



Jemena Gas Networks (NSW) Ltd

Revised 2020-25 Access Arrangement Proposal

Attachment 8.7

Response to the AER's draft decision - Planet positive: Mirvac's plan to reach net positive carbon by 2030



PLANET POSITIVE

**MIRVAC'S PLAN TO REACH
NET POSITIVE CARBON BY 2030**

June 2019



**This
Changes
Everything**

by mirvac



About Mirvac	2
Foreword	2
Overview	3
1 Our approach	4
1.1 Reporting boundaries	4
1.2 Principles	5
1.3 Our approach	5
2 Challenges and opportunities	6
2.1 The rise of renewable energy	6
2.2 Transition to fossil fuel free	6
3 Pathways to net positive	7
4 Achieving net positive	8
4.1 Progress to date	8
4.2 Looking ahead	9
4.3 Summary	11
5 Roadmap	13



About Mirvac

Mirvac is a leading, diversified Australian property group, with an integrated development and asset management capability. We have 47 years of experience in the property industry and an unmatched reputation for delivering superior products and services across our businesses.

Principally located in Sydney, Melbourne, Brisbane and Perth, Mirvac owns and manages assets across the office, retail and industrial sectors, with over \$19 billion of assets currently under management. Through our development activities we create and deliver innovative and high-quality commercial assets and residential projects.



Foreword

There is no doubt that the world's climate is changing, with far reaching and serious implications. We have seen an increase in weather extremes around the world, and here in Australia over the past five years, we have been affected by more instances of bushfires, extreme heatwaves, flooding and cyclones than in previous recorded history.

These extreme events cause immediate and significant economic damage. Just recently, mass flooding in far north Queensland caused up to \$1.5 billion in damage, with the clean-up bill estimated at over \$120 million and over 15,000 insurance claims lodged.

The impacts of sustained increases in temperatures on our cities and the planet will continue to become more extreme, unless we take urgent action. While government policies around climate change have remained uncertain for a number of years in Australia, businesses like Mirvac are stepping up to take responsibility for the environmental and social impacts of our activities, and to manage the risks associated with climate change on our operations.

Recognising the contribution we make to Australia's major cities, our purpose, *Reimagine Urban Life*, inspires us to think about how and why we do things, and how we can create more sustainable, connected and vibrant urban environments, leaving a lasting legacy for generations to come.

Reducing and ultimately eliminating our carbon emissions is just one of the ways we can limit our impact on the planet. In 2014 we made a commitment to be net positive in carbon by 2030. It's certainly an ambitious target, and at the time we weren't exactly sure how we would achieve it, but we recognise that net positive carbon emissions are necessary if we are going to influence any meaningful change.

Targeting net positive isn't just the right thing to do, it makes good business sense. As our climate becomes more volatile, so too does the potential disruption to our activities. We are acutely aware of the need to manage risks that weather-related incidents can cause, such as construction delays and damage to property, losses in productivity, impacts to our supply chain, increases in energy and water costs and insurance costs, and the interruptions caused by power supply failures. We are committed to taking responsibility for our impact on the climate, and we are also committed to the success of Mirvac by minimising these risks.

Our approach to reaching net positive carbon is outlined in this plan. It explains the strategies we will adopt to achieve and exceed net zero within our portfolio by 2030, even as new developments come on line and our business grows, while balancing environmental, social and commercial sustainability requirements. We're mindful that as well as our responsibility to the planet, we have a responsibility to make choices that are cost-effective. Transitioning to a lower carbon economy sooner rather than later means we are financially better off too.

We are very excited about the journey ahead, and as we progress towards net positive, we're committed to being transparent for our investors and will be sharing our progress every step of the way. We welcome any comments or feedback you have.

Susan Lloyd-Hurwitz

Susan Lloyd-Hurwitz
CEO & Managing Director



CLIMATE CHANGE IS ONE OF THE GREATEST CHALLENGES OUR SOCIETY FACES

Overview

In Australia, our built environment is a major contributor to emissions, representing 25 per cent of our total carbon emissions.

As a major player in our \$202 billion property industry, Mirvac has an important part to play in bringing about positive change. By designing, creating and managing high quality, energy efficient buildings operating on renewable energy, we can not only reduce our own emissions and impact, we can demonstrate the benefits of working as a 'force for good', inspiring and influencing others to do the same.

