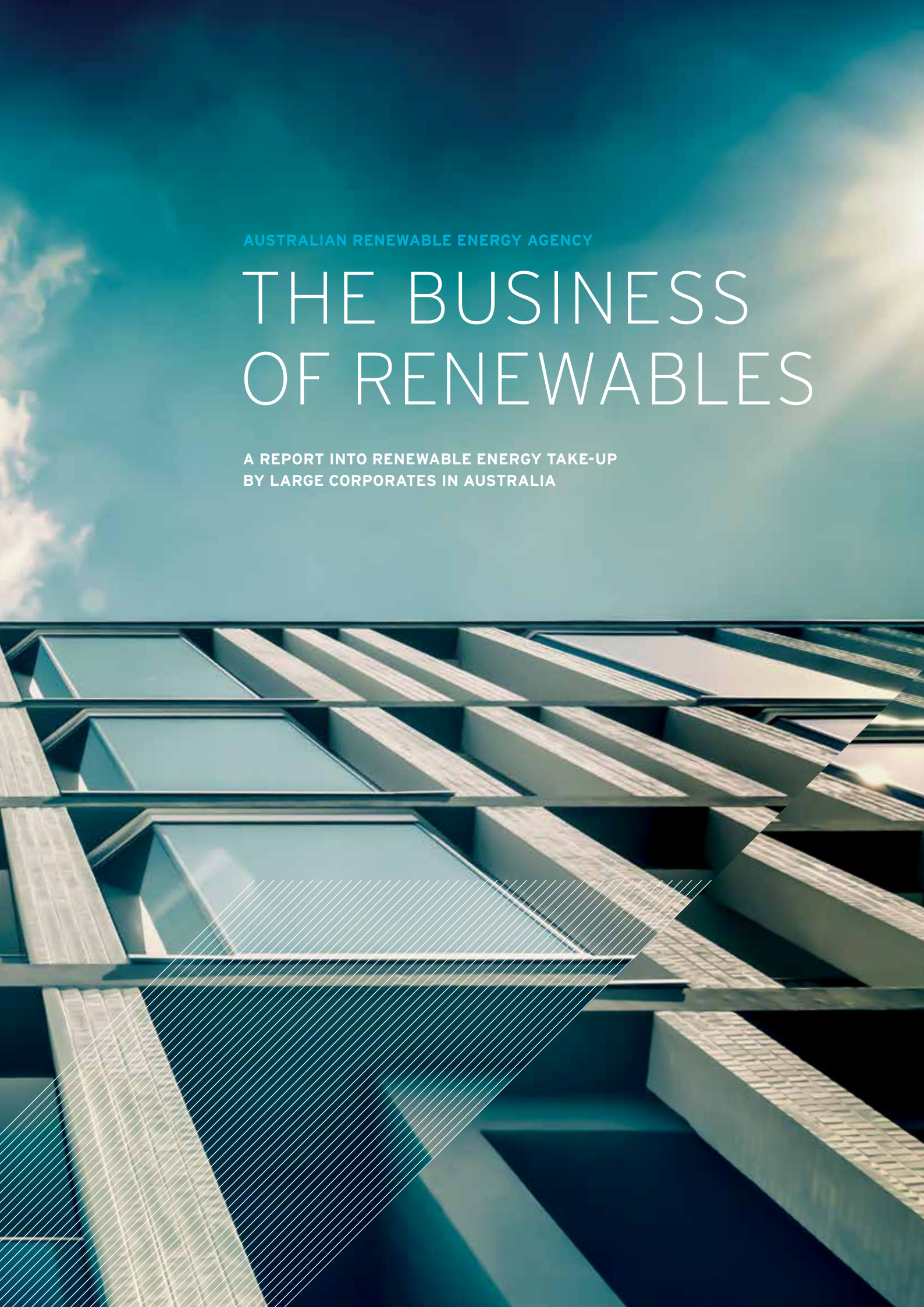


AUSTRALIAN RENEWABLE ENERGY AGENCY

THE BUSINESS OF RENEWABLES

A REPORT INTO RENEWABLE ENERGY TAKE-UP BY LARGE CORPORATES IN AUSTRALIA

OUR FUNDING HELPS FIND A GOOD RENEWABLE ENERGY IDEA AND GET IT TO MARKET

ABOUT ARENA

On behalf of the Australian Government, ARENA is working to accelerate Australia's shift to affordable and reliable renewable energy.

