

GREENPEACE

REenergising Australian business

The corporate race to
100% renewable energy

REenergise.org





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for Greenpeace**

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Contents

Executive Summary	5
Section 1: Introduction	11
1.1 Renewable energy: good for business	13
1.2 About this report	17
Section 2: Overview of corporate renewable energy	19
2.1 Potential impact of corporate renewable energy	20
2.2 How are companies moving to renewable energy?	21
2.3 Status of corporate renewable energy in Australia	23
2.4 Motivations for moving to renewable energy	27
Section 3: Leading businesses in Australia powering their operations with 100% renewable electricity	31
3.1 Case study: Carlton & United Breweries (CUB)	31
3.2 Case study: Mars Australia	32
3.3 Case study: IKEA	32
3.4 Case study: University of New South Wales (UNSW)	33
3.5 Case Study: Westpac	33
Section 4: Sector Profiles	35
4.1 Retail Sector	35
4.2 Banking & Finance Sector	37
4.3 Property & Construction Sector	39
4.4 Telecommunications, IT and Technology Sector	41
4.5. Food & Beverage Sector	43
4.6 Travel & Entertainment Sector	45
4.7 Universities	46
Section 5: Pathway to further action	48
Appendix A: Facts, Figures & Assumptions	52
Appendix B: List of companies and institutions profiled on Greenpeace REenergise business website	54
Endnotes	56

Executive Sum



Executive Summary



Executive Summary

Globally, companies and institutions are seizing opportunities afforded by the tumbling price of renewable energy, along with consumer and stakeholder expectations, to reenergise their operations with 100% renewable energy.

Recent years have seen significant investment in renewable energy from corporate Australia, with factors driving investment including high retail electricity prices, the ever-lowering cost of renewable technology, increased awareness of climate-related risk, as well as staff and customer demand.

Alongside this compelling climate and emissions reduction rationale, an increasingly strong business case has developed. Energy consultancy Energetics reports that companies can save between 15-47% of energy costs by purchasing renewables directly via a power purchase agreement (PPA).

Companies that make the plunge are joining a huge global trend. Around the world, over 210 major companies have made commitments to 100% renewable energy, with over 80 of these operating in Australia. After the five largest banks in Australia pledged to power their operations with renewable energy, companies committed to 100% renewable electricity now represent almost a quarter of the value of the Australia Stock Exchange (ASX).

This report analyses this trend, providing information on what is happening on the ground, while pointing to some of the reasons that companies are investing in renewable energy. Eighty big-name companies and institutions are analysed across seven major industry sectors.

A story revealed of momentum, opportunity, and expectation – most are investing in renewable energy, many have already signed major power purchasing agreements, and with increasing regularity, companies are making commitments to power their operations with 100% renewable energy.

Surveyed companies cite reasons for investment including cost savings, diversification of risk, stakeholder expectations, reputational benefits, and – most critically - the importance of meeting climate and emissions reduction targets.

100% of companies surveyed report that their employees expected them to invest in renewable energy, with customers, investors, and board members also cited as key stakeholders.

Public polling supports these results, with UComms research commissioned by Greenpeace showing that 79% of Australian consumers believe big businesses should be using more renewable energy, that 69% believe companies should set a target of 100% renewable energy, and 67% of people citing a preference to work for a company that uses renewable energy.

The importance of Australian business moving to renewable energy cannot be understated. Strong corporate investment in renewable energy will be required if Australia is able to deliver on its Paris commitments, as business and industry use approximately 70% of Australia's electricity.¹

The potential of such investment is significant. If the top 100 electricity using companies in Australia all switched to 100% renewable energy, it would lead to enough new renewable energy to power every

Top 80 brands in Australia renewable energy status:

24

(30%) have committed
to move to 100%
renewable energy

21

(26%) have signed
a corporate power
purchase agreement

52

(65%) have invested in
rooftop or onsite solar



Australian home 1.7 times over. This equates to 24.5 GWs of solar and wind or 350 new renewable energy projects.

It is further seen by considering the case of just three of Australia's largest, best-known companies - Woolworths, Coles and Telstra – which are together responsible for almost 2% of Australia's total domestic climate pollution. These companies are already seeing the opportunity of renewables, with Coles and Telstra having both signed long-term contracts for renewable electricity. If these three companies moved to 100% renewable electricity, it would enable construction of 3.2 GWs of new generation, or 33 new wind and solar projects - enough to power 1.3 million Australian homes, and to create 4194 construction job-years and 232 ongoing jobs.

A sense of the impact that businesses moving to renewable energy will have can be seen by considering the potential of a small number of major Australian companies across different sectors.

- 1. The retail sector** presents strong opportunity; if the largest 13 retail companies in Australia shifted to 100% renewable energy, they would create demand sufficient to build 2.4 GWs of new wind and solar projects and create 4300 construction job-years.
- 2. The banking and finance sector plays a critical role in financing** renewable energy projects, and also has huge capacity to influence the broader public, with almost all Australian people and businesses interacting with the big four banks in particular.
- 3. The 10 largest companies in the property and construction sector** powering their operations with 100% renewable energy would create more than 1000 construction job-years.
- 4. The 14 largest telecommunications, IT, and technology companies** powering their operations with 100% renewable energy would lead to 1 GW of new wind and solar projects and around 2000 construction job-years.

Corporations and institutions around Australia should follow four steps to move quickly and cost-effectively to 100% renewable energy:

1.

Set a 100% renewable energy target

5. The food and beverage sector employs almost 50,000 people, and has a the capacity to reach all Australian consumers. Already companies within this sector are starting to use their marketing channels to promote their renewable energy action.

6. The travel and entertainment sector also has a huge reach; for example, advertising to the 44.4 million people going through Sydney Airport annually is an opportunity to share the fact that renewables can power all aspects of our lives.

7. Australian universities are like mini-cities. The 10 biggest electricity using Australian universities with their numerous campuses and research facilities use the equivalent electricity to over 200,000 households each year and have a student population of over half a million people.

While the data shows that the corporate shift to renewable energy has significant momentum, it also shows that much more can and must be done.

The financial, reputational, and climate rationale for committing to a fast transition to powering operations with 100% renewable energy is compelling. Companies must move to set 100% renewable energy targets, and then do the work to ensure timely implementation. Just as critical will be the softer work of leadership – reaping reputational benefits by telling the story of the transition and doing the work required to ensure that sufficient enabling policies are in place to allow the Australian electricity system to accommodate increasing demand for clean energy.

Critically, surveyed companies are also innovating in a range of other ways, becoming more energy efficient, building their own solar farms, switching to electric vehicles, installing batteries and more.

2.

Start or continue implementing renewable energy projects

3.

Tell everyone about the great work that is being done on renewable energy and the benefits it brings

4.

Push publicly for government action

Introduce



action



1. Introduction

1.1 Renewable energy: good for business

Around the world, leading corporations, institutions and big-name brands are joining the renewable revolution. From banks to beer, tech companies to tomato farms, supermarkets to cereal brands, renewable electricity is now powering huge companies, which employ hundreds of thousands of people around the world.

The past three years have seen significant corporate investment in renewable energy in Australia. With some of the best renewable resources in the world and rising power prices, the Australian corporate staff and board members taking their companies to 100% renewable energy are reading the trends and setting their companies up for the future.

Tumbling technology costs

Since 2009, the costs of renewable technologies have plummeted. Solar power saw the biggest drop over this time with a 75% cost reduction, while the technology price for wind power decreased by 30%, and costs continue to fall.² In fact, building new wind and solar capacity with storage is now cheaper than building new coal and gas power stations in Australia.