It was with this in mind that Mirvac launched our sustainability strategy in 2014: an ambitious plan for the future titled This Changes Everything. One of the commitments we made as part of this strategy was to be net positive by 2030. Shortly after the strategy launch, the importance of this commitment and the role of business in tackling climate change was reinforced by several milestones: the Paris Agreement and introduction of the UN Sustainable Development Goals (SDGs) in 2015, and the Task Force on Climate-related Financial Disclosures (TCFD) recommendations release in 2017.

By the time Mirvac reconfirmed our net positive commitment in 2018, we'd reduced our carbon intensity by 21 per cent from a 2013 baseline – but we still have a long way to go. This roadmap has been put together to explain our proposed plan for the next 11 years, including the targets we've set along the way and the metrics we're using to track our progress. It's important to us that we share these openly, giving our stakeholders the opportunity to be involved in the journey and track our progress and provide feedback.

Taking prompt action on climate change will have significant financial benefits, a point that was reiterated in a recent speech by the deputy governor of the Reserve Bank of Australia. By making an early transition to a lower carbon economy, we can combat rising energy costs, create greater security for our stakeholders, retain premium tenants, and minimise vacancy rates. With low carbon building policy reforms on the horizon, we'll also be ahead of the curve when it comes to compliance.

Through our net positive carbon initiative and wider program addressing climate change, we can protect the value of our assets while helping to protect the integrity of our natural environment, on which the future of our society depends.

1 Our approach

This plan outlines the strategies that will enable us to become net positive carbon by 2030 in a way that makes commercial sense.

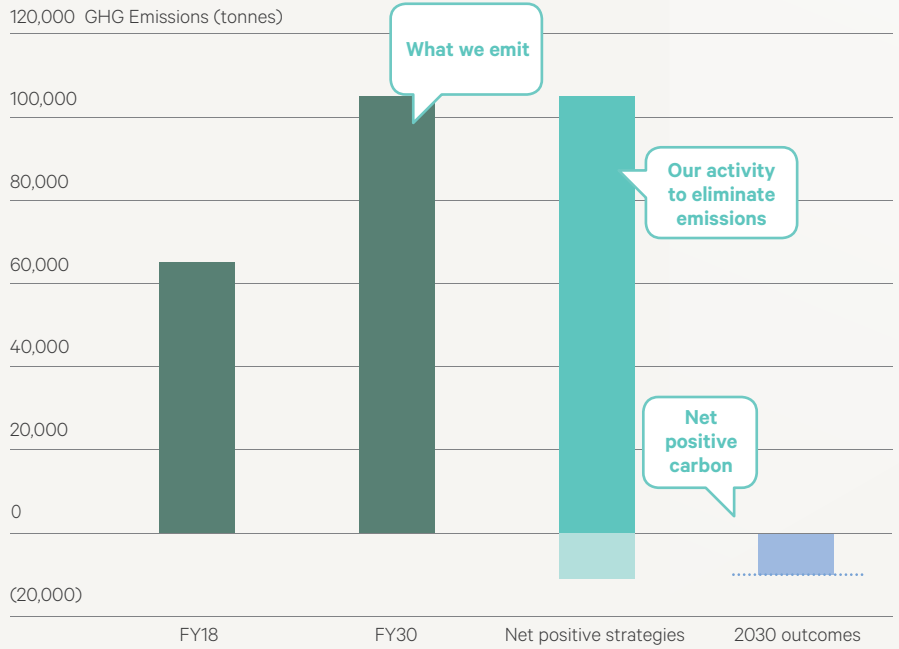
1.1 Reporting boundaries

We'd like to start with a definition and clarity around what we count and what we don't.

We define net positive carbon as:
Mirvac's activity to eliminate more than we emit
 (measured on an annual basis)

It's important to emphasise that being net positive involves going a step further than reaching net zero. For us, net positive means that our positive actions (energy efficiency, renewable energy, transitioning away from fossil fuels, and either minimising or offsetting other emissions) outweigh the carbon emissions from our buildings.

Net positive definition



Which emissions are we counting?

Currently, our commitment applies to our investment portfolio and state offices. We're counting Mirvac's scope 1 and 2 greenhouse gas (GHG) emissions from these assets, wherever we have operational control¹. This is because we have a direct ability to impact energy and refrigerant use and their associated emissions and means that we are reporting scope 1 and 2 GHG emissions for the majority of our office and retail assets.

