



RENEWABLES & BUSINESS: CUTTING PRICES & POLLUTION



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Key Findings

1

The rising cost of energy is the leading concern for Australian businesses over the next ten years.

- › Australian businesses are experiencing high and rising gas and electricity prices, with gas prices tripling over the past five years and electricity prices for residential and small business users increasing by 80% to 90% in just one decade.
- › Australia's electricity prices have been driven up primarily by overinvestment in the poles and wires of the electricity network.
- › High gas prices, lack of competition and policy uncertainty have also played a role in Australia's high electricity prices.

2

Australia is experiencing a renewables and battery storage boom.

- › Australia is experiencing a boom in renewable energy with over 5,000 megawatts (MW) of renewable energy projects like wind and solar farms under construction in 2018.
- › Wholesale price reductions primarily due to the Renewable Energy Target are projected to reduce average consumer power bills across Australia by nearly \$200 over the next two years.
- › Wind and solar prices have fallen significantly in the past decade and they are now the cheapest type of new-build generation – far cheaper than a new coal power station.

3

Australian businesses are turning to renewable energy to take control of their power bills.

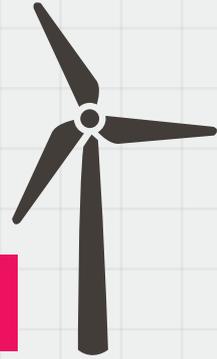
- › Business installations of solar have increased by 60% over 2016 and 2017, with over 40,000 commercial systems now installed in Australia.
- › 46% of major companies are actively procuring renewable energy.
- › The total capacity of business solar installations has more than doubled since the start of 2016.
- › 80% of Australians believe big business should be using renewable energy and 76% of Australians would choose a product or service made with renewable energy over a comparable product that is not.

4

Businesses around the world are investing in renewable energy.

- › Over 130 of the world's largest companies plan to be 100% powered by renewable energy in the long term.
- › Around two thirds of Fortune 100 and nearly half of Fortune 500 companies have set ambitious renewable or sustainability targets.
- › A recent survey of non-energy businesses globally found that 40% of businesses were considering acquiring or investing in renewable energy or developing or investing in energy storage in the next 18 months.
- › 32% of surveyed businesses stated that they were considering using renewables as their main source of energy in the next 18 months.

ARE AUSTRALIAN BUSINESSES EMBRACING RENEWABLE ENERGY



SANDFIRE RESOURCES NL



Sector: Mining
Location: Rural WA

SUN METALS



Sector: Minerals refinery
Location: Townsville, QLD

AUSTCHILLI



Sector: Agriculture
Location: Bundaberg, QLD

WESTPORK



Sector: Agriculture
Location: Serpentine, Mindarra and Gingin, WA

DOBINSON'S SPRING AND SUSPENSION



Sector: Manufacturing (Leaf and Coil Spring)
Location: Rockhampton, QLD

SUNDROP FARMS



Sector: Agriculture
Location: Port Augusta, SA

PROTEN



Sector: Agriculture
Location: 8 farms in NSW

GFG ALLIANCE



Sector: Steel making
Location: Whyalla, SA

BAKERS MAISON



Sector: Wholesale bakery, food producer
Location: Sydney, NSW

TIP TOP BUTCHERS



Sector: Meat wholesaler
Location: Melbourne, VIC

CARLTON & UNITED BREWERIES (CUB)



Sector: Brewing company
Location: Melbourne, VIC

NECTAR FARMS

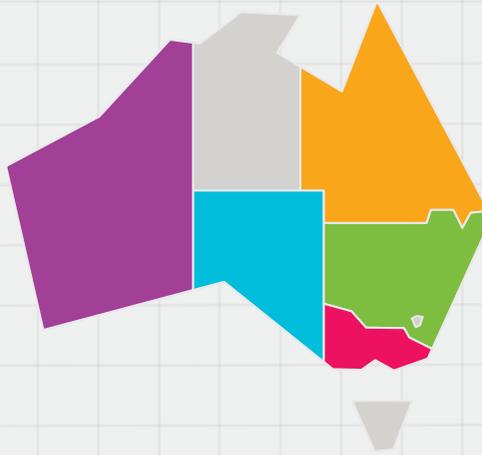


Sector: Agriculture
Location: Stawell, VIC

NEXTDC



Sector: Data centre
Location: Melbourne, VIC



1. Introduction

Australian businesses are taking back control of their electricity bills by investing in renewable energy, storage, energy efficiency or demand management. Renewable energy is one solution for businesses to address high electricity and gas prices while also reducing greenhouse gas emissions.

Australian businesses are experiencing high and rising gas and electricity prices, with gas prices tripling over the past five years (AIG 2017) and electricity prices for residential and small business users increasing by 80% to 90% in one decade (ACCC 2017a). These increases have been driven by increasing gas exports, overinvestment in poles and wires and uncertainty regarding national climate and energy policy.

Businesses can directly invest in renewable energy and storage to reduce their power bills and reduce emissions.

Over 40,000 businesses are already reaping the benefits of renewable energy. Agricultural organisations and food producers, wholesalers and warehouses, manufacturers and healthcare facilities have all installed rooftop solar and are now saving money on their power bills. These businesses are investing in renewable energy because it makes good business sense.

Australia must quickly reduce emissions from all sectors of the economy in order to combat climate change but particularly from the electricity sector, which is the biggest polluter and yet has readily available solutions.

Australia is already experiencing the impacts of climate change. The world has just experienced the hottest five-year period (2013-2017) ever recorded. This record is part of a sharp, long-term upswing in global temperatures, with 17 of the 18 hottest years on record all occurring in this century. This increasing global heat, driven primarily by the burning of fossil fuels, is exacerbating extreme weather events around the globe and in Australia. Heatwaves are now hotter, lasting longer and occurring more often. Rising ocean temperatures are triggering coral bleaching events on the Great Barrier Reef. Climate change is also increasing extreme bushfire weather in southern and eastern Australia, while climate change is likely worsening drought conditions in southwest and southeast Australia. Across Australia, extreme weather events are projected to worsen as the climate warms further, increasing the vulnerability of Australia's ageing energy infrastructure to blackouts.

This report outlines what factors are driving up power bills and how renewable energy can reduce business electricity bills. The report also highlights the actions local governments are taking to help businesses reduce power bills. The report concludes by profiling a range of businesses paying cheaper power bills or protecting themselves against future price rises by investing in new solar photovoltaics (PV), solar thermal, wind and storage projects.

