Climate Change Report 2022

Downer
Relationships creating success

Contents

Acknowledgement of Country

Downer acknowledges Aboriginal and Torres Strait Islander peoples as the First Australians and the Traditional Custodians across Australia.

We would like to acknowledge and pay our respects to the Elders of the past, present and future in maintaining the culture, country and their spiritual connection to the land.

Whakataukī

Tuituia ngātahi matou ki te mana o te Whānau, te Manaaki te Kairangatira me te Ngākau Pono. Tuituia hei korowai tikanga tuku iho mo tatou.

O rite ki ngā rakau nui tupu ai te wao nui o Tāne ko te Kauri i whakawhiwhi haumaru, ko te Rimu i whakawhiwhi taonga, ko te Tōtara i whakawhiwhi whanaungatanga, ko te Kahikatea i whakawhiwhi whakaaro matakite. Ngā pou e wha i aumangea ai te whakataukī "Mā te whanaungatanga ka angitū". Hui e! Taiki e!

Stitching us together as one are family and relationships, care and respect, excellence and integrity as our cloak of values.

The same as the great trees growing in the great forest of Tāne is the Kauri which connects us to Safety, the Rimu which connects us to Delivery, the Tōtara which connects us to Relationships and the Kahikatea which connects us to Thought Leadership.

These are our four pillars upon which we build "Relationships creating success". United and ready to move forward!

Forward-looking statements

This report contains forward-looking statements, including, but not limited to: statements regarding trends in energy prices; plans, strategies and objectives of management; assumed long-term scenarios; potential global responses to climate change; regulatory and policy developments; the development of certain technologies; and the potential effect of possible future events on Downer.

Forward-looking statements discuss future expectations concerning the results of assets or financial conditions or provide other forward-looking information. Such forward-looking statements may also include, but are not limited to, statements that relate to the purpose, goals, targets, plans and objectives of Downer, assumptions made in energy transition and other forms of climate transition scenarios, as well as statements about how we run our business, including our work with suppliers and contractors.

The forward-looking statements in this report are based on the information available as at the date of this report. There are inherent limitations with scenario analysis, and it is difficult to predict which, if any, of the scenarios might eventuate.

Scenarios do not constitute definitive outcomes for us. A scenario is understood to be a coherent, internally consistent, and plausible description of a possible future state. It is not a forecast; rather, each scenario is one alternative image of how the future can unfold. Scenario analysis relies on assumptions that may or may not be, or prove to be, correct and may or may not eventuate, and scenarios may be impacted by additional factors to the assumptions disclosed. No assessment of the likelihood of scenarios was made.

Additionally, forward-looking statements are not guarantees or predictions of future performance, and involve known and unknown risks, uncertainties, and other factors – many of which are beyond our control, and which may cause actual results to differ materially from those expressed in the statements contained in this report. Downer cautions against reliance on any forward-looking statements or guidance.

Except as required by law, Downer does not undertake to publicly update or review any forward-looking statements, whether as a result of new information or future events.

Past performance cannot be relied on as a guide to future performance.

Third party reliance

The views expressed in this report contain information that has been derived from publicly available sources that have not been independently verified. No representation or warranty is made as to the accuracy, completeness, or reliability of the information.

This report should not be relied upon as a recommendation or forecast by Downer.

1 A message from the CEO

Climate change is this generation's greatest challenge. It poses a threat to the economy, as well as our health, our communities and our future.

At Downer, we recognise that this challenge also brings opportunity. An opportunity to help our customers on their decarbonisation journeys, and an opportunity to contribute to a brighter future.

Since the 26th United Nations Climate Change Conference of the Parties (COP 26) in late 2021, Downer's customers have either committed to decarbonising their operations or increased the ambition of their existing commitments. Downer has the unique capabilities, experience, and industry partnerships to help our customers on their path to net zero emissions. The pipeline of work required for the energy transition to meet net zero is enormous – and Downer is in the right position to capitalise on the opportunities this presents.

This is Downer's first standalone Climate Change Report. It has been developed in response to growing stakeholder interest in organisations' responses to climate change. This report is an important milestone on Downer's decarbonisation pathway and demonstrates our commitment to addressing climate change.

In FY22, we conducted a review of our detailed climate scenario analysis aligned to the recommendations of the Task Force for Climate-related Financial Disclosures (TCFD) to test the resilience of our business strategy. This independently facilitated analysis confirmed that Downer's strategy is resilient, and that the opportunities presented by climate change mitigation, if appropriately acted upon, outweigh the risks for Downer. The work also confirmed that the opportunities for Downer will increase as the shift towards a low carbon future accelerates.

We have also increased the ambition of our GHG emissions reduction targets in FY22, which includes setting Scope 3 emissions reduction targets for the first time. These targets are consistent with the Intergovernmental Panel on Climate Change's latest reports and are aligned to the Science-Based Target Initiative's Net Zero Standard. The Scope 3 reduction targets are ambitious, however, we note that achieving these targets will require a collaborative effort from all those in our supply chain to reduce their own operational GHG emissions.

Notably, since 2020 Downer has reduced its operational (Scope 1 and 2) GHG emissions by 37 per cent, largely due to divestments of the Laundries and Mining Services businesses, in line with our Urban Services strategy. We will continue implementing decarbonisation initiatives identified in our decarbonisation plan, detailed in this report. We believe our ability to decarbonise our operational emissions and reach net zero is essential to adding credibility to the services and solutions we provide to our customers to help decarbonise their operations.

We are committed to continually improving our climate change disclosures and keeping the market informed on our progress towards net zero. While the net zero journey will have challenges and uncertainties, the future is bright for Downer.

Grant Fenn
Downer Group Chief Executive Officer

2 Context

This report has been developed to provide information on Downer's response to the risks that climate change poses and the opportunities that addressing climate change presents. It covers our journey and achievements, our pathway to net zero, and the pivotal role Downer can play in the energy transition. All disclosures made in this report relate to the financial year ended 30 June 2022 (FY22).

This report aligns with the recommendations of the TCFD, and builds on Downer's previous TCFD disclosures, which were first included in our 2018 Annual Report, and updated and refined in our subsequent Sustainability Reports.

In FY22, Downer engaged independent advisor, Deloitte, to assist with refreshing our TCFD analysis to ensure that it remained relevant, in light of the latest science, as well as changes to Downer's organisational structure. This work included a series of workshops to prioritise Downer's climate-related risks and opportunities, conduct scenario analysis to determine their impact on Downer's strategy and investigate the integration of climate considerations into capital allocation decision making. The key findings of this work are contained in this report.

Downer has achieved significant progress on actions and disclosures related to climate change risk. Key milestones include:

2018

- Adopted the TCFD recommendations. Undertook detailed assessment against the TCFD framework, and publicly reported climate-related disclosures in line with the TCFD recommendations for the first time.

2019

- Performed climate risk and opportunity scenario analysis on Downer's business strategy, focusing on the transition risks faced by the Mining Services Business Unit, and risks posed by changing carbon/energy policy, as well as the physical and transition risks faced and opportunities presented for the broader business.
- Set a long-term GHG emissions reduction target (aligned to a <2°C pathway), committing to the decarbonisation of absolute Scope 1 and 2 GHG emissions by 45-50 per cent by 2035 from a FY18 base year, and to being net zero in the second half of this century.

2020

- Announced Downer's Urban Services strategy, delivering many environmental and social benefits including a move to lower capital intensive and lower carbon activities, supporting Downer's decarbonisation pathway.
- Established a $1.4 billion Sustainability Linked Loan with key performance metrics relating to Downer's GHG emissions reductions.

2021

- Became a signatory to the Science-Based Target Initiative (SBTi) and tightened our commitment to be net zero by 2050 (in line with a <2°C pathway).
- Performed a full assessment of Scope 3 emissions portfolio in accordance with the Greenhouse Gas Protocol's Corporate Value Chain Standard (Scope 3). Following this, Downer signed up to the Carbon Disclosure Project's supply chain program to facilitate engagement with our supply chain.

2022

- Completed a detailed review of Downer's most material climate-related risks and opportunities – and undertook an assessment to quantify the estimated financial impact of different climate scenarios on Downer's value chain, as well as a review of Downer's current capital asset decision making process.
- Increased the ambition of our Scope 1 and 2 GHG emissions reductions targets to align to the SBTi Net Zero Standard (1.5°C pathway) and set a Scope 3 emissions reduction target. These targets apply from FY23 onwards.

Our future targets and climate-related decarbonisation ambitions include:

2032

- Reduce Scope 1 and 2 emissions by 50 per cent from a 2020 baseline.
- Reduce Scope 3 emissions by 30 per cent from a 2020 baseline.

2033

- Replace all light vehicles in our fleet with alternative fuel or electric vehicles (EVs).

2040

- Finalise fuel switching of asphalt plants from diesel to alternative fuel (for example, hydrogen or renewable gas).
- Replace 90 per cent of heavy vehicles with alternative fuel vehicles.

2050

- Alternative asphalting standards fully utilised (for example, warm mix and ambient asphalt).
- Achieve net zero Scope 1, 2 and 3 emissions.

3 Downer's role in decarbonisation

The world has reached a critical juncture on climate change.

The IPCC's latest report (AR6) warns urgent action is required to limit global warming to 1.5°C by the end of the century and prevent severe and irreversible impacts, stating, "the scientific evidence is unequivocal: climate change is a threat to human wellbeing and the health of the planet. Any further delay in concerted global action will miss the brief, rapidly closing the window to secure a liveable future".

The time for global action is now.

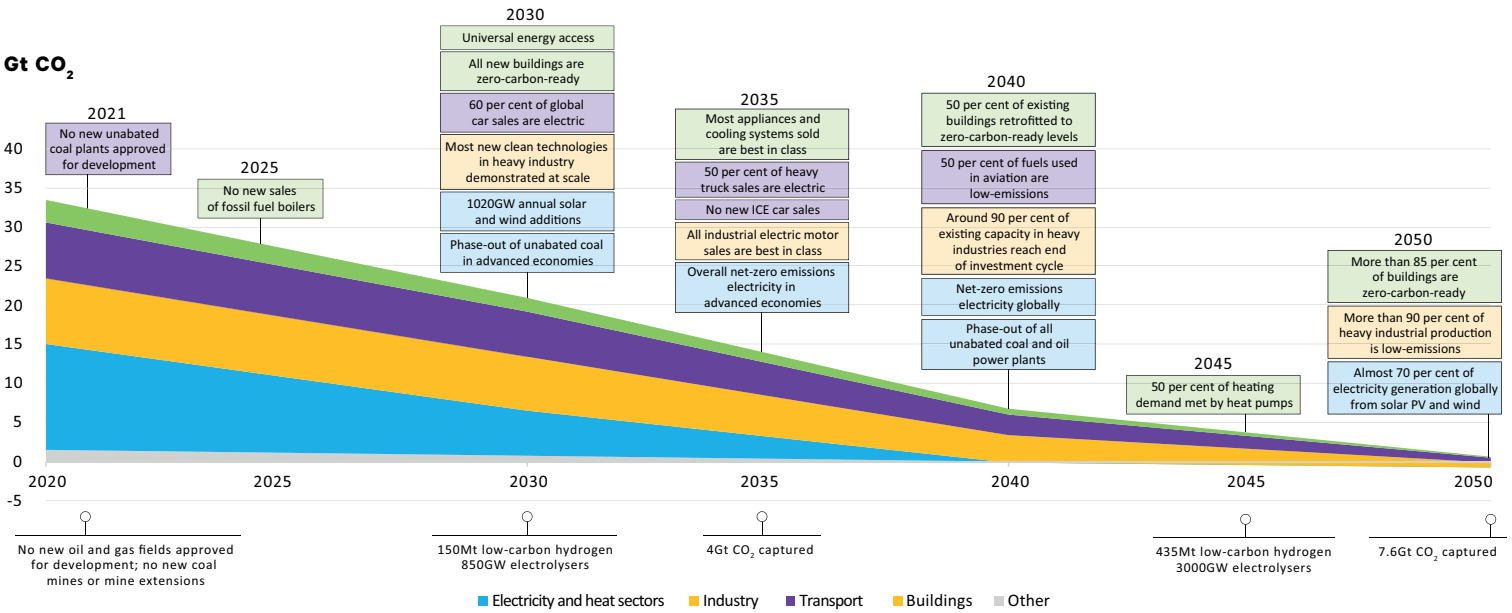
In 2021, the International Energy Agency (IEA) released its Net Zero by 2050 Roadmap which provides a pathway to limit the rise in global temperatures to 1.5°C. The Roadmap outlines the milestones required to decarbonise the global economy across the buildings, industry, transport and power sectors.

Shown in the accompanying graph (*right*), the IEA's Net Zero Emissions by 2050 scenario highlights the global milestones for policies, infrastructure and technology deployment required to achieve net zero emissions by 2050.

The IEA also found that to reach net zero emissions by 2050, annual clean energy investment worldwide will need to more than triple to around $4 trillion by 2030. While this is a global view, the scale of uplift is comparable to what will be required in Australia and New Zealand.

In the coming years – and decades – Downer will play a pivotal role in Australia and New Zealand's transition to a net zero economy. Downer's demonstrated skills and technical capabilities, leadership in industry forums, and global partnerships will help position the company as a partner of choice throughout the energy transition. Downer's climate ambitions support greenhouse gas emissions targets at the State, Territory and National Government level across Australia, and in New Zealand.

International Energy Agency's Net Zero Emissions by 2050 scenario



Under the Paris Agreement, Australia has committed to reducing greenhouse gas emissions by 43 per cent below 2005 levels by 2030, while New Zealand has committed to a 50 per cent reduction of net emissions below gross 2005 levels by 2030. Australia and New Zealand have both set net zero greenhouse gas emissions targets by 2050. Each Australian State and Territory has also set near-term 2030 and 2050 net zero targets. These are driving government capital allocation and investment decisions, with significant effort required in the Transport, Utilities and Facilities sectors that Downer operates in.

Downer has a leading presence in most of the major sectors critical to the transition and has identified significant opportunities to contribute further, while also supporting the net zero commitments of our government and private sector customers. Some of these opportunities for Downer are outlined below and found in greater detail in Section 5.

- **Renewables:** Downer is a market leader in renewable energy generation, having delivered 18 wind farms and seven solar farms to date, which generate more than 3GW of power.
- **Energy/emissions storage:** Downer has experience delivering large scale grid battery storage systems, including the Battery Energy Storage System – the 30MW system in Ballarat, Victoria. Further, Downer is supporting customers in pumped hydro and carbon capture and storage (CCS).

- **Energy efficiency:** Downer is the largest integrated facilities management service provider in Australia and New Zealand. We support our customers in delivering sustainable buildings and facilities by providing energy savings and adaptation solutions such as energy efficient lighting and improved indoor air quality HVAC solutions. In the transport sector, Downer is delivering industry-leading solutions, including upgrades and innovations to Sydney's Waratah and SGT train fleets that will reduce energy consumption.
- **Electrification:** Downer is a market leader in the design and construction of power transmission and distribution networks, which will be essential in strengthening the electricity grid to accommodate increased and changing demand patterns for electricity. Downer is also a leading provider of asset maintenance and specialist services to the power and energy sectors.
- **Sustainable transport:** Downer provides a range of services in road network asset management and intelligent transport systems. Through our joint venture, Keolis Downer, we are also Australia's largest private provider of multi-modal public transport solutions. In addition, Downer is also delivering electrical charging infrastructure to enable Zero Emissions Buses across multiple depots in New South Wales and Queensland.
- **Alternative fuels:** Downer views hydrogen as one of the most promising pathways to decarbonisation and is establishing capabilities and partnerships to be a technical and thought leader in the industry.
- **Land-based solutions:** Downer has partnered with customer, Logan City Council, to pioneer an Australian-first at the Loganholme Wastewater Treatment Plant in South East Queensland – a facility that transforms sewage sludge, or biosolids, into renewable energy and a sustainable product called biochar.
- **Lower carbon products:** Downer has developed Reconophalt™, a lower carbon asphalt product containing high recycled content and is pursuing research and development of other lower carbon products.
- **Other emerging technologies:** Downer's businesses continue to monitor emerging technologies for opportunities to apply our skills and technical capabilities. These technologies consist of clean hydrogen, battery chemistries, direct-air capture technology and 5G-based smart grids.