This approach aligns with our current reporting obligations under the Australian Government's National Greenhouse and Energy Reporting (NGER) legislation.

What's not counted?

At this stage, scope 1 and 2 emissions associated with our vehicle fleet and our development activity where we have operational control will not be included in our net positive roadmap calculations. These emissions account for around 3 per cent of our total scope 1 and scope 2 emissions².

Scope 3 emissions (such as those associated with things like business travel, employee commuting and energy distribution) are also not part of this plan. However, we recognise the holistic importance of these, and will continue to collaborate with our supply and value chains to help reduce these emissions. Due to the lease structures we have in place at our industrial assets and management structures at several office and retail assets, we do not have operational control of these assets. These emissions are considered scope 3 and outside the boundaries of this plan.

SCOPE 1: Direct GHG emissions

These are emissions associated with our direct consumption of:

- > fossil fuels, specifically natural gas (which we mainly use for heating and domestic hot water) and diesel (used for emergency back-up power); and
- > refrigerants used in commercial air conditioning.

SCOPE 2: Indirect GHG emissions

These are created by other facilities during the generation of electricity which is then purchased and used by sites under Mirvac's operational control.

In our investment portfolio, this electricity is generally used for things such as heating, ventilation and air conditioning (HVAC), lighting, and lifts.



1. Operational control is defined as "the ability to introduce and implement operating policies, health and safety policies and/or environmental policies" as per the Australian Government's National Greenhouse and Energy Reporting (NGER) legislation and the United Nations Principles for Responsible Investment (UNPRI) reporting.
 2. Based on FY18 annual report and NGER data set.

1.2 Principles

Six key principles underpin our plan.

- 1. Transparency.** Communicating our strategies, targets, and metrics publicly allows our stakeholders to understand our plan and track our progress. Our roadmap has been independently reviewed by to ensure we've developed a robust approach.
- 2. Value creation.** Our strategies to reach net positive (outlined on page 7) are cost-effective. We've built a clear business case for each one. By demonstrating the value our actions will have, we can work towards making net positive 'business as usual' (BAU) by 2030.
- 3. Achievability.** Our plan involves the use of existing technology and commercial solutions, rather than relying on a yet-to-be-invented 'silver bullet'. We intend to review our plan annually, allowing us to make the most of new technology as it evolves, while remaining firmly grounded in reality.
- 4. Innovation.** Piloting new technology and supply chain initiatives and continuing to conduct test-runs on new innovations means we can stay at the forefront of change, tapping into the benefits sooner rather than later.
- 5. Flexibility.** Technology is evolving rapidly, and while it's hard to predict exactly how the Mirvac portfolio will change between now and 2030, we know it's inevitable. For this reason, we know that our plan needs to be adaptable to changes in our own business and industry, as well as changes in our operating context.
- 6. Governance.** A plan is only as strong as what it delivers, so we'll conduct regular reviews of our progress, and optimise our approach.

1.3 Our approach

When we developed our model, we took on board the energy price and emission factors that are likely to affect the markets in which we operate. We used Mirvac's NGER reported data sets from 2013 to 2018, and factored in building attributes including area, asset type, and operational control.

To calculate emissions for each source, we multiplied activity data by the relevant emissions factors in the National Greenhouse Accounts for the corresponding period (2013 through to 2018). This allowed us to establish baseline information in accordance with established NGER methodologies.

From here, we established a BAU baseline for our projected emissions until 2030 and beyond. We did this by incorporating available information and making reasonable assumptions to create a picture of what our portfolio may look like through to 2030.

We then considered the impact of a range of factors including: variability in portfolio growth and divestment; energy price, electricity grid emission factors varying based on additional renewable energy generation and/or less coal-fired power generation to determine the other scenarios.

Our next step was to identify and apply various strategies to achieve net positive (such as energy efficiency, renewable energy, fuel switching, purchase of offsets, and indirect emission reduction) for our BAU and other scenarios.

For further details on our chosen strategies, please see section 3 of this roadmap. The roadmap and model have been independently reviewed by Six Capitals and TMIC Consulting.