In 2018, in a number of markets around the world, renewable electricity achieved the holy grail of becoming even cheaper than existing and fully-depreciated fossil fuel generators. This means that in some cases, it is more cost effective to build and operate new renewable energy projects than to maintain existing coal- and gas-burning power stations.³

Managing rising electricity prices

Over the past decade, Australian electricity prices have been rising (see Figure 1). Australia has gone from some of the lowest electricity prices in the OECD to some of the highest,⁴ with wholesale power prices having risen substantially year on year. If it wasn't for renewables reducing peak and operational demand, electricity prices would have been significantly higher.⁵

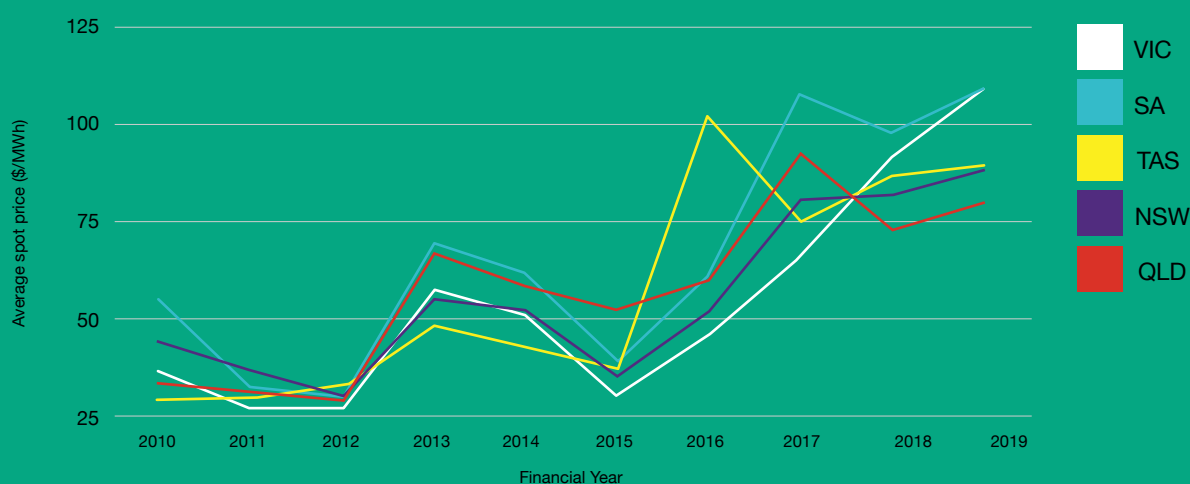


Figure 1: Average wholesale electricity prices⁶

Electricity prices have risen due to:

1. Over-investment in our electricity networks in the late 2000s,
2. High gas prices leading to high wholesale electricity prices, and
3. Aging coal power stations shutting down

While these forces are beyond the control of most Australian companies, with cost-effective renewable technology the tools now exist for companies to hedge their risk to rising electricity prices.

The combination of falling renewable technology costs and rising electricity prices mean that for Australian companies, purchasing renewable electricity is now cost-competitive with buying grid electricity, and can help cut their costs and lower power bills. Energy consultancy Energetics estimate that companies can save up to 15-47% of energy costs by purchasing renewable energy via a corporate power purchase agreement.⁷

Companies can save up to 15-47% of energy costs by purchasing renewable energy via a corporate power purchase agreement

Addressing climate risk

While renewable energy is good for business, the worsening impacts of climate change are bad for business. From higher insurance premiums, to supply chain disruptions, the risks of climate change are here and set to get worse.⁸

Analysis by Climate Analytics found that if the world is to have any chance of achieving the Paris Agreement goal of limiting warming to 1.5 degrees, OECD countries like Australia need to be out of coal power by 2030.⁹ Given companies in the commercial and industrial sector account for approximately two-thirds of the world's electricity use¹⁰ and currently are a big part of the problem, it is imperative that companies to step up to this challenge.

At a governance level, research undertaken by the Centre for Policy Development and the Future Business Council found that company directors could be found personally liable if they ignore or mismanage their company's climate risk.¹¹ In 2019, both ASIC¹² and APRA¹³ announced programs to better regulate companies' climate risk.

Moving to renewable energy is a key strategy for reducing a company's climate impact and managing its overall climate risk.

Keeping customers engaged and staff happy

Australia leads the world in rooftop solar installations, and poll after poll shows people want more renewable energy.

“Polling conducted by UComms for Greenpeace found 79% of Australian consumers believe big businesses should be using more renewable energy, with 69% saying companies should set a target of 100% renewable energy.”

Not only that, research by ARENA found 76% of consumers would choose a product or service made with renewable energy over a comparable one that wasn't.¹⁴ It's not surprising that more and more companies are seeing the marketing opportunity of aligning their brand with Australians' love of renewables.

However, it's not just customers. Acting on climate and clean energy is increasingly an issue for current and potential staff. The UComms polling found 67% of Australians would prefer to work for a company that uses renewable energy, rather than one that doesn't, while 100% of companies surveyed by Greenpeace reported that a key reason for shifting to renewable energy is employee expectation. In 2019, the Edelman Trust Barometer found 67% of employees “expect that prospective employers will join them in taking action on societal issues” and 76% say “CEOs should take the lead on change rather than waiting for government to impose it.”¹⁵

1.2 About this report

This report sets out to showcase the opportunities and potential of Australian companies and institutions power their operations with renewable energy.

Specifically, this report will look at a selection of 80 of the largest companies and institutions with big-name brands in seven major sectors of the Australian economy (see Appendix B for a full list).

These companies can use their purchasing power to help drive new renewable energy investment in Australia, but equally they can use brand and consumer reach to demonstrate the importance of a fast transition to 100% renewable energy. Together, these 80 companies employ over 730,000 staff and have a customer reach covering almost every individual, household, and business in Australia.

Data in this report is drawn from the 34 responses to a survey on corporate renewable action Greenpeace sent to the selected 80 companies, as well as publicly available information, including data reported to the Federal Government (see Appendix A for more details on the methodology).

Overview of



EU
corporate
renewable
energy

2. Overview of corporate renewable energy

2.1 Potential impact of corporate renewable energy

Every year, business and industry uses approximately 70% of Australia's electricity.¹⁶ With most of our electricity still being generated by coal - a primary driver of climate change - corporate Australia is a big contributor to the climate problem. However, it can also be a part of the solution - with a huge opportunity to deploy renewable energy solutions.

Australia's top 100 electricity-consuming companies¹⁷ account for 30% of the country's total climate pollution from domestic sources (i.e., Scope 1 & 2 emissions). If these companies all switched to 100% renewable energy, it would lead to enough new renewable energy to power every Australian home 1.7 times over. This equates to 24.5 GWs of solar and wind or 350 new renewable energy projects.

Five GWs of new wind and solar (82 projects) would be needed if all 80 big-brand companies profiled by the Greenpeace REenergise campaign switched to 100% renewable electricity. This would create 10,329 construction job-years¹⁸, over 500 ongoing jobs and be enough to power 3.2 million or more than one third of Australian

homes. These renewable energy projects would also generate more than enough electricity annually to replace Yallourn - Australia's fifth largest coal-burning power station.

Just three of Australia's largest and most well-known companies - Woolworths, Coles and Telstra - are responsible for almost 2% of Australia's total domestic climate pollution. These companies are starting to see the opportunity of renewable energy, with Coles and Telstra both undertaking corporate power purchase agreements.

If these three companies alone were powered by 100% renewable energy:

- **3.2GWs or 33 new wind and solar projects would be constructed – enough to power 1.3 million or almost 14% of Australian homes**
- **4,194 construction jobs-years and 232 ongoing jobs would be created**
- **Nearly 17 million tonnes of carbon emissions would be cut**

2.2 How are companies moving to renewable energy?

There are four main ways that corporates and large institutions are driving the uptake of renewable energy and other clean energy solutions in Australia.

1. Corporate power purchase agreements

Companies can organise to purchase the output of a renewable energy project like a wind or solar farm (or portfolio of projects) through a renewable power purchase agreement (PPA). The electricity is bought at a fixed price over a long-term, usually between 5-15 years.

To do this, companies can go it alone like BlueScope Steel, which signed a seven-year renewable energy power purchase agreement for the supply of electricity and Large Generation Certificates (LGCs) from the 133MW Finley Solar Farm.¹⁹ Or they can band together, like the Melbourne Renewable Energy Project, which saw 14 councils, companies and universities jointly purchase the output of the 80MW Crowlands wind farm in Victoria.²⁰

2. Onsite solar

Australian companies have significant land and roof space. For example, commercial and industrial zones together have space for 26 GW of rooftop solar.²¹ Put in context that is the area of almost 8000 Melbourne Cricket Grounds (MCGs). Companies with large roof spaces are starting to see the value of this solar real estate. For example, property giant Stockland recently installed the biggest solar system on a single rooftop (1.8 MW) and the iconic Sydney Markets have installed a very large 3 MW solar array on their roofs.²²

With a well-established domestic solar industry and a burgeoning commercial solar industry, rooftop solar presents a straightforward and cost-effective renewable energy option for almost all Australian companies.



