks and opportunities and targets

Strategy

- Further qualify the impacts of physical and transitional climate-related risks on AusNet’s assets
- Secure funding for climate resilience programs as a part of EDPR 2026-31 submission process

Risk management

- Align each identified climate-related risk and opportunity with AusNet’s existing management systems for action and accountability
- Invest with industry peers to understand how specific climate hazards will impact AusNet asset categories at a localised level

Metrics and targets

- Formalise a Decarbonisation Action Plan for meeting future emissions reduction targets

Future year activities HIGHLIGHTS

Deliver upon planned decarbonisation actions. Further mature TCFD-alignment which includes incorporation of scenario analysis into strategy, asset management integration and disclosure of Scope 3 emissions, internal carbon price etc.

Key roadmap actions include:

Governance

- Disclose and outline the decarbonisation roadmap - specifically completed and future actions.
- Align with future mandatory climate risk disclosure requirements in Australia

Strategy

- Develop a Marginal Abatement Cost Curve of abatement options to inform future investment plans and offsets strategy

Risk management

- Enhance internal capacity to autonomously track, consider and plan for climate change, including Asset Management planning and regulatory submissions

Metrics and targets

- Disclose scope 3 emissions, consider its inclusion in SBT, develop a scope 3 reduction plan
- Implement internal price on carbon

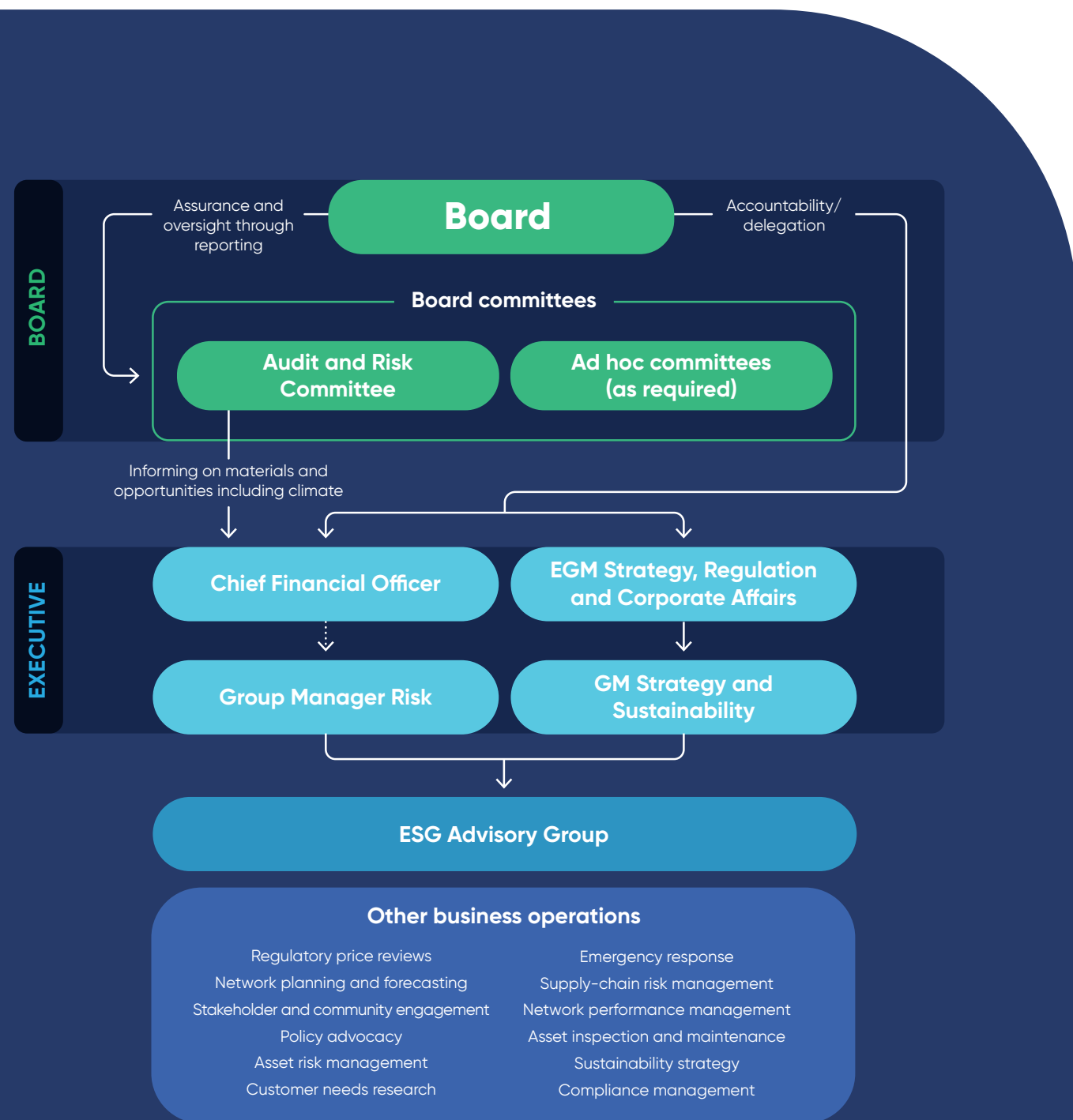
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Governance



Governance

AusNet is committed to achieving effective governance and has well-established and mature processes in place.