AVAILABLE INFORMATION (KNOWN)

Historical energy consumption and emission data (FY13 to FY18)

Known commercial development to FY25

Known Build to Rent (BTR) development

Historical energy cost data and Mirvac project hurdle rates

ASSUMPTIONS OR MODELLED DATA

Future energy consumption for existing assets modelled at FY18 levels and be subject to ongoing energy efficiency gains

Net commercial development, acquisition and divestment activity of +50,000 m² per annum from FY25 onward, primarily in the office sector

Forecast BTR development and energy consumption on available BTR energy modelling

Low, mid and high pricing scenarios to 2030 for electricity and natural gas in the markets where Mirvac operates (NSW, ACT, WA, QLD, VIC)¹

Modelled National Electricity Market and WA electricity grid emission factors¹²

The industrial portfolio will continue to be covered by triple net leases and energy use and associated emissions will therefore continue to fall outside our operational control

1. Energetics pricing and emissions modelling paper for Mirvac January 2019.

2. In Australia, the National Electricity Market (NEM) consists of the Eastern seaboard. Perth is part of the South West Interconnected System and not part of the NEM.



“In essence, our view is that the cheapest tonne of CO₂-e for your purse and the planet is the one you don’t emit. Our strategy is to maximise energy efficiency, and build all electric buildings powered by 100 per cent renewable energy.”

David Palin, Sustainability Manager,
Office & Industrial, Mirvac

2 Challenges and opportunities

As we work towards net positive carbon, we know we’ll encounter some new challenges and opportunities. Below, we’ve outlined the trends that we believe will have the most influence on us.

2.1 The rise of renewable energy

Right now, Australia’s National Electricity Market is in the midst of significant change, with new markets and products emerging, and an increasing appetite for renewable energy –in spite of Australia’s uncertain policy context. We believe this move to a ‘greener grid’ and onsite solar in particular has largely been driven by:

- A significant rise in electricity prices and network charges in recent years;
- A corresponding drop in the cost of installing solar photovoltaics;
- An increasingly volatile electricity market; and
- Changing legislation and government targets such as the Renewable Energy Target (RET).

Many businesses have taken a leadership role, signing up to RE100 and similar initiatives to formalise their commitment to using 100 per cent renewable energy. This large-scale investment looks set to continue, making renewables a safer bet than ever, and presenting new opportunities for Mirvac.

2.2 Transition to fossil fuel free

It’s undeniable that we need to reduce our reliance on natural gas and other fossil fuels, but this transition will not be without challenges. Within the property industry, we have become heavily dependent on natural gas for heating and hot water, as it’s been viewed as a lower emission alternative. We’ve also become reliant on co-generation¹, partly due to the way in which high rating NABERS and Green Star building certifications are awarded. In recent years, co-generation has certainly helped Mirvac to reduce emission intensity, and it still has value as a transition strategy.

To achieve net positive carbon, we will need to embrace a new ‘fossil-fuel free’ mindset, and encourage our peers to do the same, a need for advocacy that has been highlighted by the Green Building Council of Australia’s (GBCA) Carbon Positive Roadmap².

With our integrated development capability and healthy development pipeline, Mirvac is in a strong position to eliminate fossil fuels from our new developments³. However, we recognise that the shift will take longer in our existing buildings, which are not always straightforward to retrofit, especially in cooler climates where buildings have traditionally relied on gas heating.

1. Co-generation is the generation of electricity and useful heat jointly. In commercial buildings, gas fired engines are typically used to generate electricity and waste heat, which is used to provide heating and/or hot water. If the waste heat is also used to provide cooling (via an absorption chiller), this is referred to as tri-generation. For ease of use in this document, when we refer to co-generation, we are referring to both co-generation and tri-generation.

2. <https://new.gbca.org.au/green-star/green-star-strategy/carbon-climate-change/#carbonpositive>

3. Eliminating natural gas from our new developments can occur from as early as FY20. Removing diesel (associated with emergency backup generation) is dependent on a viable alternative becoming available.

3 Pathways to net positive

There are six strategies that make up our net positive plan. Here's an overview of each strategy, set out below in order of priority.



Strategy 1: Energy efficiency (design and operational)

Being energy efficient means using less energy to achieve the same outcome. As an integrated business, we're in a position to design, build and operate highly energy efficient buildings across all our portfolios. We've found many ways to reduce a building's energy demand and consumption, including energy efficient technology, passive design¹, high performance façades, and better insulation. Together with our design team, our in-house sustainability team works to continuously improve our building performance saving our tenants in energy costs and increasing the value of our assets. Of all our strategies, driving energy efficiency represents the best value for money.