In addition to the specific capabilities in low emissions technology, Downer also works with customers in transitioning their assets to new technology and changing the way they operate, maintain, and modify their equipment.

Downer also understands that climate change is a shared responsibility. Action-oriented partnerships and collaboration with our customers, supply chain partners, corporate peers and communities will be essential to achieving the 1.5°C pathway. Downer is committed to engaging with suppliers to influence emissions reduction in our supply chain.

Downer collaborates on climate issues through relevant industry bodies and memberships that bring together governments, corporates, and other stakeholders to drive greater impact through climate programs and initiatives.

We are conscious of the need to transition to a lower carbon economy in a way that is fair and inclusive. There will be significant restructuring of the energy industry with flow-on effects for urban and regional economies, local communities and workers. Downer provides local employment and utilises local supply chains in servicing fossil fuel-based power generation assets and supporting infrastructure across some of the regional areas likely to be affected by accelerated closures. Downer is uniquely positioned to play a pivotal role to support a just transition, collaborating with key stakeholders to ensure that communities and workers are supported, whether it be alternative employment opportunities, reskilling and redeployment or pathways to secure retirement.

Case study

Delivering the transmission networks to enable the energy transition

Downer is the leader in power infrastructure in Australia, with specific expertise in transmission lines and high voltage substation design and construction.

We have longstanding relationships with electricity transmission networks across the country, and have capability to deliver renewables to connect and upgrade the capacity of the existing network infrastructure.

These services will be crucial throughout the energy transition.

Australia's power network must be significantly augmented to allow the amount of renewables that need to come online to meet net zero commitments. There is a lot of work to be done – and this provides opportunity for Downer.

Downer has a 70-year history in power transmission in Australia and is the clear market leader, with relatively few competitors. We continue to win new work in this space.

In November 2021, Downer was awarded a contract valued at approximately $200 million with ElectraNet for the design, procurement, and construction of a new 330kV and 275kV high voltage transmission line connecting the South Australian and New South Wales power grids.

Downer was awarded the contract following an eight-month Early Contractor Involvement with ElectraNet, during which the teams worked collaboratively in the planning and specification of critical construction requirements for the 205 kilometre line route.

The contract extends Downer's successful relationship with ElectraNet. Downer is also delivering a new 270 kilometre, high-voltage transmission line across the Eyre Peninsula in South Australia for ElectraNet. The project includes a new 262 kilometre double-circuit 132kV transmission line from Cultana to Port Lincoln via Yadnarie, with substation upgrades at Cultana, Yadnarie, Port Lincoln Terminal, Wudinna and Middleback.

While Downer is the market leader in power transmission services in Australia, in FY22, we also entered the New Zealand power transmission market, after being awarded a new five-year Regional Service Contract by Transpower to deliver transmission services to New Zealand's national electricity grid.

Did you know...

- Downer has delivered more than 2.8GW of renewable generation
- Downer has delivered 30MW in Battery Energy Storage Systems
- Construction is currently underway on CS Energy's Chinchilla Battery, a $150 million large-scale battery located next to the Kogan Creek Power Station in Queensland's Western Downs. The project is due for completion in 2023
- Downer has been shortlisted by Transgrid to submit a tender to deliver the HumeLink project, a new 500kV transmission line in southern New South Wales and a critical link in the National Electricity Market. It will increase the amount of renewable energy that can be delivered across the national electricity grid, helping transition Australia to a low carbon future. This contract represents a once-in-a-generation investment into our nation's energy future and an opportunity for Downer to harness its existing wealth of knowledge and experience.

4 Downer's commitment to net zero

Downer supports the science on climate change and is committed to taking action to decarbonise its emissions portfolio to help minimise global temperature rise. Downer has set ambitious Scope 1 and 2 GHG emissions reductions targets in line with the SBTi Net Zero Standard (1.5°C pathway), as well as a Scope 3 emissions reduction target aligned to a well below 2°C trajectory. Downer has linked these targets to executive remuneration through the Short-Term Incentive (STI) plan to incentivise Business Units to decarbonise in line with Downer Group's overall ambition.

Our Scope 1 and 2 GHG emissions commitments are aligned with a 1.5°C pathway and support the transition to net zero emissions by 2050. Our targets, revised in FY22 for tracking in FY23 onwards are:

50 per cent
reduction by **2032** across Scope 1 and 2 emissions against a 2020 baseline

30 per cent
reduction by **2032** across Scope 3 emissions against a 2020 baseline

Net zero
by **2050** across Scope 1, 2 and 3 emissions

4.1 Overview of Downer's decarbonisation plan

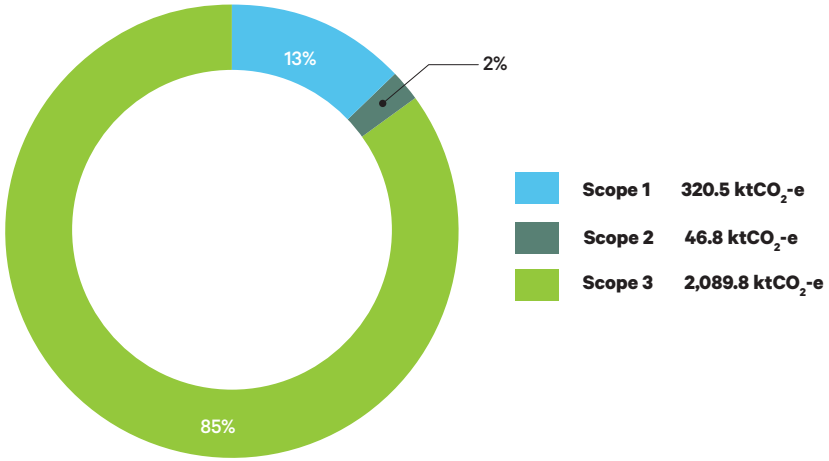
Based on our net zero emissions reduction targets and the structure of our emissions portfolio, Downer has developed a decarbonisation plan consisting of seven key areas, as outlined below. These are explored in greater detail within Section 7 of this report.

- Increasing focus on Urban Services (Transport, Utilities, Facilities)
- Continuing focus on energy efficiency and GHG emissions reductions
- Decarbonising fixed assets with new technology and fuel switching
- Decarbonising our fleet through electric vehicles and alternative fuel vehicles
- Increasing uptake of renewables, both on and off grid
- Reducing our Scope 3 emissions
- Offsetting residual emissions

4.2 Downer's emissions profile

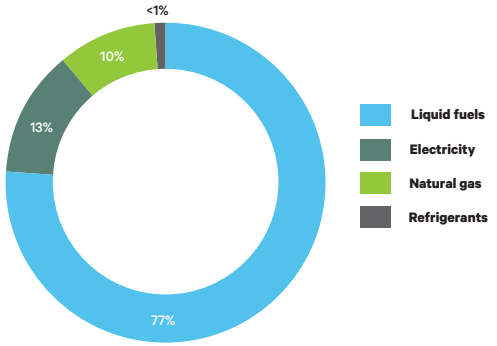
Scope 1, 2 and 3 emissions (FY22)

Downer's largest emissions source is Scope 3 emissions, with purchased goods and services our most material Scope 3 emissions source. Other significant sources include lifecycle emissions from asphalt production, downstream emissions from the transport of goods produced by our Minerals Technologies business, and supplier emissions. A breakdown of Scope 3 emissions is in Appendix B. Our operational emissions (Scope 1 and 2) were 15 per cent of our total emissions in FY22.



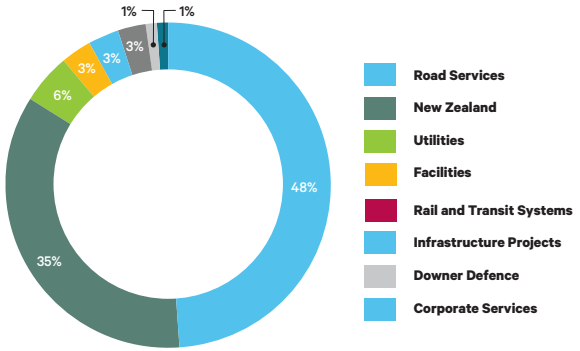
Percentage of Scope 1 and Scope 2 emissions by source (FY22)

Liquid fuels make up the largest proportion of Downer's Scope 1 and 2 emissions, primarily using transport fuel (diesel and petrol) within Downer's and our subcontractors' vehicle fleets, and use of stationary burner fuel in asphalt plants.



Percentage of Scope 1 and Scope 2 emissions by Downer Business Unit (FY22)

The Australian-based Road Services is Downer's most emissions intensive Business Unit due to the large Downer-operated fleet and subcontractor fleets, as well as the high carbon intensity of asphalt plants. New Zealand is the second largest source of emissions within Downer, with its emissions coming from its Transport (69 per cent), Facilities (18 per cent) and Utilities (13 per cent) businesses.



5 Our strategy and climate change

5.1 Overview of Downer's strategy

Downer's business strategy focuses on Urban Services - Transport, Utilities, Facilities - which help customers deal with population growth and urbanisation pressures.

Climate change exposes our business, customers and communities to a range of acute and chronic physical risks and exposes society to transition risks. Physical risks resulting from climate change can be event driven (acute) such as increased severity of extreme weather events (for example, cyclones, droughts, floods and fires) or relate to longer-term shifts (chronic) in precipitation and temperature and increased variability in weather patterns (for example, sea level rise). Transition risks result from the transition to a lower-carbon global economy - the most common transition risks relate to policy and legal actions, technology changes, market responses, and reputational considerations.

Recognising this, Downer has investigated and determined that, with appropriate action, our business strategy remains resilient to climate change and Downer is well positioned to capture significant climate-related opportunities.

5.2 Understanding Downer's resilience to climate change

In FY22, Downer completed a detailed review of its most material climate-related risks and opportunities. Downer held workshops with all Business Unit leadership teams, as well as the Group Executive Committee. The workshops identified three key areas of climate risk that were deemed to have the most significant potential impact on Downer in the future. These three risks are:

1. Transition risks related to asphalt plants
2. Transition risks related to fleet
3. Physical risks from climate change and the impacts of extreme weather events.

The workshops also highlighted considerable opportunities for Downer which, if appropriately acted upon, would outweigh identified risks. Downer also undertook climate scenario analysis incorporating these potential physical and transition risks to inform and stress test the resilience of Downer's strategy.

Climate scenarios were used to illustrate what plausible futures might look like under differing degrees of climate change and provide a structured way of making strategic choices. They are not predictions about what will happen or about future financial performance, but rather hypotheses about what could happen in the short-term (up to 2030), medium-term (between 2030 and 2045) and long-term (2045 onwards). Appendices D and E provide a summary of the methodology and scope of the scenario analysis.

Overall, the analysis confirmed the resilience of Downer's strategy in all scenarios, however, there are some transition risks in the low emissions scenarios to address, and greater potential exposure to physical risks in high emissions scenarios. Downer recognises the importance of taking early action to mitigate its exposure to the identified transition and physical risks and is focused on implementing its decarbonisation plan. Downer operates in sectors that will continue to be critical in various future scenarios and is well placed to capitalise on opportunities as these materialise.

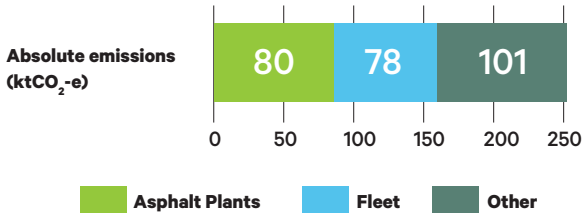
5.3 Transition risks of asphalt plants and fleet

Downer's climate risk and opportunities workshops identified two material transition risks. These stem from our direct emissions portfolio - fleet and asphalt plants - which were further explored as part of the scenario analysis process. These risks, and findings of the analysis, are outlined below. The detailed scope, methodology and findings can be found in Appendix D. While other sources were not included within our scenario analysis, our response to these is contained within Section 7.

Potential carbon exposures are presented throughout this report. At present, these exposures are theoretical only. In Australia and New Zealand, an economy-wide explicit carbon price that significantly impacts on Downer is not in place, nor is it likely that there will be one in the near-term based on current and announced policy.

Maximum exposures assume BAU emissions, and no mitigation actions by 2050, and uses the carbon prices contained within the Network for Greening the Financial System's (NGFS) orderly and divergent scenarios, which are detailed in Appendix D. These are not financial predictions and should not be relied on to forecast Downer's future profitability.

Downer's direct emissions profile[1]



Asphalt plants

Asphalt plants are susceptible to transition risk due to their reliance on a significant amount of heat currently provided by fossil fuel sources during the asphalt production process. Currently, it is challenging to provide this level of heating with alternative, lower emissions fuel sources.

At present, fuel sources for Downer's asphalt plants are limited to high carbon intensity fuels (for example, diesel and natural gas), due to current supply chain constraints and technological limitations of alternative fuels.

Most burners in Downer's asphalt plants currently operate on diesel, with a smaller number currently using natural gas – the latter holding an emissions intensity advantage.

If business as usual emissions were to continue without mitigation, Downer's operations could be exposed to future carbon liabilities. Downer's decarbonisation plan aims to mitigate these exposures to as close to nil as possible on a credible pathway to net zero by 2050. This plan is outlined in more detail in Section 7.

Downer's current exposure is $0, based on prevailing carbon pricing mechanisms in jurisdictions that Downer operates. Maximum future potential exposure[3] if Downer took no action to reduce emissions could be $68 million per annum in Australia by 2050[2], and $8 million per annum in New Zealand by 2050[4].

Asphalt plants remain a core competency for Downer as part of its Urban Services portfolio, particularly as the economy transitions to a lower carbon future. Likely threats to this business activity are reputational risk if Downer does not transition in line with market expectations, and could include direct carbon financial liability if Downer remains reliant on fossil fuels for too long.

The present challenge for Downer is around technological availability in the short-term to medium-term. Asphalt plants do not currently have a stable or credible alternative to liquid or gaseous fossil fuels as a key source of heat in its process, and asphalt continues to require a quantity of bitumen in its product mix. However, multiple options to materially reduce asphalt emissions exist and are being pursued in the short-term, medium-term and long-term. These options include reducing heat requirement through warm and ambient processing and using alternative, lower emissions fuels (biofuels, hydrogen dilutions, etc). These are explored further in Section 7.

Fleet

Downer's vehicle fleet is susceptible to transition risk due to its exposure to liquid fossil fuels, including diesel and petrol. Fleet is a material component of Downer's emissions profile and is therefore potentially exposed to increasing carbon liability over time.

Downer's fleet comprises 80 per cent light vehicles, and 20 per cent heavy vehicles. While heavy vehicles comprise a lesser percentage of total fleet, they emit a greater percentage of emissions compared to light vehicles. If the transition of the fleet is not performed in a timely manner, Downer faces potential carbon liability if it were to continue to hold carbon intensive fleet assets when society shifts to alternative fuel vehicles.

Downer is pursuing alternative fuel vehicles to align with a net zero scenario. At the time of writing this report, EVs and hybrid vehicles are the most viable short-term to medium-term option for fleet replacement and these are the focus of this analysis. At present, EVs are limited in options and availability, due to supply constraints. In the short-term, the pace of charging infrastructure presents a limiting factor to the uptake of EVs, requiring planning to effectively integrate EVs into Downer's light vehicle fleet. The decarbonisation of the electricity grid in Australia is another factor in the abatement potential of EVs. Australia is targeting 82 per cent renewables in the National Electricity Market by 2030[6], which will significantly reduce the emissions resulting from the use of EVs.