3. Building, owning and operating large-scale

Most companies investing in renewable energy are installing solar on their roof and/or purchasing renewable electricity through a corporate power purchase agreement. However, some companies are going further than just purchasing electricity from a solar farm and are building, owning and operating large-scale renewable energy projects to supply their electricity needs.

Sun Metals, a zinc refinery and one of Queensland's largest electricity users (900,000 MWh per year), is building its own 125 MW solar farm. This is helping to ensure the viability of Sun Metal's existing plant, and underpins the company's plans for expansion.²³

4. Energy efficiency

Energy efficiency is a critical component of any company's energy management plan. By lowering electricity demand, the impact of a rooftop solar array or corporate power purchase agreement is increased, in turn saving companies even more money.

However, historically energy efficiency is an area where Australian companies have lagged behind the rest of the world. A 2016 study by ClimateWorks found that one-third of Australian companies analysed could increase profits by five percent per year if they were to match the energy efficiency performance of sector-leading companies globally.²⁴

2.3 Status of corporate renewable energy in Australia

This report and the associated REenegerise website profiles the renewable energy activities and commitments of 80 big-brand companies operating in Australia. It compares them across three key areas – commitment to power their operations with 100% renewable electricity by 2030, whether they have signed a corporate power purchase agreement, and whether they have invested in on-site solar.

Greenpeace Australia Pacific's review of big-brand companies demonstrates substantial renewable energy activity. Of the 80 companies profiled:

- 24 companies (30%) have committed to move to 100% renewable energy
- 21 companies (26) have signed a corporate power purchase agreement
- 52 companies (65%) have invested in rooftop or onsite solar

Fast momentum with 100% renewable energy commitments

As the world heats up and renewables become even more competitive, many Australian companies and international brands operating in Australia are showing real leadership by making commitments to power their operations with 100% renewable energy.

Over 210 big-name global companies have joined RE100 - “a global corporate leadership initiative bringing together influential businesses committed to 100% renewable electricity”, with 2025 the average year for meeting that commitment. Approximately 80 of those companies have operations in Australia, including ING, Unilever, H&M and Estee Lauder.²⁵

In late 2018, RE100 launched formally in Australia and eight early adopters have already joined. These include the Commonwealth Bank, Bank Australia, ANZ, National Australia Bank, Westpac, Macquarie Bank, QBE and Atlassian. A number of these front-runners are showcased below, and more are highlighted in the sector analysis.

ASX200 moving to renewable energy

Currently at least five of Australia's ASX200 are leading the way by setting 100% renewable energy targets: the big four banks (CBA, Westpac, NAB and ANZ) as well as Macquarie.

This means that companies committed to 100% renewable electricity now represent almost a quarter of the value of the tASX.

Many more ASX companies have undertaken corporate PPAs, including Bluescope Steel, Liberty One Steel and packaging giant Orora.



Substantial interest and activity with corporate power purchase agreements

There are many sectors that have discovered the great benefits of power purchase agreements including manufacturing, local councils, universities, utilities and state governments. More and more smaller or mid-sized buyers are also signing deals, like schools, vineyards and even the Sydney Opera House.

Booming interest in corporate power purchase agreements is reflected in the fast-growing membership numbers of the recently established Business Renewables Centre (BRC), an initiative designed to help companies contract and purchase renewable energy. In the year since its establishment, the BRC has grown to 226 members.²⁶

A recent report by the BRC indicates that since 2017, corporate power purchase agreements have contracted 2.3 GW of renewable energy from projects around the country. Approximately 54% of the project capacity supported by corporate power purchase agreements is solar, 8% a mix of wind and solar, with the remainder wind.²⁷ As a result, at least 25 new solar and wind farms are now under construction in

Australia. The 2.3 GWs of renewable energy specifically contracted by corporates is creating over 4700 construction job-years and will create more than 200 long-term jobs as they become operational.

There is also significant appetite from companies yet to make a power purchase agreement - 86% of companies surveyed by Greenpeace either have already undertaken or are actively considering entering into one.

Rooftop solar is booming

Australia's rooftop solar industry is booming. There are now 2.1 million roofs with solar arrays across the country.²⁸ While the majority of these are household systems (61%), in the last two years corporate rooftop solar has been on the rise, with prices for consumers dropping accordingly.²⁹ In 2018, the medium-scale solar sector (100 kW-5 MW) grew by 80%, while smaller-scale commercial solar industry (5-99 kW) grew by 45%.³⁰

For many companies, investing in onsite solar is now an obvious decision financially, with the majority of companies surveyed by Greenpeace now having installed at least some onsite solar.



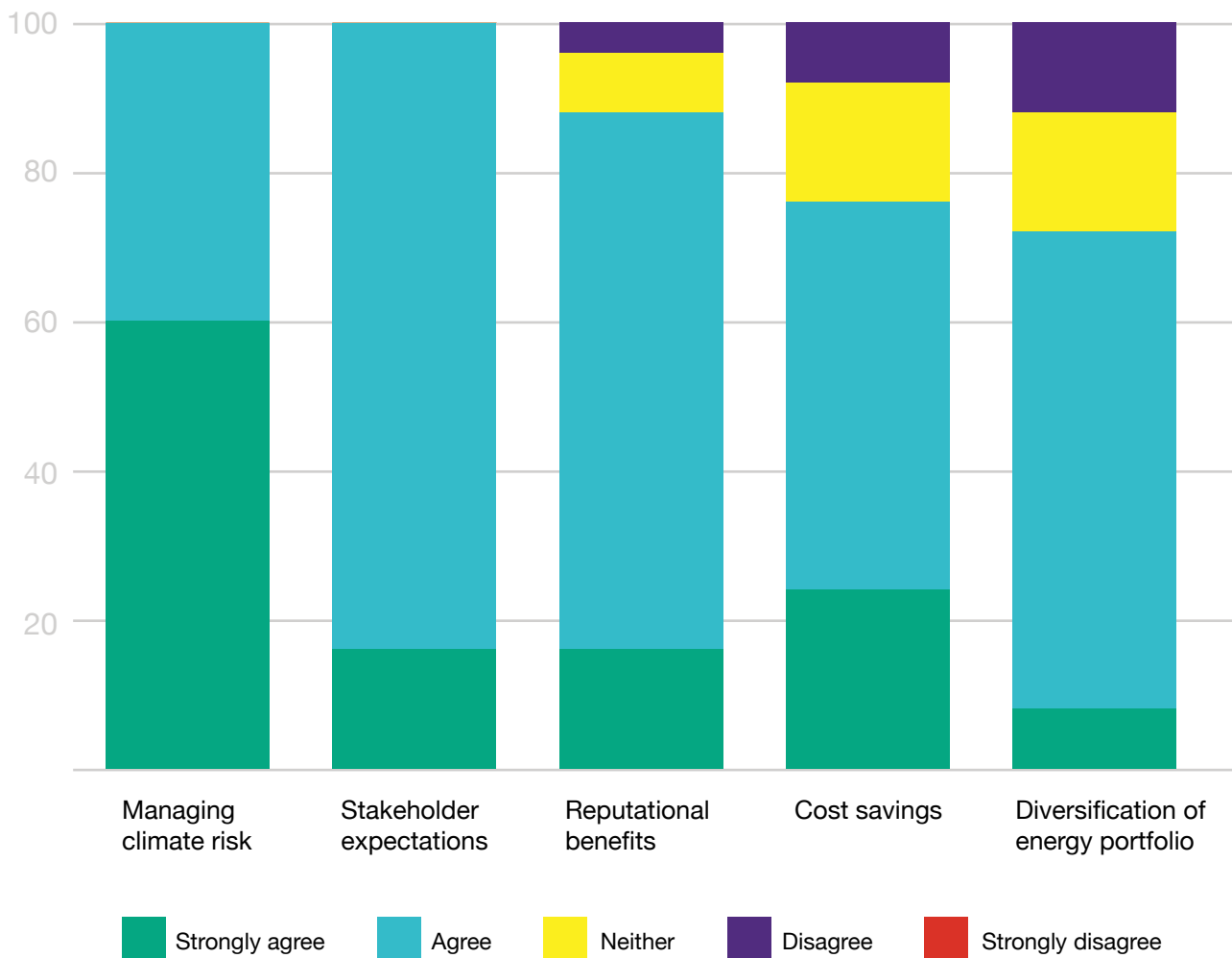
2.4 Motivations for moving to renewable energy

Motivations for using renewable energy have already been profiled above (Section 1) but the recent Greenpeace survey reveals some additional insights.