We collaborate with industries and innovators to make renewable energy affordable and reliable for all Australians.

Our role is to support the development of local renewable energy technology by helping bring the best ideas to life.

We provide funding for researchers, developers and businesses to demonstrate the feasibility for ARENA and potential commercialisation of their project. Our funding helps find a good renewable energy idea and get it to market.

We build and support networks, and share the knowledge, insights and data from our funded projects to help people doing things for the first time to learn from each other's experiences.

Our success can be measured by improved performance in renewable energy systems and technology, cost effectiveness, an invigorated economy and a reliable supply of renewable energy to all Australians.

WE WANTED TO UNDERSTAND WHY AUSTRALIAN BUSINESSES APPEAR TO BE FALLING BEHIND THEIR GLOBAL PEERS

EXECUTIVE SUMMARY

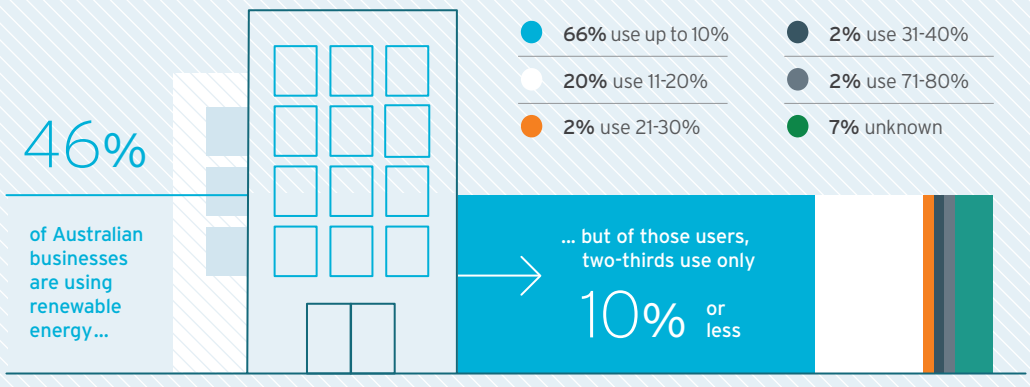
In a first of its kind study, ARENA has examined how Australian corporates are doing when it comes to using and investing in renewable energy. In particular, we wanted to understand why Australian businesses appear to be falling behind their global peers.

In the US, for example, nearly two-thirds of Fortune 100 and nearly half of Fortune 500 companies have set ambitious renewable energy or related sustainability targets. Seven of the world's largest companies have said they are aiming to be powered by 100% renewables in the medium to long-term. Australian businesses have nowhere near this level of uptake.

So we spoke with executives from more than 90 of Australia's largest public and private companies (ASX200 and top 200 private) to find out where Australian corporates are at on renewables, what's holding them back or propelling them forward, and their plans for the future.

And to see whether companies and their customers were on the same page, we also spoke with Australian consumers about their willingness to pay for services and products made using renewable energy.

Take-up of renewables by Australian business



Here's what we found

- Just under half (46%) of big businesses in Australia currently use renewable energy, but the usage is low – renewables make up less that 10% of the energy mix for the majority (61%) of these users
- But there's confusion around the cost benefit of renewables: companies that make 10% or less of the energy mix for the majority (66%) of these users say cost is the main driver, whereas companies that don't use renewables say cost is the biggest barrier. They both can't be right, can they?
- Corporates are out of step with what customers want:
  - Most corporates (57%) think that customers have no expectations around renewables
  - But eight out of ten Australian consumers believe big businesses should be using more renewable energy
  - More than three-quarters (76%) of consumers said they would choose a product or service made with renewable energy over a comparable one that wasn't
  - Almost two-thirds (64%) said they would pay a premium for products made with renewable energy

Top 3 reason for using more renewables

1. It costs less
2. Can better manage risk
3. Improved social licence

Top 3 reasons for not using renewables

1. It costs more
2. Competing priorities
3. Lack of knowledge

What does this mean for big businesses?