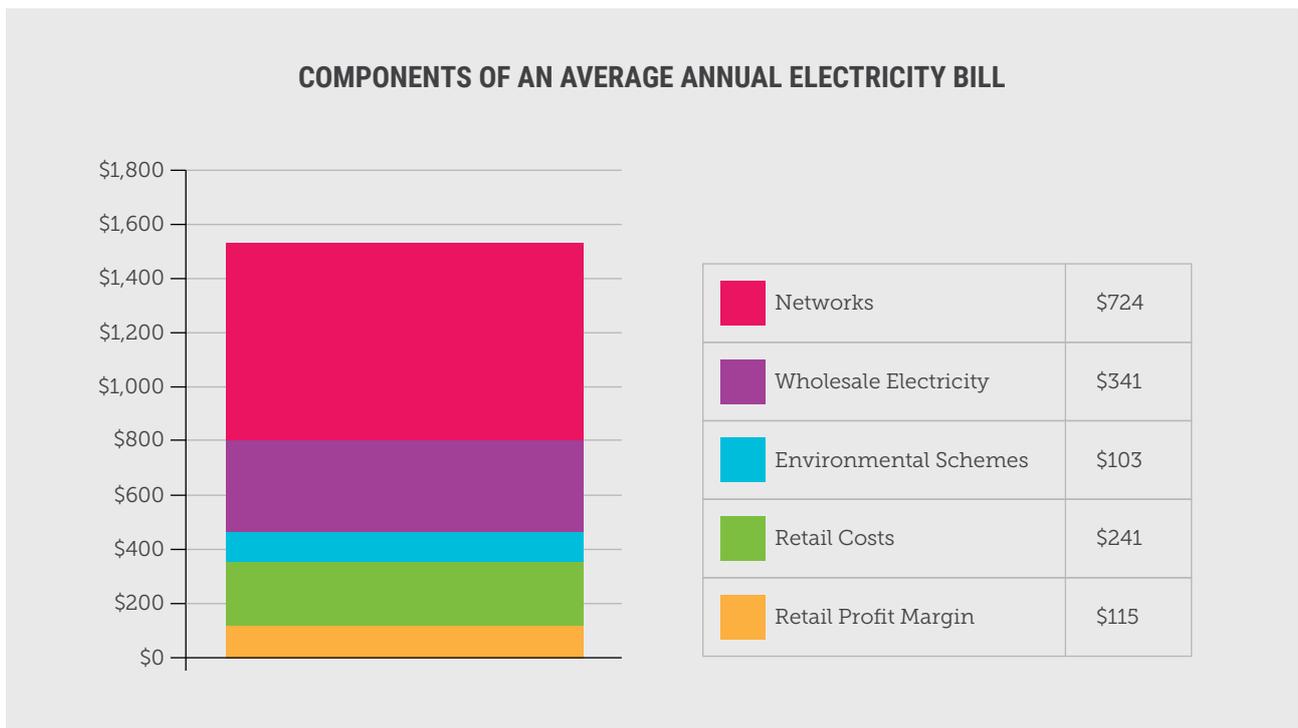
2. The truth about power bills and renewable energy

WHY ARE POWER BILLS INCREASING?

Australia has very high electricity prices that are above the EU average and over twice as high as the United States (Bloomberg 2017). Between 2007/8 and 2016/17, electricity prices for residential and small business users increased by 80% to 90% in real terms (ACCC 2017a).

Australia's electricity prices have been driven up by unprecedented overinvestment by distribution companies in the poles and wires of the electricity network (Figure 1; ACCC 2017a). High gas prices due to a massive increase in gas exports, a lack of competition and energy policy uncertainty have also played a role in Australia's rising electricity prices.

Figure 1: Power bills have been driven up by increasing network costs (the poles and wires that transport electricity).



Source: Adapted from Australian Competition and Consumer Commission (2017a).

Retail gas prices have also been increasing from around \$3-4 per gigajoule to as high as \$11-12 per gigajoule in late 2016 (Australian Industry Group 2017). Many businesses rely on gas directly to fuel their operations, especially manufacturing and utility industries. This has meant that Australian businesses have felt the burden of both high electricity prices and increasing gas prices.

Energy pricing is the leading concern for businesses operating in Australia over the next ten years (SMH 2017).

AUSTRALIA'S RENEWABLE ENERGY BOOM IS CUTTING POWER BILLS

Renewable energy can reduce electricity bills by providing power at a cheaper, fixed price compared to electricity from the grid. This gives businesses greater control of their electricity bills while also acting as an insurance against future unforeseen higher energy prices. Renewable energy can be more cost-effective than retail gas, encouraging businesses to move towards electrifying their energy consumption.

Australia is currently experiencing a boom in renewable energy with over 5,000 megawatts (MW) of projects such as wind and solar farms under construction in 2018. These new projects will create enough jobs to employ more than 15,000 people (Green Energy Markets 2018).

The rapid cost reductions for renewable energy and the Renewable Energy Target (RET) are driving the construction of many of these projects. By driving down wholesale electricity prices, the RET (together with additional gas capacity coming online) is predicted to reduce average consumer power bills across Australia by nearly \$200 over the next two years (AEMC 2017). Projected wholesale price reductions in coming years are primarily the result of new capacity being built under the RET (Energy Security Board 2017).

Wind and solar prices have fallen significantly over the past decade, with renewable energy now the cheapest type of new-build generation (using a measure called levelised cost of energy), being far cheaper than a new coal power station (Table 1; BNEF 2017). Even without considering the benefits of dramatically reduced emissions and other pollutants (such as better health outcomes), new wind and solar are cost competitive with new gas power stations, particularly as the price of gas has increased.

Over 5,000MW of wind and solar projects are under construction, driving down power bills.

Table 1: New solar or wind farms are cheaper than a new coal power station when compared using levelised cost of energy.

Power technology	Levelised Cost of Energy (LCOE) AUD/MWh
SA Solar Thermal Plant	\$78 ¹
Wind	\$60 - 118 ²
Solar	\$78 - 140
Gas Combined Cycle	\$74 - 90 ³
Coal	\$134 - 203
Coal with CCS	\$352

Sources: BNEF 2017

¹ Government of South Australia 2017

² Note recent prices for wind are "well below" \$60/MWh

³ Based on gas prices of \$8/GJ. Current gas prices are much higher than this, and at peak times can be up to 2-3 times higher.