Every company that completed the Greenpeace renewable energy survey said it is committed or extremely committed to

action on climate change, with meeting climate goals or managing risk the biggest reason for investing in renewable energy. Stakeholder expectations, costs savings, and reputational benefits are also very important (see Figure 2).

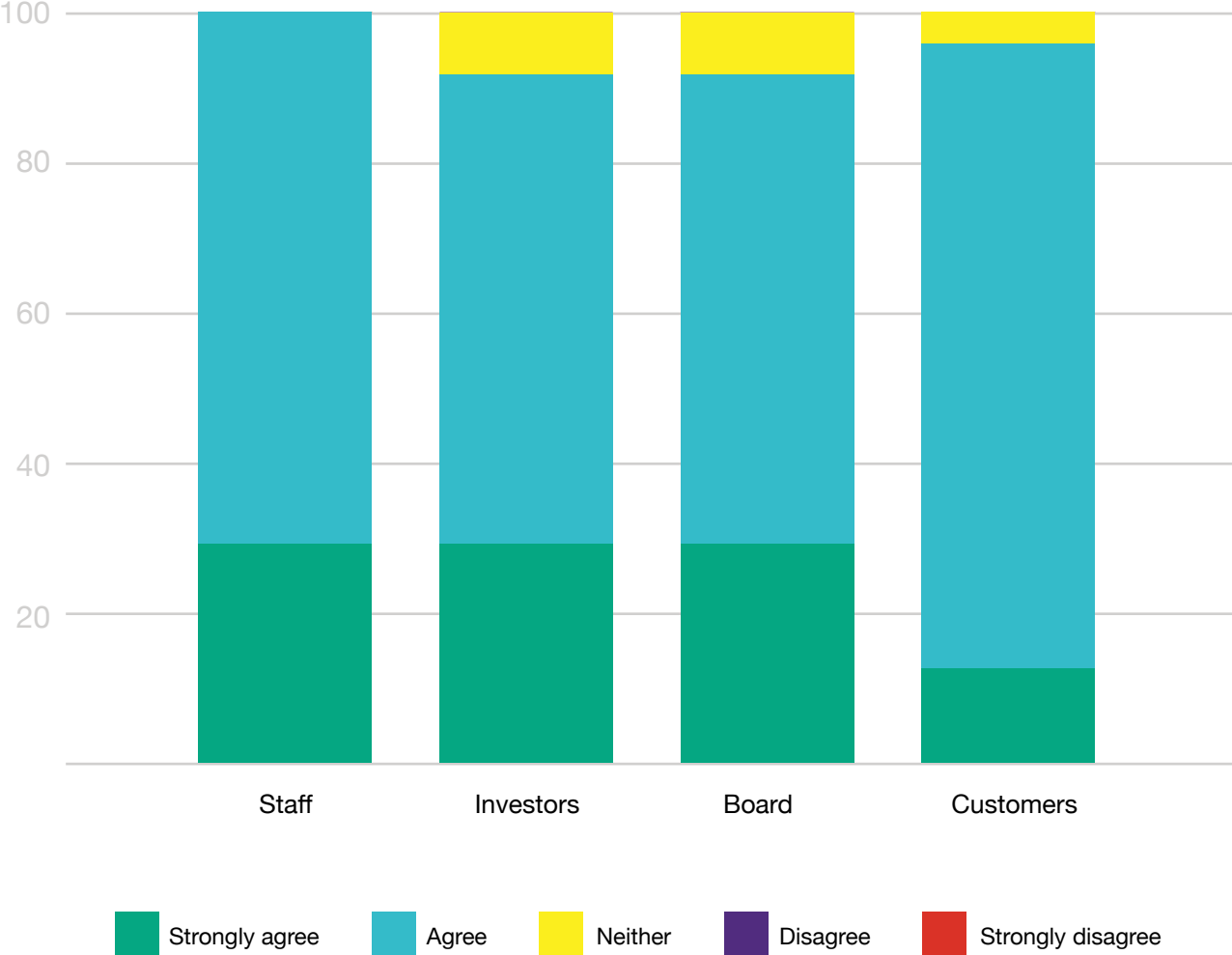
Figure 2



Main reasons for using renewable electricity

Almost all companies responding to the survey believe that moving to renewable energy is expected of them by key stakeholders. 100% of companies reported that staff expect them to lead in this area, with investors, board and customers all having high expectations too (see Figure 3).

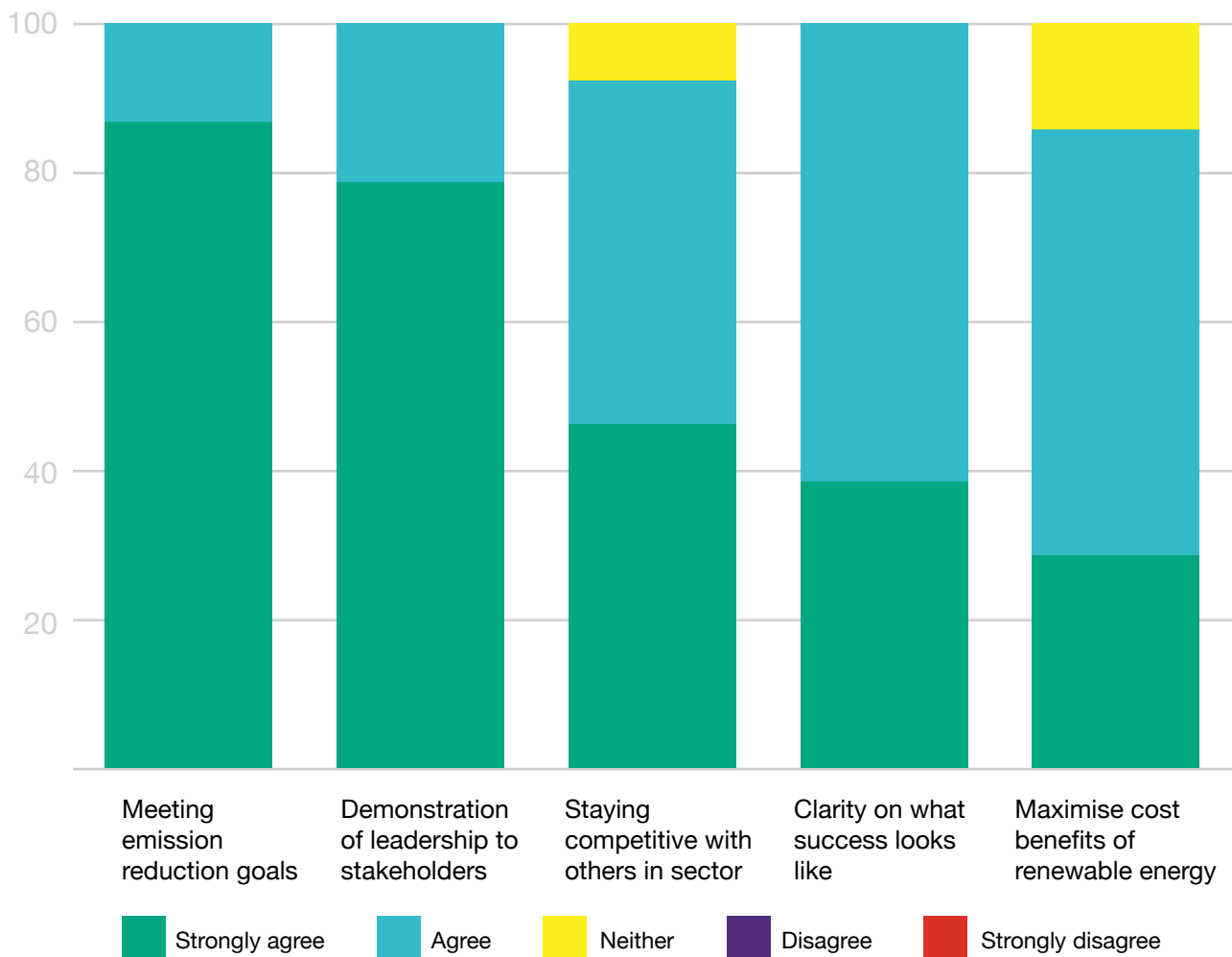
Figure 3



Stakeholder expectations for companies to use renewable energy

In terms of going the whole way to 100% renewable electricity, meeting climate goals and demonstrating leadership are the primary motivators for making such a target (see Figure 4).