Downer is conscious that many light vehicles in our fleet are tool of trade utility vehicles, and there is currently limited alternative fuel tool of trade utility vehicle replacement options. However, a range of EVs are in development such as those suitable for tool of trade and heavy vehicles. Downer continues to monitor the market and follow developing overseas markets for these vehicles. In the interim, Downer is assessing the operational needs of employees with tool of trade utility vehicles, substituting Hybrid SUVs for these types of vehicles, where practical, and pursuing operational changes and fleet reduction strategies. This is outlined further in Section 7.

Downer's current exposure is $0, based on prevailing carbon pricing mechanisms in jurisdictions that Downer operates. In Australia, minimum future potential exposure if Downer took no action to reduce emissions could be $5 million[5] per annum, and maximum future potential exposure $35 million per annum by 2050. In New Zealand, minimum future potential exposure could be $2 million per annum and maximum future potential exposure $45 million per annum by 2050.

1. Excluding subcontractor emissions
2. Net zero is defined as the mitigation of direct emissions to as low a level as possible and offsetting the remainder through carbon removals. Downer has utilised the Science-Based Target Initiative's threshold of a 90 per cent reduction in its emissions as being 'as low a level as possible'.
3. Maximum exposures assume BAU emissions, and no mitigation actions by 2050 and uses the carbon prices contained within the NGFS's orderly and divergent scenarios detailed in Appendix D.
4. Potential financial exposures are presented throughout this analysis. At present, these exposures are theoretical only. In Australia and New Zealand, an economy-wide explicit carbon price that significantly impacts on Downer is not in place, nor is it likely that there will be one in the near-term based on current and announced policy.
5. It is assumed that a small portion of the heavy vehicle fleet may remain Internal Combustion Engine Vehicles by 2050.
6. As per the Powering Australia plan https://www.energy.gov.au/government-priorities/australias-energy-strategies-and-frameworks/powering-australia

5.4 Physical risks from climate change and the impact of extreme weather

Prolonged and severe wet weather events present significant challenges to infrastructure and the built environment, and Downer is not immune to these impacts. Intense rainfall events along Australia's East Coast impacted the asphalt laying part of the Roads Services Business Unit, while isolated flooding events caused access issues and resulting delivery delays, all of which impacted Downer's FY22 financial performance.

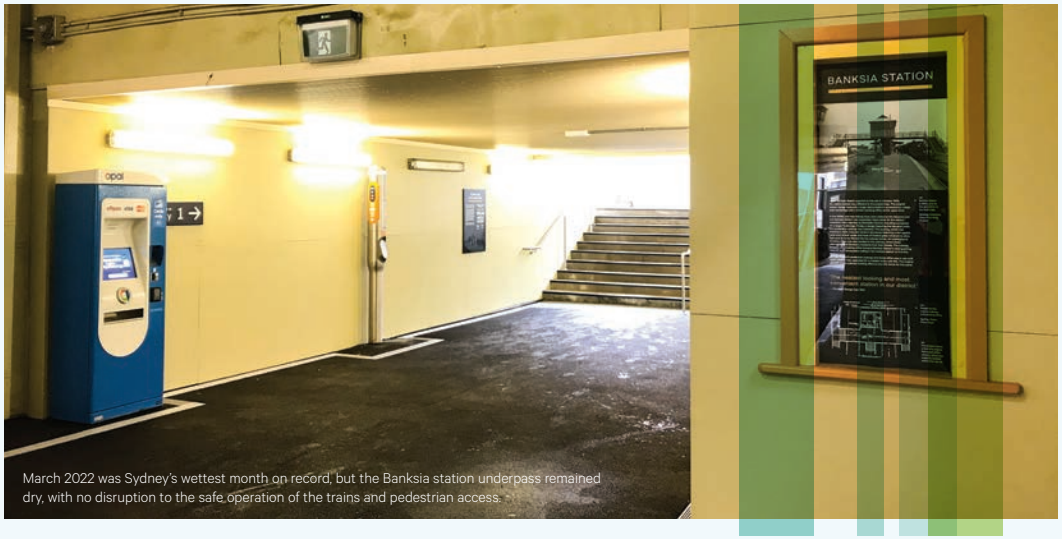
Scenario analysis found that all of Downer's portfolio is exposed to some degree of physical climate risk. The details of the scope, methodology and findings of the scenario analysis are found in Appendix E. Locations across Australia and New Zealand where Downer operates may experience prolonged temperature increases and an increased frequency of extreme weather events (such as storms and lightning, storm surges and cyclones, bushfires and flooding).

Downer is resilient to physical risks as potential events are currently incorporated within management systems and covered through insurance and/or contract pass-through mechanisms. Downer's diverse range of services across differing sectors and geographic locations means that the portfolio remains resilient in the event of local acute exposures. While direct financial impacts may not be material, other impacts to labour availability to commence new work may occur. In addition to financial impacts, many physical risks pose related safety issues for workers – a lack of strategy and flexibility to manage these would leave Downer exposed to reputational risk.

Details of how we manage physical risks are outlined in Section 6. Downer also plans to conduct further analysis of our exposure to physical risks in accordance with our Risk and Opportunity Framework.

Case study

Planning for climate change



March 2022 was Sydney's wettest month on record, but the Banksia station underpass remained dry, with no disruption to the safe operation of the trains and pedestrian access.

The physical risks of climate change include extreme weather events and severe rainfall leading to flooding. Throughout FY22, Australia's East Coast and parts of New Zealand's North Island experienced historic flooding events.

The increasing frequency and severity of these events is leading asset owners to look for mechanisms to safeguard against future weather risks.

One way Downer is helping protect our customers' assets from the physical risks of climate change is to complete detailed future risk analysis. Before commencing infrastructure work for our customers, Downer undertakes a detailed climate risk assessment on the physical impacts of climate change and manages these risks by incorporating adaptation measures into the design process.

Downer is delivering a series of train station upgrades around Sydney under Transport for NSW's Transport Access Plan (TAP), which delivers a better experience for public transport customers across New South Wales by providing accessible, modern, secure and integrated transport infrastructure.

The Banksia station in Sydney's south has a long history of delays and disruptions caused by flooding to the station's underpass during rain events.

During the design phase of the TAP upgrades, Downer completed a detailed climate change risk assessment, predicting flooding levels for 2030, 2070 and 2090.

With the assessment determining that the station's risk of flooding would likely increase in the future, Downer designed and installed a bespoke pumping system to alleviate flooding problems in the underpass. The pumping system was switched on during FY22 – and the station has remained dry during subsequent wet weather events. ■

5.5 Downer's climate-related opportunities

In FY22, Downer completed a detailed review of its climate-related opportunities. As outlined in Section 3, there are significant opportunities for Downer through the products and services we provide for our customers. In addition, we have identified opportunities relating to markets, access to capital, resilience, resource efficiency and business processes. These considerable opportunities for Downer are outlined in the following tables.

Case study

An Australasian first at the Port of Lyttleton

Downer is a leading manufacturer and supplier of bitumen-based products and an innovator in the sustainable asphalt industry and circular economy, using recycled products and more environmentally sustainable methods to produce asphalt.

In June 2022, Downer's Road Science business in New Zealand officially opened a new large bitumen tank at the Port of Lyttleton in the South Island. The new tank not only bolsters the region's onshore storage capacity, enabling a secure supply for customers, it also sets an industry-leading sustainability benchmark.

The tank is made from a repurposed oil tank and took 18 months to convert. The decision to repurpose and refurbish an old tank was made in line with best building practice for sustainability, as a new build would increase carbon emissions.

Importantly, the tank is also the first of its size in Australasia to be fully electrified, instead of being process-heated by fossil fuels. The tank has been assessed by Energy NZ and the results highlight a significant carbon emissions saving of 290 tonnes CO_2-e per year.

"Downer is committed to finding solutions to decarbonise, and the innovation Road Science has delivered in the construction of our first electric tank is really impressive," Downer New Zealand EGM for Transport, Craig West, says. "They continue to be industry leaders and to find opportunities for us to build a sustainable future. The emissions reduction we have made at the Lyttleton plant provides us with a successful model to work from across our business." ■

Products and services		
Opportunities	**Potential financial impacts**	**Key areas and activities**
■ Development and/or expansion of low emissions products and services.	■ Increased revenue from demand for lower emissions products and services ■ The development, implementation, and maintenance of renewable energy assets ■ Ability to diversify business activities as customers and consumers shift preferences to lower-carbon and resilient products.	■ Utilise existing renewable energy capability and market presence to take advantage of increase in renewables infrastructure required for energy transition ■ Alternative fuels, such as hydrogen ■ Electrification of infrastructure ■ Carbon neutral products (for example, asphalt) ■ Additional electrical transmission and distribution networks required for energy transition, as well as maintenance of existing networks.
■ Development of climate adaptation and mitigation services.	■ Increased revenue from disaster mitigation and adaptation services ■ Increased revenue from disaster response services for physical climate impacts to infrastructure and essential services (for example, extreme weather impacts).	■ Mitigation and adaptation through design, build, operation and maintenance of assets and infrastructure (for example, roads, infrastructure and utilities) ■ Repairs and/or rebuild of infrastructure and assets to be more climate resilient.
■ New resilience-related products and resource optimisation within existing products and services.	■ Increased revenue through new products and services related to ensuring resiliency.	■ New resilience-related products and resource optimisation within existing products and services.
■ Development of new products or services through R&D and innovation.	■ Increased revenue from new products and diversified business activities and services to support customers in their decarbonisation journey.	■ Advisory services and solutions on decarbonisation.

Markets		
Opportunities	**Potential financial impacts**	**Key areas and activities**
■ Access to new markets.	■ Increased revenue from access and expansion in new and emerging markets ■ Increased diversification of financial assets and access to sustainable markets for capital.	■ Alternative fuels such as hydrogen, electrification infrastructure, biosolids treatment, and sustainable and efficient transport ■ Sustainability Linked Loan as an initial step into the sustainable finance market, with possible future expansion.
■ Access to Public Private Partnerships.	■ Increased revenue from partnerships with governments.	■ Supporting decarbonisation priorities and emergency response to extreme weather events ■ Knowledge-sharing opportunities with partners.
■ Access to new assets and locations.	■ Increased revenue from activities associated with new assets and locations and potentially lower insurance premiums (based on physical climate risk of the asset's location).	■ Review of portfolio locations to manage risk and seize opportunities.

Resource efficiency		
Opportunities	**Potential financial impacts**	**Key areas and activities**
■ Design of systems towards circular economy within operations ■ More efficient transportation routing and planning.	■ Reduced operating costs (for example, through efficiency gains and cost reductions) ■ More efficient transportation routing and planning, resulting in reduction of fleet fuel requirements.	■ Water and waste consumption efficiencies (for example, infrastructure projects and direct operations).
■ Production efficiency.	■ Increased production capacity, resulting in increased revenues.	■ Asphalt production efficiencies.
■ Energy efficiency of fixed assets.	■ Increased value of fixed assets and plant.	■ Energy efficiency adoptions, renewable energy production capacity.
■ Enhanced Employee Value Proposition and workforce planning based on climate considerations.	■ Benefits to talent attraction, retention and workforce management and planning (for example, improved health and safety and employee satisfaction) resulting in lower turnover/recruitment costs.	

Case study

Turning human waste into renewable energy

Downer has partnered with our customer Logan City Council and delivery partner Pyrocal to create an Australian first – a facility which transforms sewage sludge, or biosolids, into renewable energy and a sustainable product called biochar.

The cutting edge Loganholme Wastewater Treatment Plant (WWTP) thermally treats biosolids, producing biochar, destroying dangerous contaminants while generating substantial energy from a waste product.

During 2020, the first full-scale trial was conducted to determine the effectiveness of gasification to reliably and safely process biosolids. Following the successful trial, Logan City Council has used the results and lessons learned to design and construct a full-scale, permanent gasification facility, which officially opened in April 2022.

Operational cost savings and carbon credits will return almost $1 million per year to the Logan City Council, and a new revenue stream will be created from biochar sales. Biochar is used in agriculture as a carbon-capturing product that can help soil retain water, and Logan City Council is set to sell the biochar to commercial buyers, in a solution that will not only reduce carbon emissions, but also generate money for the city. ■

Energy sources	
Opportunities	**Potential financial impacts / Key areas and activities**
■ Use of lower-emissions sources of energy (for example, alternative fuels and renewable energy) ■ Use of new technologies (for example, low emissions technology and storage capability) ■ Shift to decentralised energy generation (for example, solar and thermal generation).	■ Reduced exposure to operational costs (for example, through use of lowest cost abatement), supply volatility and future fossil fuel price increases, and GHG emissions – and therefore less sensitivity to carbon prices if introduced in Australia or New Zealand ■ Returns on investment in low emissions technology ■ Increased capital availability (for example, investors favour lower-emissions producers) ■ Reputational benefits resulting in increased demand for products and services.

Resilience	
Opportunities	**Potential financial impacts / Key areas and activities**
■ New resilience-related products and resource substitution/ diversion within existing products and services ■ Portfolio resilience planning (for example, infrastructure, assets and buildings) ■ Adoption of renewable energy and energy efficiency measures ■ Engagement with suppliers to influence around decarbonisation, risks and opportunities related to climate action.	■ Increased revenue through new products and services related to ensuring resiliency ■ Increased market valuation through resilience planning (for example, infrastructure, land and buildings) ■ Reduced incidence of uninsurable assets, and increased insurance premiums for assets in high climate risk locations. ■ Reduced operating costs (for example, through efficiency gains and cost reductions) ■ Increased resilience and reliability of supply chain and ability to operate under various conditions.

Case study

An ACE solar solution

Downer's New Energy team has helped 550 Queensland primary, secondary and special education facilities to make the switch to solar as part of the Queensland Department of Education's Advancing Clean Energy Schools (ACES) program.

In total, more than 43MW of Solar PV (or 116,000 solar panels) generating approximately 52GWh have been installed in schools across the Sunshine State – equivalent to the energy used to power 14,500 Australian homes for a year, and saving our customer approximately $15.1 million annually.

Phase 1 of the program resulted in the team successfully delivering 7.2MW (or 20,895 solar panels) to 100 schools between Cairns and the Sunshine Coast.

A further 11.7MW was rolled out to 147 schools in North Queensland as part of Phase 2.

As a result of the success of Phases 1 and 2, Downer was awarded an additional two regions (Metropolitan and Darling Downs South West), supporting the roll-out of 11MW of solar power to an additional 113 schools.

Downer has also delivered Phase 3 of the program, which has delivered a further 13.8MW of solar power. ■

Case study

Low carbon solution for largest NZ infrastructure project

In New Zealand, Downer is playing a central role in delivering the country's largest-ever transport infrastructure project, Auckland's City Rail Link (CRL) – a 3.45 kilometre twin-tunnel underground rail link that will significantly change the way people travel around the city.

Downer has adopted the Infrastructure Sustainability Council framework from the early stages of the project, allowing us to implement best practice sustainability initiatives and reduce our customer's carbon footprint.

Among those initiatives is the opportunity to utilise the capability of Downer New Zealand's Green Vision recycling business, which takes materials that would normally be destined for landfill and recycles them into engineering quality products.

Green Vision partnered with Allied Concrete to supply recycled crushed concrete as flowable fill in a non-structural concrete application for two parts of the CRL project build. This enabled reductions in both material and transport carbon footprint emissions, resulting in a carbon saving of approximately 55 per cent, with the cost of the product similar to finite resource aggregate.