Strategy 2: Power purchase agreements

The first of two offsite renewable strategies refers to commercial arrangements such as power purchase agreements (PPAs) or renewable firming products. PPAs are long term arrangements that provide up to 100 per cent renewable energy, price security, balanced risk and the flexibility to accommodate future growth in the form of development and acquisition.

At this stage, fully firm PPA's are the single biggest lever we can pull to reduce emissions. Unlike the other two renewable strategies outlined below, Mirvac does not own the generation assets, and this is an energy procurement strategy. By negotiating a long-term PPA, we can put ourselves in the driver's seat to achieve net positive, and do so in a way that's commercially astute.



Strategy 3: Onsite renewables

When we talk about onsite renewables, we're referring to the installation of renewable energy on a Mirvac asset, for use by that asset. This strategy gives us the opportunity to respond to the increasing demand for renewables, add value to our assets, and improve our green credentials (such as NABERS ratings) allowing us to attract and retain premium tenants.

We've already made progress with onsite renewables, having established Mirvac Energy and installed solar energy on several assets, with plans to roll out more across our retail portfolio which has greater roof space availability than our office portfolio.



Strategy 4: Offsite renewables

The second of our offsite renewable strategies refers to the installation of renewable energy on Mirvac assets for use elsewhere in our portfolio. This strategy requires the use of a 'friendly' energy retailer to grid deliver renewable energy generated elsewhere and has only recently become an option with innovation in product. It allows us to utilise roof space that would otherwise not get used, most notably the roofs of our industrial assets where we have previously installed small solar renewable energy systems for the benefit of the tenants.



Strategy 5: Influence emissions of others

While our boundaries for net positive currently cover scope 1 and 2 (direct) emissions, we are mindful of our ability to improve the energy efficiency and performance of the assets we don't retain operational control of, or in the case of residential, the homes and apartments we sell. The main way we can do this is by influencing the emissions of our industrial tenants and residential customers.

By installing solar panels on our industrial and residential assets, we are reducing the demand for grid delivered electricity, delivering cost savings to our industrial tenants and residential customers and indirectly reducing emissions. Similarly, we can help them reduce their energy consumption by better passive design, and by the installation of more energy efficient appliances and LED lighting.

Given the uncertainty around the future of carbon offsets, having a robust strategy around influence is also important in terms of risk mitigation.



Strategy 6: Carbon offsets

Until it's cost-effective to move to 100 per cent renewable sources – and to replace current refrigerants with those of lower or no global warming potential – we will continue to support high-quality carbon offsets² for residual scope 1 emissions.

While offsets can provide important environmental, social and economic benefits for reducing emissions, they do not address the systemic causes of GHG emissions.

According to the World Bank, there is the potential for the cost of carbon offsets to increase materially beyond 2020 as more countries seek offsets to help meet their Paris Agreement commitments. This is expected to ease when there is more certainty around the role of offsets and the international carbon market. We will continue to monitor and review the role of offsets for residual scope 1 GHG emissions as part of our plan.



What else can we do?

While Australian property leaders have been recognised globally for a progressive approach to sustainability, substantial GHG emissions from our sector are generated by B grade and C grade assets. At Mirvac, we work proactively with our peers in the GBCA and the Property Council of Australia (PCA) to help the industry as a whole move forward. By supporting others to avoid emissions in their own operations, including those operating Mirvac assets where we haven't retained ownership or building management, we can collaborate with other leaders to play a valuable role in building capacity across our industry.

1. Passive design is the name given to any design technique that requires no active (energy using) intervention and reduces the need for auxiliary heating or cooling. Techniques include thermal mass, natural ventilation and lighting, orientation and effective external shading *ESD Design Guide – Office and Public Buildings, Department of the Environment and Water Resources, Edition 3, May 2007*

2. Carbon offsets are tradeable units that represent abatement of greenhouse gas emissions. The carbon offsets are retired through a registered third-party, so they cannot be counted twice.

4 Achieving net positive

4.1 Progress to date

Over the past five years, our emissions have reduced even while our portfolio has grown, and largely this has been thanks to the introduction of This Changes Everything.

Under this strategy, we have reduced carbon intensity through several key activities:

- Implementing energy efficiency measures, ensuring optimal energy performance of our assets;
- Establishing Mirvac Energy and installing 1.1MW of renewable energy; and
- Developing and delivering new high-performance buildings

Through these initiatives, we reduced carbon intensity by 21 per cent between 2014 and 2018 while our portfolio grew by a third.

