

# GOODMAN GROUP TASK FORCE ON CLIMATE- RELATED FINANCIAL DISCLOSURES (TCFD)

Goodman supports the Paris Agreement goal to reduce global carbon emissions to limit average global temperature rise to well below two degrees Celsius. In doing so, Goodman's Board has committed to addressing climate risk at the highest level of the organisation, to gain a better understanding of potential exposure to risks, gauge their impact on the business and identify meaningful mitigation responses.

We believe that a sustainable approach is not only good for the environment but makes good business sense. As a leading owner, developer and manager of industrial real estate globally, we recognise the role we have to play.



Greg Goodman  
Group Chief Executive Officer





## Introduction

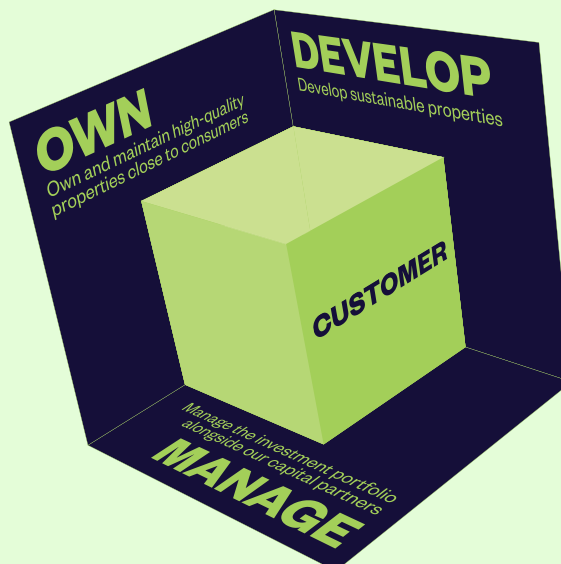
Goodman Group is a global property group. We own, develop and manage industrial real estate including logistics and industrial facilities, warehouses and business parks in strategic locations and key consumer markets around the world.

In 2019, Goodman completed a comprehensive review of our sustainability approach to look at opportunities to better balance the needs of all our stakeholders. Our resulting 2030 Sustainability Strategy sets a clear path that is based on specific environmental, social and governance (ESG) targets across three strategic pillars: property, people & culture and corporate performance.

Goodman acknowledges the increasing risks related to a changing climate, and the demand from investors and capital partners to know how we are responding. Included in our targets was a commitment to align our climate risk assessments and disclosures with the TCFD guidelines and release our first TCFD statement by 2022.

Our TCFD Statement is based on recommended disclosures under the four key pillars of the TCFD guidelines:

1. Governance
2. Strategy
3. Risk Management
4. Metrics and targets.



## Governance

### Goodman's Boards

The Goodman Board and management team are committed to the highest standards of corporate governance and recognise that an effective corporate governance culture is critical to the long-term performance of the business.

The Board is responsible for overseeing the management of Goodman and providing strategic direction. This is done through monitoring and assessing the Group's operational and financial performance; actively observing and advising on Goodman's management of both financial and non-financial risk; and overseeing the Compliance Framework and culture to ensure corporate governance policies are not only adhered to but also embodied by the business.

The Boards have established three principal Committees to assist in the execution of their functions. These are the:

- + Audit Committee
- + Remuneration and Nomination Committee
- + Risk and Compliance Committee.

The diagram below shows an overview of Goodman's Corporate Governance Framework.