This, along with other initiatives including water reuse and fuel switching, resulted in the CRL project being awarded an ISC Infrastructure Sustainability 'Excellent' rating. ■

Case study

Downer is a leader in circular economy thinking, delivering today's and tomorrow's sustainable road infrastructure

First ever use of Reconophalt™ on a major Australian freeway

In FY22, Downer delivered the first-ever application of Reconophalt™ on an Australian freeway, incorporating recycled content in every layer of road pavement on the Sydney Road and Edgars Road section of the M80 Upgrade in Melbourne.

In an Australian first, more than 29,000 tonnes of Reconophalt™ was used on the project for Major Roads Projects Victoria, resulting in toner from more than 750,000 recycled printer cartridges and more than 25 million plastic bags being diverted from landfill. In total, more than 8,700 tonnes of recycled asphalt product was used.

Downer partnered with CPB Contractors and Close the Loop in the project, which reduced greenhouse gas emissions by more than 220 tonnes, which is equivalent to the amount of carbon generated from 90 cars over one year.

Reconophalt™ offers a circular economy solution to a large-scale waste challenge. It is a sustainable asphalt product that contains high recycled content derived from waste streams such as soft plastics, toner, glass and reclaimed road that would otherwise be bound for landfill or stockpiled.

Downer's Surfacing Manager, Edwin Corovic, said the product would transform the future of major road projects in Australia.

"Reconophalt™ is setting an important industry standard for best practice in sustainable road infrastructure," Edwin said. "It has been incredibly rewarding to work with progressive and environmentally conscious partners as we continue to set new benchmarks in resource recovery, which will be critical to realising Australia's 2050 net zero emissions targets."

Downer's hi-RAP asphalt has been used for the first time in New South Wales

Lithgow City Council has become the first council in New South Wales to utilise Downer's hi-RAP asphalt – leading the way to deliver resilient, sustainable infrastructure for their community.

The asphalt, containing 50 per cent Reclaimed Asphalt Pavement (RAP) and 10 per cent crushed glass, was successfully delivered from Downer's Sustainable Road Resource Centre (SRRC) in Rosehill to Lithgow, 90 kilometres west of Sydney.

Downer estimates that up to 24 per cent of greenhouse gas emissions have been saved in the delivery of this project (including the additional travel from Sydney) compared to the use of virgin asphalt locally.

With the unique ability to produce asphalt containing up to 100 per cent recycled asphalt content, the SRRC is key to creating today's and tomorrow's sustainable road infrastructure in New South Wales by incorporating reclaimed road back into road networks.

Supported by quality testing that demonstrates superior performance, Downer's hi-RAP asphalt delivers greater value for money and significant carbon savings by avoiding the extraction, processing and transport of bitumen and aggregates.

"This project aligns with our vision in terms of moving Lithgow into the future and supporting innovative technology and more sustainable operation," says Director of Infrastructure Services for Lithgow City Council, Jonathan Edgecombe.

"We investigate all opportunities to produce value for money. With up to 60 per cent recycled material, this has not only saved Council money, but it will also deliver a superior result in terms of road ride quality and asset longevity."

Case study

Leading the way in future energy innovation

There are many pieces of the puzzle to address in the journey to net zero. As the Australian energy market changes, and with increasing pressure for corporates, government, and industry to decarbonise their operations, the challenges – and opportunities – have never been greater.

A net zero emissions future will require massive adjustments to almost all urban infrastructure, particularly power generation, power transmission and distribution, energy management and transportation.

With operations spanning multiple sectors and proven credentials in the renewable energy, asset management, process safety and innovation space, Downer is well placed to help our customers navigate the changing market and transition to a net zero future.

There are a range of pathways for decarbonisation in industry, from decreasing emissions and increasing efficiencies, through to the use of renewable power and technologies such as hydrogen.

In 2022, Downer's Facilities Business Unit created a dedicated Future Energy team to address this very challenge.

Through the team, Downer is partnering with internal stakeholders and external customers to create sustainable change, supporting them to be more responsive and competitive as the market evolves.

Multiple projects are in the pipeline, spanning everything from zero emissions vehicles and emissions reduction to carbon capture and storage.

Case study

Delivering more sustainable public transport to Sydney

One of the key drivers behind Australia's commitment to achieving net zero carbon emissions by 2050 will be the implementation of low-carbon public transport.

State Governments are preparing to transition their bus fleets to zero-emissions models – and Downer will play a part in this transition.

In January 2021, Downer's New Energy business was selected as a key Delivery Partner to design and construct bus charging infrastructure across multiple depots in a number of jurisdictions. The Zero-Emissions Buses (ZEBs) program to transition existing gas-powered or diesel-powered buses to electric, is an initiative to reduce the overall carbon footprint of State Governments, assisting in the progression towards their respective net zero emissions targets.

Downer is currently deploying electric bus charging infrastructure across four depots located in Brisbane, Newcastle and Sydney to enable the transition of more than 400 buses, with more depots in the pipeline.

Downer's Manager – TCS New Energy, Tim Guthrie, said Downer offers complete EV charging solutions for heavy electric vehicles, such as public buses.

"Our New Energy team designs, constructs and installs bespoke electric charging solutions, which can include a combination of MV/LV grid connection, Gensets, Battery Energy Storage Systems and behind the meter solar," Tim said.

"We are proud to be partnering with a number of customers to support the introduction of bus services to deliver more sustainable transport options for the local community.

"The uptake of electric-powered public transport alongside private EVs will support a positive step."

The transition to a full electric depot will also mean reduced noise, minimised air pollution and no diesel emissions for local residents.

Case study

Pioneering energy efficiencies on Sydney's trains

Downer has more than 100 years of rail experience providing end-to-end, innovative rollingstock solutions for the people of Australia.

In New South Wales, Downer maintains more than half of Sydney's train fleet, including the popular Waratah Series 1 and 2 trainsets.

We have partnered with our customer, Transport for NSW, to trial energy efficiency initiatives on the trains' Heating, Ventilation and Air-conditioning (HVAC) hardware and software systems.

The hardware trial involved upgrading four Waratah HVAC units with modern hardware components. These HVAC units were known as Hardware Energy Efficient (HEE) units. The HEE HVAC units were installed on two cars of a Waratah Series 2 and monitored throughout passenger service from January-September 2021 to capture and compare energy consumption between baseline and upgraded units over seasonal variation – summer, autumn and winter. The range of seasons provided real-world operational duty cycles to determine change.

Trial results determined that the performance of the baseline and HEE HVAC units are equivalent, with energy consumption savings of approximately 13 per cent. This would equate to potential total annual savings across the entire Waratah fleet of:

- 19.7GW in energy[7]
- $2.75 million in electricity costs[8]
- 2,200 tonnes of GHG emissions[9]

In addition, Downer pioneered two software trials.

The first was a HVAC duct heater optimisation trial to control the temperature more efficiently in the upper passenger deck, lower passenger deck and vestibule areas. To enable this, a revised HVAC unit software was developed to optimise the current duct heater's function to disable the function when the ambient temperature is above a predetermined setting; relax the target control set point for each zone to better control when and how often the duct heaters are switched on, and disable the duct heater function when in ventilation mode or de-humidification mode.

The revised HVAC unit software was installed on one half of a Waratah Series 2 train and trialled in passenger service operation over June 2021. The trial demonstrated an energy saving of more than 20 per cent without a significant impact on climate control performance. This would equate to potential total annual savings across the entire Waratah fleet of:

- 29GWh in energy
- $4 million in electricity costs
- 3,400 tonnes of GHG emissions

The second software initiative involved a HVAC setback mode trial to gain efficiencies by reducing how often the HVAC operates when the train is not in service. This software was installed on one half of a Waratah Series 2 train and trialled in passenger service operation over July 2021. The improvement demonstrated an energy saving of 4.8 per cent. This would equate to potential total annual savings across the entire Waratah fleet of:

- 0.8GWh in energy
- $950,000 in electricity costs
- 800 tonnes of GHG emissions

Both trials proved highly positive, with significant energy and GHG emissions reductions and cost savings. With both software initiatives trialled over the winter period, it is estimated they would provide an even greater energy saving in warmer months.

Downer will continue working with Transport for NSW to finalise business cases to roll these improvements into the Sydney train fleet.

7. For 109 trainsets in service over one year
8. @14 cents per kWh
9. https://www.environment.gov.au/system/files/resources/3ef30d52-d447-4911-b85c-1ad53e55dc39/files/national-greenhouse-accounts-factors-august-2015.pdf

6 How we manage climate risk

6.1 Identifying and assessing climate-related risks

Ongoing processes for identifying and assessing climate-related risks occur in accordance with Downer's overarching risk management framework. Downer performs the following activities to identify and assess climate-related risks:

- **Climate risk and opportunity workshops:** Downer conducts climate risk and opportunity workshops with key Business Unit stakeholders when there are material changes to the internal or external environment. The workshops identify and assess climate risks and opportunities, as they relate to Downer's business strategy. Workshop outcomes are used to inform climate scenario analysis, which uses financial and non-financial considerations (such as emissions) to assess the materiality of potential impacts. The first series of workshops was conducted in FY19 and most recently in FY22.
- **Business Unit risk identification and assessment:** Climate-related risks (such as relevant physical and transition risks) are considered in the strategic Business Unit risk reviews if deemed material, in accordance with thresholds defined within Downer's associated Risk and Opportunities Framework and classification matrices. Business Units meet every six months to review, re-prioritise, and assess risks as specified within their Strategic Risk Registers.
- **Group level risk identification and assessment:** Downer Group has determined climate change to be, or potentially be, a material risk to the company which is incorporated in Downer's Strategic Group Risk Register. A consolidated report is provided to the Audit and Risk Committee that includes outputs from the Group and Business Unit Strategic Risk Registers.
- **Monitoring of lag indicators:** Downer monitors climate metrics (found in Appendix C of this report). The metrics are an input to the risk management process, as a lag indicator of the outputs of Downer's strategy and its potential exposure to climate risk.

6.2 Managing climate-related risks

Processes for managing climate-related risks occur in accordance with Downer's overarching risk management framework. Specific climate-related metrics and inputs are used to inform the Group's understanding of these risks in different contexts, aiding the management process.

Physical risks

Downer controls identified physical risks by:

- Integrating relevant physical risk factors (for example, flooding, bushfires, sea level rise) into business decisions related to:
  - New work
  - Existing work
  - Longer length contracts (15-plus years)
  - Acquisitions and property leases.

Where required, the outcomes of integrating physical risk factors into business decisions may include:

- Choosing lower risk locations to perform work or locate assets or plant, if necessary
- Implementation of appropriate adaptation measures.
- Ensuring Commercial/Risk Managers are:
  - Including appropriate pricing mechanisms and commercial terms
  - Aware of insurance policy limitations
  - Considering self-insurance options to accommodate rising premiums and claims costs
- Implementation of environmental and land use planning approvals to mitigate location specific risks and hazards (for example, infrastructure design and land management practices such as bushfire buffer zones)
- Monitoring weather forecasts and conditions for potential extreme weather events and, where necessary, implementing appropriate resilience measures to limit risks to health and safety, delivery disruption and asset or site damage
- Implementation of Zero Harm policies, standards, procedures (for example, Working in Extremes of Temperatures Standard or Emergency Management Plans), including the modification or suspension of work regimes where there is risk of harm from extreme weather events or natural disaster. Procedures relating to cyclones and bushfires have been utilised to successfully manage these risks during previous events.

Downer will also consider further evaluation of the whole value chain to understand how climate change may increase risks of both insured and uninsured losses, and impact key suppliers, project delivery timelines and our ability to obtain insurance.

Transition risks

Downer's main exposure to transition risk is the use of emissions intensive fuel in its processes, and the exposure to carbon liability and future market volatility that arises from this usage. Downer manages its transition risks by mitigating this future carbon liability exposure through the following mechanisms:

- Undertaking external assurance to validate and continuously improve our emissions data and disclosures
- Implementing a Science-Based Target to guide emissions reductions in accordance with a 1.5°C pathway
- Utilising the Short-Term Incentive plan to cascade emissions reduction targets to Downer's Executives and Senior Managers within the Business Units
- Implementing a practical decarbonisation plan driven by marginal cost of abatement analysis
- Business Unit specific processes (for example, Road Services considers information such as fuel availability, technology availability and marginal cost of abatement of alternatives)

- Dedicated governance forums, such as the Fleet Decarbonisation Committee, which considers information, including technology availability, stock levels, and marginal cost of abatement of alternatives.

To prioritise transition risks, Downer uses the following tools to quantify their significance, especially whether they will materially impact on Downer's financial performance or asset carrying values:

- Climate change scenarios and modelling such as Network for Greening the Financial System (NGFS)
- Legislation or voluntary carbon price benchmarks (for example, United Nations guidance)
- Internal carbon prices disclosed by industry peers
- Spot carbon offset or carbon credit pricing
- Forecasts of international carbon costs (such as carbon taxes, trading schemes, and tariff mechanisms).

Downer also engages with external stakeholders on transition risk mitigation through:

- Collaboration and climate-related advocacy via industry associations and memberships (for example, the Australian Climate Leaders Coalition and New Zealand's Climate Leaders Coalition).
- Education and engagement with customers on lower carbon intensive options
- Education and engagement with suppliers to influence emissions reduction in our supply chain.

6.3 Integrating climate risk management

Downer's climate-related risks and opportunities are integrated into the company's strategic risk process, which is governed by the Audit and Risk Committee and incorporated into Downer's broader corporate strategy, planning and risk management. This includes:

- Tender Review Evaluation Committee, which considers climate-related risks and opportunities when assessing a bid's overall risks and opportunities in line with Downer's risk appetite
- Inclusion of questions relating to climate-related risks and opportunities in the Financial and Corporate Governance Self-Assessment questionnaire that is completed by Executives and Senior Managers
- Development of a framework that explicitly considers climate change in capital allocation decisions throughout the business.

Capital allocation process

Downer recognises the need to embed climate change considerations into capital allocation business decisions, not only to mitigate risk but to also maximise opportunities presented by the market. Downer currently considers numerous factors during the capital allocation process, including market trends, stakeholder interests and risks.

An internal carbon price is not currently implemented for forward-looking decision making. In FY22, Downer investigated opportunities to further embed climate change considerations into the capital allocation process, including analysis of a shadow carbon price, carbon fee, carbon budget and dynamic trading. The analysis recommended further exploration of a shadow carbon price, which we will consider further in FY23.

Centralised decarbonisation fund

In FY22, the Downer Board endorsed a recommendation by Downer's Executive Leadership Team to establish a dedicated centralised decarbonisation fund. The fund currently consists of AUD$10 million over three years in capital allocations for initiatives and projects that are aligned to Downer's decarbonisation plan to achieve our emissions reduction target. The decarbonisation fund will be reviewed on an annual basis in accordance with Downer's budget cycles and adjusted accordingly.

The fund is available to Business Units to fund initiatives that result in structural decarbonisation. These include PV solar, fuel switching of the asphalt manufacturing process from diesel to natural gas and biogas, and the acceleration of alternative fuel vehicles such as hybrids and EVs into the fleet.

7 Decarbonisation plan

The scenario analysis outlined in Section 5 has helped Downer model a decarbonisation pathway towards net zero with consideration of technology readiness and cost competitiveness. The decarbonisation plan consists of seven key areas that are designed to meet our net zero commitments and reduce our exposure to climate-related risks identified through scenario analysis.

7.1 Increasing focus on Urban Services

Increasing Downer's focus on Urban Services (Transport, Utilities, Facilities) has resulted in a shift from high capital, carbon intensive industries to lower carbon activities. In FY22, Downer completed the divestments of its Laundries and Mining Services businesses, which align with the Urban Services strategy to focus on capital-light, lower carbon intensive sectors. These divestments have substantially reduced the Group's transition risk exposure and capital expenditure as well as Scope 1 and 2 emissions.

