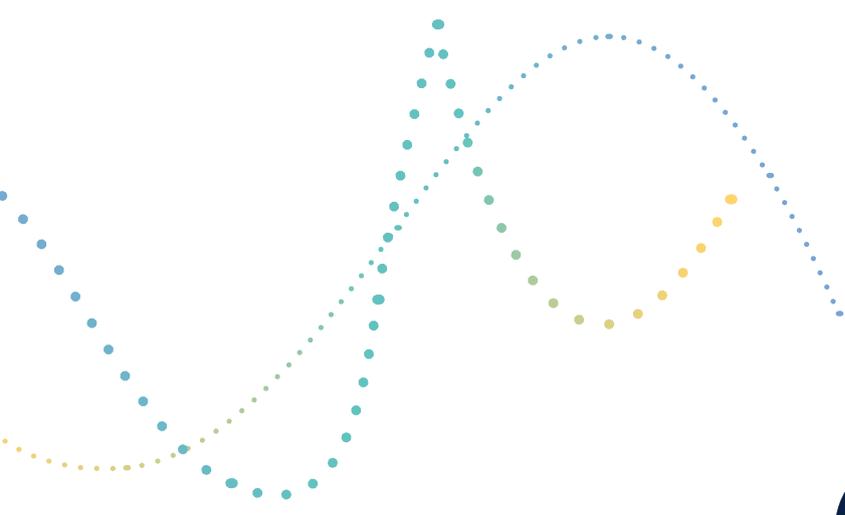




This  
Changes  
Everything



# NET POSITIVE CARBON BY 2030

MIRVAC'S SCOPE 3 EMISSIONS TARGET AND APPROACH



# Contents

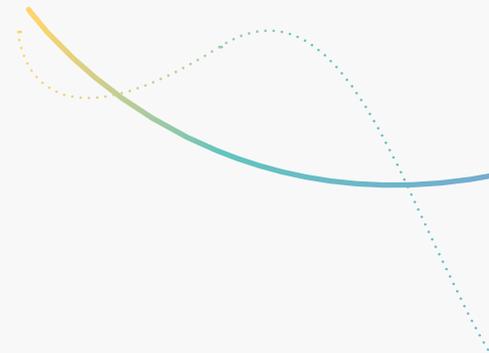
Summary	01
Introduction and strategy update	02
Why is this important?	03
Our sector's impact and responsibility	03
Our footprint	04
Our approach	05
Modelling	05
Learning	05
Scenario planning	06
Our principles	07
Creating value	07
Leadership	07
Accountable partnerships	07
Transparency	07
Verification	07
Our scope 3 emissions boundaries – what we 'count'	08
Our key levers for change	09
In-house design and construction capability	09
In-house sustainability expertise	09
Our buying power	09
Collaboration	09
Our strategies	10
1. Reducing embodied carbon	10
2. Collaborating with customers to reduce their emissions	11
3. Investing in high quality, nature-based offsets	12
What's next?	13
Case studies	14
Aspect, Kemps Creek, Western Sydney	14
80 Ann Street, Brisbane	15
55 Pitt Street, Sydney	16
The Fabric, Altona North, Melbourne	17



## ACKNOWLEDGEMENT OF COUNTRY

Mirvac pays its respect to all Aboriginal and Torres Strait Islander peoples as the traditional custodians of the lands and waters of Australia where we live, work and play.

Artwork created by Riki Salam (Mualgal, Kaurareg, Kuku Yalanji) of We are 27 Creative.



# Summary

As a result of our focus on what matters most to Mirvac and our key stakeholders, we have made accelerated progress on our ambition to reduce emissions, reaching our net positive in scope 1 and 2 emissions by 2030 target nine years early in 2021.

**We are now setting a target on scope 3 emissions – to be net positive by 2030, while maintaining net positive in scope 1 and 2 emissions.**

Net positive emissions means eliminating more than we emit. For example, in FY22 we made significant emissions reductions, and then bought a small quantity of high-quality offsets to achieve a negative carbon balance of 100 tonnes.

While key issues in the operating environment around scope 3 emissions, such as the pace of decarbonisation and the cost of carbon, remain uncertain, we are motivated to share our early thinking on this important topic as a way of contributing to the broader set of knowledge sharing from our industry and sector.

This report sets out our thinking on scope 3 emissions, the principles we apply when making decisions, what we count as our scope 3 emissions, what we know of our current and anticipated carbon footprint, what we are planning to do to reduce emissions, as well as how we intend to transparently disclose our progress, including through the Science-Based Targets initiative. It also shares some case studies of work underway across each of our asset classes to reduce emissions.

We look forward to engaging in conversation with our stakeholders about our plans, so that we can together learn and accelerate action on this significant challenge.

**OUR MAJOR SCOPE 3 EMISSION SOURCES**

- > Embodied carbon in materials
- > Waste
- > Resident and tenant energy
- > Repairs and maintenance.

**OUR INTENDED KEY STRATEGIES**

- > Reducing embodied carbon
- > Collaborating with customers and suppliers to reduce their emissions
- > Investing in high-quality offsets.



Carbon emissions

**Our impact areas**

- Embodied carbon in materials
- Waste
- Tenant & resident emissions
- Repairs & maintenance

**Our actions**

- Lower carbon materials
- Divert 100% waste from landfill by 2030
- 100% renewable electricity
- Customer & supplier partnerships
- High quality offsets
- 25% recycled content
- All electric

# Introduction and strategy update

When Mirvac launched [This Changes Everything](#) in 2014, we set out a bold agenda, which included an industry-leading target to be net positive in our scope 1 and 2 carbon emissions by 2030. At the time, setting such an ambitious target, without clarity on how we might get there, was seen as leadership in some circles and folly in others.

What it helped to galvanise, however, was a new conversation with our peers and industry groups. We have been pleased to contribute to the impressive body of action and leadership from the property sector since that time. Internally it sparked innovation and changes to how we design, develop, construct and operate our products and assets in pursuit of our net positive goal.