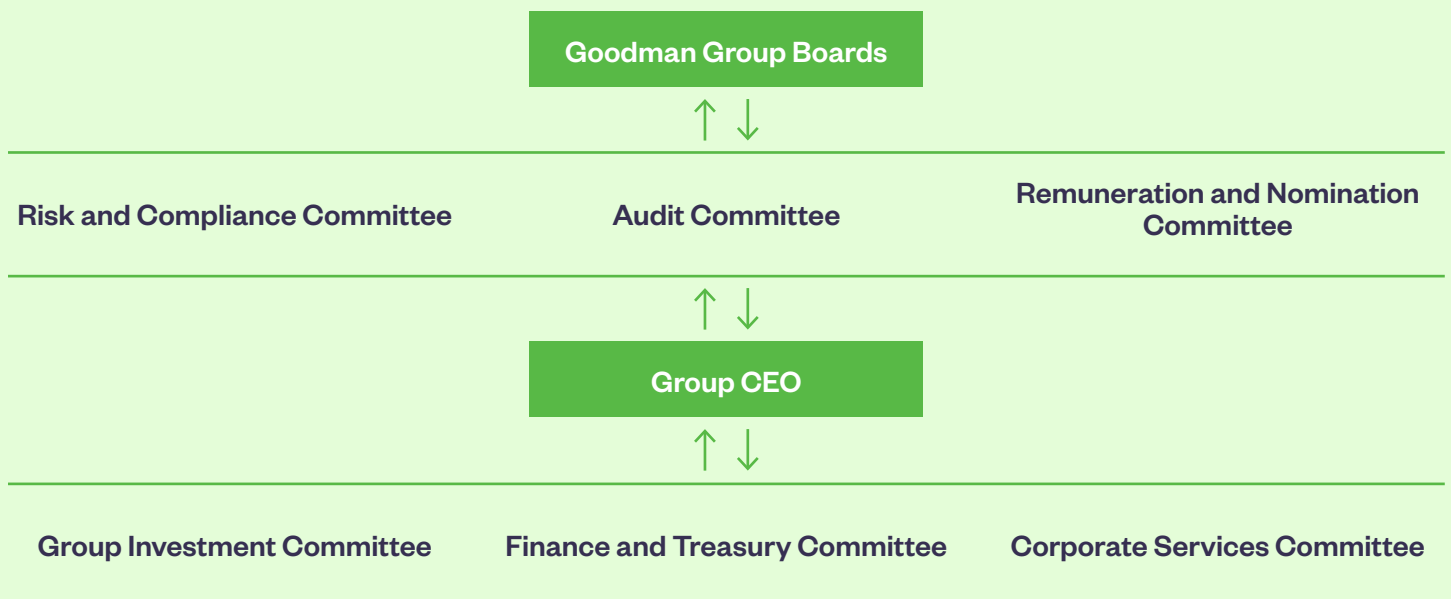
More information on Goodman's Boards can be found in the Goodman Group Corporate Governance Statement.

### Risk and Compliance Committee

Goodman's Board is committed to addressing climate risk at the highest level of the organisation, to gain a better understanding of potential impacts to the business and identify and deliver meaningful responses.

In doing so, the Board has entrusted Goodman's Risk and Compliance Committee (R&C Committee) with overseeing the Group's response to managing climate risk. Goodman's R&C Committee assist the Board with corporate functions and matters relating operational risk management, internal audit, insurance, safety and sustainability, as well as broader ESG matters.

Strategic programs and operational initiatives designed to respond to climate risk are executed by our management teams collaboratively across Goodman's global operations. As required, external parties are engaged from time to time to provide independent assurance and verification services as well as expert support. Updates are provided at least quarterly to Goodman's R&C Committee by the Group Head of Sustainability, encompassing our climate strategy, performance, initiatives and upcoming disclosures.



## Strategy

Goodman supports the outcomes of the Paris Agreement and the goal to reduce global carbon emissions to limit average global temperature rise to well below 2°C pre-industrial levels.

In doing so, Goodman has committed to assessing its climate risks and formalised several milestone targets as part of the Goodman Group 2030 Sustainability strategy. Our strategy is designed to actively respond to the current and projected impacts of climate change on our business and to meet increasing demand from investors and our capital partners for disclosure on our approach. Initially, we will focus on undertaking detailed analysis of both the physical and transition climate change risks posed to our business.

In addition, Goodman's Risk team completes an annual risk profiling process to identify Goodman's material business risks globally. This is a management initiative at the highest level and requires regional CEO contribution. Results are reported to the R&C Committee and to the Goodman Board and published in the Group Annual Report.

Our approach to managing climate risks is incorporated into Goodman's risk management framework including our property development, property management and fund management activities. Our responses and initiatives are strategic and based on long-term outcomes. These involve both managing (mitigating) identified risks, and capitalising on business opportunities associated with using renewable energy, providing on-site energy solutions, and achieving carbon neutral operations.

### Scenario based risk assessment

In 2019, Goodman engaged climate consultants South Pole to provide support in completing a scenario-based climate risk assessment aligned with the TCFD guidelines. The scenario-based risk assessment included:

- + Physical risks: risks associated with climate change events and longer-term shifts in climate and weather patterns
- + Transition risks: risks associated with the transition to a low-carbon economy for Goodman and the broader economy.

One of the initial challenges in defining the scope of the assessment was to clarify the boundaries and set the evaluation methodology of climate risks across multiple countries where Goodman operates.