▲ Figure 19 | AusNet governance framework

The Board

The Board is responsible for AusNet’s strategic direction and overseeing climate-related risks and opportunities. The role of the Board is to promote the long-term sustainable success of AusNet, generating value for our shareholders, and considering our stakeholders and the community in which we operate.

The Board considers the potential impacts of sustainability and climate-related risks including the security, reliability and safety of energy networks, and the transitional and physical impacts of climate change. This includes the transition towards more renewable energy generation and decarbonisation, and the increasing complexity of operating networks in this evolving environment.

The Board engages with management on climate-related activities, risks and opportunities. Given its importance, climate-related risk is a regular topic of Board and Board committee discussion.

Audit and Risk Committee

The Board is primarily supported in this activity by the ARC. The responsibilities of the ARC include consideration of AusNet’s risk management and internal control systems, inclusive of climate-related risks and climate-related strategy.

The Executive

The Executive team are responsible for the execution of strategy in accordance with the Board-endorsed Risk Management Policy. Material climate-related risks are overseen by our Executive Team which is made up of our Executive General Managers (EGMs).

The EGMs are responsible for setting expectations, holding managers accountable for complying with the Risk Management Framework, and embedding a strong risk culture. This ensures that the appropriate level of priority and attention is given to each risk and reflects the importance of being a sustainable business.

Executive Group Risk Committee

The committee has oversight of the adequacy and effectiveness of AusNet’s Risk Management Framework, including risk identification and management processes. The EGRC reviews and guides AusNet’s system of risk management, compliance and internal controls, which includes setting the risk appetite. The EGRC assists the Board in discharging its responsibilities by overseeing the adequacy and effectiveness of AusNet’s internal audit program, risk management processes, and internal control systems. This includes the monitoring of material business risks (financial and non-financial), corporate compliance, and assessing whether the business is operating within the risk appetite.

Operations

Key risk management practices are embedded within AusNet’s operational business units. This includes maintaining policies, procedures and processes designed to manage, monitor and mitigate risks across the organisation, inclusive of climate-related risks and opportunities. Business units interact with and consider the specific impact on how the organisation operates and the steps required to address identified risk. Further information is provided in the ‘Risk Management’ section. Business operations are provided the opportunity to input and understand ESG activity (generally) and climate-related risks and opportunities (specifically) through the ESG Advisory Group.

ESG Advisory Group

The ESG Advisory Group is chaired by the GM Strategy and Sustainability and includes representation from across the business. The ESG Advisory Group meets on a quarterly basis to discuss the sustainability program and action plan, and provides advice to the Sustainability team on climate-related risks and opportunities and other climate-related initiatives. This central team is intended to be a coordination and information sharing forum across different business units.



▲ Figure 20 | AusNet risk framework

Task Force on Climate-related Financial Disclosures Index

TCFD Category	Disclosure	Section Reference
Governance Disclose the organisation's governance around climate related risks and opportunities	a. Describe the board's oversight of climate-related risks and opportunities	Governance, page 90
	b. Describe management's role in assessing and managing climate-related risks and opportunities	Governance, page 90
Strategy Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material	a. Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long-term	Climate-related risks and opportunities, pages 38-40 Physical climate-related risks to our network, pages 71-72
	b. Describe the impact of climate related risks and opportunities on the organisation's businesses, strategy, and financial planning	Strategy, pages 44-60
	c. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	Climate-related risks and opportunities, pages 38-40 Scenario development, pages 62-64
Risk Management Disclose how the organisation identifies, assesses, and manages climate-related risks	a. Describe the organisation's processes for identifying and assessing climate-related risks	Risk & opportunities assessment, pages 38-40
	b. Describe the organisation's processes for managing climate-related risks	Risk management, pages 67-70
	c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management	Risk management, pages 67-70
Metrics and Targets Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material	a. Disclose the metrics used by the organisation to assess climate related risks and opportunities in line with its strategy and risk management process	Metrics and targets, page 77
	b. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the related risks	AusNet's emissions profile, pages 79-80
	c. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets	AusNet's emissions reduction target, pages 24-26 Focus areas and actions to reduce emissions, pages 28-34 Approach to setting emissions targets, pages 81-84

Alignment with Australian and international disclosure standards

The climate risk disclosure space is continually evolving, including through recent developments in Australian and international disclosure standards. This includes the development of standardised frameworks and an increasing trend towards mandatory disclosures.

In 2023, the International Sustainability Standards Board (ISSB) published the first two IFRS Sustainability Disclosure Standards: IFRS S1 (General Requirements for Disclosure of Sustainability-related Financial Information) and IFRS S2 (Climate-related Disclosures) to be effective from 1 January 2024. The ISSB used the work of the TCFD, notably in structuring IFRS S2 based on the TCFD recommendations' four pillars of governance, strategy, risk management, and metrics and targets.