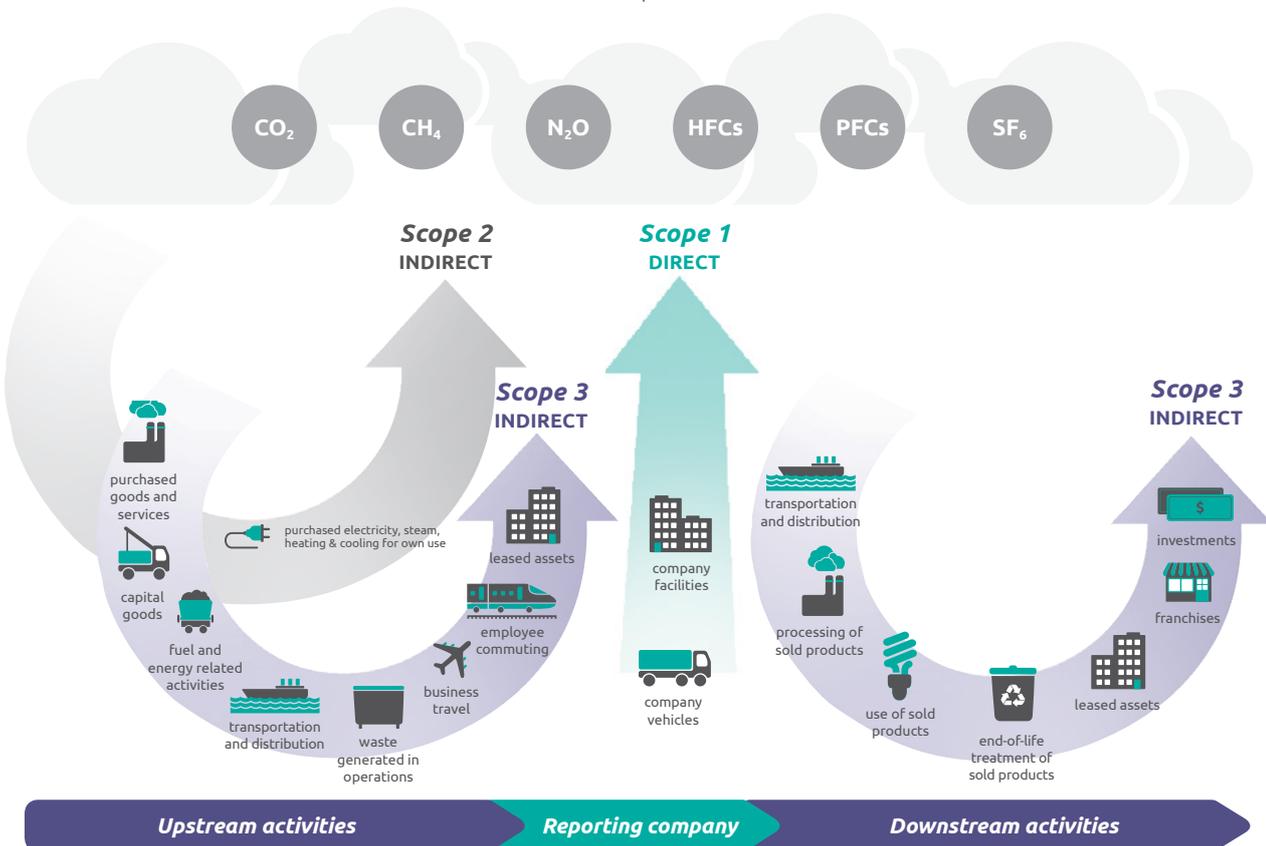
In the second phase of the strategy, launched in 2018, we concentrated on both materiality and transparency. We reduced the number of focus areas and aligned them to what matters most to us and to our key stakeholders. We also moved from goal setting to transparent action through our series of Planet Positive plans on [carbon, waste and materials](#), and [water](#).

As a result of this work, we have made good progress against our targets, including reaching net positive in scope 1 and 2 carbon emissions in 2021, nine years early. We achieved this ambitious outcome through our ongoing, rigorous focus on energy efficiency – demonstrated by a portfolio that now features 18 assets rated 5 Star NABERS Energy or above - building all-electric, choosing 100 per cent renewable electricity, and buying high-quality, Australian, nature-based carbon offsets.

This year, we refreshed our strategy again. Now in its third phase, and with the implications of climate change becoming increasingly urgent, the key focus of our emissions work is on scope 3. In these early stages, our work has been on determining the emissions for which we are responsible, modelling our current and future carbon emissions using credible external inputs, and considering the key levers we can use to reduce these emissions. We have also consulted right across the business, as well as with our industry groups and peers, including the Australian Climate Leaders Coalition, of which we were founding members, and the Materials Embodied Carbon Leadership Alliance.

Our new emissions target for the Group is to be net positive in scope 3 emissions by 2030, as well as maintaining net positive in scope 1 and 2. This means we will reduce our scope 1, 2, and 3 emissions, and then our intention is to offset any remaining emissions from FY30 onwards with high-quality, nature-based offsets.

We recognise that there are a number of uncertainties when it comes to scope 3 emissions, and we are driven to share the steps we've taken, and plan to take, despite those uncertainties. Our view is that the more our journey and the lessons learnt are shared, the bigger the contribution we can make to decarbonise across sectors. As well as being committed to continuous learning and sharing, we remain open to the best responses to this complex challenge. As a result, we anticipate that the shape of our work and our approach will continue to evolve and adapt. And as we adapt our approach, we are also committed to sharing those changes transparently.



Source: [https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard\\_041613\\_2.pdf](https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf)



“The impacts of sustained increases in temperatures on our cities and our planet, as a result of climate change, will continue to become more extreme, unless we all take urgent action to reduce, and ultimately eliminate, our carbon emissions.”

Sarah Clarke, Group General Manager, Sustainability, Mirvac

### WHY IS THIS IMPORTANT?

This year alone, weather events across Australia have been unprecedented, with Sydney recording its wettest year since records began, and severe storms and torrential rain causing extensive flooding along the east coast of Australia. The flooding caused significant damage in the property sector and had devastating impacts on communities and economies of the affected areas.

As a property company, there are a number of risks we face as weather events increase, and we are already mindful of and active in managing these. These risks include construction delays, damage to property, losses in productivity, impacts to our supply chain, and increases in costs.

In addition to this, we are mindful of the increasing interest in this topic from our key stakeholders, including the importance of sustainable construction and assets for tenants, debt providers, capital partners, and investors, which will impact the occupancy and future value of our assets.

### Our sector’s impact and responsibility

Globally, buildings are responsible for approximately 37<sup>1</sup> per cent of energy-related greenhouse gas (GHG) emissions. Of this, 26 per cent is attributed to embodied carbon emissions in building materials and 74 per cent to operational carbon emissions<sup>2</sup>. To achieve the Paris Agreement target, the global building and construction sector needs to almost completely decarbonise by 2050.

The embodied carbon in building materials is predominantly driven by three processes: process heat, direct chemical emissions, and electricity.<sup>3</sup> As a result, decarbonising the electricity grid and moving to a greater supply of renewable electricity, will help to decarbonise materials.

However, because electricity is estimated to account for approximately one quarter of the embodied carbon in materials, there will also need to be a deliberate focus on addressing process heat and chemicals to reduce embodied carbon emissions.<sup>2</sup>

Embodied carbon emissions are forecast to make up 85 per cent of whole-life building carbon emissions in Australian buildings from a baseline of 16 per cent in 2019,<sup>2</sup> as shown on right.