A significant proportion of Australian corporates are missing an opportunity to capitalise on the considerable medium to long-term benefits from renewable energy.

If they stand on the sidelines for too long, they risk falling behind their competitors, both locally and internationally, in terms of saving on energy costs, reaching sustainability targets and meeting changing customer expectations.

There is a substantial knowledge gap among many corporates about the true cost savings of, and demand for, renewable energy that's preventing them from making rational long-term investment decisions in the best interests of both shareholders and customers.

Leading business thinkers have identified five steps for corporates to create a robust energy strategy that leads to competitive advantage.

Five steps to build a renewable energy business case

1. Start with a C-level mandate
2. Integrate energy into the company's vision and operations
3. Track energy at all levels
4. Shift to renewables and other advanced technologies
5. Engage key stakeholders (including customers) around energy

REPORT FINDINGS 1

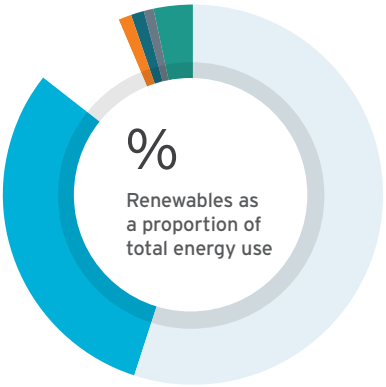
AUSTRALIAN CORPORATES ARE MISSING AN OPPORTUNITY TO CAPITALIZE ON THE CONSIDERABLE BENEFITS OF RENEWABLE ENERGY

CURRENT USAGE

Almost half of corporates use renewables, just not very much

Renewable energy is popular among Australian corporates, with just under half (46%) saying they use it.

But those that do use it aren't using very much. Two-thirds of users say that renewables make up less than 10% of their total energy mix and most have been using renewables for less than six years.



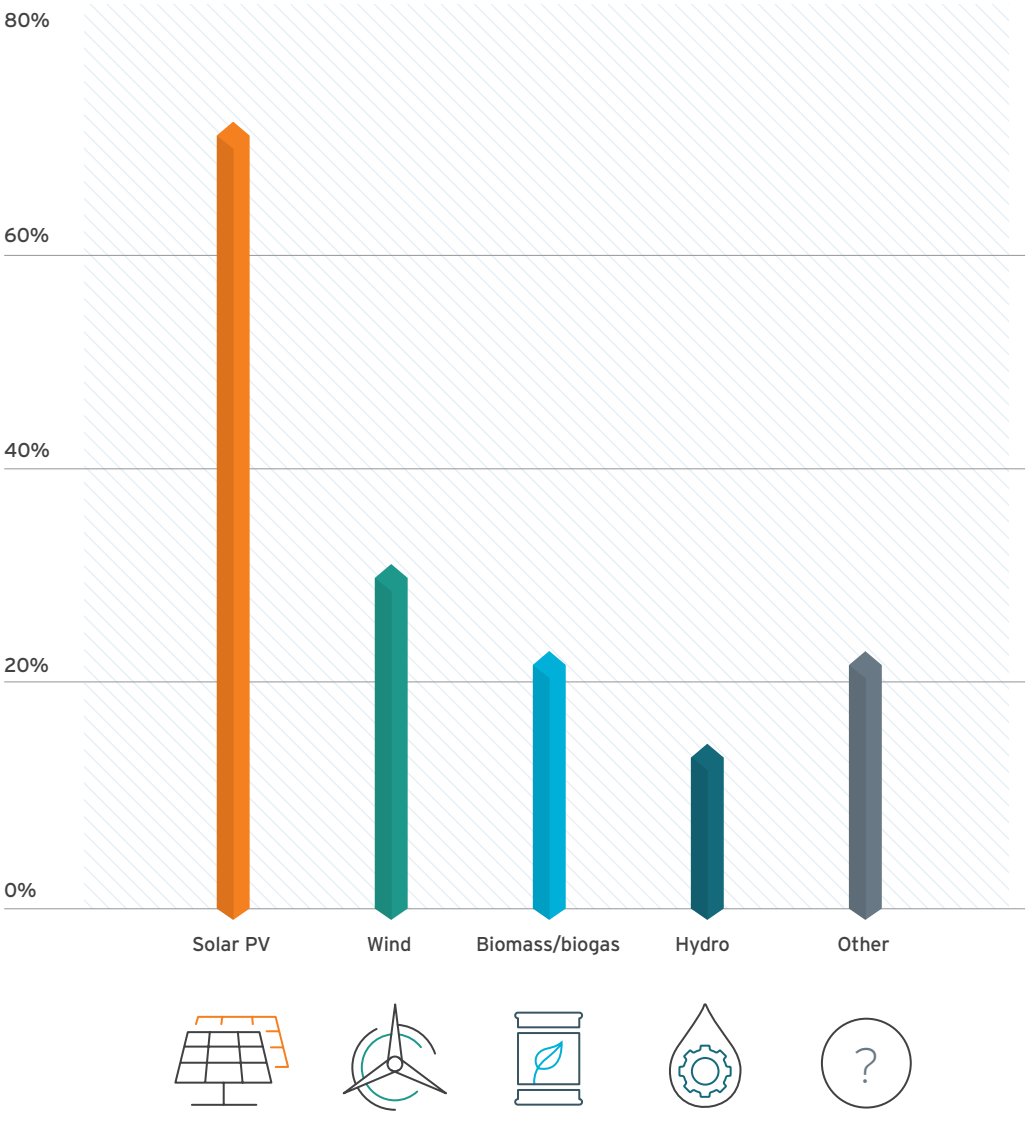
54% Non-users	**0%** use 61-70%
30% use 0-10%	**1%** use 71-80%
8% use 11-20%	**0%** use 81-90%
1% use 21-30%	**0%** use 91-100%
1% use 31-40%	**3%** unknown
0% use 41-50%	
0% use 51-60%	