Based on size and scale of Goodman's property portfolios and operations, the following countries were identified for inclusion in the scenario-based climate assessment:

- + Australia
- + New Zealand
- + Hong Kong
- + China
- + Japan
- + UK
- + Germany
- + France
- + Benelux (Belgium, Netherlands, Luxembourg)
- + United States
- + Brazil.

### Physical risks

As a global business with various property-related activities in multiple countries, Goodman's approach focuses on material risks by: (1) defining and prioritising the key "extreme" or "shock" climate events that are likely to impact Goodman's properties and operations in our main operating markets; and (2) applying a rating for each event based on the scenario analysis across different time horizons.

The physical risk assessment was conducted using carbon mitigation scenarios prescribed in the TCFD guidelines, across a mid- (2050) and long-term (2100) time horizon. Further details on our assessment methodology is included in the following section 'Risk Assessment'.

While the overall assessment initially included a comprehensive list of potential climatic hazards, the five key physical risks identified as being most material to Goodman's global operations in the business as usual (BaU) scenario (RCP8.5) are:

- + Increasing temperatures and heatwaves
  - Description: The World Meteorological Organization (WMO) defines heatwaves as "periods of unusually hot and dry or hot and humid weather that have a



subtle onset and cessation, a duration of at least two to three days and a discernible impact on human activities”

- Assessment finding: In addition to an increase in average temperatures, it is likely that several of Goodman’s operating markets will experience an increase in the duration and frequency of extreme heat days, especially after 2050
  - Likely impact: Extreme temperatures have the potential to create conditions that may damage goods stored in warehouses with ambient conditions and without temperature controls. Increasing temperatures are also likely to impact occupant comfort levels in warehouses without temperature controls.
- + Extreme precipitation events
- Description: The WMO defines extreme precipitation as: “a marked precipitation event occurring during a period of time of one to several days (usually less than a week) with daily total precipitation exceeding a certain threshold defined for a given location (Station based)”
  - Assessment finding: Although there are significant uncertainties in heavy precipitation projections, increased frequency and intensity of 1-in-100 year pluvial and fluvial floods is likely over the longer term
  - Likely impact: Increased heavy precipitation events has the potential to cause direct damage to Goodman’s properties and surrounding infrastructure causing disruption to occupants in several of Goodman’s markets.
- + Windstorms (Tropical & Extra Tropical)
- Description: Tropical cyclones are weather phenomena that generally originate in warm ocean waters near the equator and are fuelled by water evaporating from the warm ocean. They are often accompanied by strong winds and precipitation events. Extra-tropical cyclones are also accompanied by strong winds and precipitation, but generally originate in the mid-latitudes, driven by the temperature gradient
  - Assessment finding: An increased frequency of intense tropical and extratropical cyclones is likely over the long-term horizon (particularly under the BaU scenario RCP8.5) in cyclone prone regions such as Hong Kong
  - Likely impact: Physical damage to Goodman’s properties due to damaging winds, intense rainfall and potential storm surge which could inhibit Goodman’s customers operations.
- + Severity of hailstorms
- Description: Hailstorms are a specific type of thunderstorm that can produce stones of ice that fall to the ground. Hail stones usually have a diameter between 5 and 50 millimetres
  - Assessment finding: Hailstorms are difficult to predict, and data is limited, but data available for Australia suggests an increase in the frequency and intensity of storms which may involve hail
  - Likely impact: Unpredictable physical damage to Goodman properties which can include severe damage to roofs and external facades depending on the weight of hail deposited. There are also potential impacts to customer property, equipment and vehicles.
- + Sea-level rise
- Description: Sea level rise is driven by the thermal expansion of water as it warms, due to glacial and ice sheet melting
  - Assessment finding: Over the long-term sea-level rise, combined with increased risk of storm surge events, has the potential to impact Goodman’s properties located close to seaports in several markets through increased coastal flooding risk
  - Likely impact: Direct damage to Goodman properties and surrounding infrastructure close to seaports due to storm surge, coastal flooding events, inundation and coastal erosion which could impact the operations of Goodman’s customers.

## Transition risks

### Policy risk

Globally, there are approximately 61 carbon pricing initiatives implemented or scheduled, with a median price of USD 10/tCO<sub>2</sub>e.

This is significantly lower than the figure recommended by the IPCC to stay below 1.5°C temperature rise limit by the end of the century.

Overall, Goodman is operating in several markets with some form of carbon pricing mechanism in place. Due to the nature of the industrial property sector and typical structure of Goodman's lease agreements with its customers, it's unlikely that Goodman will be significantly impacted by changes to existing carbon price mechanisms in the short term. As for the indirect impact, the planned reforms (e.g. European Union Emission Trading Scheme) are likely to be 'passed through' to end consumers resulting in higher energy bills. This scenario further strengthens the objective to transition to renewable energy, on-site generation and prioritise demand management initiatives.