### Carbon emissions from Australia’s building stock in 2019 and 2050



We anticipate that the change in the composition of scope 3 emissions will also be reflected in our business. Minimising both embodied and operational emissions is core to our scope 3 strategy.

1. [https://globalabc.org/sites/default/files/2022-11/FULL%20REPORT\\_2022%20Buildings-GSR\\_1.pdf](https://globalabc.org/sites/default/files/2022-11/FULL%20REPORT_2022%20Buildings-GSR_1.pdf)  
 2. <https://gbca-webs3.amazonaws.com/media/documents/embodied-carbon--embodied-energy-in-australias-buildings-2021-07-22-final-public.pdf>



Aspect, Kemp's Creek, Sydney - Artist impression, final design may differ.

## Our footprint<sup>1</sup>

Looking back at FY19, the composition of our emissions was around 1 per cent for scope 1, 21 per cent for scope 2, and the remainder being our scope 3 emissions. Of these scope 3 emissions, tenant electricity (category 13: downstream leased assets) and embodied carbon in materials (category 1: purchased goods and services) comprised 86 per cent of our forecast emissions, equivalent to 67 per cent of total scope 1 – 3 emissions.

Given the significant progress made to eliminate our scope 1 and 2 emissions, more than 98 per cent of our total carbon emissions in FY30 is forecast to be scope 3 emissions.

The composition of our scope 3 emissions is expected to change over the next seven years

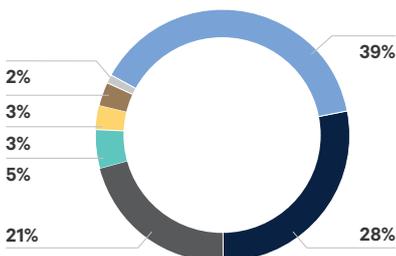
as the grid decarbonises and our climate continues to change. While tenant and resident energy currently makes up around 42 per cent of our emissions, we anticipate that will more than halve by FY30, based on current modelling.

Depending on how fast decarbonisation occurs in our operating environment, Mirvac's scope 3 emissions profile may result in a lower emissions scenario or a higher emissions scenario. These low and high forecasts for scope 1 – 3 carbon emissions in FY30 are shown in the images below, and are based on modelling (which will be verified by a third party) and scenario planning (Tense Connections high emissions scenario, Collective Choices low emissions scenario) outlined on p5-6 of this report.

The major contributors to Mirvac's scope 3 emissions are expected to be embodied carbon (driven by purchased goods and services), and tenant and resident energy consumption.

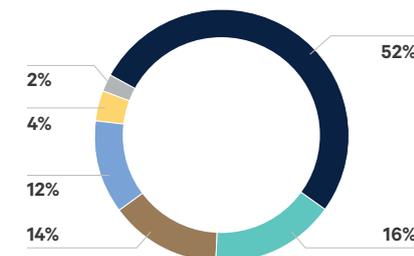
### FY19 Emissions

Scope 1 – 3 carbon profile

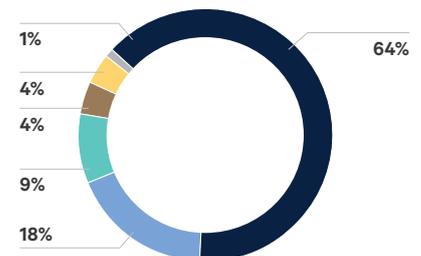


### FY30 Emissions

Scope 1 – 3 carbon profile (Low emissions scenario)



Scope 1 – 3 carbon profile (High emissions scenario)



NB: charts are based on model data which are estimates only

● Purchased goods and services ● Maintenance and repairs ● Waste in operations ● Tenant electricity ● Resident electricity ● Scope 1 ● Scope 2

1. This data is from modelling conducted by Mirvac at the time of releasing this report in November, 2022. This modelling will continue to evolve as increasingly certain data becomes available.

# Our approach

Our approach includes modelled data, continuous learning, and scenario planning.



## MODELLING AND GOVERNANCE

Since meeting our scope 1 and 2 emissions target, we have developed a carbon model to understand our scope 3 emissions profile, and forecast how it may look in FY30 and beyond under a range of possible climate scenario outcomes.

This forecasting has relied on a set of credible assumptions including climate science from the International Panel on Climate Change's sixth assessment reports (AR6), the Australian grid decarbonisation rates published by the Australian Energy Market Operator<sup>1</sup>, and upfront embodied carbon datasets from Mirvac's projects' life cycle assessments and from the Thinkstep-ANZ analysis of embodied carbon and embodied energy in Australia's buildings.<sup>2</sup>

Over the next one to two years, we intend to document and seek third party limited assurance on a basis of preparation for scope 3 emissions, which will transparently outline our modelling assumptions and calculations.



## LEARNING

A key focus in FY23 is to expand our internal governance to include scope 3 emissions, setting up a working group and a management steering committee with representatives from across the organisation, including technical sustainability specialists, as well as leaders from procurement, finance, strategy, construction, design, and cost planning, among others. These groups will provide input into the development of Mirvac's scope 3 transition plan, which will outline the steps we will take in partnership with customers and suppliers, while balancing our pillars of value in making these choices, in order to reduce emissions in absolute terms.

We are already undertaking a range of activities to reduce scope 3 emissions, including:

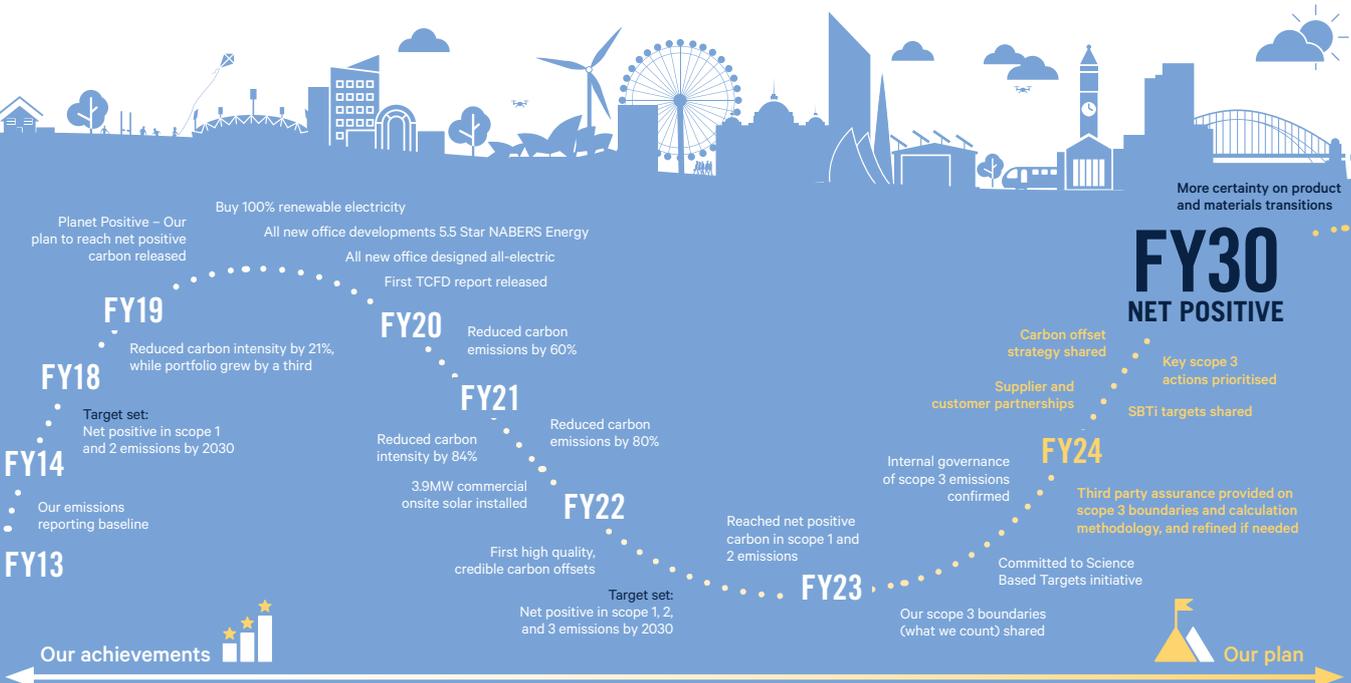
- > our first net positive embodied carbon industrial development, Aspect, in Western Sydney;
- > buying lower carbon concrete at Heritage Lanes at 80 Ann St in Brisbane;
- > looking to attract tenants to 55 Pitt St in Sydney who buy 100 per cent renewable electricity; and
- > all-electric, highly-efficient, solar-powered homes at The Fabric in Melbourne.

Case studies of these activities are on p14-17.

With increasingly reliable inputs of emissions data from our suppliers through environmental product disclosures, as well as learning from these initiatives, we anticipate having a more robust data set to forecast embodied carbon emissions for our projects to understand how our design, procurement, construction, and operational choices can work to reduce our impact on the environment.

We have now committed to the Science-Based Targets initiative, which means we will share our emissions reductions targets by 2024.

We anticipate that this process will be a journey of learning and sharing for Mirvac, which may result in adjustments along the way. We are also committed to providing ongoing updates to stakeholders so that we continue to contribute to the body of knowledge on scope 3 emissions, and so that we remain transparent about our choices.



1. [https://aemo.com.au/-/media/files/electricity/nem/planning\\_and\\_forecasting/isp/2021/csiro-multi-sector-modelling.pdf](https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/isp/2021/csiro-multi-sector-modelling.pdf)  
 2. <https://gbca-web.s3.amazonaws.com/media/documents/embodied-carbon--embodied-energy-in-australias-buildings-2021-07-22-final-public.pdf>

# Our approach cont.

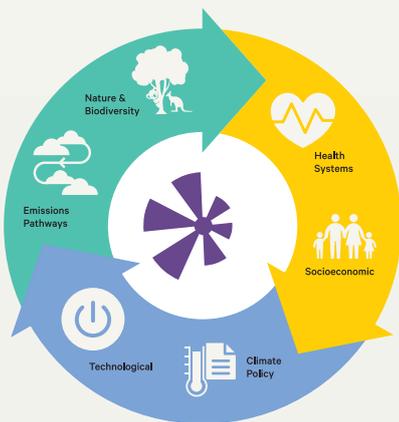
## SCENARIO PLANNING

As we shared in our [2022 Building Climate Resilience report](#) aligned with the Taskforce on Climate-related Financial Disclosures, we have designed three Mirvac climate scenarios around how the world may look in 2050.

We have used these climate scenarios to forecast the variability in our future carbon emissions in 2030. They were informed by the [IPCC's Sixth Assessment Reports \(AR6\)](#).

Our Collective Choices scenario is the most optimistic in terms of temperature change (1.5 – 2 degrees warming), which assumes rapid decarbonisation of the grid, guided by the Australian Energy Market Operator (AEMO) strong electrification decarbonisation scenario,<sup>1</sup> as well as lower embodied carbon benchmarks for materials.<sup>2</sup>

At the other end of the scale, Tense Connections (>2.5 degrees warming) assumes business as usual decarbonisation of the grid, and high embodied carbon intensity for materials.<sup>2</sup>

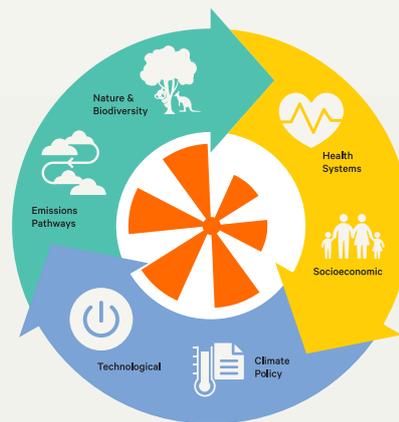


### TENSE CONNECTIONS (>2.5 DEGREES)

With a doubling of current emissions comes a significant increase in the frequency and severity of extreme weather events. This leads to increased nationalism, protectionism, more conflict, and less global collaboration, and results in energy and food security being prioritised over combined global efforts to prevent the most harmful impacts of a changing climate on life and biodiversity loss.

**Key uncertainties the scenario tests:**

- > Supply chains
- > Global markets
- > International trade & relations
- > Regional economic impacts
- > Population changes

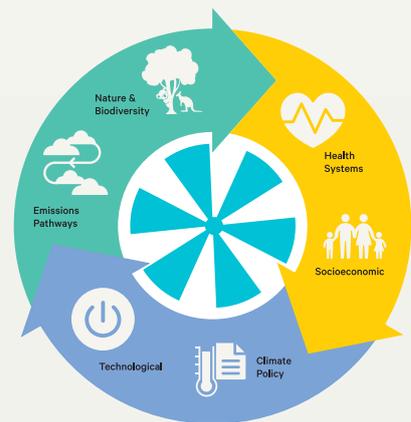


### CLEVER TRANSITIONS (2.0-2.5 DEGREES)

Continued growth in population, particularly in developing regions, and global GDP will increase carbon emissions. It will also restrict access to food and add pressure to health services, with flow on impacts to wellbeing. In response, a clear and stable policy context is put in place, which accounts for the costs of carbon, gives the market confidence, and enables investment in technologies such as nature-based carbon capture solutions, as we adapt to a warmer climate.