Electricity from a new solar or wind farm is cheaper than from a new coal power station.

3. Businesses are slashing their power bills with renewable energy

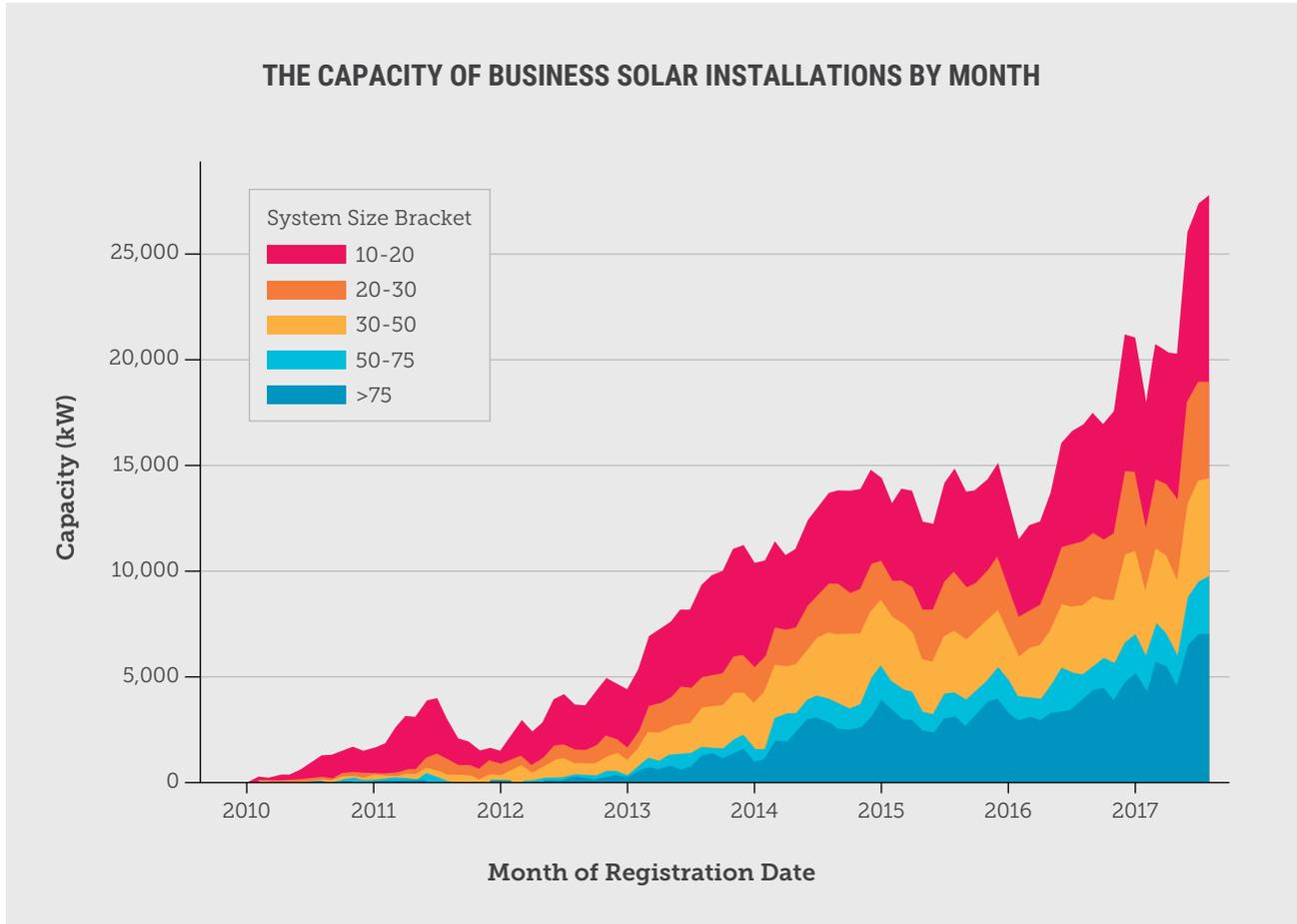
Rather than waiting for the price of electricity to fall, businesses are taking control of their energy use by installing renewable energy and generating their own electricity. Renewables are so affordable that by building, contracting or investing in new wind and solar power plants, businesses can significantly reduce their reliance on grid electricity, reducing exposure to volatile electricity prices and future price hikes.

Australian businesses are already investing significantly in renewable energy. Over 46,000 businesses have invested in large solar installations – from food producers to warehouses, shopping centres to agricultural organisations, manufacturers to wineries (SunWiz 2018).

Business installations of solar have increased by 60% over 2016 and 2017, with now over 40,000 systems installed (ABC News 2017a). The total capacity of solar installations on businesses has more than doubled since the start of 2016 (Figure 2; ABC News 2017a).

Businesses invest in renewables because it makes economic sense.

Figure 2: Since the start of 2016, the number of business solar installations has increased significantly, with total capacity more than doubling.