Decoupling growth and emissions



Along with the obvious environmental benefits, these measures have also had notable commercial benefits, and there's no better example of this than EY Centre, 200 George Street in Sydney, where our own head office is located.

EY Centre was designed to operate at 5 Star NABERS Energy base building, and during the two years it has been operational, our in-house property asset management and technical services teams have improved the building to 5.5 Stars.

THIS EQUATES TO A:

732 TONNES CO₂-e OF CARBON REDUCTION

26% REDUCTION IN ENERGY CONSUMPTION

~\$188,800 PER ANNUM ENERGY COST SAVINGS
(\$4.84/m² of net lettable area)

\$3.78 MILLION POTENTIAL VALUATION UPLIFT¹



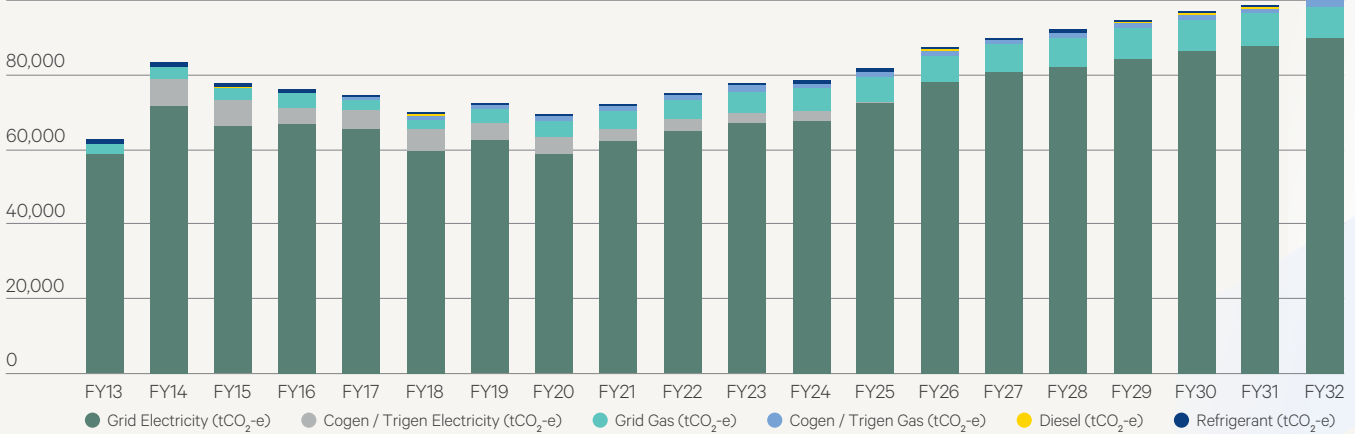
1. Calculated from annual energy cost savings and 5 per cent cap rate.

4.2 Looking ahead

When we modelled Mirvac's emissions for the built environment to 2030 and beyond, we came up with the following scenario as our BAU case.

Mirvac's projected emissions

100,000 (tCO₂-e) Mirvac's BAU Emissions



Between FY19 and FY30 and without any energy efficiency strategies applied, we would expect growth in Mirvac's absolute emissions due to growth in the Group's investment portfolio (given a strong development pipeline to FY25 and beyond).

By applying the strategies outlined in section 6 to our projected emission profile, we established the following pathway to net positive.

Working through the various scenarios, we confirmed that a power purchase agreement of 100 per cent renewable energy will be the most effective way to address the bulk of our GHG emissions, while still retaining flexibility to accommodate acquisition, development and divestment.

Transitioning to all electric buildings is an important part of achieving net positive. This is not separately depicted in the pathways chart, as the electricity load that replaces fossil fuel use is covered by the 100 per cent renewable energy in the PPA, onsite and offsite solar.

The financial modelling shows that the net positive pathway delivers cost benefit compared to the BAU scenario. The modelling shows that it is more cost-effective to enter a long-term PPA (100 per cent renewable) than be subject to the volatility of the non-renewable electricity market.