Figure 4



Reasons for setting a 100% renewable energy goal

3. Leading businesses in Australia powering their operations with 100% renewable electricity



A commitment to 100% renewable energy from Australia's best-known companies will help drive more clean energy generation into the system, while also showing confidence in the idea that 100% renewable energy is achievable, beneficial and necessary. While government leadership is lacking, Australian

business are identifying both the need and the opportunity of switching to renewable energy.

The following section profiles some of the front-running companies moving to 100% renewable energy.

3.1 Case study: Carlton and United Breweries (CUB)

Brands like VB (Victoria Bitter), Carlton Draught, Great Northern, Pure Blonde and Carlton Dry are iconic in Australia. These brands are produced by one of Australia's largest brewers Carlton & United Breweries (CUB), which has committed to sourcing 100% of its purchased electricity from renewable sources by 2025. It is anticipating achieving that target well before that date.³¹

CUB has been among the leading Australian companies to seize both the practical and marketing advantages of renewables to date. Their recently released solar beer ad³² promoting their commitment to renewable energy has been very successful on the internet and ties the iconic VB brand to both Australia's abundant sunshine and solar technology.

“As one of Australia’s first and leading manufacturing businesses, we have a responsibility to ensure we play our part in tackling climate change and a range of environmental challenges. Beyond our driving commitment to reduce our emissions, the investment also stacks up when you look at the reduced price we will pay to power our operations. Moving to renewable energy will ensure that we have certainty of supply and pricing, something that is incredibly important for a manufacturing business like ours.”

Jan Craps, CUB Executive Chairman, quoted in *Reneweconomy*

CUB has a two-prong strategy to meet its 100% renewable target. Firstly, the company has signed a 12-year power purchase agreement to source renewable energy from the Karadoc solar farm in Mildura (112 MW), which officially opened in March 2019.

This one agreement covers around 90% of the company's total electricity needs. The rest will be met by solar PV installed on its own buildings in 2020.



3.2 Case study: Mars Australia

Mars is well known for its iconic chocolate bars, but it also manufactures ice-creams, petcare, beverages, gum, frozen foods, and a variety of other products.

While Mars globally is committed to achieving 100% renewable energy by 2040,³³ Mars Australia is top of the class, hitting that target twenty years early. It is also leading when it comes to long-term renewable power purchase agreements, having signed one of the longest contracts out of all companies operating in Australia.

From 2020, the company will source its electricity needs for its six Australian factories (Asquith, Ballarat, Bathurst, Wacol, Wodonga & Wyong) and two sales offices (Melbourne & Sydney) from the 200 MW Kiamal Solar Farm in Victoria. The company has a 20-year contract with this farm, which is currently under construction and expected to be completed in late 2019. In addition, Mars Australia has installed a 100 kW solar farm at each of its regional factories in Wodonga and Asquith.



3.3 Case study: IKEA

Globally, IKEA is a frontrunner on renewable energy, with a commitment to 100% renewable electricity by 2025. A founding partner of RE100, IKEA recently hit a significant milestone, now producing more renewable electricity than it uses in its buildings. It has an ambitious plan to become 'carbon positive', reducing more greenhouse gases than it emits.

In Australia, IKEA already has more than 20,000 solar panels installed across its buildings, generating 22% of the energy required for its operations. From next year, IKEA buildings will use 100% renewable energy for heating and cooling. This will reduce IKEA's carbon footprint significantly and will also contribute to cleaning up Australia's electricity networks.

IKEA is also showing the way in how to promote its commitments to renewable energy, with its in-store communication making the solar on its rooftops more visible to its customer base.



3.4 Case study: University of New South Wales (UNSW)

UNSW has been a leader in renewable energy since the 1980s. The university has held multiple world records for solar PV efficiency gained and other renewable energy related research accolades. UNSW has leveraged this leadership as a springboard from which to take practical renewable energy and climate action.

UNSW has established ambitious climate action goals, including reducing net greenhouse gas emissions from building energy use to zero and expanding onsite solar energy generation to 1.2MW. A 15-year renewable power purchase agreement will soon see UNSW supplied by 100% renewable electricity from the 200MW Sunraysia Solar Farm in south-western NSW, which is expected to be switched by early 2020.³⁴



3.5 Case Study: Westpac

Westpac is also a member of RE100, and has committed to source “the equivalent of 100% of its global electricity consumption through renewable sources by 2025”³⁵

To help achieve its RE100 goal, Westpac has signed a power purchase agreement with the 120 MW Bomen Solar Farm, located approximately 10km northeast of the CBD of Wagga Wagga, New South Wales. The bank will purchase just over a quarter of the solar farm’s output. While the PPA delivers 45% of the bank’s target, it has a strategy to deliver the remaining 55%, which includes rooftop solar.

The Bomen Solar Farm is interesting for its innovative approach to ‘multi-use’ purposes - with areas across the site to be made available to the local community for suitable agricultural activities such as bee-keeping and sheep-grazing.

4. Sector Profiles



4.1 Retail Sector

The clean energy opportunity

Of the seven sectors profiled in this report, retailers have the largest potential to deploy renewable energy at scale. The Woolworths Group is Australia's fifth largest electricity user, sitting behind four large mining and manufacturing companies, while Coles is also one of the ten largest electricity consumers in Australia. Together these two companies have a combined market share of 68% in the retail food business, rivaled by smaller but growing competitors such as ALDI (9.2%) and Metcash (7.4%).³⁶ Other major retail companies include Bunnings, Ikea, Harvey Norman, Kmart, Myer, Target, David Jones, Officeworks and JB Hi-Fi.

Electricity is very important for these companies, where it is often the third-biggest expense in their operations. Every year these 13 retail companies use more electricity than 1.3 million Australian households. If these companies moved to 100% renewable energy, they would build 2.4GWs of wind and solar projects and create 4300 construction job-years. This would be enough renewable electricity to power all of the homes in Western Australia and the Northern Territory.

Huge rooftops

In 2010, Woolworths calculated that it had 3.2 million square meters of roof space across the country, which could accommodate a total capacity of 320 MW of solar panels.³⁷ If Woolworths covered all its roofs in solar, it would meet almost one third of its electricity needs. To date Woolworths has installed 14 MW of solar across 100 stores and two distribution centres, as well as a Tesla battery system.³⁸

While rooftop solar seems to make sense for companies with big stores and big roofs, retailers have faced challenges, as many retail chains don't own the buildings they operate in. Collaboration between retail chains and landlords in the property sector is crucial for unlocking this important resource and is an area where partnerships are starting to emerge.

Examples of rooftop solar investment in the retail sector include:

- Bunnings has installed solar on 31 stores across Australia and is planning to roll out solar at further 40 stores. It is also intending to trial battery storage in 2020.³⁹
- IKEA has installed 4 MW of rooftop solar, covering 22% of its operations. The company is currently exploring additional innovations such as battery storage and virtual net metering.⁴⁰
- Coles has installed solar on 30 of its supermarkets.⁴¹



© Unsplash/Chuttsnap

Offsite renewables

In 2019, Coles entered into a landmark 10-year power purchase agreement which will see the food retailer purchase more than 70 per cent of the output of three solar farms near Wagga Wagga, Corowa and Junee.⁴² This will cover 10% of Coles' electricity demand.