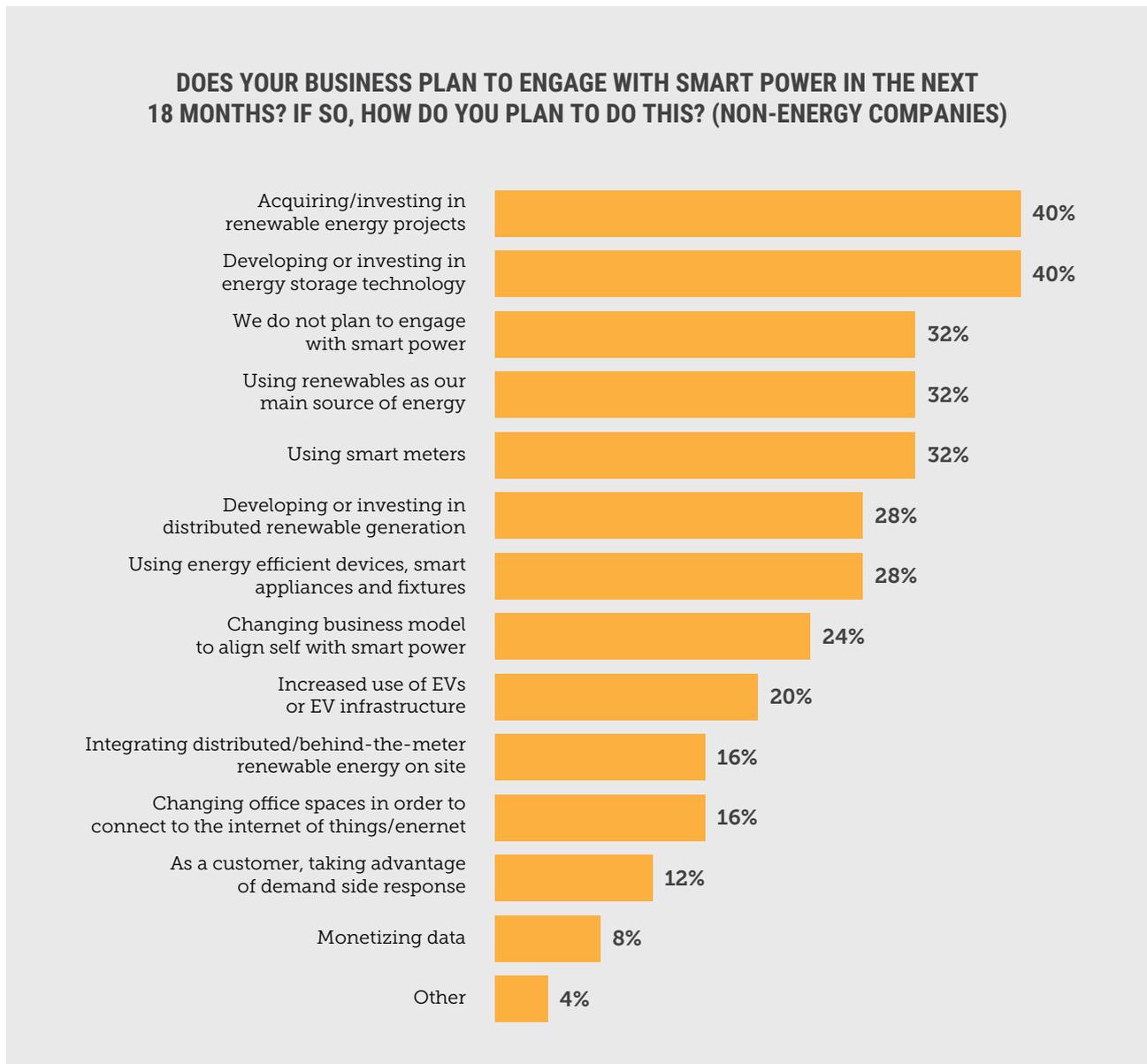
Source: Adapted from SunWiz (2017).

In Australia, a survey commissioned by the Australian Renewable Energy Agency (ARENA) found that 46% of major companies are actively procuring renewable energy (ARENA 2017). Furthermore, 80% of Australians believe big business should be using renewable energy and 76% of

Australians would choose a product or service made with renewable energy over a comparable product that is not (ARENA 2017). This demonstrates the potential competitive advantage that businesses can tap into if they build, contract or invest in renewable energy.

40% of businesses are considering investing in renewable energy.

Figure 3: Survey results of business plans to engage in renewable energy and smart technologies.



Source: Adapted from Baker McKenzie (2018).

Consumers are more likely to buy products from businesses that invest in renewable energy.

BUSINESSES – BIG AND SMALL – ARE COMMITTING TO RENEWABLE ENERGY

In Australia, companies such as Telstra, Sun Metals and GFG Alliance are making major investments in renewable energy. Telstra is building a 70MW solar farm, Sun Metals are building a 116MW solar farm and steel producer GFG Alliance are planning to invest in 520MW of new renewable energy generation and storage (RenewEconomy 2017a; SunSustainable 2017).

Small businesses have also been investing in renewable energy to reduce their power bills, especially rooftop solar. Austchilli, Australia's largest chili farm in the Bundaberg region of Queensland, has installed a 300kW (0.3MW) solar system while SCS Plastics in the regional city of Shepparton in Victoria has installed a 300kW (0.3MW) solar system. These installations have already helped reduce reliance on grid electricity, in the case of Austchilli by around 25% (Austchilli 2018).

BUSINESSES AROUND THE WORLD ARE INVESTING IN RENEWABLE ENERGY

Globally, many businesses are considering installing, contracting or investing in renewable energy. A recent survey of non-energy businesses globally found that 40% of these businesses were considering acquiring or investing in renewable energy projects or developing or investing in energy storage technology in the next 18 months (Figure 3; Baker McKenzie 2018). 32% of businesses stated that they were considering using renewables as their main source of energy in the next 18 months (Baker McKenzie 2018).

One hundred and thirty-one global corporations have made a commitment to go '100% renewable', including food producers, car manufacturers, data centre operators, breweries, real estate companies, banks and fashion brands (RE100 2018).

Big and small businesses are making a significant commitment to renewable energy. Seven of the world's largest companies plan to be 100% powered by renewable energy, including Microsoft, Apple, Google, Facebook, Wells Fargo, Johnson & Johnson and Amazon (ARENA 2017). In the United States, nearly two thirds of Fortune 100 and nearly half of Fortune 500 companies have set ambitious renewable or sustainability targets (SunSustainable 2017).

**Steel producer GFG Alliance
is investing in 520MW of new
renewable energy and storage.**

BOX 1: EXPENSIVE AND UNAFFORDABLE: THE RISKS FOR BUSINESS OF RELYING ON GAS

Gas prices have increased significantly over the past decade, significantly impacting the profitability of businesses who rely upon gas for their energy, transforming a global competitive advantage a decade ago into a major competitive disadvantage today (ACCC 2017b).

Mining company Xstrata (now merged with Glencore) chose in 2011 to power its Mt Isa copper operations with a new 242MW gas power station rather than invest in wind, solar and biomass. Since then, the \$75 billion investment in six liquefied natural gas (LNG) export trains at Gladstone has seen the eastern Australian gas market joined to the international LNG market, driving up the cost of domestic gas and in turn increasing the cost of gas-fired electricity to the point where existing facilities are no longer competitive.

The subsequent increase in power bills at Mt Isa has damaged the competitiveness of the copper business and in 2017, Glencore considered shutting down copper operations at Mt Isa, putting 2,000 jobs at risk (RenewEconomy 2017b).

Domestic gas is now expensive as well as producing significant greenhouse gas emissions, not only at the point of use but also during extraction and transportation (Climate Council 2017). Where appropriate, businesses should investigate options other than gas, such as renewable energy, storage, energy efficiency and demand management. These technologies have the potential to supply businesses with an affordable, reliable and clean supply of power that is not affected by changes in the price of fuel such as gas.