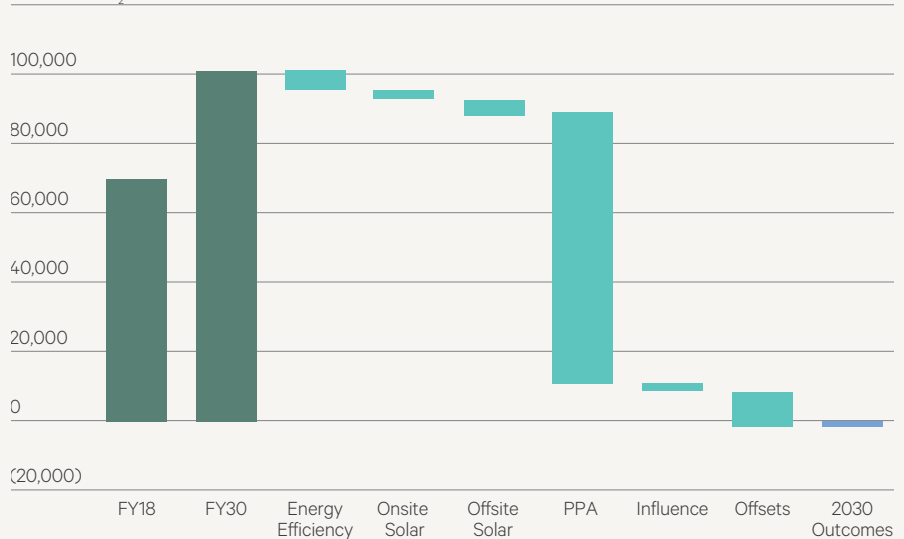
Transition to fossil fuel free future

Ideally, we need to go fossil fuel free as soon as possible, while still making decisions that are cost-effective for our business. When it comes to our development activity, we need to eliminate scope 1 emissions, particularly gas consumption given the long-term nature of these assets, typically 60-80 years. We will respond to this challenge by updating our development briefs and design standards for office and retail and developing design standards for industrial and BTR assets. To ensure continuous improvement, we will also review these design standards and development briefs annually. This regular review process will enable us to tackle the residual scope 1 emissions from diesel use and refrigerants when solutions become available.

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. Here, we need to leverage our learnings to design out fossil fuel in a cost-effective way, and develop a co-generation transition strategy that covers retirement of existing assets, and the acquisition of new assets with co-generation. In the short term, consideration also needs to be given to the impact on NABERS and Green Star Performance ratings.

Mirvac's pathway to net positive

120,000 (tCO₂-e) GHG Emissions





Energy procurement

Power purchase agreements (PPAs) are key to Mirvac achieving net positive and potentially achieving it early. Our current electricity contract puts Mirvac in a good position to go to market in the near future for a fully firm PPA that will eliminate the majority of GHG emissions associated with the use of grid delivered electricity¹. This renewable energy purchase will set the benchmark for onsite and offsite renewable viability. A separate exercise will then be undertaken for the sites in Western Australia as this market falls outside the National Electricity Market.

The importance of energy procurement can be seen in the following chart, where electricity accounts for 93 per cent of our emissions.

On versus offsite solar

When making decisions about onsite versus offsite, it's important that we maintain a long-term mindset, as it's typically a 15-25-year investment. Historically, it's been more attractive to invest in onsite solar (behind the meter) rather than offsite solar farms, due to the cost associated with transporting the electricity from point of generation to point of consumption. The market and pricing conditions for renewable energy are also changing rapidly.

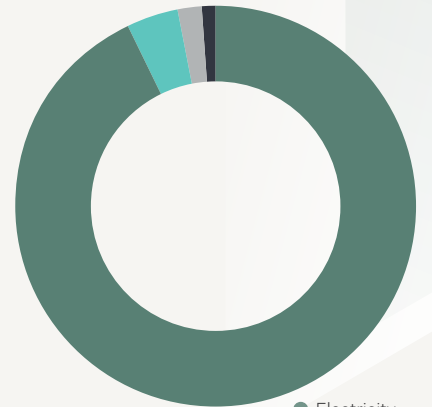
We see our PPAs setting the renewable energy benchmark in terms of impact and cost effectiveness for our portfolio. This is the benchmark that on and offsite solar investments will need to beat if they are to be viable. Mirvac's industrial portfolio would be ideal for offsite solar as it has acres of flat roof space; however several issues need to be resolved to make installation a viable option, including networks cost associated with transporting the energy, the upfront capital expense, and local infrastructure issues. We will use a weighted scorecard to determine what delivery, management and ownership options are considered, and retain flexibility in the PPA so that we can make adjustments as or if required.