Interestingly, no particular industry stood out as being either a high or low user of renewables: there's an even mix of users and non-users in mining, construction, agriculture, finance, and others.

Corporate users/non-users of renewable energy by industry in the survey:

Agriculture and Food (7/7), Construction (7/7), Information, Communication and Media (5/4), Mining (4/5), Financial and Insurance services (4/5), Real estate (4/4), Transport, Postal and Warehousing (3/4), Manufacturing (3/5) and Others (5/10).

What kinds of renewable energy are businesses using?*



*Totals add up to more than 100% because some companies use more than one source of renewable energy.

Solar PV the preferred choice for business

The most popular source of renewable energy for Australian business is solar PV, with over 70% of users having it in their energy mix. Wind energy is the next most common, followed by biomass/biogas.

Companies say they prefer solar because of its quicker financial break-even compared to other technologies, as well as its ease of installation and long equipment life cycle.

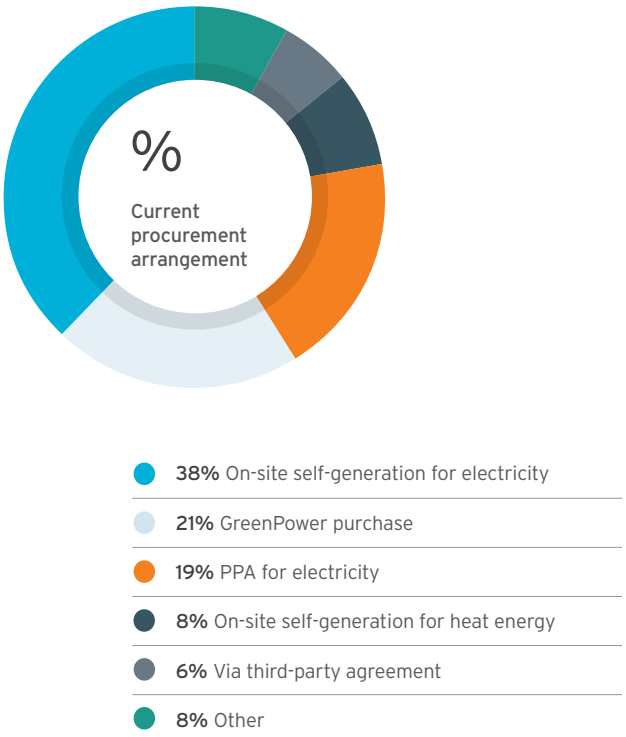
Biomass/biogas is popular among businesses in agriculture, food manufacturing and construction because it allows them to recover waste and effluent and convert it to energy on-site.