Coinciding with this, the Australian Treasury released a consultation paper on climate-related financial disclosures seeking to define positions on standardised reporting requirements.⁵⁸ As a Group 1 company, AusNet would be required to publish annual climate disclosures as part of its annual report commencing from 2024/5. This would include limited assurance of Scope 1 and 2 emissions and reasonable assurance of governance disclosures, with escalating assurance requirements over time. The proposed policy is intended to align with international standards, including IFRS S1 and IFRS S2 and is intended to provide clear guidance on the specific information in the Australian context.

We are monitoring these developments and expect our assurance and reporting to mature over time, and to maintain compliance with any Australian legislated requirements.

⁵⁸ Australian Treasury, Climate-related financial disclosure: Second consultation, 2023.

Glossary and abbreviations

Term	Definition
AEMO	Australian Energy Market Operator (AEMO)
AER	Australian Energy Regulator (AER)
Baseline	The reference point against which future emissions performance will be measured
Board	The Board of Directors of Australian Energy Holdings Pty Ltd (ACN 654 672 670), the ultimate holding company of AusNet Pty Ltd
CO ₂ -e	Carbon dioxide equivalence (CO ₂ -e) is a measure of GHG emissions estimated by multiplying the amount of gas by the global warming potential of the gas
CER	Consumer Energy Resources (CER) refers to small-scale energy resources owned by customers, which can produce, store or vary how they use energy. There are new forms of CER such as rooftop solar, batteries and electric vehicles and more traditional assets such as hot water heaters and pool pumps
DCCEEW	The Department of Climate Change, Energy, the Environment and Water (DCCEEW) is a department of the Australian Government
DEECA	The Department of Energy, Environment and Climate Action (DEECA) is a department of the Victoria State Government
EDPR	The Electricity Distribution Price Review (EDPR) is a process undertaken every 5 years, and overseen by the Australian Energy Regulator, that determines the services we will deliver and the prices we charge customers for our electricity distribution network services
EV	Electric vehicle (EV)
Fugitive emissions	Emissions in a gas network as a result of losses caused by equipment leaks, deliberate or accidental venting, or gas flaring
GAAR	The Gas Access Arrangement Review (GAAR) is a process undertaken every 5 years, and overseen by the Australian Energy Regulator, that determines the services we will deliver and the prices we charge customers for our gas distribution network services
GHG	Under the National Greenhouse and Energy Reporting Act 2007 (Section 7), a greenhouse gas (GHG) means: <ul style="list-style-type: none"> • carbon dioxide • methane • nitrous oxide • sulphur hexafluoride • a hydrofluorocarbon of a kind specified in the NGER Regulations • a perfluorocarbon of a kind specified in the NGER regulations
Goal	An ambition to seek an outcome for which there is no current pathway(s) but for which efforts will be pursued towards addressing that challenge, subject to certain assumptions or conditions
In-house emissions	AusNet's internal categorisation of greenhouse gas emissions. The main source of our emissions associated with AusNet's in-house activities include emissions from the use of SF ₆ in electrical equipment, building electricity use and vehicle use (fuel)

Term	Definition
IPCC	Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change
Line losses	The energy lost as heat when you transport electricity across a network of wires and other electrical infrastructure
NEM	The National Electricity Market (NEM) is a wholesale market through which generators and retailers trade electricity in Australia
Net zero emissions	Achievement of an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere
Network loss emissions	AusNet's internal categorisation of greenhouse gas emissions. Greenhouse gases driven primarily by market factors which are comprised of line losses from our electricity transmission and distribution networks (Scope 2) and fugitive emissions from our gas network (Scope 1)
NGER	National Greenhouse and Energy Reporting (NGER) scheme is a single national framework for reporting and disseminating company information about greenhouse gas emissions, energy production, energy consumption and other information specified under NGER legislation
RCP	Representative concentration pathways (RCPs) are prescribed pathways for greenhouse gas and aerosol concentrations, together with land use change, that are consistent with a set of broad climate outcomes used by the climate modelling community
Scope 1	Direct emissions from operations that are owned or controlled by the reporting company. AusNet's key sources are sulphur hexafluoride (SF ₆) from electricity transmission and distribution network switchgear, and fugitive methane emissions from our gas network
Scope 2	Indirect emissions from the generation of purchased or acquired electricity by operations that are owned or controlled by the reporting company. For AusNet's these are primarily line losses associated with the energy lost during transmission and distribution of electricity across the network
Scope 3	Indirect GHG emissions other than Scope 2 emissions that are generated in the wider economy. They occur as a consequence of the activities of a facility, but from sources not owned or controlled by that facility's business
SF ₆	Sulphur hexafluoride (SF ₆) is used extensively in the electricity industry, both in Australia and overseas, for dielectric insulation and current interruption in circuit breakers, switchgear, and other electrical equipment
SSP	Shared socioeconomic pathways (SSP)
Target	An intended outcome about which we have identified one or more pathways for delivery of that outcome, subject to certain assumptions or conditions
TCFD	Task Force on Climate-related Financial Disclosures (TCFD) is an initiative of the Financial Stability Board to improve and increase reporting of climate-related financial information



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