### Legal risk

Currently, most lawsuits target large emitters and focus either on the failure to disclose relevant climate change risks, or on the reporting of misleading information. For Goodman, our focus will remain on managing our identified physical and transition climate risks, progressing with climate-related targets and continuing to provide regular and effective climate disclosures.

## Insurance risk

Insurers will increasingly look at their liabilities to identify opportunities where climate risk can be mitigated or potentially avoided. As impacts from events such as hail, windstorms and typhoons are covered by insurance, an increase in intensity and frequency will certainly lead to higher insurance premiums.

Insurers are also likely to consider how industry incorporates adaptation measures to become more resilient to climate risks. For example, early warning systems which aim to mitigate the impacts of a hailstorm will become critical when you consider severe hailstorms were the cause of 10 of the 20 largest insurance pay-outs in Australia since 1967. It is also reasonable to assume insurers will consider withdrawing from particular markets if climate risks become too great.

## Technology and market risk

It is clear that many of Goodman's customers are increasingly focused on managing their specific climate risks, and that their climate ambitions are strengthening. For Goodman, assessment of the risks and opportunities within our own supply chain, e.g. steel and cement industries, will present both challenges and opportunities in the future relating to high abatement costs and underdeveloped mitigation technologies. However, it is expected that suppliers' climate performance will become a mainstream evaluation criterion and a point of differentiation between landlords.





## Reputation risks

The property sector contributes approximately 40% of the world's energy-related CO2 emissions. While there are examples of net-zero buildings today, in general the sector needs to increase accountability for its environmental footprint at-large (especially from the perspective of 'embodied carbon', which factors in supply chain emissions).

As ESG and sustainability become more central to decision-making for an increasing number of real estate companies, investors will realign their portfolios to incorporate climate-related risks. With increased momentum in the investment sector, and changes in consumer preferences and industry practise reforms, reputation damage is expected to increase for climate laggards.

## Impact on strategy and leveraging market-based opportunities

These identified physical and transition risks have already, and will continue to, influence our overall strategy and business decisions in different ways depending on the nature of the risk. We actively manage and respond to climate and weather-related risks on our properties through adjustments to our development processes, due diligence and investment decisions and our property management procedures.

In addition to managing climate risks, Goodman has identified several strategic opportunities where we can integrate climate risk into our business strategy and provide long-term value for all our stakeholders. Several of these initiatives are highlighted below.

## Transition to renewable energy

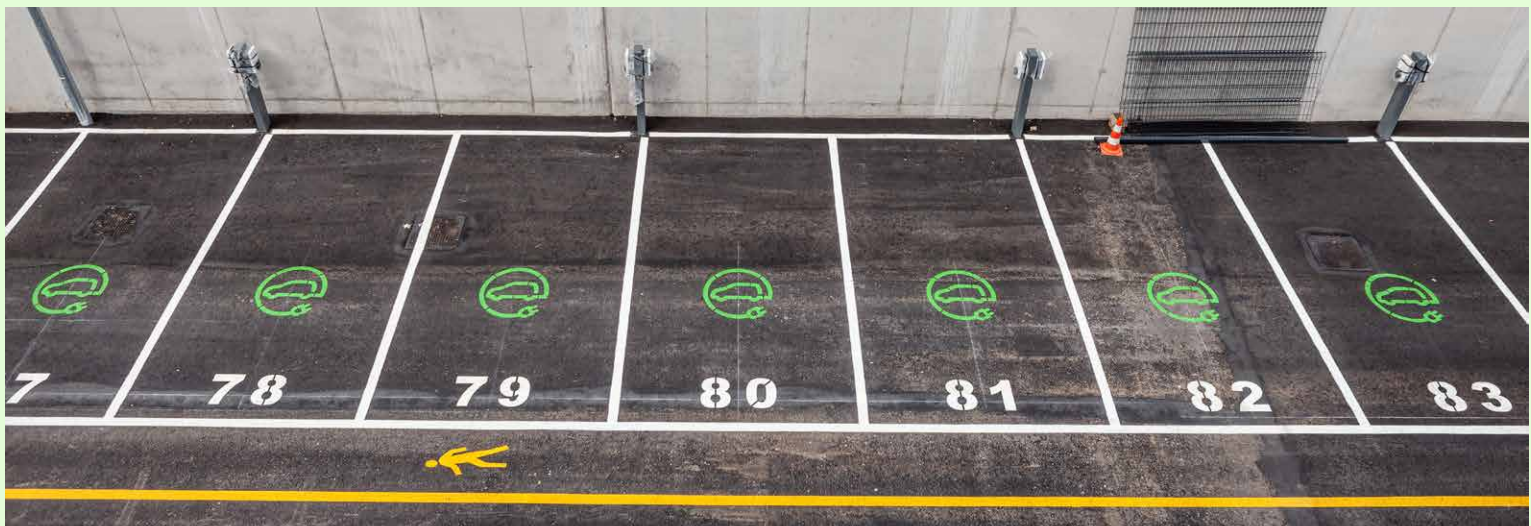
Goodman has made a commitment to increase the use of renewable energy across the business, with the aim of being 100% renewable energy by 2025. The benefits of procuring renewable energy instead of coal-fired power will extend beyond reducing our carbon emissions, also helping to mitigate policy, market, technology and reputation risks at the same time.