Transparency and disclosure

At this point, few companies have made a commitment to net positive, let alone articulated how they are going to get there, which means that the release of our roadmap is an important step in our industry. By sharing our plan, and at a later date, our progress, we can help others undertake similar initiatives.

As part of our commitment to transparent reporting, we want to note that our NGER and net positive datasets will diverge as PPAs and offsite renewables kick in. This is because NGER reporting requirements are based on grid emission factors that do not take into consideration the commercial arrangements of a PPA or offsite renewables, seen to benefit the grid, not an individual organisation.

GHG emissions



- Electricity
- Gas
- Diesel
- Refrigerants



- NSW
- VIC
- QLD
- WA

1. Excluding a small number of sites that fall under a separate long-term arrangement to the majority of sites in the National Electricity Market.



Advocacy

We work with the GBCA and others to advocate for net positive outcomes in policy and legislation reviews. We'll also continue to advocate for changes to the NABERS and Green Star rating tools to support their evolution in line with our industry, and assess factors such as increasing amenity, density and the use of grid delivered renewable energy (via PPAs or other mechanisms).

We will also need to maintain a relationship with the governing body of the National Carbon Offset Standard to represent Mirvac's (and our industry's) case in implementing and evolving this standard.

4.3 Summary

Net positive carbon is achievable for Mirvac by or before 2030. Thanks to our young portfolio and integrated development capability, we are in a strong position to leverage and build on the work we've done to date, including our energy efficient assets and onsite solar.

By 2030, all our electricity will be supplied by a combination of onsite and offsite renewable energy, thereby removing 93 per cent of our combined scope 1 and 2 emissions.

In outlining this plan to net positive, we have worked through our priorities for Mirvac's particular asset and capability profile. For example, while emission intensity has been useful in driving down carbon emissions to date, we now need to shift focus to absolute emissions. In addition, designing fossil fuel free buildings and procuring renewable energy are the two vital strategic decisions we have made to reach our target.

This process has also reinforced the need for longer term thinking to get us to net positive, looking beyond our current three-year energy supply agreements and the way we currently design and run our buildings.

While we are confident we will meet our net positive carbon target early, we recognise that this will be affected by a number of factors, such as our ability to introduce PPAs in our next procurement cycle, our ability to transition away from co-generation, and the degree to which we can implement onsite solar in the next few years.

That said, regardless of what happens, we will remain flexible and responsive to market conditions, and we'll share our progress transparently.



5 Roadmap

Below, we've outlined our plan to each net positive carbon on a single page, including our pathways, actions, targets and timelines.

PATHWAY	ACTIONS	TARGET & TIMELINE
High energy efficiency	NABERS Energy new development	Ongoing – 5.5 Star NABERS Energy
	Green Star for new developments	Ongoing – 5 Star Green Star
	Continuous improvement in building operational performance through energy efficiency	FY21 – 5% reduction in carbon intensity FY24 – targets to be set in FY21
	Update design guidelines to reflect Design for 2030+	By end FY20 Thereafter – annual review
100% renewable energy	Power purchase agreements (PPAs) – existing – all new assets	FY21 – 50% of available load to be covered by PPA FY24 – 100% of available load to be covered by PPA
	Onsite (on Mirvac assets)	FY21 – 5 MW installed FY24 – 10 MW installed
	Offsite (on Mirvac assets)	FY21 - 1MW installed FY24 – TBD ¹
	Mirvac offices	Purchase 100% renewable energy
Transition away from fossil fuel	Develop co-generation transition strategy	FY20
	New assets – Design for 2030+ (requirement for design of new commercial developments and BTR to be fossil fuel free)	FY20 – (commencement date) – NSW, QLD and WA FY22 – VIC and ACT
	Existing assets – Investigate electrification options when replacing natural gas plant equipment	FY20
Influence	Develop methodology for residential (Design for 2030+)	FY20
	Develop methodology for industrial (Design for 2030+) including a minimum 100kW solar on all new industrial	FY20
Advocacy	Work with industry groups to help transition from fossil fuel.	Ongoing
Reporting	Develop market-based reporting method to reflect grid delivered renewable energy (PPA and offsite renewable)	TBD
	Report progress annually	Ongoing

For further information on our approach, commercial impacts, and technical solutions, please refer to our net positive FAQ document.

1. Following PPA benchmarking exercise and confirmation of industrial development schedule.