**Key uncertainties the scenario tests:**

- > Carbon pricing levels
- > Technology readiness
- > Leaps of faith in new technologies
- > Policy support for transition
- > Disorderly or delayed transitions



### COLLECTIVE CHOICES (1.5-2.0 DEGREES)

Clear, science-based information which is widely understood drives a global movement of both communities and individuals to choose leaders, products and outcomes that prioritise social and economic equity, human health and wellbeing, and recognise the value of nature, while achieving a low carbon outcome.

**Key uncertainties the scenario tests:**

- > Customer and societal preferences
- > The value of wellbeing
- > Carbon pricing level
- > Availability of capital
- > Localisation

1. [https://aemo.com.au/-/media/files/electricity/nem/planning\\_and\\_forecasting/isp/2021/csiro-multi-sector-modelling.pdf](https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/isp/2021/csiro-multi-sector-modelling.pdf)  
 2. <https://gbca-webs3.amazonaws.com/media/documents/embodied-carbon-embodied-energy-in-australias-buildings-2021-07-22-final-public.pdf>

# Our principles

In developing this work, we have been led by five key principles. As it adapts and evolves, we will navigate potential changes with these in mind.



## 1. CREATING VALUE

Creating value across our business helps to ensure our success both now and in the future. We have defined five key pillars that enable us to execute our strategy, deliver value for our stakeholders, and allow us to maintain a healthy and resilient business. These include performance (financial), place (asset creation and curation), people (people, culture, and safety), partners (customers and stakeholders), and planet (sustainability). It is important that these pillars are each held in balance. At this stage of our understanding, we believe our target is both commercially astute and good for the planet, and we will seek to maintain that balance, adapting it if necessary.

## 2. LEADERSHIP

Our commitment to ESG leadership is authentic. We believe that how we work matters just as much as what we do. We strive to do the right thing for our key stakeholder groups – employees, customers, communities, partners, securityholders – as well as our planet. We are committed to maintaining leadership and helping to drive change in our organisation, in our industry, and in Australia.

## 3. ACCOUNTABLE PARTNERSHIPS

Scope 3 emissions are a dynamic, complex, and interconnected challenge, and one that no leader, business, industry, or sector can solve in isolation. Working through it will require a new level of accountable partnership across our stakeholder network. Our suppliers are in various states of readiness to reduce emissions in their materials. Our tenants have varying levels of ambition to choose renewable electricity. Our residential customers have varying levels of appetite and capacity to choose renewable products. In each of these cases, we cannot control, but only influence the choices. Our approach will be one of collaboration, support, and ultimately, one in which we hold our stakeholders accountable for the emissions they control.

## 4. TRANSPARENCY

This update has been prepared for our stakeholders to indicate our approach and intentions around scope 3 emissions. It should not be regarded as financial or investment advice or guidance. It contains emissions forecasts based on modelled data which are therefore estimates, and we share it in the interests of transparency and contributing to the growing body of knowledge on the subject. As our work unfolds, particularly over the next two years as we develop transition plans and absolute emissions reduction targets, we anticipate increased confidence in our forecasts and will provide updates.

## 5. VERIFICATION

We support the growing requirement for verification over targets, boundaries, and performance disclosure. Mirvac partners with PwC to provide limited assurance over our energy and emissions data, among other ESG data sets. We report to regulators through National Greenhouse Energy Reporting and Corporate Emissions Reduction Transparency report. In addition, we proactively report to a range of ESG indices, and engage with MSCI and Sustainalytics. We have now committed to the Science-Based Targets initiative, and have released four reports aligned with the Task Force on Climate-related Financial Disclosures. We will have our scope 3 estimates and modelling peer-reviewed, and we will also seek limited assurance on these through basis of preparation documentation.

# Our scope 3 emissions boundaries – what we ‘count’

Our boundaries have been informed by the Greenhouse Gas Protocol's Corporate Value Chain (Scope 3) Accounting and Reporting Standard (also referred to the Scope 3 Standard), which is an internationally accepted standard. This document is supported by the GHG Protocol's Technical Guidance for Calculating Scope 3 Emissions which provides detailed guidance for calculating scope 3 emissions.

The GHG Protocol is underpinned by five accounting principles, which Mirvac has adopted. These are relevance, completeness, consistency, transparency, and accuracy.

The Scope 3 Standard has defined boundaries for Scope 3 categories, however some interpretation is required for their application in the property sector. As a result, we have interpreted them to the best of our current available knowledge, remaining bold in our ambitions, and being transparent with our methodology and assumptions.

Within our scope boundaries, we have included both upstream (creating our products) and downstream (use of our products) emissions. The diagram below shows the major sources of scope 3 emissions expected for Mirvac in 2030, which we will review annually as data availability, market expectations, or changes to business operations occur.

After applying the GHG Protocol and GHG accounting principles, we have excluded some emissions categories because they are not material for Mirvac (less than one per cent of our scope 3 emissions) or the emissions category is not applicable to our business.

## OUR MAJOR SCOPE 3 EMISSION SOURCES

- > Embodied carbon in materials
- > Waste
- > Resident and tenant energy
- > Repairs and maintenance.

## NET POSITIVE BY 2030 – OUR SCOPE 3 EMISSIONS APPROACH

### OUR RATIONALE

We start with all Mirvac's scope 3 emissions.

### GREENHOUSE GAS PROTOCOL

We then use appropriate data and determine how we will account for emissions using the following guidance:



- > Relevance
- > Completeness
- > Consistency
- > Transparency
- > Accuracy

### OUR PRODUCTS



Then we apply to it the products we provide and influence.

### UPSTREAM EMISSIONS<sup>1</sup>

Emissions from activities to create our products

### DOWNSTREAM EMISSIONS<sup>1</sup>

Emissions from the use of our products and services

### OUR PRODUCTS

### WHAT WE INCLUDE

	MATERIALS	WASTE <sup>8</sup>
Mirvac Homes <sup>2</sup>	✓	✓
Apartments <sup>3</sup>	✓	✓
Land lots <sup>4</sup>	✓	✓
Landscaping <sup>5</sup>	✓	✓
Commercial Development <sup>6</sup>	✓	✓
Office/Retail <sup>7</sup>		✓
Build to Rent <sup>7</sup>	✓	✓
Industrial <sup>7</sup>	✓	✓
Mirvac Group (MGR)	Material purchased goods and services for operations	