Our commitment to carbon neutral operations by 2025 will be greatly influenced by our use of renewable energy, and continued investments in solar power generated on our rooftops. In markets where it is challenging to procure renewable energy, Goodman will consider options such as direct power purchase agreements or green energy certificate schemes.

## Investments in solar energy

Goodman is looking to maximise the availability of large, flat roof areas suitable for installation of solar PV systems. We recently increased the target of solar PV capacity installed on our rooftops to 400MW globally by 2025. This is a milestone target and will require unprecedented collaboration across our operating regions.

Our focus so far with solar PV has been on markets with existing energy tariffs, which present a more robust business case. However, as customer demand for clean energy increases and we remain open to innovation and new technology, we are confident that opportunities across our other markets will arise.



### Targeting operational carbon neutrality

We believe that significant carbon reductions are essential to mitigating the impacts of a changing climate. Goodman has therefore set the goal of carbon neutral operations by 2025. To achieve this, we will continue to focus on activities within our operational control (reducing our scope 1 and scope 2 emissions). Our strategy will involve resource efficiency, energy reductions, renewable energy sources, solar PV and battery storage, and carbon offsets.

### Building resilience and adaptation

Goodman has implemented initiatives across our investment, fund management, development and property management operations to improve the resilience of our developments. These include enhancements to our designs, investment locations, energy options and property management initiatives. Examples of initiatives undertaken to enhance the resilience of our operations to climate change include:

- + Upgrades to Goodman's development specifications to embed energy efficiency in design
- + In Australia, we have increased the structural strength of our standard warehouse design to be more resilient to extreme weather events
- + In continental Europe, we have upgraded more than one million square metres of warehouse lighting with energy efficient LED alternatives to reduce energy use
- + In Japan, we prioritise elevated and seismically stable land and raise floor levels to protect critical equipment from storm surges, increased power redundancy and improved emergency procedures
- + In Hong Kong, we have adopted new development guidelines to better manage increased stormwater.







## Risk management

### TCFD scenario assessment approach

The TCFD risk assessment process began with a comprehensive literature review. This provided us with an overview of the main physical hazards impacting our primary countries and regions of operation. This was followed by the challenging task of defining materiality to identify the most critical hazards for Goodman's operations in each region.

Overall, five key climate hazards (increasing temperatures and heatwaves, extreme precipitation events, windstorms, hailstorms and sea-level rise) were identified as being material and recommended for inclusion in the scenario risk assessment.

These hazards were analysed under three different climate scenarios or Representative Concentration Pathways (RCPs), and across two time horizons (mid-term up to 2050 and a long-term up to 2100). The scenarios chosen for the physical risk assessment are a business-as-usual scenario (RCP8.5), a medium mitigation scenario (RCP4.5) and a strong mitigation scenario (RCP2.6), which respectively correspond to a 4.6°C, 2.6°C and 1.7°C global warming trajectory.

To record the findings, a climate change risk rating (low, medium or high) was assigned to each hazard to represent how likely the hazard is to increase in frequency or intensity across the different scenarios and time horizons. The final ratings were influenced by the strength of the climate change signal identified (i.e. the degree of change from baseline or current conditions).

The assessment of Goodman's transition risks and opportunities also relied on an extensive literature review and considered a variety of scenarios for assessment. These included the International Energy Agency's (IEA) Sustainable Development scenario, a high mitigation scenario limiting global warming to 1.75°C with a mid-term time horizon up to 2040 as the core scenario. The analysis was performed at company level and across Goodman's key markets for five transition risks (policy, legal, insurance, technology and market, and reputation).