Most recently, a group of 41 companies including Harvey Norman, Bunnings, JB HiFi, Officeworks, and IKEA has been given permission by the Australian Competition and Consumer Commission to band together and jointly source renewable electricity to meet the group's electricity demand.⁴³ These companies combined represent more than one terawatt hour of annual electricity consumption, or more electricity use than 200,000 Australian homes.

What needs to happen next?

- Significant progress is being made across the retail sector; however, much more needs to be done, with only IKEA and David Jones having committed to 100% renewables. Other companies must make explicit timebound 100% renewable commitments.
- Retailers have high trust and very wide reach to broader Australian audiences. They should consider promoting their use of 100% renewable energy to customers.
- Companies should also use their purchasing power in other areas – for example both IKEA and Woolworths are already trialling electric trucks⁴⁴ – and to influence their supply chains to move to renewable energy.

4.2 Banking & Finance Sector

Unlocking investment

The banking and finance sector has an important role to play in helping other sectors move to 100% renewable energy. From underwriting power purchase agreements, to loans underpinning large rooftop solar arrays, financing helps unlock clean energy deployment across the economy.

The Australian banking sector is dominated by four large institutions: the Commonwealth Bank of Australia (CBA), Westpac Banking Corporation, Australia and New Zealand Banking Group (ANZ), and National Australia Bank (NAB). Combined, they hold assets of more than \$3.6 trillion, which is more than twice the size of Australia's annual economic output. Several other banks and credit unions have a significant footprint. In this report we consider AMP, Bank Australia, Macquarie, ING and Citibank.

Together these companies employ 170,000 people (second only to the retail sector), while the big four banks alone have a customer base of 44 million individuals, households and businesses. As such, they have huge marketing reach and can influence business and political decision making.

Practically, these companies combined use more than 600GWh of electricity each year. This equates to the electricity consumption of more than 135,000 homes.

Leading on renewable energy targets

Of the nine finance and banking companies considered in this report, eight of them have pledged to move to 100% renewable energy and have joined RE100, with AMP the only exception. In fact, Bank Australia has already achieved its 100% renewable energy target. As such, of all the sectors in this report, the banking and finance sector is the most represented in RE100.

Practical action

Many banks have undertaken renewable power purchase agreements:

- Bank Australia and NAB are both part of the Melbourne Renewable Energy Project
- CBA has entered into a 12-year power purchase agreement with Sapphire Wind Farm in NSW, which will power 65% of the bank's national electricity demand
- ANZ joined with Telstra, Coca-Cola Amatil and the University of Melbourne in 2017 to purchase renewable energy from the Murra Warra wind farm in Victoria
- Westpac has entered into a solar power purchase agreement with the Bowman Solar Farm.

Macquarie Group has also committed to powering its Sydney and Melbourne corporate headquarters through a renewable power purchase agreement. This is in addition to announcing plans to invest in 20GW of renewables around the world.

Some banks have also installed rooftop solar, for example Bank Australia has large installations on its head office in Melbourne and the National Contact Centre in the Latrobe Valley.



What needs to happen next?

- In addition to AMP and other funds, insurance providers, and superannuation funds making a 100% renewable commitment, it is critical that the banking and broader finance sector ensures that the renewable energy industry has access to financial and other enabling support required to deliver a full energy transition and action on climate. Reaching climate targets will require significant capital investment in clean energy technologies and related infrastructure, along with other services.
- Banks and financiers must stop lending to fossil fuel generators, especially coal. They must also stop refinancing highly polluting facilities, and offering other services such as consulting advice, insurance and underwriting, particularly for coal fired power stations.
- Where regulatory or other barriers exist, there is a role for investors and financiers to play in advocating for more effective enabling policy for renewable energy deployment (inclusive of increased and improved investment in infrastructure).

4.3 Property & Construction Sector

Highly influential

In 2016/17 Australia's property and construction sector contributed around 10% of Australia's gross value⁴⁵, and employed more than 1.1 million workers.⁴⁶

The property and construction sector is highly influential in terms of carbon footprint and energy use. Not only does the sector influence how much energy we use in residential and commercial buildings through the design and construction of our built environment, it's also responsible for managing a large portfolio of buildings. As such, ten of the largest property and construction companies – Lendlease, Scentre Group (owners of Westfield), Cimic Group, Vicinity, Dexus, GPT Management, Stockland, Transurban, Charter and Mirvac – combined use more electricity than 345,000 households.

If all of these companies made the move to 100% renewable energy, this would generate enough electricity to power all the homes in the Northern Territory three times over and create more than 1000 construction job-years. Together these companies have significant ability to influence the mindset and electricity use of millions of Australian households and businesses.

A focus for action

According to ClimateWorks, 43% of property companies listed in the ASX200 have a net-zero carbon target or aspiration.⁴⁷ A key mechanism to achieve these targets is to install and contract for renewable energy. Driven by cost-reduction benefits and increasing consumer awareness, many Australian property companies have also adopted sustainable construction measures including energy efficiency.

The relationship between property sector interests, which own and manage buildings and their roof space, and the tenants of these buildings makes this sector a particular focus for action.

Responsible landlords

Mirvac, Dexus and Vicinity are amongst the frontrunners in the sector, having published strategies articulating how their net-zero target will be achieved. Dexus, a large office landlord has started to implement its strategy by:

- Electrifying buildings, phasing out gas- and diesel-powered facilities and appliances,
- Undertaking a building refurbishment program, including installing smart building technologies, energy efficiency measures and rooftop solar where feasible,
- Entering into a seven-year energy supply agreements with RedEnergy to power the base building services of 40 buildings in its NSW property portfolio. The energy will come from Snowy Hydro's contracted wind and solar projects, currently being built across regional New South Wales and Victoria.⁴⁸

Other property managers have made significant investment into renewable energy, particularly in rooftop solar. For example Vicinity, one of Australia's biggest retail asset managers, plans to invest \$73 million in rooftop solar and other onsite clean energy technologies across 22 shopping centres. This program is expected to cut the commercial property giant's grid power usage by 40 per cent, see the installation of 32 MWs of rooftop solar, create 300 construction jobs and 40 new ongoing permanent positions.⁴⁹



Vicinity is also investing in solar shaded car parks with more than 2000 spaces currently under construction across three shopping centres, as well as trialling bi-facial solar panels and solar glass.⁵⁰

Across the sector, Dexus, Goodman, Charter Hall, Vicinity, GPT Group and Stockland have installed more than 62 MWs of new solar capacity, while two property groups, Mirvac and Frasers Property Australia, have gone a step further and launched their own energy companies to deliver carbon neutral energy to their tenants.⁵¹

What needs to happen next?

- Few building and property businesses have made explicit timebound 100% renewable commitments; they should begin by making these and then securing clean energy.
- A recent ClimateWorks report (2019) found that there are significant gaps/problems with the rigor and scope of carbon target setting and associated business practices within the building and property industry. Target setting is a critical driver of change and should continue; however, more needs to be done to ensure that these targets have substantive impact on greenhouse gas emissions from buildings.
- The property and construction sector has a critical role to play in ensuring development and implementation of new building energy efficiency standards to help ensure lower emissions and lower bills for households and commercial buildings across the country.

4.4 Telecommunications, IT and Technology Sector

Growing globally

While not every Google search might have an impact on an individual's electricity bill, our combined appetite for messages, photos, and streaming video, plus the critical systems supporting our financial, transportation, and communication services, require a tremendous and growing amount of energy. The telecommunications, IT and technology sector consumes approximately 7% of global electricity.⁵²

Data center and cloud storage growth in Australia has accelerated significantly in the last decade: the number of Australian data centres has risen to 248 and there are now 661 cloud service providers, all of which have significant electricity needs.⁵³

In Australia, big-brand telecommunications and tech companies including Telstra, Vodafone, Optus and Google use as much electricity as 608,000 homes. If these 14 companies were powered entirely by renewable energy, they would support 1 GW of new wind and solar projects, which would lead to almost 2000 new construction job-years.