	ENERGY FROM PRODUCTS PROVIDED	ALL TENANT ENERGY USE	REPAIRS & MAINTENANCE
	✓		
	✓		
		✓	
		✓	✓
		✓	✓
	✓		
	✓		

1. Upstream and downstream emissions as defined in the Green House Gas Protocol Technical Guidance for Calculating Scope 3 emissions are included in Mirvac's scope boundary, however only major emission sources are shown in the diagram. 2. Embodied carbon in materials includes homes delivered by Mirvac and infrastructure within the development. Emissions for repairs and maintenance are reported under the business undertaking the activity. 3. Emissions for repairs and maintenance are reported under the business undertaking the activity. 4. Embodied carbon in materials includes infrastructure within the development, but excludes embodied carbon in homes built by others. 5. Operational emissions from the product (future downstream tenant energy use) are the responsibility of landscaping until handed over to the new owner. 6. Downstream scope 1 and 2 emissions from use of product are included if product is not sold to Mirvac IIP. 7. Embodied carbon emissions for materials, construction and maintenance are reported under the business undertaking the activity. Downstream repairs and maintenance are included where Mirvac is responsible for the activity. Embodied carbon is the responsibility of Office/Retail/BTR for acquisitions of assets where Mirvac is the first owner. 8. Waste emissions are reported by the business undertaking the activity.

# Our key levers for change

We plan to leverage the key levers we can use to make a difference on scope 3 emissions.

**IN-HOUSE DESIGN AND CONSTRUCTION CAPABILITY**

As an end-to-end developer, Mirvac has a unique capacity to design, build and operate lower carbon buildings that are more energy efficient to operate. We've found many ways to reduce a building's energy demand and consumption, including energy efficient technology, passive design, high performance façades and better insulation. In addition, our team has conducted several tenancy NABERS Energy ratings for customers to support them with their energy efficiency strategies.

**IN-HOUSE SUSTAINABILITY EXPERTISE**

Mirvac is focused on phasing out gas use in our new developments, which can become downstream scope 3 emissions if our tenants and customers use gas. For example, at our commercial office centre, Bay Centre in Pyrmont, we have phased out all gas. Mirvac is proud to have implemented a set of minimum design standards for our Integrated Investment Portfolio. Since FY18, we have required all new office developments to be 100 per cent electric.

Exceeding our own design standards is an ongoing pursuit. At 55 Pitt Street, we are aiming to attract tenants committed to 100 per cent renewable energy and, at 80 Ann Street, where our tenant Suncorp removed gas infrastructure from their commercial kitchen. Mirvac continues to work with food and beverage retailers at 80 Ann Street and all new projects to minimise gas use.

**OUR BUYING POWER**

Our procurement strategy will increasingly support suppliers who transparently disclose the carbon content in their products and produce lower carbon building materials, assisting in a reduction of embodied carbon in the materials we use. We are already actively working with our suppliers to reduce embodied carbon. Through our partnership with Boral, we trialled low carbon concrete at 80 Ann Street which resulted in 10,000 tonnes CO<sub>2</sub>-e reduction in embodied carbon, with 45,000m<sup>3</sup> of Envisia Aspire low carbon concrete. And at Green Square, Sydney, Boral is trialling a range of initiatives to reduce the amount of concrete that is wasted, which in turn reduces the carbon footprint. For example, using a water push system to reduce waste concrete in the line at the end of a concrete pour and concrete take back by the supplier, which incentivises suppliers to focus on the amount of concrete provided.

We have begun to consider the carbon intensity of concrete mixes and the potential cost to offset the embodied carbon as part of our tender evaluation process. At 55 Pitt Street in Sydney we are working with Boral and the University of Technology Sydney on a Race to 2030 submission to trial a new version of low carbon concrete using clay as a cement replacement.

**COLLABORATION**

By working closely with industry and our suppliers, Mirvac can help drive absolute reductions in embodied carbon and influence suppliers to take responsibility for reducing their own emissions, rather than passing them on to us. Through our alliances with industry bodies such as the Materials and Embodied Carbon Leaders Alliance (MECLA), Green Building Council of Australia (GBCA) and the National Australian Built Environment Rating System (NABERS), we are also active advocates for decarbonisation within the sector and beyond.

With these levers in mind, we have developed three key strategies that we expect will enable us to make significant reductions in our scope 3 emissions.



# Our strategies

## 01 REDUCING EMBODIED CARBON

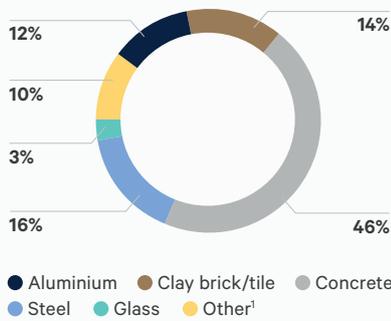
Our approach to reducing scope 3 emissions will focus on collaborating with suppliers and customers to reduce emissions across these two areas, and we intend to offset the remainder from FY30.

### WHY IT MATTERS

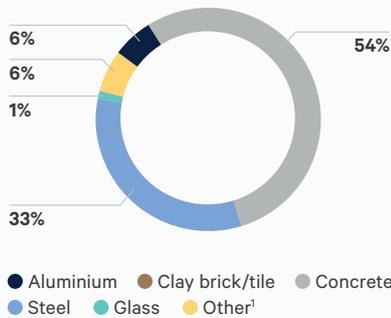
Embodied carbon is the total amount of greenhouse gas emissions associated with materials and construction processes that are emitted throughout the development and construction of the building or infrastructure. While most carbon is emitted during the materials production and construction phases of the lifecycle, the carbon emissions associated with materials and processes used for building fit-outs and maintenance also contribute to embodied carbon – and the way a building is designed in the first place can make a difference too. Leveraging our in-house design and construction capability, we will reduce embodied carbon, Mirvac's greatest source of scope 3 emissions.

The charts show embodied carbon for materials for typical building types (the product stage of raw materials, transport and manufacturing) and exclude the construction stages (transport of materials to site and installation), with data sourced from the Embodied Carbon & Embodied Energy in Australian Buildings report by the GBCA and thinkstep-anz, and supported by the Australian Government's Department of Industry, Science, Energy and Resources. It is clear that reductions in embodied carbon for concrete, steel and façade (glass, aluminium) will have the most meaningful impact in the property sector.

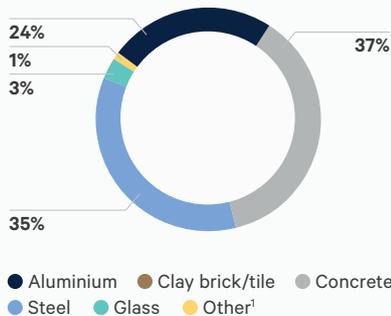
### Residential house embodied carbon



### Residential apartment embodied carbon



### Office embodied carbon



1. Other includes copper, gravel, insulation, paint, wood, plasterboard and stainless steel.

### WHAT WE'RE DOING

Things we will explore include:

- > Continuing to preference recycled content in materials we buy – we are already targeting 25 per cent recycled content in major materials;
- > Dematerialisation (such as utilising a higher strength of product and less of it);
- > Using lower carbon concrete, aluminium and steel and exploring options for the greater use of timber; and
- > Retaining the structure of buildings where feasible (such as the Locomotive Shed at South Eveleigh, Sydney).