As an integrated services provider, Downer still operates in some carbon-intensive industries, such as asphalt manufacturing. A key focus for Downer is to decouple GHG emissions from economic growth by implementing strategies to reduce our emissions, as described below.

7.2 Continuing focus on energy efficiency and GHG emissions reductions

Downer continues to focus on energy efficiencies across the organisation, maximising these opportunities prior to fuel switching, as these efficiency projects usually deliver significant cost savings. Downer has progressed a number of initiatives, including the decarbonisation of bitumen plants through the implementation of electrified tank heating and tuning of asphalt plant burners to minimise excess oxygen levels and thereby maximise heat generation per unit of fuel consumed, lowering the carbon-intensity of the plant. Other energy efficiency initiatives that Downer has introduced include warehouse lighting replacements to LEDs, sensor/automated time lighting on office and warehouse equipment upgrades, driver behaviour training such as targeted vehicle idling programs, and implementing GPS routing optimisation programs and technology.

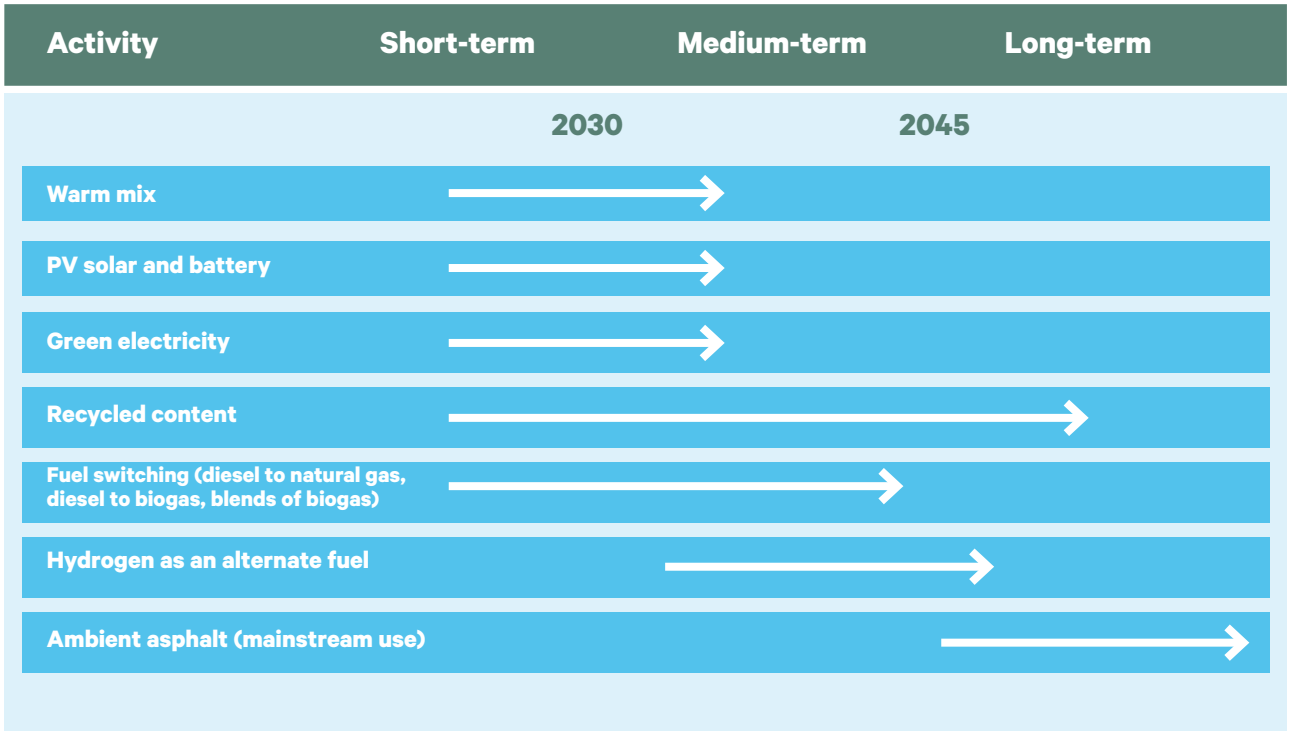
7.3 Decarbonising fixed assets with new technology and fuel switching

Downer's decarbonisation plan for asphalt plants and other fixed assets across Australia and New Zealand has been developed to mitigate climate-related transition risks identified during climate scenario analysis (see Appendix F for indicative implementation dates). Based on decarbonisation analysis for asphalt plants conducted in FY22, financial considerations of this plan include:

- Capital expenditure associated with procurement and installation of new equipment, design of new plant or retrofitting of existing plant
- Operating expenditure associated without differences between energy requirements (varies by fuel type and quantity).

The impact of decarbonising the asphalt plants through energy efficiency measures, using alternative or emerging fuels, or new technology, is not expected to materially impact the Group's forecast cash flows. Considerations regarding the use of alternative fuels will vary significantly by fuel type, time of implementation and maturity of technology. Greater technological advancement is required before Downer can implement core processing changes, such as producing ambient asphalt with significantly less heat energy.

The graph below represents current decarbonisation plans for asphalt plants within Australian and New Zealand operations (outlined further in Appendix F). Downer is also exploring a more accelerated scenario for the staggered fuel switching in asphalt plants, from diesel to natural gas or diesel to biogas, prior to 2025.



7.4 Decarbonising Downer's fleet through electric vehicles and alternative fuel vehicles

As outlined in Section 5, Downer's vehicle fleet is an emissions-intensive aspect of operations. EVs and alternative fuel vehicles are reaching commercial scale and will be key to Downer abating its fleet emissions. Abatement action will reduce emissions and financial risk while providing Downer with a climate resilient fleet. An aggressive vehicle replacement strategy will commence in 2025, with consideration to supply availability and cost benefit analysis. Downer has also recently launched the 'Driving towards Net Zero' project, which will identify and implement options to reduce carbon emissions across our light vehicle fleet. The project will replace internal combustion engine (ICE) vehicles with hybrids and EVs. This also expands upon Downer's initial introduction of EVs in Australia and New Zealand in recent years. In the meantime, Downer has introduced an aspirational target to reduce five per cent of ICE vehicles with hybrids each year.

Light vehicle fleet replacement from internal combustion engine (ICE) vehicles to EVs is anticipated to occur from 2025 onwards, with heavy vehicle replacements anticipated to commence from 2030 onwards. Across the Group, transitioning to EVs will abate most fleet emissions upon decarbonisation of the electricity grid, even without additional measures such as on-site generation, purchasing green energy or use of biofuels. The current composition of Downer's ICE vehicle fleet is shown below.

By replacing vehicles as they reach the end of their useful life, Downer plans to replace all light vehicles with electric vehicles in the short-term to medium-term (by 2033) and 90 per cent of heavy vehicles with electric equivalents in the medium-term (by 2040). The pace of replacement will vary between Australia and New Zealand due to the differing electricity grid intensities and fleet composition.

EV light vehicles are expected to reach cost parity with ICE equivalents by 2030, while EV heavy vehicles are not projected to reach cost parity with ICE counterparts before 2050. However, recent legislative changes in Australia making EVs exempt from Fringe Benefits Tax suggest that cost parity could be achieved much sooner than 2030. Downer will continue to monitor the total ownership cost of EVs compared to ICE equivalents.. EV costs are also expected to reduce significantly once current supply issues improve, reducing the financial burden of electrifying the fleet. Our initial analysis, incorporating current pricing models, has projected that the planned replacement of ICE vehicles with EVs will break even by 2034 in Australia and 2039 in New Zealand.

Transitioning the fleet to EVs will have an additional capital expenditure of approximately $30 million AUD and $32 million NZD, due to short-term and medium-term price premiums. However, by 2050, the fleet is projected to result in cumulative net savings of approximately $150 million AUD and $76 million NZD due to cost differences between fuel and electricity and EV operating efficiencies.

See Appendix F for further detail on pace of fleet replacement considerations and the net financial summary for both Australian and New Zealand fleets..

Australian fleet

4,875

Light vehicles in **Australian fleet** accounting for

60 per cent

of vehicle fleet emissions

859

Heavy vehicles in **Australian fleet** accounting for

40 per cent

of vehicle fleet emissions

New Zealand fleet

3,680

Light vehicles in **New Zealand fleet** accounting for

42 per cent

of vehicle fleet emissions

1,307

Heavy vehicles in **New Zealand fleet** accounting for

58 per cent

of vehicle fleet emissions

Case study

Driving Towards net zero

Driving towards Net Zero

In 2022, Downer launched a project to identify and implement options to reduce carbon emissions across our light vehicle fleet.

Aptly named 'Driving towards Net Zero', the project focuses on four key areas:

1. Switching to hybrid or battery electric vehicles as they are replaced, where this is viable
2. Optimising the size of Downer's fleet, with a focus on reducing the number of low utilisation vehicles and reducing duplication of pool vehicles across our sites
3. Reviewing Downer's light vehicle policies and procedures to ensure they support Downer's low carbon objectives
4. Ensuring vehicle use complies with Downer policy.

"The Driving towards Net Zero program is a key focus area to ensure Downer meets our net zero commitments," Downer's Head of Sustainability, Julie Wills, said.

"This program provides us with a real opportunity to reduce our overall emissions by reducing those generated by our light vehicle fleet."

7.5 Increasing uptake of on and off grid renewables

Renewable energy consumption

Downer plans to utilise our internal capabilities to expand installation and operation of rooftop PV solar at Downer-controlled sites (such as asphalt plants), where possible, which will enable solar power generation to meet the sites' electricity demands. Where sites are unable to produce enough solar power to cover all daytime electricity demands, this will be supplemented with electricity from the grid or alternative green electricity.

7.6 Reducing our Scope 3 emissions

For Downer to achieve its near-term Scope 3 target of 30 per cent reduction by 2032 and net zero by 2050, our emissions reduction initiatives focus on two key areas:

- Emissions we have direct control and influence over (for example, investments, business travel and employee commuting)
- Emissions from activities where Downer is a beneficiary but does not necessarily have control or influence over emissions sources (for example, purchased goods and services).

Our ability to meet our Scope 3 targets is reliant on our value chain partners also reducing their own GHG emissions. Downer will assist its value chain partners and work with them to positively influence outcomes aligned to the net zero transition. To facilitate engagement with our upstream value chain partners (our suppliers), and to enable the more accurate collection of data, Downer has signed up to the Carbon Disclosure Project's supply chain program and invested in increased engagement with suppliers regarding their emissions.

7.7 Offsetting residual emissions

There is likely to be limited dependence on offsetting residual emissions during the transition to net zero for emissions within the value chain that cannot be eliminated by 2050 (no more than 5-10 per cent of company emissions). To legitimately claim net zero, Downer may consider the purchase of carbon removal offsets once a 90 per cent reduction of its emissions is achieved.

The availability of high-quality carbon removals and the legitimisation of the offset market as a proper carbon trading mechanism will be important to incentivise lowest cost abatement across the economy.

Case study

Downer goes electric

Downer's DM Roads team has added four new Kia Niro electric vehicles (EV) to its network inspection fleet as part of its Road and Drainage Asset Maintenance Contract in the City of Melton in Victoria.

These are the first EVs to be used as network inspection vehicles by DM Roads and Melton City Council – helping the council to transition to a net zero future.

The new vehicles have an outstanding range of up to 460 kilometres and will provide lower operating and maintenance costs, while significantly reducing our carbon footprint and reducing our customers' Scope 3 emissions.

DM Roads Delivery Manager, Dinaksha Hemachandra, presented a network optimisation solution based on five network inspectors to ensure the customer was comfortable and ensure there was no impact on response times.

"We've had incredible feedback from the customer and have exceeded expectations," Dinaksha said.

In line with Downer's 'Driving towards Net Zero' project to decarbonise our vehicle fleet, DM Roads is charging ahead with transitioning its fleet to electric to help our customers decarbonise and contribute to Downer's ambitious emissions reduction targets.

As Australia's leading road network management provider, Downer understands it is vital that we challenge ourselves to support our customers' transition to a low-carbon economy by delivering smarter and more sustainable transport solutions.

Melton City Council has a strong record of sustainable procurement which was reflected in the tender process.

"We knew that we could rise to the challenge of embedding sustainability into every level of maintenance delivery," Dinaksha said. "During the tender process, we came up with some innovative ideas about how we could help Melton City Council decarbonise and reduce emissions by over 25 per cent over the next six years of the contract."

Downer is committed to continuing to introduce EVs across our Australian and New Zealand fleets.

In FY22, we implemented a number of EV initiatives, including our New Zealand team introducing 40 MG ZS electric SUVs into their fleet, as part of their light vehicle replacement plan. ■

8 Climate governance

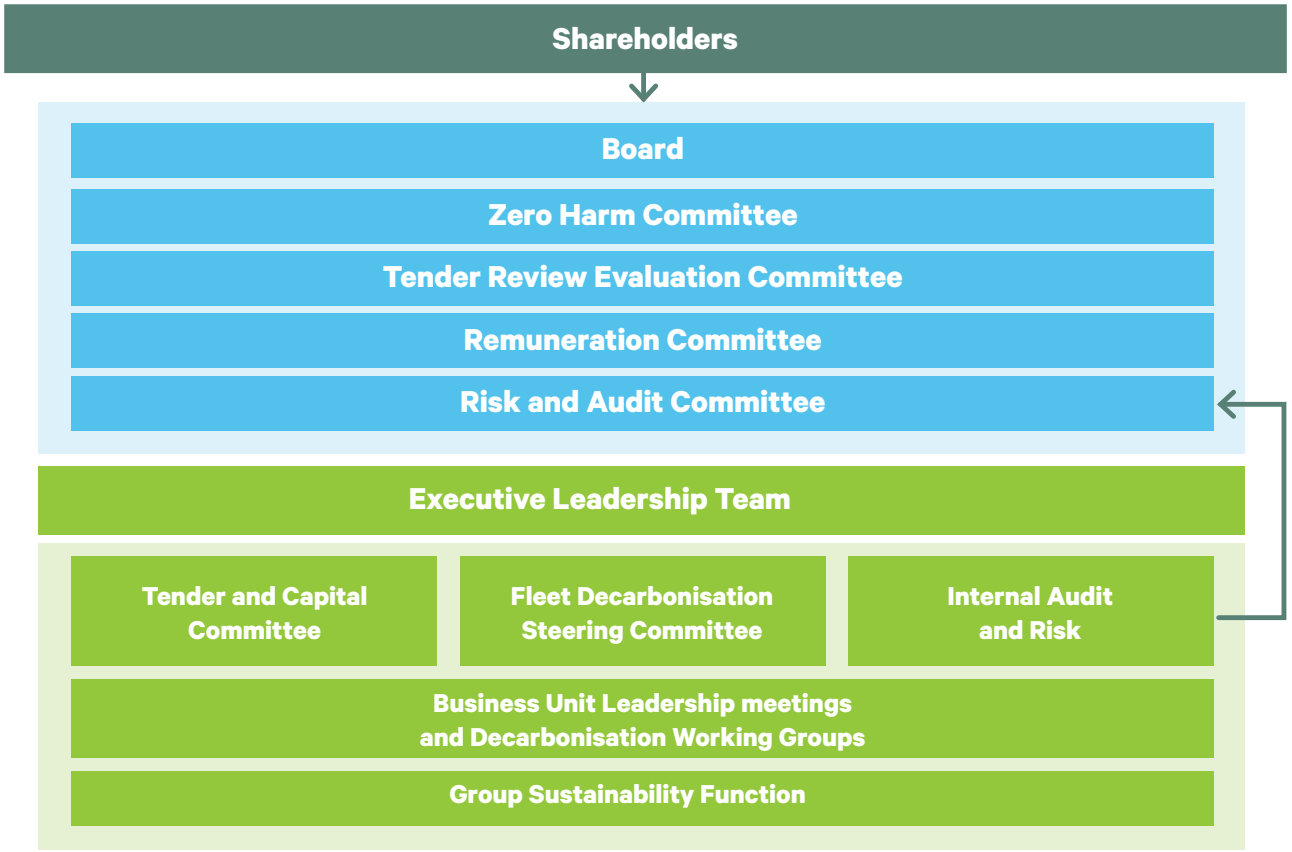
The Downer Board recognises that an integrated approach to managing climate-related risks and opportunities is essential, with increasing focus on climate change in both Board and Executive forums.