Early adopters internationally

Huge and growing energy demand from telecommunications, IT, and technology companies, and consequent spikes in carbon emissions have led businesses to become more proactive in minimizing the environmental impact of their facilities. A number of data center operators and global tech giants have now made commitments to 100% renewable electricity including Google, Apple, Equinix and Microsoft.

Google has been a global leader on renewable energy, announcing record-breaking investment in renewable energy in the United States, Chile, and Europe. Eighteen new international deals announced in late 2019 take Google's wind and solar agreements to 5.5 GWs.⁵⁴

Commitment and action in Australia

Here in Australia, only Telstra and NextDC have actually made a renewable energy deal. Both companies are members of a PPA consortium that signed an agreement to share in the output from the first 226MW stage of the Murra Warra wind farm in Victoria.⁵⁵ In addition, Telstra has also signed a power purchase agreement with the 70MW Emerald Solar Park in QLD and is reportedly preparing a request for tender to develop 300MW of new solar and/or wind power in the New South Wales market.⁵⁶



Atlassian has become the first Australian tech company to join the RE100 initiative, targeting 100% renewable electricity for its global operations by 2025. Atlassian co-founder Mike Cannon-Brookes is also a major investor in a \$25 billion plan to build 10GW of solar in the Northern Territory and export solar electricity to Singapore via an undersea cable.⁵⁷

What needs to happen next?

- Globally, the telecommunications, IT and technology industries have played a key leadership role in driving the transition to renewable energy. Australian tech companies must play a similar role here by committing to 100% renewable electricity and demonstrating the success of renewable energy procurement deals.
- Australian technology companies should remain progressive actors internationally by identifying and fulfilling the emerging market needs of an innovative low-carbon economy.

4.5. Food & Beverage Sector

Along the supply chain of the food and beverage sector, many companies are adopting sustainable energy practices in order to cut their power costs and shore up their bottom lines. Australian food and beverage sector companies own some of Australia's most iconic and well-loved brands for items from beer to chocolate, to cheese and milk. In this report we look at 14 companies, including CUB, Bega Cheese, Arnott's Biscuits, Mars Australia, Kellogg's, Unilever and major dairy suppliers Saputo, Lactalis and Parmalat.

Together, these companies use the electricity equivalent of 293,000 homes each year, employ almost 50,000 people and have a near-universal customer reach and huge brand exposure.

Clean energy reputation

With awareness of climate change rising, preferences are shifting, with consumers increasingly demanding sustainable products. This means the Australian food and beverage sector is particularly at risk of reputational damage, caused by inaction on climate change.

The challenge is highlighted by Coca Cola Amatil's inclusion of 'loss of social licence to operate' as a key business risk in its latest annual report. The report states that:

A failure to deliver on consumer, investor and community expectations in relation to... environmental impacts created by our activities could result in damage to our brand, reputation and consumer sentiment.⁵⁸



The flipside is that with high levels of public support for renewable energy, moving to renewable energy gives companies an opportunity to differentiate their products from those of rivals by demonstrating leadership to consumers. This is the type of opportunity that companies like Carlton and United Breweries are currently benefiting from in their recent marketing campaigns.

Getting on with it

In addition to Mars Australia and CUB both entering into long-term power purchase agreements (as detailed in Section 3), Kellogg's Australia has also signed a seven-and-a-half year deal with the Beryl Solar Farm, which will provide the equivalent of 100% of the electricity requirements of Kellogg's manufacturing operation in New South Wales. This renewable electricity will produce 630 million boxes of cereal over this time.⁵⁹

Lion Breweries has also signed an agreement that will contribute to the construction of the Silverleaf solar farm near Narrabri, help more than 300 pubs cut energy bills and will lead to yet more beer - including iconic Tooheys New - being powered by renewable energy.

What needs to happen next?

- Too few food and beverage businesses in Australia have made explicit and timebound 100% renewable commitments – most that have are international companies such as ABInBev (CUB's owners), Mars and Unilever. Australian companies must make 100% renewable energy commitments and then act to secure clean energy.
- Food and beverage companies have – media excepted – perhaps the broadest reach of any sector in the Australian economy; they can play a key role in driving awareness that renewable energy is cheap and reliable by powering their operations with renewable energy and communicating this fact to their customers.
- Food and beverage companies, because of their profile, audience, and stakeholders, have a particularly critical role to play in rural and regional Australia.

4.6 Travel & Entertainment Sector

The travel and entertainment sector is also making moves towards renewable energy. Transport hubs, hotels and entertainment venues have massive electricity demand, and pubs, hotels, cinemas and airports also have significant roof space and land available that makes renewable energy attractive. There is also a growing consumer sensitivity to environmental concerns, which is having a significant influence on tourism.

Australia's ten largest carbon-polluting and energy-using travel and entertainment companies collectively use more electricity than 250,000 homes. These companies - Qantas, Virgin, Crown Resorts, Star Entertainment, Sydney Airport, Australia Pacific Airports, Village Roadshow, Event Entertainment, Holiday Inns and hotel company Accor have large customer bases. For example Australia had 9.3 million international visitors in 2018/19,⁶⁰ while 44.4 million people go through Sydney Airport in a year.

Airports

All major airports in the country are making the shift to renewable energy. Brisbane,⁶¹ Darwin⁶² and Melbourne Airport⁶³ have or are in the process of undertaking solar installations. The largest is the 5.5 MW solar farm at Darwin International Airport which will, once complete, meet up to 100 per cent of the airport's peak energy demand.⁶⁴

Sydney Airport has decided to turn to wind energy to reduce its electricity costs and lower emissions. It has signed a contract with Origin Energy that will result in three-quarters of its electricity supply coming from the Crudine Ridge wind farm in central west NSW.⁶⁵

Resorts, hotels, pubs and clubs

More than 300 pubs across New South Wales and the ACT have now entered an innovative group power purchase agreement with energy giant Engie. Led by Lion Breweries (see Section 4.5) and partnering with the Australian Hotels Association and Tourism Accommodation Australia, companies will secure a supply of renewable energy at a price significantly cheaper than current wholesale electricity spot price, providing price certainty for a decade.⁶⁶

Thredbo ski resort, owned by Event Hospitality and Entertainment, has also signed a contract to power its operations with 100% renewable electricity.

What needs to happen next?

- The travel and entertainment sector is starting to take action on renewables; however, the only major brand to make a 100% renewable energy commitment is Thredbo. Companies must make 100% renewable energy commitments and then act to secure clean energy.
- Significant opportunities are afforded by group PPAs; smaller businesses such as pubs and clubs should explore their ability to cut costs by participating in these.
- Major greenhouse gas polluting companies like Qantas and Virgin should act quickly to reduce their footprint, beginning with the low-hanging fruit of powering ground and corporate operations with renewable electricity.
- Once commitments are made and being met, hotels and airports can use their significant consumer reach to share a positive story about renewable energy powering all aspects of daily life – at work, and at play.

4.7 Universities

Practicing what they teach

Many Australian universities are striving to become national role models of the low carbon economy by integrating education, research and industry partnerships with their built environment. Innovative smart technologies, energy efficiency measures and renewable energy are the main pillars for many of the universities' ambitious plans to move to 100% renewable energy or net-zero carbon within the next decade.

In fact, mini city-like campuses are ideal test grounds for energy transition options, providing willing participants and a team of multidisciplinary experts. The lessons from these experiments can then be used to help educate the engineers, financiers, policy makers and scientists of the future. Australian universities have a combined student population of 1.3 million people, which presents a huge marketing and education opportunity.

Ten of Australia's 43 universities are large enough that they are required to report on their emissions under the National Greenhouse Energy Reporting framework - University of Melbourne, Monash, University of Queensland, ANU, UNSW, Sydney University, RMIT, La Trobe, Deakin and Griffith. Together these 10 universities, with their numerous campuses and research facilities, use the equivalent electricity to over 200,000 households each year and have a student population of over half a million people. Electricity demand by these institutions is rising, fueled by increasing student numbers and expanding campuses. For example the University of Melbourne's grid electricity use is on par with a town the size of Warrnambool.⁶⁷

Target setting

Many universities have set ambitious carbon and clean energy targets, with UNSW, Monash, the University of Queensland and the University of Melbourne all well on their way to meeting their 100% renewable energy goals, and a number of universities also having set net zero carbon goals.