In addition, Mirvac conducts life-cycle assessments on projects in design stage to identify sources of embodied carbon and water associated with design and materials selection. This means we're better placed to mitigate the impacts of these materials and make informed decisions on materials we select in future.

Partnerships will be critical in helping to develop new demand for lower carbon materials. We will focus on partnering with suppliers, and continuing advocacy work with industry groups including MECLA, NABERS and the GBCA to reduce the embodied carbon in products we purchase. This will require deep collaboration with industry and our suppliers to firstly accurately understand the embodied carbon in the materials we buy through consistent environmental product disclosures, and also to influence absolute embodied carbon reductions (no offsets).

We want to see progressive absolute carbon reductions in the materials we buy. Where absolute reductions are not possible, we will leverage our strategic partnerships, our industry advocacy position, and our buying power to explore asking suppliers to offset residual embodied carbon prior to the product being supplied to Mirvac to further reduce our scope 3 emissions. We see the new emission reduction targets set by Australian Government to reduce carbon emissions by 43 per cent by 2030 as helpful in this pursuit.



# 02

## COLLABORATING WITH CUSTOMERS TO REDUCE THEIR EMISSIONS

### WHY IT MATTERS

As the developer of buildings where hundreds of thousands of people live and work, Mirvac recognises the ongoing impact of our products throughout their operational phases. We're in a position to set our customers up to make a positive contribution to carbon emission reductions.

This applies to assets where Mirvac retains ownership and operational control, such as our office buildings, where we can influence the emissions of tenants. It also applies to the residential buildings we develop and construct, then sell to homeowners. These downstream emissions can be tricky to tackle, but we are keen to address them nonetheless.

### WHAT WE'RE DOING

We have several key strategies for influencing customers' emissions:

#### Leveraging our in-house capability to maximise energy efficiency

Mirvac is in a unique position to design, build and operate highly energy-efficient buildings. Our in-house team of sustainability experts works to continuously improve building performance, monitoring energy use through sub metering, conducting night audits and technology such as a diagnostic and analytic platforms.

We also have high energy efficiency standards for our residential portfolio, leveraging our integrated model to increase NatHERS energy ratings, design out air leaks, specify high efficiency appliances and supply customers with rooftop solar.

#### Building all-electric buildings

As part of Mirvac's minimum design standards, all new commercial developments are required to be 100 per cent electric – that is, there is to be no gas provision or usage for base building services. At 80 Ann Street in Brisbane, for example, we amended the design of the domestic hot water system, changing from gas to an electric heat pump system, to enable the base building services to be 100 per cent electric. Similarly, at our upcoming development at 55 Pitt Street in Sydney, we've specified for electric hot water and heating, which ensures the base building is 100 per cent electric.

In addition, we are pursuing all-electric residential products, and have a growing number of residential projects under development that do not include gas.

While removing fossil fuels from our existing portfolio presents a greater challenge (as we need to work within physical limitations and the constraints of plant and equipment), we continue to make steady progress. For example, we deactivated the co-generation system at 101 Miller Street in Sydney in June 2020, with the system now switched to an emergency standby role. As tenants under the embedded network are now supplied 100 per cent renewable electricity, this will help to reduce Mirvac's scope 3 emissions. We are also currently reviewing options for the tri-generation system at David Malcolm Justice Centre in Perth.

#### Enabling 100 per cent renewable energy for customers

There are a range of options we will explore around making it easier for our customers to choose green products. At this stage, these could include continuing to include renewable energy for our home and residential lot products, embedded energy networks, partnerships with generation/retailers, offering solar sharing arrangements, and more.

Currently, Mirvac on-sells 100 per cent renewable electricity through our embedded networks in retail centres, build to rent assets, and office buildings. Many of our tenants, such as Commonwealth Bank Australia, Lander & Rogers, and Aldi currently buy 100 per cent renewable electricity, and Woolworths and Coles also having signalled a commitment to purchasing 100 per cent renewable electricity by 2025.



## Our strategies *cont.*

# 03

## INVESTING IN HIGH QUALITY, NATURE-BASED OFFSETS



### WHY IT MATTERS

While our focus is on the absolute reduction of carbon emissions, we intend for offsets to comprise part of our scope 3 strategy to mitigate emissions that can't yet be eliminated. As well as helping to offset our residual carbon emissions, well-chosen offsets can also have social and environmental benefits.

### WHAT WE'RE DOING

Mirvac supports a small amount of high-quality, nature-based carbon offsets to address our residual scope 1 carbon emissions, and this is expected to be part of our approach to addressing scope 3 emissions.

We remain committed to Australian nature-based offsets which also deliver a social benefit. The offsets we bought in FY22 were through Greenfleet, an Australian not-for-profit organisation that has over 23 years of experience in establishing and maintaining native biodiverse forests.

The offsets are located at their Noosa Hinterland project in Queensland, a site that has an Indigenous Land Use Agreement in place between Greenfleet and the Kabi Kabi Peoples Aboriginal Corporation. Through this initiative, we are not only regenerating biodiverse native forest and critical wildlife habitat, but supporting Indigenous reconnection with Country. The overall project will restore 1,100 hectares of native forest, delivering carbon sequestration, and significant cultural and social benefits for the Kabi Kabi Traditional Owners.

## WHAT'S NEXT?

We have extended our ESG governance oversight arrangements to include a scope 3 emissions working group and steering committee, which is overseen by the Health, Safety, Environment and Sustainability (HSE&S) Committee, Executive Leadership Team, and the HSE&S Board sub-committee.

Working in collaboration across the organisation and with industry groups, we will identify the key actions we will take to reduce emissions in partnership with suppliers and industry, while balancing the commercial requirements of the business.

Our plan is to put these actions together in a transition plan that we will share widely in 2023, which will help us to set absolute emissions reductions by 2024, in line with the SBTi requirements timeline. If at that stage there have been material changes to the issues, opportunities, or risks we have identified in this document, we will make adjustments and share.





# Case studies

When it comes to the tangible impacts of our projects, we have examples across every asset class where a shift in design, technology and coordination will set the stage for net positive carbon.

# 01

## ASPECT, KEMPS CREEK

Western Sydney

Set over 56 hectares, Aspect is an industrial estate that will be developed by Mirvac to deliver high-quality warehouse and office space.