Figure 4: One of Mt Isa's mines. Mt Isa's reliance on gas-fired electricity has left the future of local jobs and industry vulnerable to the rising cost of gas.



4. Local and State Governments are supporting business investment in clean, affordable and reliable renewable energy

SUSTAINABLE MELBOURNE FUND

The Sustainable Melbourne Fund provides low cost and easy access finance to businesses to engage in a range of activities to improve the sustainability of their business. This includes upfront capital to fund investments in renewable energy. The fund was set up in 2002 by the City of Melbourne in conjunction with the Victorian state government and a number of other local governments. The fund administers loans through Environmental Upgrade Agreements (EUAs), which are then repaid quarterly through council rates.

Many councils around Victoria have joined this program, helping dozens of businesses build renewable energy. As of August 2017, 14 councils were part of this program, saving small and medium sized businesses \$1.5 million every year, while cutting greenhouse gas emissions by over 5,000 tonnes (Sustainable Melbourne Fund 2017).

Businesses have saved over \$55,000 every year on power bills after signing EUAs with Mornington Peninsula Shire Council.

Mornington Peninsula Shire Council has been a leader of this program. They have signed eight EUAs that include the installation of solar on wineries, a hotel and a retail store. Together, these solar projects will save businesses \$55,360 a year and reduce greenhouse gas emissions by 12,328 tonnes over the life of the projects.

Greater Shepparton City Council has also supported solar installations for businesses in Shepparton through EUAs. SCS Plastics installed a 300kW solar system and Rokez Constructions installed a 60kW system. These projects will help these businesses reduce their power bills and greenhouse gas emissions, by 416.1 tonnes and 106.4 tonnes respectively every year (Greater Shepparton City Council 2016).

You can read more about the Sustainable Melbourne Fund at www.sustainablemelbournefund.com.au.

OUR ENERGY FUTURE

Our Energy Future was set up by an association of 11 councils in Sydney, to help homes and businesses reduce their power bills. This includes providing free quotes to businesses considering installing solar panels, as well as providing a quote on the financial savings of installing solar for these businesses.

Some New South Wales councils also offer EUAs, similar to those discussed above in relation to the Sustainable Melbourne Fund. This includes Blacktown City Council, Newcastle City Council, Parramatta City Council, North Sydney Council, City of Sydney Council and Lake Macquarie City Council (Our Energy Future 2018).

MELBOURNE RENEWABLE ENERGY PROJECT

The Melbourne Renewable Energy Project (MREP) led by the councils of **Melbourne, Moreland, Yarra and Port Phillip**, alongside universities and corporations, is supporting the construction of an 80MW wind farm near Ararat in regional Victoria.

Under this project, members have committed to purchasing 88GWh of electricity from the wind farm under a long-term power purchase agreement. The wind farm will generate affordable electricity that will be more than enough to supply all the electricity needs of MREP members, while reducing greenhouse gas emissions by 96,000 tonnes every year (City of Port Phillip 2017).

Other members of this project include RMIT, the University of Melbourne, Federation Square, Bank Australia, Zoos Victoria, NAB, Citywide, Australia Post, Melbourne Convention and Exhibition Centre and NEXTDC.

5. A variety of businesses are going renewable

BUSINESSES INSTALLING UP TO 5MW OF RENEWABLE ENERGY:

Agriculture

Case study 1 – ProTen



Location: 8 farms in regional New South Wales

ProTen owns and operates sixteen of Australia's largest broiler farms in New South Wales and Western Australia, where chickens are bred for meat production. The company has recently installed 2.2MW of solar on 148 sheds across their eight New South Wales farms, which are large consumers of energy. According to installers Smart Commercial Solar, the solar systems have delivered a 33% reduction in energy use, saving the company \$2,000 a day (Smart Commercial Solar 2018).

Figure 5: Installing rooftop solar has saved chicken farmers ProTen \$2,000 a day.



Wholesale bakery, food producer

Case study 2 – Bakers Maison



Location: Sydney, New South
Wales

Bakers Maison employ 120 people who bake French-inspired products sold in Australia. 225kW of solar was installed on the roof of their business in Revesby, Sydney in an innovative program in 2017, adding to a 100kW solar system that was previously installed. Under this program, 20 investors funded and built the \$400,000 solar system and Bakers Maison now pay these investors for the energy the panels produce over a ten-year period. After that time, the panels will be owned by the business and the energy the panels produce can be used for free (ABC News 2017b). The benefit of a program like this is that companies who cannot afford the upfront capital costs of solar are still able to benefit from lower power bills.

Figure 6: Bakers Maison avoided the upfront cost of installing solar panels by having investors pay for the system.



Manufacturing (Leaf and Coil Spring)