### Climate risk research

Goodman's approach to defining and managing climate risks has evolved over time.

Our scenario-based climate risk assessment is the latest initiative to identify and assess our climate-related risks and opportunities, and we support using scenario analysis to improve consistency and transparency across the sector.

Our first climate risk assessment was completed in 2013 and included an analysis of current and forecast climate hazards in Australia, using a selection of Goodman properties as case studies to define potential risks. A more comprehensive climate exposure assessment was completed in 2018, during which we evaluated the key climate exposures of locations where Goodman's assets are in Australia. The resulting datasets and findings have been mapped and are available for Goodman's due diligence and property management processes.

Other climate-related research completed by Goodman in recent years includes pathways to reduce embodied carbon in new developments. This research identified opportunities for carbon neutral developments, and opportunities relating to low carbon concrete and steel. In terms of resilience, Goodman's Australian operations has completed a structural integrity review of its assets to assess potential structural issues for older assets during extreme weather events, such as storms and hailstorms.

### Goodman's risk management framework

Goodman has a robust and comprehensive risk management framework in place, incorporating extensive corporate governance, risk and compliance and an effective responsible investment policies.

As with Goodman's broader ESG priorities, climate risks will increasingly be integrated into our risk management program and responsible investment structure, through which climate risks will be considered and responded to. The Group's Investment Committee provides a formal process for consideration of investments and material climate risks.

Additionally, Goodman's risk management framework includes a clear disclosure strategy. The results of our climate-related assessments, and progress with associated targets will be included in our climate disclosures - including voluntary reporting and the ESG and climate-related benchmarks in which we participate.

## Metrics and targets

Goodman Group has disclosed its ESG performance consistently since 2011, using several channels and ESG platforms to reach its stakeholders. These include updates in the Goodman Group annual reports, stakeholder reviews and standalone sustainability reports.

### Goodman Group global greenhouse gas emissions

In FY22, Goodman Group's global greenhouse gas emissions were 23,728 tCO<sub>2</sub>-e. Our emissions calculation is aligned with the GHG Protocol and includes emissions generated from activities under Goodman's direct operational control across our global business.

GHG scope	Emissions source	tCO <sub>2</sub> -e	Contribution
Scope 1	Natural Gas	899	13%
	Fuels	846	
	Refrigerants	1,360	
Scope 2	Electricity	11,637	49%
Scope 3	Other indirect emissions	8,986	38%
Total		23,728	

Our market-based emissions are reported under three different scopes:

- + Scope 1: Direct emissions from owned or controlled sources, such as fuels and refrigerants
- + Scope 2: Indirect emissions from the use of electricity
- + Scope 3: Other indirect emissions, including activities like business travel, emissions from waste and water use, and professional services such as marketing, data hosting and communications. Our calculation excludes customers' emissions and the embodied emissions of our developments, which we calculate and address separately.

Scope 2 electricity accounted for 49% of total Group emissions, emphasising the importance of our current target of 100% renewable electricity use by 2025 in our operations.

Goodman Australia's Scope 2 emissions previously accounted for 69% of our global Scope 2 emissions, demonstrating the significance of using GreenPower in Australia.

### Climate-related targets

An overview of Goodman's climate related targets is provided below.

- + 100% renewable energy use within our operations by 2025
  - Our strategy is to increase the use of renewable energy globally, procured through power purchase agreements and increasing our use of solar energy generated onsite
  - Goodman's Australian business continued purchasing 100% GreenPower electricity in FY22.
- + Carbon neutral operations by 2025
  - Goodman achieved carbon neutral global operations in FY21 and FY22 certified through the Climate Active Carbon Neutral Standard
  - Continued focus on reducing emissions through energy efficiency including energy monitoring, LED lighting, sub-metering, and investment in on-site and off-site solar energy.
- + 400MW of solar PV capacity installed or committed to by 2025
  - At the end of FY23, total global capacity was approximately 306MW
  - Our approach has been focused on customer demand and on markets with grid tariffs. As demand increases, our strategy is to increase installations across our major operating markets.
- + TCFD aligned disclosures by 2022
  - Goodman Group has committed to aligning its climate risk assessments and disclosures with the TCFD framework
  - Goodman's Risk and Compliance Committee oversees Goodman's response to climate risks management and TCFD alignment
  - Our initial target for the release of our first TCFD statement was 2022, however our first statement was released in FY21.