The site is located in close proximity to the new Western Sydney Airport at Badgerys Creek, and it is targeting a minimum 5 Star Green Star rating.

Comprising around 211,000 square metres of warehousing and office space, the estate will be built with an emphasis on flexibility, functionality and sustainability. Features will include rooftop solar systems, LED lighting, rainwater harvesting and smart metering.

Aspect is set to become Mirvac's first embodied carbon positive industrial development, which means we have minimised embodied carbon through design and materials selection and will offset emissions that could not be eliminated.

# 211,000sqm

high-quality warehouse and office space

5 Targeting minimum green star rating



Aspect, Kemps Creek, Sydney – Artist impression, final design may differ.



# 02

## HERITAGE LANES

80 Ann Street – Brisbane

Australia's smartest building, embracing world-class technology, sustainability, and design.

With more than 60,000 square metres of premium-grade office space, this 35-level \$856 million office tower is one of Australia's smartest buildings, embracing world-class technology, sustainability, and design.

At its inception, Heritage Lanes was designed to meet leading sustainability targets to ensure it delivered a positive impact for the environment, the public and Australia's future. As the development progressed, the building exceeded original targets and is now one of Australia's greenest buildings.

Along with the reuse and refurbishment of the existing two-storey heritage building and the reinstatement of a heritage market shed, the tower construction used a lower carbon concrete made with 70 per cent recycled water and over 90 per cent of construction waste has been recycled to divert it away from landfill. Water saving features include the reuse of rainwater for cooling towers and irrigation, with 100 kilolitres of storage on site.

Heritage Lanes is now targeting the following ratings:

- > 5.5 Star NABERS Energy Base Building
- > 4.5 Star NABERS Water Whole Building
- > Platinum Core and Shell WELL
- > 6 Star Green Star Buildings

On top of these targets, Heritage Lanes will be net zero in operations for the base building. The building features 129kW of solar energy generation, enough to cover all base building lighting across common areas. All heating, including hot water, is run on electricity instead of gas and will be powered by 100 per cent renewable energy from an energy retailer. Commercial partners will avoid the use of gas, while retail partners have been encouraged to move away from gas cooking. HVAC chillers have been selected to use refrigerants with low Global Warming Potential, reducing the impact of any refrigerant leaks.

Where additional upfront development offsets are required, they will be purchased by Mirvac through Greenfleet's Noosa Restoration & Reconciliation Project. This project will deliver protection and plantation for native forests and biodiverse native ecosystems, restoration of koala habitat, and verified social and cultural benefits to Traditional Owners.

Recycling and waste management has been given careful attention, and the building offers disposal facilities for organics, mixed recycling, paper and cardboard, paper towels, batteries, e-waste, mobile phones, office stationery, polystyrene, toners and cartridges. As well as a separate container deposit scheme recycling stream that donates money to charity in partnership with a local social enterprise, Mirvac also provides education programs to partners and suppliers on initiatives that minimise waste and environmental impact, encouraging circularity, ethical supply chains and low carbon production.

**60,000**sQM

premium-grade office space

**\$856M**

office tower<sup>1</sup>

**129kW**

installed solar generation capacity



Tower construction used a lower carbon concrete made with

**90+**%

construction waste recycled

1. Current value.

## Case studies cont.



55 Pitt Street, Sydney – Artist impression, final design may differ.

# 03

## 55 PITT STREET

Sydney

The vision for 55 Pitt Street is to create a sustainable, future focused, premium grade workplace that respects its place within the context of the City of Sydney.

With frontages to Pitt, Underwood and Dalley Streets in Sydney's CBD, 55 Pitt Street has the potential to deliver approximately 63,000 square metres of premium commercial and activated retail space. Mirvac's vision for the site is a vibrant new destination that will contribute towards the revitalisation of the iconic Circular Quay precinct.



# 63,000sqm<sup>1</sup>

premium commercial & activated retail space

1. Potential area.

The building will target the following environmental performance measures:

- > PCA Premium Grade
- > 6 Star Green Star Design & As-Built V1.3
- > 5.5 Star NABERS Energy
- > 4.5 Star NABERS Water
- > Platinum WELL Shell & Core.

In addition to the above rating tools, the development will also target a wide range of positive environmental and social outcomes, including:

- > An all-electric building powered by 100 per cent renewable energy
- > Net zero carbon in operations
- > Design responses to wellness issues such as pandemic and bushfire air quality events
- > 25 per cent recycled content in major materials such as concrete, steel, carpet tiles, ceilings and plasterboard
- > Diversion of 95 per cent of construction waste, using Design for Manufacturing Assembly (DFMA) and Design Out Our Waste initiatives
- > Tenant requirement for 100 per cent renewable electricity
- > A life cycle assessment report of embodied carbon and water
- > A climate change adaptation plan.



## THE FABRIC

Altona North, Melbourne

The Fabric is an 11.4-hectare urban infill site located in Altona North, nine kilometres west of Melbourne’s CBD. The masterplan comprises of more than 500 dwellings offering 2, 3 and 4- bedroom townhouses and mid-rise apartments.

With the help of funding from the Australian Renewable Energy Agency (ARENA), Mirvac is building homes at The Fabric at Altona North to the highest energy standards, which includes targeting all-electric homes and a 7 star NatHERS rating for each home across the entire project.

Within Stage 1, each home will include energy-efficient features such as rooftop solar and battery systems, performance double glazing and LED lighting throughout. As well as being an exciting step for Mirvac in its sustainability journey, the feedback from our customers has demonstrated there is a growing demand for more sustainable living, to which Mirvac is well-positioned to respond.



**7 star**  
NatHERS rating

All homes at The Fabric achieve a minimum 7-star NatHERS energy rating, meaning each home is more comfortable to live in.



### Fully electric homes

Townhomes at The Fabric are fully-electric and are designed to generate enough renewable energy to offset the average household energy usage over a year.



### Alternative transport

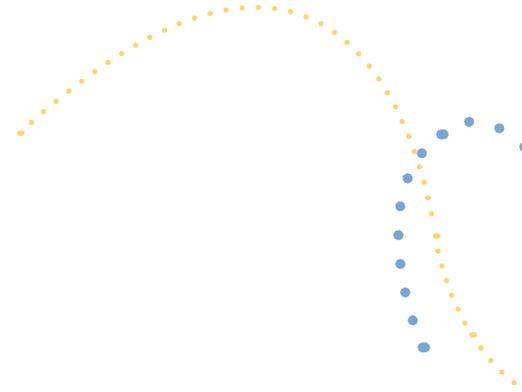
The Fabric promotes a healthy, active and environmentally friendly lifestyle by reducing dependence on vehicles.



### Innovative water reuse

At The Fabric, we are committed to help combat the effects of urbanisation through an innovative water collection and reuse strategy.





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