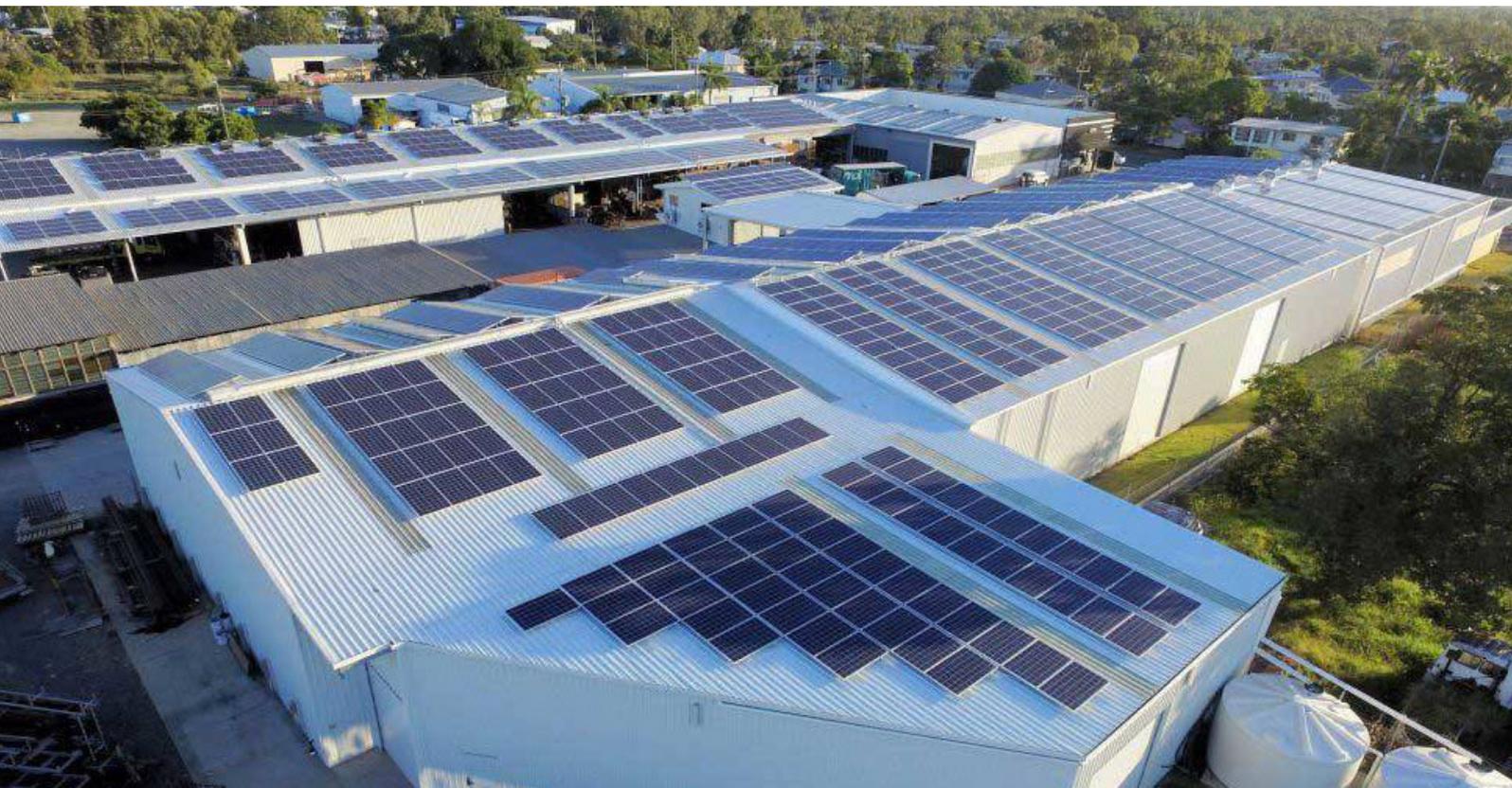
Case study 3 – Dobinson's Spring and Suspension



Location: Rockhampton,
Queensland

Dobinson's Spring and Suspension have faced significant challenges with their energy bills. Their power bills have gone up by over 250% in the past 10 years, making it harder for the company to compete with competitors overseas. This has driven the company to invest in a 517kW solar system, that has reduced their power bills by a third. The solar system at Dobinson's Spring and Suspension has been so successful that they are considering installing more solar panels and adding battery storage (Dobinson's Spring and Suspension 2018).

Figure 7: The solar system at Dobinson's Spring and Suspension has been so successful that the company are considering installing more solar and adding battery storage.



Meat wholesaler

Case study 4 – Tip Top Butchers



Location: Melbourne, Victoria

Located in Laverton North in Melbourne's west, Tip Top Butchers installed a 203kW solar system in 2013. This system – now five years old – involved the installation of 780 panels at a cost of \$573,000, helping to reduce the company's power bills. The cost of rooftop solar systems has fallen significantly since 2013. If the exact same solar system was installed in 2018, it is estimated that it would only cost around \$300,000 – just over half the original cost (Tip Top Butchers 2018).

Figure 8: The price of rooftop solar systems such as this one at Tip Top Butchers has fallen significantly over the past five years.



Data centre

Case study 5 – NEXTDC



Location: Melbourne, Victoria

NEXTDC is a data centre in central Melbourne that employs 200 people and has installed one of the largest privately funded rooftop solar systems in Australia. NEXTDC's rooftop is covered in 1,575 solar panels that can generate 400kW of electricity. The system was installed in 2013 as it was a cost effective way to provide reliable and affordable electricity to the facility. The solar system has already generated 2,181,785kWh of electricity since it began operating, off-setting over 670 tonnes of greenhouse gas emissions every year – equivalent to taking 200 cars off the road (NEXTDC 2018).

NEXTDC have been so impressed by the effectiveness of this system that NEXTDC are considering increasing their use of renewable energy and they have recently participated in the Melbourne Renewable Energy Project (see Section 4; Sustainable Melbourne Fund 2017).

Figure 9: Rooftop solar at NEXTDC provides reliable and affordable electricity while reducing greenhouse gas emissions.



Agriculture

Case study 6 – Austchilli



Location: Bundaberg, Queensland

Austchilli is Australia's largest chilli company, employing over one hundred people. They initially built a 100kW solar system to reduce their power bills and later added another 200kW. The company consume virtually all the electricity that their solar panels produce on weekdays and most of what is produced on weekends. This has reduced their energy usage from the grid by around 25%. Austchilli is also considering adding battery storage (Austchilli 2018).

Figure 10: Austchilli's solar panels have reduced their energy usage by around 25%.



Agriculture

Case study 7 – Westpork



Location: Serpentine, Mindarra and Gingin, Western Australia

Westpork is one of Australia's largest pork producers, with six farms (called piggeries) located throughout Western Australia. Motivated by a desire to reduce their energy bills and their environmental impact, Advanced Energy Resources installed 2.2MW of wind and solar across Westpork's farms. They are also installing a battery storage system to store the energy from the solar panels and use it when needed. The project will cost \$4 million but the payback for the project is expected to be just 5 to 7 years under a long term power purchase agreement. Westpork also have plans to eventually become 100% renewable (ABC News 2017c).

Figure 11: Westpork have installed rooftop solar systems across their piggeries.



BUSINESSES INSTALLING OVER 5MW OF RENEWABLE ENERGY:

Steel making

Case study 1 – GFG Alliance



Location: Whyalla, South Australia

GFG Alliance are the new owners of South Australia's Whyalla Steelworks who announced plans in 2017 to invest in 520MW of renewable energy and storage to provide cheaper and reliable electricity to power their steel plant. The project aims to reduce energy costs at the Whyalla Steelworks by at least 30% (Zen Energy 2017).

The project may include the expansion of a solar farm from 80MW to 200MW, 100MW/100MWh of battery storage and 100MW of demand response management. These projects could be followed by the construction of a 120MW/600MWh pumped hydro facility located at the company's now disused iron ore mine (RenewEconomy 2017c).