Almost two-thirds of users have only a single source of renewable energy.

Doing it for themselves: on-site generation #1 choice

The most popular procurement arrangement for users to get their renewable energy is on-site generation. Almost twice as many choose on-site generation over GreenPower Purchase or Power Purchase Arrangements (PPA).

However the type of arrangement used depends on the source. On-site generation is most likely to be used for solar, biomass/biogas and hydro, and GreenPower for wind. PPAs are used for 20-25% of procurements across all types of renewables.



FUTURE USE & INVESTMENT

Financial benefits are driving uptake

The primary reason behind the decision to use more renewables is the cost saving and improved ROI compared to conventional energy.

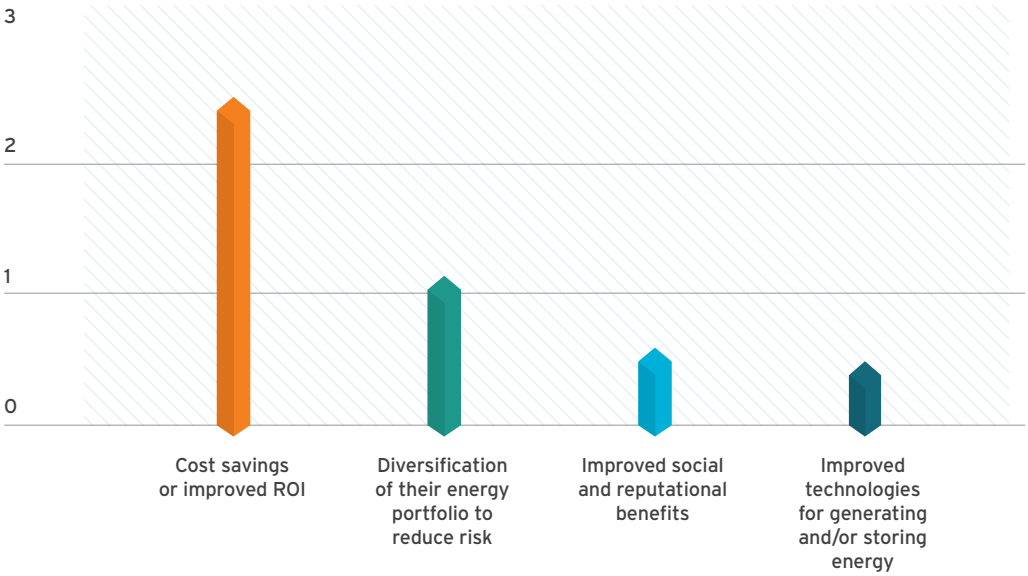
Simply, Australian businesses are turning to renewables because it makes good business sense to do so.

This is a view shared by both current users of renewables as well as those that plan to use renewables for the first time in the near future.

Not only can renewables deliver cheaper energy compared to conventional sources, they can help companies manage the volatility associated with gas and electricity prices and supply in Australia.

While cost is far and away the biggest driver, companies also cite the need to better manage risk through a more diversified energy portfolio, improved social licence, and improvement in technologies for generating and storing renewable energy.