Downer's governance and oversight of climate-related risks and opportunities continues to evolve, with responsibilities throughout the organisation, as illustrated in the diagram, below right.

8.1 Role of the Board

The Board regularly reviews climate-related risks and opportunities through the following committees, forums, and processes to inform its governance approach:

- **Board Zero Harm Committee:** Quarterly Committee meetings discuss climate change-related information, GHG emissions reporting and performance along with management strategy
- **Audit and Risk Committee:** Assists the Board in its oversight of Downer's risk profile and risk policies, the effectiveness of the systems of internal control and Risk Management Framework, and Downer's compliance with applicable legal and regulatory obligations (including environmental, sustainability, and climate-related change risk)
- **Engagement of expert advisors:** The Board seeks the input of suitably skilled members of management and independent advisors on climate change. This provides Board members with the capability to make informed decisions based on climate change science and expert advice
- **Board strategy session:** This annual session considers information on climate-related risks and opportunities. In the FY22 strategy session, decarbonisation and energy transition were identified as key growth strategies
- **Tender Review Evaluation Committee:** Assesses the risks and opportunities (including climate change) of bids that exceed the delegated authority of the Group CEO or are referred to the committee by the Group CEO
- **Annual sustainability disclosures:** The Board reviews and endorses the Annual Report, Sustainability Report and Climate Change Report, which contain climate-related performance and risk management information
- **CEO Report:** The Board receives monthly reporting on strategic initiatives and performance against climate targets and objectives, such as Downer's GHG emissions intensity performance associated with Downer's Sustainability Linked Loan facility
- **Engagement with shareholders:** Downer engages with and receives feedback from shareholders on climate change, including through investor meetings, Annual General Meetings and annual Investor Days, which are attended by Board members and management
- **Board Remuneration Committee:** Receives annual reporting on Downer's sustainability performance to inform the application of Downer's Remuneration Policy for sustainability linked remuneration.



8.2 Role of management

Responsibility for climate change-related decisions at Downer cascades from the CEO to Downer's Executive Leadership Team in accordance with their delegated authority, primarily guided by the Head of Sustainability and Chief Financial Officer. The CEO holds the Executive Leadership Team to account for a range of measures including climate change-related performance.

The Head of Sustainability's role includes leading the Group Sustainability function which oversees Downer's approach and performance on climate change and sustainability. The function also liaises with Business Unit leadership teams, including assisting with decarbonisation plans and initiatives, tenders and project-based sustainability frameworks.

Downer's Executive Leadership Team regularly engages on climate-related matters through the following management forums and processes:

- **Executive Strategic Committee:** The Head of Sustainability and General Manager Environment, Sustainability and Reporting provide monthly updates to the Committee on performance-related information on climate and sustainability matters
- **Internal Audit and Risk function:** Objectively evaluates and reports on the existence, design and operating effectiveness of internal controls for managing risk including those related to climate change
- **Tenders and Contracts Committee:** Makes recommendations on bid and risk management to the Group CEO on EOIs, bids and projects reviewed in accordance with its Opportunity and Bid and Delivery Management procedures
- **Business Unit Senior Leadership forums:** Downer's Environment and Sustainability Managers present monthly to Business Unit Senior Leadership on topics including decarbonisation strategies, climate risks and opportunities, emerging technologies and GHG emissions performance
- **Decarbonisation Steering Committees:** Established within Downer's Business Units to provide governance and oversight on Business Unit decarbonisation plans and associated actions
- **Downer's Fleet Decarbonisation Committee:** Provides governance and oversight of Downer's fleet decarbonisation plan and associated actions
- **Employee engagement channels:** Communicates Downer's climate-related strategies, targets and commitments and develops awareness and understanding of climate-related issues and their importance to Downer. Channels include Lunch and Learn webcasts, webinars, cross-functional team meetings, operational pre-start meetings and toolbox talks.

The following dedicated, climate-specific meetings occurred in FY22:

- **Climate risk and opportunity workshops:** Held every two years (in late 2021 and 2019), and attended by the Heads of each Business Unit and their Senior Leadership Teams to support Business Units in their strategies and development of strategic risk registers
- **Climate change and decarbonisation Executive meeting:** Held in December 2021, Business Unit Heads were required to develop and present a strategic plan on how they would adapt to and mitigate climate-related risks and incorporate decarbonisation into their growth strategies
- **Downer's 2022 Investor Day:** The Executive Leadership Team presented on Downer's future strategy, which is underpinned by decarbonisation and the significant role Downer will play in the energy transition required to achieve net zero by 2050.

9 Next steps and future priorities

Downer will continue to improve and mature our approach and analysis of climate risk management. Next steps and future priorities include:

	Focus area	Timeline
1.	Continuing to prioritise and progress climate-related opportunities and further embedding these within the Group and Business Unit strategies	FY23
2.	Improving the data used to monitor and measure our emissions, with focus on Scope 3 and subcontractor data	FY23-FY24
3.	Exploring SBTi validation of our emissions reduction targets	FY23-FY24
4.	Further exploration and integration of climate considerations into capital allocation	FY23-FY24
5.	Monitoring the implementation of our decarbonisation plan, and continuously improving it	FY23-FY25
6.	Reviewing Downer's climate risks and opportunities and climate-related scenario analysis	FY23-FY25[10]
7.	Maturing Downer's processes for climate risk management and related metrics	FY23-FY25
8.	Integrating a nature positive approach to Downer's net zero transition	FY23-FY26

10. In the event of a material change to Downer's internal or external context (for example, acquisition or divestment, regulatory change) this may be reviewed earlier.

10 Appendices

Appendix A: TCFD mapping

Recommendation	Disclosure	Location
Governance Disclose the organisation's governance around climate-related risks and opportunities.	a. Describe the Board's oversight of climate-related risks and opportunities	Section 8.1
	b. Describe management's role in assessing and managing climate-related risks and opportunities	Section 8.2
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.	Section 5, Section 7
	b. Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.	
	c. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	
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.	Section 6, Section 7
	b. Describe the organisation's processes for managing climate-related risks.	
	c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	
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.	Section 4, Appendix B, Appendix C
	b. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the related risks.	
	c. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	

Appendix B: Scope 1, 2 and 3 emissions

Emissions summary

GHG emissions	Unit	FY20	FY21	FY22	% Change from FY21
Scope 1	Kilotonnes CO_2-e	476.7	414.4	325.6	-21%
Scope 2 - Location based	Kilotonnes CO_2-e	114.4	91.7	47.4	-48%
Total (Scope 1 + 2)	**Kilotonnes CO_2-e**	**591.1**	**506.1**	**372.9**	**-26%**
Emissions intensity (Scope 1 + 2)	Tonnes CO_2-e /AUD $m	44.1	41.4	31.1	-25%
Scope 3	Kilotonnes CO_2-e	1,708.7	2,027.9	2,115.7	4%
Total (Scope 1 + 2 + 3)	**Kilotonnes CO_2-e**	**2,229.8**	**2534.0**	**2,488.6**	**-2%**

Appendix B: Scope 1, 2 and 3 emissions

Scope 3 emissions breakdown

Category name	FY20 emissions (tCO_2-e)	FY21 emissions (tCO_2-e)	FY22 emissions (tCO_2-e)
1. Purchased goods and services	885,902[11]	1,243,284[11]	1,238,933
2. Capital goods	154,725[11]	145,208[11]	172,251
3. Fuel and energy-related activities	55,496[11]	44,308[11]	31,317
4. Upstream transportation and distribution	NA	NA	NA
5. Waste generated in operations	20,267	18,430	23,971
6. Business travel	31,558	12,847	9,729
7. Employee commuting	38,606	36,444	23,121
8. Upstream leased assets	N/A	N/A	N/A
9. Downstream transportation and distribution	50,952	46,377	54,513
10. Processing of sold products	N/A	N/A	N/A
11. Use of sold products	140,318	112,249	103,923
12. End-of-life treatment of sold products	N/A	N/A	N/A
13. Downstream leased assets	N/A	N/A	N/A
14. Franchises	N/A	N/A	N/A
15. Investments	347,205	368,160	457,658
16. Other (Water)	1,154	625	288

11. Restated in FY22 due to changes in methodology.

Appendix B: Scope 1, 2 and 3 emissions

Scope 3 emissions breakdown

Category name	Description
1. Purchased goods and services	**Description:** Extraction, production, and transportation of goods and services purchased or acquired by the reporting company in the reporting year, not otherwise included in Categories 2 to 8. **Boundary:** For Downer, this is all goods and services purchased within the reporting period excluding fuels, intercompany transfers, capital goods and subcontractors as these are either included within other categories or within Scope 1 and 2 disclosures. **Data sources:** Carbon Disclosure Project (CDP) Climate Change survey results from requested suppliers within the Supply Chain program and supplier spend data from Downer's Procurement system. **Methodology:** Hybrid method using actual emissions allocated to Downer-related activities by suppliers within the CDP Supply Chain program. If this wasn't available or suitable, self-reported intensities or CDP sector averages from disclosing companies were used against their FY22 spend. If a company was not within the requested CDP Supply Chain program, the company was allocated a CDP category based on Downer's procurement categories. Subsequently, the CDP sector average emissions factor was applied. **Changes from previous years:** Previously, spend-based data was used and entered into the Quantis Scope 3 Evaluator, whereas this year factors from CDP Supply Chain were used.
2. Capital goods	**Description**: Extraction, production and transportation of capital goods purchased or acquired by the reporting company in the reporting year. **Boundary:** For Downer, this is specifically Property, Plant and Equipment (PPE) additions within the reporting period. **Data sources:** PPE additions provided by Downer's Finance team. **Methodology:** Spend-based method using the dollar value of PPE additions in the reporting period, converted to USD and inputted into the Quantis Scope 3 Evaluator. **Changes from previous years:** None.
3. Fuel and energy-related activities	**Description:** Extraction, production and transportation of fuels and energy purchased or acquired by the reporting company in the reporting year. **Boundary:** Fuel and energy used by sites/activities under Downer's operational control as defined by Downer's Scope 1 and 2 boundaries. **Data sources:** Direct supplier invoices with usage and accruals based on the aforementioned actual data. **Methodology:** Average-data method using the total calculated quantities and applying the latest relevant emissions factors. For example, the National Greenhouse Accounting (NGA) Factors (2021) was used for Australia in FY22 and Measuring Emissions: A Guide for Organisations – 2022 Summary of Emission Factors was used for New Zealand. International operations had NGA factors applied. **Changes from previous years:** Emissions from Category 4 have moved into Category 3 due to boundary changes.
4. Upstream transportation and distribution	**Description:** Transportation and distribution of products and services purchased by the reporting company in the reporting year between a company's Tier 1 suppliers and its own operations/facilities (in vehicles and facilities not owned or controlled by the reporting company), including inbound logistics, and outbound logistics (for example, of sold products). **Boundary:** This category is not applicable due to associated emissions being captured within CDP's sector averages in Category 1 and within lifecycle assessments in Category 11. **Changes from previous years:** Emissions from Category 4 have moved into Category 3 due to boundary changes.

Appendix B: Scope 1, 2 and 3 emissions

Scope 3 emissions breakdown

Category name	Description
5. Waste generated in operations	**Description:** Disposal and treatment of waste generated in the reporting company's operations in the reporting year (in facilities not owned or controlled by the reporting company). **Boundary:** Waste generated by sites/activities under Downer's operational control as defined by Downer's Scope 1 and 2 boundaries. **Data sources:** Total actual waste generated in operations directly sourced from primary waste providers and spend by supplier/project value. **Methodology:** Waste-type-specific method using total waste generated and applying the appropriate emissions factor. For example, for FY22, the commercial and industrial factor from the NGA Factors (2021) was used for all non-hazardous waste generated. **Changes from previous years:** None.
6. Business travel	**Description:** Transportation of employees for business-related activities during the reporting year (in vehicles not owned or operated by the reporting company). **Boundary:** Scope 3 emissions associated with Downer using other providers to travel for business purposes, but not for the purposes of Downer's direct operations. For example, air travel, and car hire. **Data sources:** Air travel data sourced from Downer's travel booking system, CTM, in kilometres travelled. Car rental data sourced from Downer's rental car supplier (Hertz), in kilometres travelled. **Methodology:** Distance-based method where total kilometres travelled was multiplied by the relevant year's emissions factors from DEFRA (UK Government GHG Conversion Factors for Company Reporting). For example, for FY22, DEFRA 2021 was used. **Changes from previous years:** None.
7. Employee commuting	**Description:** Transportation of employees between their homes and worksites during the reporting year (in vehicles not owned or operated by the reporting company). **Boundary:** Employee commuting, not already included in Scope 1 emissions (where travel is undertaken in a tool of trade vehicle in order to carry out work on a Downer site). **Data sources:** Employee headcount derived from Downer HR systems. Commuting data based on Australian national averages from: 2071.0.55.001 Census of Population and Housing: Commuting to Work - More Stories from the Census, 2016. **Methodology:** Average-data method using Downer's employee headcount multiplied by national average kilometres travelled, multiplied by the relevant year's emissions factors from DEFRA (UK Government GHG Conversion Factors for Company Reporting). For example, for FY22, DEFRA 2021 was used. **Changes from previous years:** None
8. Upstream leased assets	**Description:** Operation of assets leased by the reporting company (lessee) in the reporting year and not included in Scope 1 and 2 – reported by the lessee. **Boundary:** For Downer, this category is not applicable due to operational control boundary, as any upstream leases are included in Scope 1 and 2.
9. Downstream transportation and distribution	**Description:** Transportation and distribution of products sold by the reporting company in the reporting year between the reporting company's operations and the end consumer (if not paid for by the reporting company), including retail and storage (in vehicles and facilities not owned or controlled by the reporting company). **Boundary:** This category only includes emissions associated with the transportation and distribution of products used by the Mineral Technologies business. All other associated transportation and distribution emissions are accounted for within other categories. **Data sources:** Weights and distances of freight transported sourced from the Mineral Technologies Logistics team. **Methodology:** Weight and distance data entered into the GHG Protocol's Transport Tool v2.6 to capture emissions from freight. **Changes from previous years:** None.