Minerals refinery

Case study 2 – Sun Metals



Location: Townsville, Queensland

In May 2018, Sun Metals zinc refinery commissioned a solar farm in north Queensland. Sun Metals is one of the biggest energy consumers in Queensland, using 900,000MWh of electricity to produce 225,000 tons of zinc every year. High electricity prices have led Sun Metals to build a 116MW solar farm south of Townsville that will provide one third of the business' electricity needs (RenewEconomy 2018). This new solar farm may also enable Sun Metals to justify a \$300 million expansion of the refinery, creating 827 jobs during construction and 100 new permanent jobs (RenewEconomy 2017a).

Agriculture

Case study 3 – Sundrop Farms



Location: Port Augusta,
South Australia

Sundrop Farms are a commercial truss-tomato growing business in Port Augusta, South Australia. They produce more than 15,000 truss tomatoes annually and have built a solar thermal power plant (comprising 23,000 mirrors directed towards a 127 metre tower) to generate 39MW of thermal energy, providing electricity, heat and water desalination for its operations. This solar thermal power plant produces around 90% of the business' energy requirements (ABC News 2016).

Figure 12: The solar thermal plant at Sundrop Farms (below) provides around 90% of the business' electricity.



Mining

Case study 4 – Sandfire Resources NL



Location: Rural Western Australia

In June 2016, Sandfire Resources NL opened a \$40 million solar plant with battery storage to power their copper and gold mine. The 10.6MW solar plant and the 6MW battery was the largest off-grid solar and storage facility in Australia when it began operating. The project will supply around 20% of the yearly power requirements of the mine, as well as cutting greenhouse gas emissions by around 12,000 tonnes every year (Sandfire Resources NL 2018). The Australian Renewable Energy Agency (ARENA) provided \$20 million to support the project (ARENA 2016).

Agriculture

Case study 5 - Nectar Farms



Location: Stawell, Victoria

Nectar Farms are an agricultural business that is building a massive new greenhouse in regional Victoria to grow and supply vegetables to both Australian and overseas markets. In order to supply affordable and reliable electricity to their business, they are building a 196MW wind farm and a 20MW battery. Called the Bulgana Green Power Hub, the project is being partially funded by the Victorian Government and is due for completion in 2019 (Premier of Victoria 2017). Creating several hundred new jobs, this project demonstrates how agricultural businesses can improve the economics of their business by building renewable energy.

Figure 13: Sandfire Resources NL have reduced their diesel energy consumption by 20% since they opened a solar and storage plant to power their copper and gold mine.



Brewing company

Case study 6 – Carlton & United Breweries (CUB)



Location: Melbourne, Victoria

Beer company Carlton & United Breweries (CUB) has recently signed a power purchase agreement to buy renewable energy from the 112MW Karadoc solar farm near Mildura. As part of this agreement, the solar farm will provide for most of CUB's power needs for 12 years. The company are also adding a rooftop solar installation, locking in cheaper power bills and helping the business move towards 100% renewable energy (One Step Off the Grid 2018).

Figure 14: Carlton & United Breweries are buying renewable energy from a solar farm near Mildura.



6. Renewable energy powering Australian business

Renewable energy can provide an affordable, reliable and clean source of electricity to small and large business in a wide range of sectors, both on and off-grid.

Your business may be able to save money by transitioning your energy supply to renewable energy. If you are interested in finding out how your business can build its reputation, reduce greenhouse gas

emissions and save money by investing in renewable energy, you can contact the businesses below to find out more about the benefits of their projects.

If you are interested in installing rooftop solar, check out the Clean Energy Council's list of accredited solar installers: www.solaraccreditation.com.au/consumers/find-an-installer.html.

Businesses profiled in this report:

ProTen – Agriculture
www.proten.com.au

Bakers Maison – Wholesale bakery
www.bakersmaison.com.au

Dobinson's Spring and Suspension
 – Manufacturing
www.dobinsonsprings.com

Tip Top Butchers – Meat wholesaler
www.tiptopbutchers.com.au

NEXTDC – Data centre
www.nextdc.com

Austchilli – Agriculture
www.austchilli.com.au

Westpork – Agriculture
www.advancedenergy.net.au/projects/westpork-piggeries-2-mw/