Practical action

For a while the University of Queensland had Australia's largest rooftop solar array, with a total of 6.3 MW of solar on the rooftop of its St Lucia campus, at its research facility at Gatton, and other sites. Meanwhile University of Melbourne has installed close to 2 MW of rooftop solar across its Victorian campuses, with the support of a loan from the Clean Energy Finance Corporation, while Monash University has installed over 3MW of solar, and Deakin University is installing a 7MW solar and storage microgrid.

However, most of the renewable activity by universities has been through off-site power purchase agreements. These include UNSW, whose actions are detailed in Section 3, and Monash University which has a long-term power purchase agreement with the 226 MW Murra Warra Wind farm, currently under construction and expected to be fully operational at the end of 2019. The University of Melbourne is a member of the Melbourne Renewable Energy Project – a corporate renewable energy buyers group.

The University of Queensland has gone even further and has built its own 64 MW solar farm, making it the first major university in the world to offset 100 per cent of its electricity usage through its own renewable energy asset. The \$125 million solar farm – to be built near Warwick on the state's southern Downs region – will produce more than 154 GWh a year.



What needs to happen next?

- There are clear renewable leaders within the university sector; however, all universities must make commitments to 100% renewable energy and entering into renewable power contracts.
- Australian universities should continue to resource in the knowledge and skills that will be required to enable a vibrant and clean low carbon economy for Australia.

5. Pathway to further action



This report highlights that the corporate shift to renewable energy has significant momentum. However, it also shows that much more can and must be done. Corporations and institutions around Australia should follow four steps to move quickly and cost-effectively to 100% renewable energy:

1. Set a 100% renewable energy target

For companies that need help determining what this means and to ensure they are credibly setting a 100% renewable target that best helps accelerate the transition to renewable energy here in Australia, they can read the forthcoming technical report by Greenpeace Australia Pacific.

2. Start/continue implementing renewable energy projects

Joining the Business Renewables Centre (BRC), an initiative of WWF Australia, the University of Technology Sydney and Climate KIC is a great way to get support and advice for how to meet 100% renewable energy commitments. The BRC provides resources to corporates looking to set up renewable power purchase agreements and can offer advice on where to find support for other clean energy options. It also runs events and is a forum for finding other companies with which to collaborate on renewable energy initiatives.

3. Communicate your actions

Tell customers, staff and the wider community about the great work your company is doing on renewable energy. While Australians love renewable energy, many don't yet understand how renewable can power big business and heavy industry. Corporations can help with the education effort and gain customers in the process.

4. Push for government action

Corporate action is essential to helping Australia clean up its electricity supply and rapidly cut emissions, but much more needs to be done. It is imperative that companies use their significant power to shift government policy and regulation to put Australia on the path to 100% renewable energy by 2030.

Appen



Indices

Appendix A: Facts, Figures and Assumptions

A number of statistics have been cited throughout this report. Where they are not directly referenced in an endnote, they have been calculated by the report authors based on the following data and assumptions.

Company pollution and energy data

Every year Australia's largest climate polluting and energy using companies are required to report their emissions and energy use. They do so under the National Greenhouse Emissions Reporting Scheme (NGERS). Company electricity data used in this report is drawn from the Scope 2 emissions reported in the 2017/18 reporting year.⁶⁸ Of the 80 companies considered specifically, 59 reported under NGERS in 2017/18.

In a few notable cases where a large company is a subsidiary of an NGERS reporting company, namely, Coles, Bunnings, Kmart and Target, all of which were sitting within Wesfarmers group in the 2017-18 financial year, Scope 2 data has been drawn from the 2018-19 Westfarmers sustainability report.

For the remaining 13 companies, if data has been provided or accessed publicly it has been included, otherwise it is excluded. As such, all renewable capacity and job figures should be considered conservative.

Key assumptions

When calculating:

- Percentage emissions, Australia's emissions for the year to March 2018 were 547.0 Mt CO₂-e, as reported by the Federal Department of the Environment and Energy.⁶⁹
- Percentage electricity demand, Australia's 2017/18 electricity demand was taken to be 261,054 GWh as reported by the Federal Department of the Environment and Energy.⁷⁰
- The capacity (MWs) of new wind and solar projects - half the electricity demand of a company was assumed to be met by a solar farm and the other from a wind farm.
 - A 40% capacity factor was used for wind farms, in line with industry trends that have seen recent wind farms with larger wind turbines recording higher capacity factors.⁷¹
 - For solar, communications with industry experts suggest capacity factors for solar farm with single axis trackers are in the range of 30%, while rooftop solar capacity factors typically fall in the range of 15-20%. For simplicity and given that companies are choosing to meet their renewables demand through a mixture of rooftop solar and offsite renewables, a 25% capacity factor has been used for solar calculations.

- Number of new renewable energy jobs are based on the following jobs factors:
 - 1.22 FTE/MW over 18months for wind farm construction,
 - 2.2 FTE/MW over 12months for solar farm construction, and
 - 0.1 FTE/MW for both solar and wind farm operation.⁷²
- Jobs in companies are taken from company materials (websites, reports etc)
- Comparisons to Australian household electricity use:
 - Average household electricity demand is taken to be 4,596kWh/year.⁷³
 - Number of Australian households are taken to be 9.2million.⁷⁴
 - These datasets were also used as the basis to calculate total state-by-state household electricity demand.
- Comparisons to current renewables build assumes that in 2019, at the height of the renewables boom, 17GWs of renewables is being built.⁷⁵

Appendix B: List of companies and institutions profiled on Greenpeace REenergise business website

The companies and institutions listed on the Greenpeace REenergise business website have been selected based on the following criteria. They are:

- A big brand or well recognised company or institution reporting under NGERs; and/or
- A big brand or well recognised company with important cultural or sectoral influence; and/or
- Global companies with significant operations, cultural or sectoral influence in Australia that have made commitments to 100% renewable electricity.

These companies are listed below.

Property and Infrastructure

Charter Hall
CIMIC Group
Dexus*
GPT Management
Lendlease
Mirvac*
Scentre Group
Stockland
Transurban*
Vicinity Centres*

Travel and Entertainment

Accor*
Australia Pacific Airports Corporation
Crown Resorts*
Event Hospitality & Entertainment Limited*
Holiday Inn Holdings*
Qantas
Star Entertainment Group*
Sydney Airport
Village Roadshow
Virgin Australia

Food and Beverage

Arnott's Biscuits
Asahi
Bega Cheese
Carlton & United Breweries*
Coca-Cola Amatil
Kellogg's
Lion*
Mars Australia*
Saputo
Nestlé Australia
Lactalis
Parmalat Australia
Fonterra
Sanitarium
Unilever Australia & New Zealand*

Retail

ALDI*
Bunnings*
Coles
David Jones and Country Road Group*
Harvey Norman
Ikea Australia*
JB HI-FI
Kmart and Target*
Metcash*
Myer
Officeworks*
Woolworths*

Banking and Finance

AMP Limited*
ANZ
Bank Australia
Citibank
Commonwealth Bank*
ING Bank
Macquarie
NAB*
Westpac Bank*

Telcos, Technology and IT

AAPT
Amazon
Apple*

Atlassian
Equinix
Fujitsu Australia*
Global Switch*
Google
IBM*
Microsoft*
NEXTDC
Optus
Telstra
Vocus Communications
Vodafone

Education

Australian National University
Deakin University
Griffith University*
La Trobe University
Monash University*
RMIT
The University of Queensland*
University of Melbourne*
University of Sydney
University of New South Wales*

* Denotes the companies and institutions that had responded to the Greenpeace corporate renewable energy survey as of 10 November 2019

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Greenpeace is an independent global campaigning organisation that acts to change attitudes and behaviour, to protect and conserve the environment and to promote peace.

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