Appendix B: Scope 1, 2 and 3 emissions

Scope 3 emissions breakdown

Category name	Description
10. Processing of sold products	**Description:** Processing of intermediate products sold in the reporting year by downstream companies (for example, manufacturers). **Boundary:** All products sold by Downer are 'final' and hence this is not applicable. **Changes from previous years:** None.
11. Use of sold products	**Description:** End use of goods and services sold by the reporting company in the reporting year. **Boundary:** Downer sells three products that have been included: Asphalt, bitumen and concrete. **Data sources:** Total asphalt, bitumen and concrete quantities produced sourced from Road Services Business Unit and the VEC Engineering business. **Methodology:** Total quantities had appropriate lifecycle analysis emissions applied and Scope 1 and 2 emissions were subtracted. Asphalt LCA factors were obtained from the Review of Emissions Reduction Opportunities – Department of Planning, Transport and Infrastructure. Bitumen LCA factors were obtained from Sustainable Asset Management (Subtopic: Carbon emissions modelling of road pavement treatment strategies). Concrete LCA factors were obtained from The Centre for Earth Systems Engineering and Management (Life Cycle Assessment of Pre-Cast Concrete vs cast-in-place concrete). **Changes from previous years:** None.
12. End-of-life treatment of sold products	**Description:** Waste disposal and treatment of products sold by the reporting company (in the reporting year) at the end of their life. **Boundary:** End-of-life treatment, where applicable, is considered within Category 11, to the extent that it is considered in the LCA factors used. **Changes from previous years:** None.
13. Downstream leased assets	**Description:** Operation of assets owned by the reporting company (lessor) and leased to other entities in the reporting year, not included in Scope 1 and 2 – reported by lessor. **Boundary:** This category is not applicable to Downer. Downer does not lease assets to third parties. **Changes from previous years:** None.
14. Franchises	**Description:** Operation of franchises in the reporting year, not included in Scope 1 and 2 – reported by the franchisor. **Boundary:** This category is not applicable to Downer. Downer does not operate a franchise model. **Changes from previous years:** None.
15. Investments	**Description:** Operation of investments (including equity and debt investments and project finance) in the reporting year, not included in Scope 1 or Scope 2. **Boundary:** This relates to Downer's joint ventures and associates, which fall outside of Downer's operational control boundary. **Data sources:** Based on the dollar value of revenue from joint ventures and associates throughout the year, sourced from Downer's financials. **Methodology:** Average-data method using Joint Ventures' and Associates' revenue for the reporting period and inputting into the Quantis Scope 3 Evaluator tool. **Changes from previous years:** None.
16. Other (Water)	**Description:** Emissions associated with upstream water usage. **Boundary:** This relates to water usage across all of Downer's operations. **Data sources:** Direct invoices and supplier spend from procurement. **Methodology:** Hybrid method using actual data and proxies from invoices with the relevant year's emissions factors from DEFRA (UK Government GHG Conversion Factors for Company Reporting). For example, for FY22 DEFRA 2021 was used. **Changes from previous years:** None

Appendix C: Metrics and targets

Metric category		Metric	FY22 measurement and/or projections	Target
GHG emissions	Absolute Scope 1, Scope 2 and Scope 3 emissions.	tCO_2-e	See Appendix B.	Downer has set a near-term target of reducing absolute Scope 1 and 2 GHG emissions by 50 per cent by 2032 from a 2020 base year, and a 30 per cent reduction of our Scope 3 emissions by 2032. Downer has set a long-term target to be net zero in Scope 1, 2 and 3 emissions by 2050. Each of these targets has a 2020 baseline year.
Transition risks	Amount and extent of assets or business activities vulnerable to transition risks.	Carbon liability, measured in $AUD and $NZD.	**Fleet** ***Current exposure*** $0 based on prevailing carbon pricing mechanisms in jurisdictions that Downer operates. ***Future potential exposure if Downer takes no action to reduce emissions*** A potential exposure[3,4] of $5 million to $35 million per annum in Australia and $45 million per annum in New Zealand by 2050 (refer to Section 5.3).	Replace 100 per cent of light vehicles with alternative fuel source vehicles (for example, EVs) by 2033, and 90 per cent of heavy vehicles with alternative fuel source vehicles by 2040.
			Asphalt Plants ***Current exposure*** $0 based on prevailing carbon pricing mechanisms in jurisdictions that Downer operates. ***Future potential exposure if Downer takes no action to reduce emissions*** A potential exposure[3,4] of $68 million per annum in Australia and $8 million per annum in New Zealand by 2050 (refer to Section 5.3).	Reduce asphalt plants' exposure by completing fuel switching from diesel to natural gas or biofuels by 2040 and pursue warm mix as well as ambient asphalt by 2050.

Appendix C: Metrics and targets

GHG emissions		Metric	FY22 measurement and/or projections	Target
Physical risks	Amount and extent of assets or business activities vulnerable to physical risks	Number and value of labour loss due to days over 35 degrees	Downer will undertake further analysis and consider targets in relation to these metrics in FY23.	
		Proportion of property or asset portfolios in areas subject to flooding		
		Loss of productivity from severe rainfall days		
		Proportion of property or asset portfolios in areas subject to fire weather events		
Capital deployment	Amount of capital expenditure, financing, or investment deployed towards climate-related risks and opportunities	Capital deployed, measured in $AUD	Downer's Centralised Decarbonisation Fund (see Section 6.3).	Maximising the effectiveness of the decarbonisation fund through prioritisation of highest carbon abatement, lowest cost initiatives.

Appendix C: Metrics and targets

GHG emissions		Metric	FY22 measurement and/or projections	Target
Internal carbon prices	Price on each tonne of GHG emissions used internally by an organisation.	$/tCO$_2$-e	No internal carbon price is currently implemented for forward-looking decision making. However, for the purposes of scenario analysis, we have used the NGFS that incorporates carbon prices ($/tCO$_2$-e) (between $206 in 2025 and $1,171 in 2050, scenario and timeframe dependent). An assessment was conducted in FY22 to determine whether an internal carbon price would assist the capital allocation process – a shadow carbon price was recommended to be further explored in FY23.	A target will be explored with the potential implementation of a shadow carbon price.
Remuneration	Proportion of executive management remuneration linked to climate considerations.	Percentage of executive remuneration.	15 per cent weighting of performance against operational emissions targets for remuneration scorecard in the Short-Term Incentive plan.	Continue to incentivise decarbonisation through the Short-Term Incentive program and associated targets.

Appendix D: Transition risk scenario analysis methodology and findings

Methodology

Downer used two transition risk scenarios published by the NGFS to conduct scenario analysis. Scenarios which align to the lowest amount of global warming were selected, as it is under these scenarios where transition risks are expected to be most significant. Therefore, these would most stress test our strategy. At present, these exposures are theoretical only.

In Australia, an economy-wide explicit carbon price is not in place, nor is it likely that there will be one in the near-term. Implicit impacts of carbon pricing may be felt if Downer continues sourcing/using high carbon intensity fuel sources. Generators of these fuel sources are likely to face tightened requirements under the Safeguard Mechanism, which could potentially result in price increases to raw materials and other resources. Therefore, these figures are a signpost to determine the potential materiality of a future carbon exposure. The scenarios are outlined in the following table.

Scenario	Net zero 2050	Divergent net zero
Description	An ambitious scenario that limits global warming to 1.5°C through stringent climate policies and innovation, reaching net zero CO_2 emissions around 2050. This scenario assumes that ambitious climate policies are introduced immediately.	Net zero is achieved by 2050, but with higher costs due to divergent policies introduced across sectors and a quicker phase out of fossil fuels. This scenario differentiates itself from the 'Net zero 2050' scenario by assuming that climate policies are more stringent in the transport and buildings sectors, while decarbonisation of energy supply and industry is less stringent.
Key assumptions	■ 1.5°C median temperature target in 2100 with no or limited temporary overshoot ■ Considerably greater gross investment in energy, and particularly renewables ■ Coal is wound down by 2030, with investment in renewables 100 per cent supplanting investment in coal at this time ■ Optimal carbon prices in line with the long-term targets are implemented immediately. Prices range between \$208/tCO_2-e in 2025 and \$722/tCO_2-e in 2050 ■ Medium variation in regional policies, reflecting each country's emissions intensity, but high level of policy coordination across sectors ■ Rapid technological availability and change ■ Medium availability of carbon sequestration developed by 2050.	■ 1.5°C median temperature target in 2100 with no or limited temporary overshoot ■ Considerably greater gross investment in energy, and particularly renewables ■ Coal is wound down in the 2030s, but at a slower rate than under the Net zero 2050 scenario ■ Carbon prices are implemented immediately. However, investment outcomes will be sub-optimal, leading to higher prices in the medium-term to long-term as greater decarbonisation will be required more rapidly. Prices range between \$276/tCO_2-e in 2025 and \$1,171/tCO_2-e in 2050 ■ Medium variation in regional policies, reflecting each country's emissions intensity, but high level of policy coordination across sectors ■ Rapid technological availability and change, though more staggered than under the Net zero 2050 scenario ■ Low availability of carbon sequestration developed by 2050.

Appendix D: Transition risk scenario analysis methodology and findings

Findings

Risk	TCFD risk type	Description	Time horizon	Potential financial impact
Fleet	Policy, Market	■ Downer's vehicle fleet is susceptible to transition risk due to its exposure to liquid fossil fuels, including diesel and petrol. Fleet is a material component of Downer's emissions profile and is therefore exposed to increasing carbon liability over time. ■ Downer's fleet comprises 80 per cent light vehicles, and 20 per cent heavy vehicles. While heavy vehicles comprise a lesser percentage of total fleet, they emit a greater percentage of emissions compared to light vehicles. To align with a net zero scenario – either Net zero 2050 or Divergent net zero – Downer will pursue alternative fuel vehicles over the medium-term. If the transition of the fleet to low carbon assets/vehicles is not performed in a timely fashion, in addition to carbon liability, Downer faces potential asset write off risks if it continues to hold high carbon intensity fleet assets when society shifts to alternative fuel vehicles. ■ In the short-term, two main barriers to the decarbonisation of the light vehicle fleet are insufficient overall supply, as well as supply of fit-for-purpose vehicles. Global vehicle markets across all fuel types are currently constrained in the short-term, with wait times for new vehicles stretching out to months and in some cases years. Alternative fuel vehicles – including EVs and hybrids – are significantly exposed to these supply issues impacting availability in the short-term. Exacerbating this issue is the current inflationary environment leading to a large spike in liquid fuel prices, further increasing demand for more efficient and alternative fuel vehicles. Despite this, costs are expected to come down significantly once supply improves, reducing the financial burden of electrifying the fleet. ■ EVs are limited in supply due to the relative immaturity of the market, with relatively few options at present and supply constraints of these limited choices. The maturity of charging infrastructure also poses another barrier to rapid short-term uptake of EVs, meaning significant planning will be required to effectively integrate EVs into the light vehicle fleet. The decarbonisation of the electricity grid is another uncertainty in the abatement potential of an EV. An aggressive vehicle replacement strategy will commence in 2025, with consideration to supply availability and cost benefit analysis. Downer has also recently launched the 'Driving towards Net Zero' project, which will identify and implement options to reduce carbon emissions across our light vehicle fleet. The project will replace ICE vehicles with hybrids and EVs. This also expands upon Downer's initial introduction of EVs in Australia and New Zealand in recent years. In the meantime, Downer has introduced an aspirational target to replace five per cent of ICE vehicles with hybrids each year. ■ In addition, many of Downer's light vehicle fleet are tools of trade utility vehicles, which are often required to haul equipment. There are currently limited options in the Australian market for switching to an alternative fuel tool of trade utility vehicle. However, a range of vehicles are in development such as EVs suitable for tool of trade and heavy vehicles. Downer continues to monitor the market and follow developing overseas markets for these vehicles. In the interim, Downer is substituting SUVs for these types of vehicles, where practical, and pursuing operational changes and fleet reduction strategies. ■ Downer's heavy vehicle fleet is subject to similar constraints to the light vehicle fleet, with even longer timeframes for viable options to replace existing vehicles. The heavy vehicle fleet horizon is medium-term to long-term as heavy vehicles in the fleet will be reaching the end of their useful life post-2030 and may be replaceable with equivalent counterparts, powered from the local electricity grid. A cost benefit analysis may need to be conducted prior to 2030 regarding the useful life of heavy vehicles and the cost of replacing these vehicles with EVs/alternative fuel vehicles.	Short-term to medium-term	■ Current Australian fleet emissions, without abatement could represent a financial carbon inventory exposure[3, 4] of $21 million to $35 million AUD by 2050, based on potential carbon prices aligned with climate transition NGFS. ■ Current New Zealand fleet emissions, without abatement could represent a financial carbon inventory exposure[3, 4] of $27 million to $45 million NZD by 2050.

Findings

Risk	TCFD risk type	Description	Time horizon	Potential financial impact
Asphalt Plants	Policy, Market, Reputational	■ Asphalt plants are susceptible to transition risk due to their reliance on a significant amount of heat currently provided by fossil fuel sources during the asphalt production process. ■ At present, fuel sources for Downer's asphalt plants are limited to high carbon intensity fuels (for example, diesel and natural gas), due to current immature supply chains and technological limitations of alternative fuels. Most of the burners in Downer's asphalt plants currently operate on diesel, with a smaller number currently using natural gas – the latter holding an advantage in terms of emissions intensity. Multiple options to reduce asphalt emissions (reducing heat requirement through warm and ambient processing) and using cleaner fuels (biofuels, hydrogen dilutions, etc) are likely in the short-term, medium-term, and long-term. ■ Alternatives that may be viable from a technological perspective in the short-term are switching diesel asphalt plants to natural gas and biofuels. Readying our asphalt plants for natural gas is a useful interim step in preparing for an increased amount of biogas, either through direct deliveries or within the pipeline itself – this provides greater decarbonisation potential than continuing to rely on diesel. There are several biofuels currently available, including biodiesel, biogas and biomethane. However, obtaining sufficient supply at a cost-efficient price is a challenge, particularly across the entirety of Downer's asphalt plant portfolio. ■ Another opportunity is to transition from the reliance on heat currently provided by fossil fuel sources in the production process. At present, hot mix asphalt is preferred for most roads, from highways through to parking lots, due to its strength and weather resistance. Downer is seeking to invest further into warm mix and ambient asphalt technologies to allow for production of roads of equivalent durability at a lower temperature. If this occurs, less energy will be required to create asphalt, which will result in lower operating costs, while also increasing the viability of alternative fuels, with lower requirement for supply of what will likely be scarce resources. ■ Asphalt plants also rely on electricity to power portions of their operations, ancillary to the main burner. Options to decarbonise electricity in the short-term include greater proliferation of onsite renewables, which has the advantage of shielding Downer from a volatile electricity market. Electricity from renewable sources such as Power Purchase Agreements and Greenpower and certified carbon zero electricity provide other options for short-term decarbonisation as the electricity grid continues to decarbonise.	Medium-term to long-term	■ If FY21 emissions were to continue without abatement, Downer Australia could represent a financial carbon inventory exposure of approximately $42 million to $68 million AUD by 2050 based on the underlying carbon prices in the NGFS scenarios. ■ Without abatement, Downer New Zealand could represent a financial carbon inventory exposure of approximately $5 million to $8 million NZD by 2050 based on the underlying carbon prices in the NGFS scenarios.

Appendix E: Physical risk scenario analysis methodology and findings

Methodology

The physical risk scenario analysis used scenarios collectively known as the Shared Socioeconomic Pathways (SSPs) that offer different narratives regarding socioeconomic trends that could take shape over time and are associated with distinct global warming trends. The SSPs are from the IPCC AR6. The IPCC assessed that global warming of 1.5°C and 2°C will be exceeded in the 21st century with a best estimate of equilibrium climate sensitivity (average change in mean global surface temperatures) of 3°C with a likely range of 2.5°C to 4°C. Two SSPs were used to conduct the analysis:

- SSP2-4.5: A moderate scenario, where emissions are curbed based on existing policies and announced pledges but fall short of meeting the Paris Agreement targets. This scenario is likely to result in a global temperature rise between 2.1°C to 3.5°C by 2100.
- SSP5-8.5: A very high emissions scenario that assumes no climate change action and is likely to result in a global temperature rise between 3.3°C to 5.7°C by 2100.

Both were chosen to stress test Downer's portfolio against potential physical risks that may manifest in a world that overshoots a 1.5°C warming scenario. Neither scenario represents a prediction that this will necessarily materialise.