GFG Alliance – Steel making
www.gfgalliance.com

Sun Metals – Minerals refinery
www.sunmetals.com.au

Sundrop Farms – Agriculture
www.sundropfarms.com

Sandfire Resources NL – Mining
www.sandfire.com.au

Nectar Farms – Agriculture
www.nectarfarms.com.au

Carlton and United Breweries –
 Brewing company
www.cub.com.au

References

- ABC News (Australian Broadcasting Corporation News) (2016) Sundrop Farms pioneering solar-powered greenhouse to grow food without fresh water. 2 October 2016. Accessed at: <http://www.abc.net.au/news/2016-10-01/sundrop-farms-opens-solar-greenhouse-using-no-fresh-water/7892866>
- ABC News (2017a) The solar boom started in our suburbs, but now it's moved out of home. 28 September 2017. Accessed at: <http://www.abc.net.au/news/2017-09-28/solar-power-perth-businesses-energy-boom/8994314>
- ABC News (2017b) Investors snapping up community energy projects, with some selling out in minutes. 30 April 2017. Accessed at: <http://www.abc.net.au/news/2017-04-30/community-energy-projects-selling-out-within-minutes/8476794>
- ABC News (2017c) Australian pork producer starts on road towards renewable energy at piggeries. 22 August 2017. Accessed at: <http://www.abc.net.au/news/rural/2017-08-22/wa-pork-producer-aims-100-per-cent-renewable-energy/8831190>
- ACCC (Australian Competition and Consumer Commission) (2017a) Retail Electricity Pricing Inquiry. Preliminary Report. Accessed at: <https://www.accc.gov.au/system/files/Retail%20Electricity%20Inquiry%20-%20Preliminary%20report%20-%202013%20November%202017.pdf>
- ACCC (2017b) Gas inquiry 2017-2020: Interim report. Accessed at: <https://www.accc.gov.au/system/files/Gas%20inquiry%20December%202017%20interim%20report.pdf>
- AEMC (Australian Energy Market Commission) (2017) 2017 Residential Electricity Price Trends. 18 December 2017. Accessed at: <https://www.aemc.gov.au/sites/default/files/content/bf56a5d5-e2b2-4c21-90ed-79dda97eb8a4/2017-Residential-Electricity-Price-Trends.pdf>
- ARENA (Australian Renewable Energy Agency) (2016) Mining success marks turning point for off-grid renewables. 8 June 2016. Accessed at: <https://arena.gov.au/news/mining-success-marks-turning-point-for-off-grid-renewables/>
- ARENA (2017) The Business of Renewables. Accessed at: <https://arena.gov.au/assets/2017/07/AU21476-ARENA-Corporate-Report-REVISED-v1-1.pdf>
- Austchilli (2018), personal communication, <http://www.austchilli.com.au/>
- Australian Industry Group (2017) Energy Shock: No Gas, No Power, No Future? Accessed at: http://cdn.aigroup.com.au/Reports/2017/Energy_shock_report_Feb2017.pdf
- Baker McKenzie (2018) The Smart Power Revolution: Opportunities and Challenges. Accessed at: <https://www.bakermckenzie.com/-/media/files/insight/publications/2018/03/smart-power-thought-leadership-report.pdf?la=en>
- Bloomberg (2017) Why Energy-Rich Australia Suffers the World's Priciest Power. 6 October 2017. Accessed at: <https://www.bloomberg.com/news/articles/2017-10-05/how-energy-rich-australia-ended-up-with-world-s-priciest-power>
- BNEF (Bloomberg New Energy Finance) (2017) BNEF Research - New coal the most expensive form of new supply 3 February 2017.
- City of Port Phillip (2017) Australian first: Melbourne powers ahead with wind farm. 23 November 2017. Accessed at: <http://www.portphillip.vic.gov.au/melbourne-renewable-energy-project-media-nov2017.pdf>
- Climate Council (2017) Pollution and Price: The Cost of Investing in Gas. 19 April 2017. Accessed at: <https://www.climatecouncil.org.au/price-of-gas>
- Dobinson's Spring and Suspension (2018), personal communication, <https://www.dobinsonsprings.com/>
- Energy Security Board (2017) Energy Security Board Advice: The National Energy Guarantee. 20 November 2017. Accessed at: <http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/Report%20on%20the%20National%20Energy%20Guarantee.pdf>
- Government of South Australia (2017) Port Augusta Solar Thermal to boost competition and create jobs. News releases - Jay Weatherill. Accessed at: <https://www.premier.sa.gov.au/index.php/jay-weatherill-news-releases/7896-port-augusta-solar-thermal-to-boost-competition-and-create-jobs>
- Greater Shepparton City Council (2016) Environmental loans enable business savings. 18 November 2016. Accessed at: <http://greatershepparton.com.au/whats-happening/news/news-article/!456/post/environmental-loans-enable-business-savings>
- Green Energy Markets (2018) Renewable Energy Index – March 2018. 18 April 2018. Accessed at: http://greenmarkets.com.au/images/uploads/Resources/RE_Index/Renewable_Energy_Index_-_Mar_2018.pdf
- NEXTDC (2018), personal communication, <https://www.nextdc.com/>
- One Step Off Grid (2018) Brewer CUB aims to go 100% solar by end of 2018. 21 March 2018. Accessed at: <http://onestepoffthegrid.com.au/brewer-cub-contracts-112mw-solar-farm-way-100-renewables/>
- Our Energy Future (2018) Solar for business: Why choose solar? Accessed at: <https://ourenergyfuture.org.au/solar-for-business/>
- Premier of Victoria (2017) More Than 1,300 Sweet Jobs For Stawell's Nectar Farms. 27 June 2017. Accessed at: <https://www.premier.vic.gov.au/more-than-1300-sweet-jobs-for-stawells-nectar-farms/>

Image Credits

RenewEconomy (2017a) Sun Metals says new solar farm will underpin zinc refinery expansion. 17 May 2017. Accessed at: <http://reneweconomy.com.au/sun-metals-says-new-solar-farm-will-underpin-zinc-refinery-expansion-28753/>

RenewEconomy (2017b) If Glencore wants cheap energy for Mt Isa, it should go solar. 30 May 2017. Accessed at: <https://reneweconomy.com.au/if-glencore-wants-cheap-energy-for-mt-isa-it-should-go-solar-25999/>

RenewEconomy (2017c) Whyalla steel city goes green with 1GW of solar and storage. 30 October 2017. Accessed at: <http://reneweconomy.com.au/whyalla-steel-city-goesgreen-with-1gw-of-solar-and-storage-92904/>

RenewEconomy (2018) Australia's biggest solar farm about to begin commissioning. 1 May 2018. Accessed at: <https://reneweconomy.com.au/australias-biggest-solar-farm-about-to-begin-commissioning-89615/>

RE100 (2018) RE100. Accessed at: <http://there100.org/>

Sandfire Resources NL (2018) Solar Power Project. Accessed at: <http://www.sandfire.com.au/operations/degrussa/solar-power-project.html>

Smart Commercial Solar (2018) ProTen: Our Largest Single Site Installation. Accessed at: <https://www.smartcommercialsolar.com.au/pro-ten/>

SMH (Sydney Morning Herald) (2017) Australia's energy trainwreck: How we ended up with the world's highest power bills. 6 October 2017. Accessed at: <https://www.smh.com.au/business/australias-energy-trainwreck-how-we-ended-up-with-the-worlds-highest-power-bills-20171006-gyvdc.html>

Sustainable (2017) Australian big business missing out on renewable energy opportunities. 4 August 2017. Accessed at: <http://sustainable.com.au/2017/08/04/australian-big-business-missing-renewable-energy-opportunities/>

SunWiz (2018) 2018 – Can Australian PV keep up the pace set by 2017's record breaking year. 12 January 2018. Accessed at: <http://www.sunwiz.com.au/index.php/2012-06-26-00-47-40/73-newsletter/429-2018-canaustralianpv-keep-up-the-pace-set-by-2017-s-recordbreaking-year.html>

Sustainable Melbourne Fund (2017) ARENA expands SMF partnership, growing councils offering innovative sustainable finance. 15 August 2017. Accessed at: <http://sustainablemelbournefund.com.au/arena-expands-smf-partnership-growing-councils-offering-innovative-sustainable-finance/>

Sustainable Melbourne Fund (2018) Sustainable Melbourne Fund. Accessed at: <http://sustainablemelbournefund.com.au/>

Tip Top Butchers (2018), personal communication, <https://tiptopbutchers.com.au/>

Zen Energy (2017) Whyalla's not a ghost town, it's the centre of a green industrial revolution. 21 September 2017. Accessed at: <https://www.zenenergy.com.au/blog/whyallas-not-a-ghost-town-its-the-centre-of-a-green-industrial-revolution/>

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