The physical risk analysis was performed on locations in which Downer operates, totalling 429 sites in Australia and New Zealand. The highest proportion of sites were located across New South Wales and the North Island of New Zealand, and the least number of sites were in the Australian Capital Territory, Northern Territory and Tasmania. Financial impacts associated with multiple physical hazards were assessed across the sites using information drawn from projected changes in the various physical hazards across multiple scenarios and time horizons, along with historical insurance claims data and external research on hazard costs.

The physical hazards, climate metrics, scenarios and time horizons assessed are outlined in the following table.

Physical hazard	Physical risk	Climate metric	Scenarios	Horizons
Chronic temperature increase	Chronic	Hottest annual temperature	Moderate 2°C (SSP2-4.5) Very high 4°C (SSP5-8.5)	2030, 2050, and 2070
Hot days	Acute	Days over 35°C		
Frequency and intensity of extreme rain events	Chronic	Extreme rain days and wettest day rainfall		
Bushfires	Acute	Extreme fire days	Very high 4°C (SSP5-8.5)	
Extreme sea level	Chronic	1-in-100-year extreme sea level	Moderate 2°C (SSP2-4.5) Very high 4°C (SSP5-8.5)	2050 only
Tropical cyclones, storms (including East Coast Lows) and lightning	Acute	Cyclone frequency	Very high 4°C (SSP5-8.5)	

Based on the IPCC's assessment, total global emissions according to nationally determined contributions are consistent with an end-of-century temperature rise of between 2.1°C to 3.5°C that is reflected in the SSP2-4.5 scenario.

Findings

The analysis found that all of Downer's portfolio is exposed to some degree of physical climate risk based on the scenarios chosen (SSP2-4.5 and SSP5-8.5). The following table outlines the potential impact of these risks.

Physical Hazard	Potential impact	Potential unmitigated financial impact	Mitigating control examples	Key areas and activities affected
Extreme heat conditions (chronic temperature increase and hot days >35°C)	Temperature increase and hot day events may result in additional costs associated with loss of outdoor labour productivity, rework, delivery disruption and project delays from: ■ Unsafe working temperatures, (for example, working in extreme heat, in the absence of other controls, can cause delays, errors and serious illness and injury) ■ Impacts to physical infrastructure (for example, train tracks warping or asphalt softening).	■ Downer will undertake further analysis and consider a boundary and methodology to measure potential heat related (>35°C) labour loss in future years.	■ Integrating relevant physical risk factors, such as hot day conditions, into business decisions related to new work, existing work, contract terms and pricing, acquisitions and property leases ■ Monitoring weather forecasts and conditions for potential extreme weather events and, where necessary, implementing appropriate resilience measures ■ Implementation of Zero Harm policies, standards, procedures (for example, Working in Extremes of Temperatures Standard), including to modify or suspend work in extreme temperatures.	■ North-west Western Australia, northern Queensland, Northern Territory, inland New South Wales are projected to be the most heavily impacted ■ Downer operates asphalt plants and undertakes road maintenance activities and infrastructure projects in these areas – all have a component of outdoor work and could potentially be impacted.
Frequency and intensity of severe rain events	■ Rainfall extremes may lead to flooding, with potential to damage assets and infrastructure, delay project timelines, and pose risks to health and safety ■ Events coinciding with storms pose a higher risk of power failures due to lightning strikes.	■ More frequent and intense extreme rain events potentially impact Downer's ability to secure insurance for frequent weather-related events due to likely increase in deductibles and likely insurance premium increases. For example, we are seeing an increase in frequency and quantum of claims. The recent March 2022 weather events resulted in approximately $10 million insured damage claims across various Downer businesses ■ Downer currently has a limit on flood cover in Maryborough of $10 million, and all other locations of $40 million. This is expected to change across other known flood areas.	■ Integrating relevant physical risk factors, such as flooding, into business decisions related to new work, existing work, contract terms and pricing, acquisitions and property leases ■ Monitoring weather forecasts and conditions for potential extreme weather events and, where necessary, implementing appropriate resilience measures ■ Insurance against losses from extreme weather and climate-related disasters ■ Implementation of environmental and land use planning approvals to mitigate location specific environmental risks and hazards (for example, flood mitigation measures) ■ Implementation of Zero Harm policies, standards, procedures (for example, Emergency Management Procedure).	■ Increased rain frequency is most likely in south-east Australia and New Zealand. Increased rain intensity is most likely in northern Australia and New Zealand. ■ Flooding and storm events may have a more acute impact in certain affected areas, based on the topography or susceptibility of the region to intense storm events. ■ Flooding is likely to impact on the timely delivery of infrastructure projects, road maintenance and paving works. The cost implications of some of these events may be covered through contract pass-through mechanisms.

Findings

Physical Hazard	Potential impact	Potential unmitigated financial impact	Mitigating control examples	Key areas and activities affected
Fire weather days	■ Bushfires have the potential to result in damage to infrastructure and assets, disruption to operations and supply chain networks, and an increased risk of staff health issues (for example, smoke inhalation) ■ The number of extreme fire weather days is projected to increase across multiple time horizons and scenarios ■ Costs associated with bushfires are not limited to insurance losses, but can include clean-up costs for debris removal and rebuilding costs ■ Increasing frequency of extremes associated with bushfire conditions may also increase the costs of insurance premiums.	■ No figure provided, but Downer will undertake further analysis and consider a boundary and methodology to measure potential impacts from fire weather in future years.	■ Integrating relevant physical risk factors, such as bushfires, into business decisions related to new work, existing work, contract terms and pricing, acquisitions and property leases ■ Monitoring weather forecasts and conditions for potential extreme weather events and, where necessary, implementing appropriate resilience measures ■ Insurance against losses from extreme weather and climate-related disasters at higher limits where risk management controls implemented ■ Implementation of Zero Harm policies, standards, procedures (for example, Emergency Management Procedure) ■ Implementation of environmental and land use planning approvals to mitigate location specific environmental risks and hazards (for example, bushfire buffer zones).	■ Areas of Victoria, New South Wales, Queensland, South Australia, and some areas of New Zealand's South Island. This could have impacts across Downer's portfolio that exists in high bushfire risk zones, but health risks may be pervasive across the portfolio. For example, the 2019-2020 summer bushfires caused hazardous air quality across large portions of New South Wales, which increased the risk of exposure to workers.
Extreme sea level, sea level rise	■ Storm surges and sea level rise increases the risk of flooding from coastal inundation that may damage assets and infrastructure, disrupt operations, affect logistics, and pose a risk to health and safety of employees and the community ■ Storm surges are also exacerbated by tropical cyclones, which significantly intensify extreme wave heights.	■ No figure provided, but expected to result in increased operating costs, insurance liability and infrastructure repair liability ■ Insurance does not cover change in action by sea, tidal wave or high water caused by a meteorological disturbance, such as a cyclone, typhoon, hurricane, or storm.	■ Integrating relevant physical risk factors, such as storm surge and sea level rise, into business decisions related to new work, existing work, contract terms and pricing, acquisitions, and property leases ■ Monitoring weather forecasts and conditions for potential extreme weather events and, where necessary, implementing appropriate resilience measures ■ Implementation of Zero Harm policies, standards, procedures (for example, Emergency Management Procedure) ■ Implementation of environmental and land use planning approvals to mitigate location specific environmental risks and hazards (for example, resilient site planning and infrastructure design).	■ Coastal regions in New Zealand and southern Australia, including Tasmania, are exposed to coastal inundation associated with more frequent storm surge events and sea level rise ■ Vulnerable coastal regions in Queensland, Northern Territory and New Zealand's North Island are also exposed to cyclones, often in the same regions.

Findings

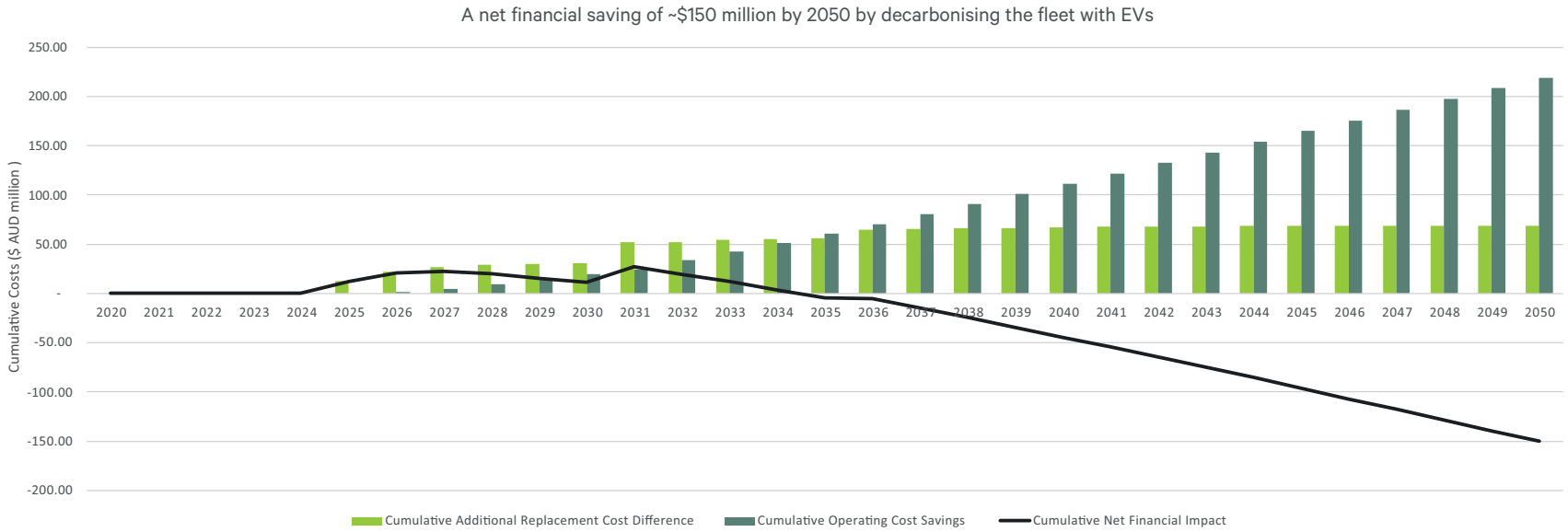
Physical Hazard	Potential impact	Potential unmitigated financial impact	Mitigating control examples	Key areas and activities affected
Tropical cyclones, East Coast Lows, storms, lightning	■ Increased exposure to cyclones and storms is likely to lead to increasing costs associated with insurance premiums and damage losses, in addition to operational disruptions such as temporary site closures, power failures, transportation disruption and delays, and damage to critical infrastructure.	■ As an example, a past cyclone impact event in Queensland resulted in approximately $500,000 insured damage claims for Downer ■ Between 2011-2021, there were approximately $8.9 million in insurance claims paid from incidents associated with storms, lightning and wind gusts. This would be expected to increase along with the increased frequency and severity of these events.	■ Integrating relevant physical risk factors, such as cyclones and storms, into business decisions related to new work, existing work, contract terms and pricing, acquisitions, and property leases ■ Monitoring weather forecasts and conditions for potential extreme weather events and, where necessary, implementing appropriate resilience measures ■ Insurance against losses from extreme weather and climate-related events ■ Implementation of Zero Harm policies, standards, procedures (for example, Emergency Management Procedure) ■ Implementation of environmental and land use planning approvals to mitigate location specific environmental risks and hazards (for example, cyclone resilient infrastructure design).	■ Areas that are currently susceptible to Category 4 and 5 cyclone intensity and landfall rain rate (north-west Australia and New Zealand) remain susceptible, although frequency may change. In all regions, landfall rain rates are expected to increase, causing significant flow-on impacts, such as flooding ■ The frequency and intensity of severe storms are projected to increase across northern and eastern Australia and New Zealand, along with an increase in storm-related hazards such as lightning, hail, extreme winds and heavy rainfall. This would impact on the timely delivery of works and the potential destruction of infrastructure in affected regions.

Appendix F: Pace of fleet decarbonisation considerations

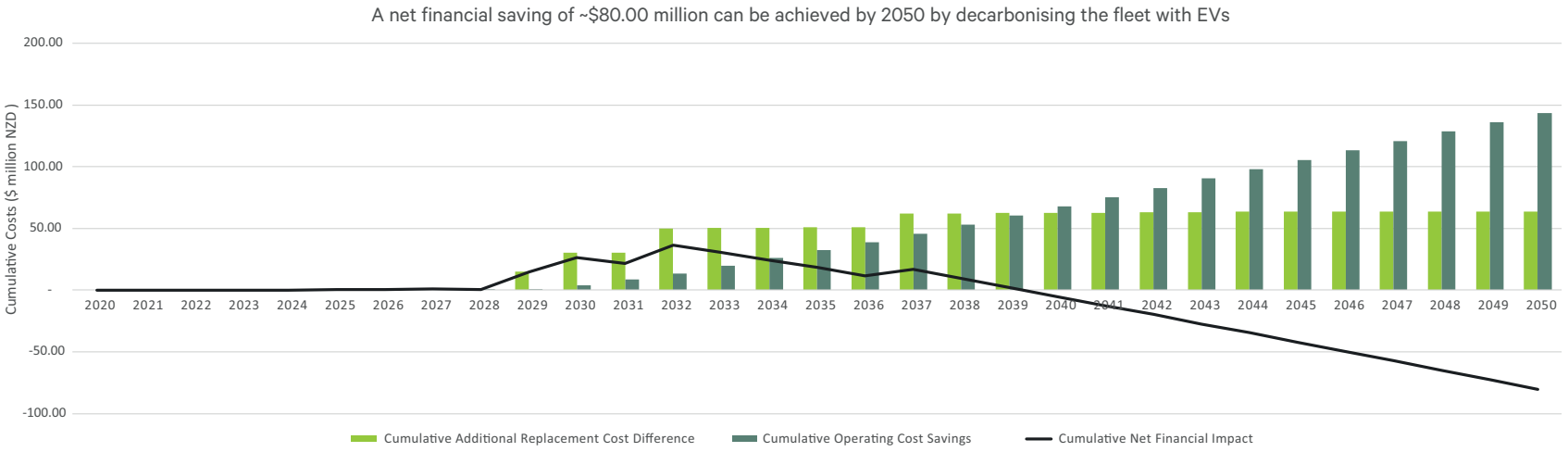
	Australian fleet	New Zealand fleet
Light vehicles	■ To meet indicative implementation dates for fleet decarbonisation, Downer is required to replace thousands of light vehicles each year which is dependent on vehicle availability ■ The replacement of light vehicles reaching end-of-life before 2030 requires staggering to avoid supply or capital constraints ■ As an interim measure, Downer can opt to replace ICE light vehicles with hybrids due to supply chain conditions and lack of cost parity prior to 2030 ■ Any hybrid vehicles would require eventual replacement by EVs to align to net zero.	
Heavy vehicles	■ Downer will need to replace hundreds of heavy vehicles with EVs or alternative fuel vehicles per year between 2030-2040 which is dependent on vehicle availability ■ Depending on the outcomes of a cost benefit analysis prior to 2030, it may be advantageous to extend the useful life of some heavy vehicles post-2030 to allow additional time for heavy vehicle EVs to reach cost parity ■ However, this will need to be balanced against extending the heavy vehicle fleet's emissions profile and the additional running costs of ICE vehicles compared to EVs or alternative fuel vehicles.	
Residual emissions*	■ The Australian electricity grid is expected to decarbonise unevenly which may result in approximately 5 kilotonnes CO_2-e of residual emissions per year from the Australian fleet by 2045. These will need to be abated by additional measures.	■ Decarbonisation of the New Zealand electricity grid is expected to result in approximately 1.1 kilotonnes CO_2-e of residual emissions per year from the New Zealand fleet by 2050. These will need to be abated by additional measures.

* Residual emissions may differ if a portion of hydrogen or other alternative fuel vehicles enters the mix.

Transition: Australian fleet financial summary



Transition: New Zealand fleet financial summary



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