Top 4 drivers for using more renewable energy (weighted out of 3)



"TECHNOLOGICAL ADVANCES ARE REDUCING COSTS AND BRINGING RENEWABLE ENERGY SOLUTIONS IN LINE WITH OUR MINIMUM INVESTMENT HURDLES"

SURVEY RESPONDENT

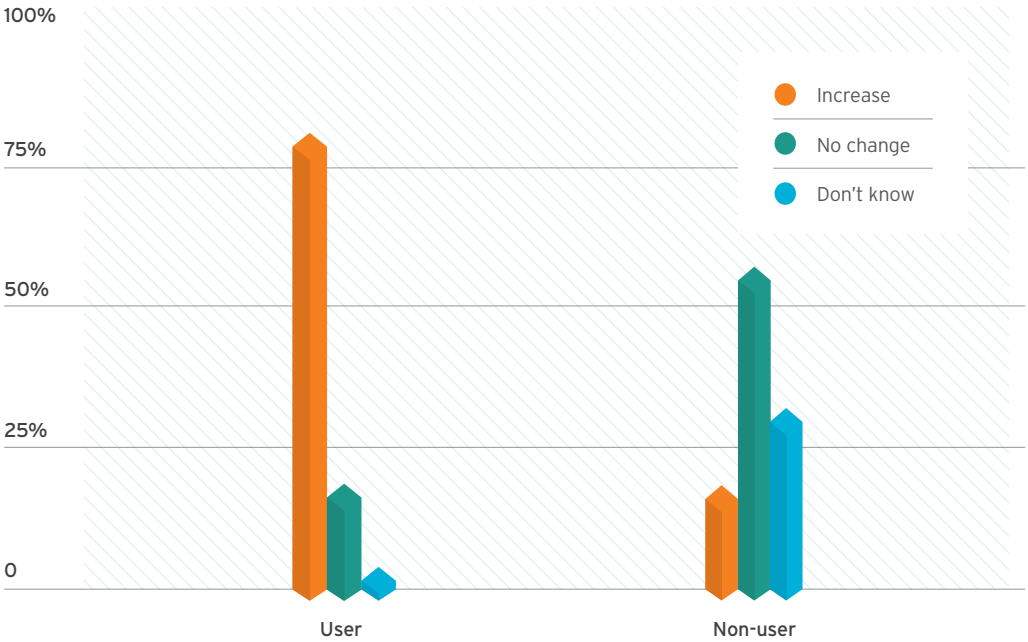
Half plan to use more renewables – and the more you use, the more you want

Almost half of Australian corporates intend to increase their use of renewable energy in the next 12-18 months, while more than a third expect no change.

But intentions to use more renewables depends a lot on whether the company is already a user. Almost 80% of current users intend to use more, whereas more than half of non-users have no intention to start.

The fact that the vast majority of companies using renewables want to use more suggests they are happy with their decision to bring renewables into their energy mix.

Future renewable energy intentions (%)



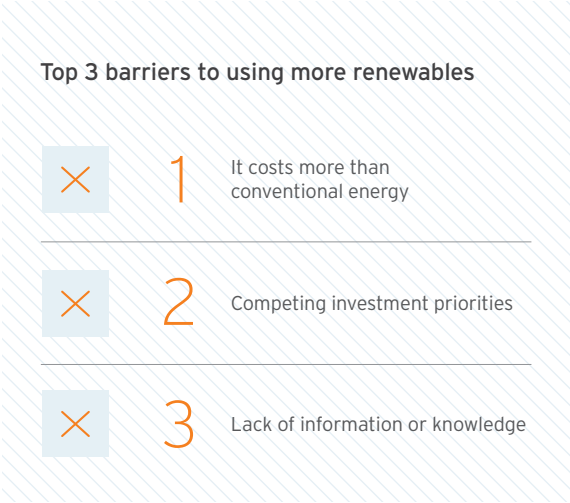
‘It probably costs too much; we just haven’t thought about it’

On the other hand, over one-third of the companies in our survey said they have no intention to increase their usage of renewables in the next 12-18 months. Most of these companies currently use no renewable energy.

They said the main barriers to the uptake of renewable energy were costs, followed by competing investment priorities and lack of information or knowledge.

Paradoxically, renewable energy also seems to compete with other sustainability policies, such as energy reduction or efficiency programs. It may be that companies believe these programs require less up-front outlay and faster ROI compared to investments in renewable energy.

When we asked companies about the reasons behind their decision not to pursue renewables, there were mixed responses. Some said they have weighed up the costs and benefits and decided against it, while others are yet to reach a decision. However, the majority admitted that they have just not considered renewables as an option.



Confusion around costs

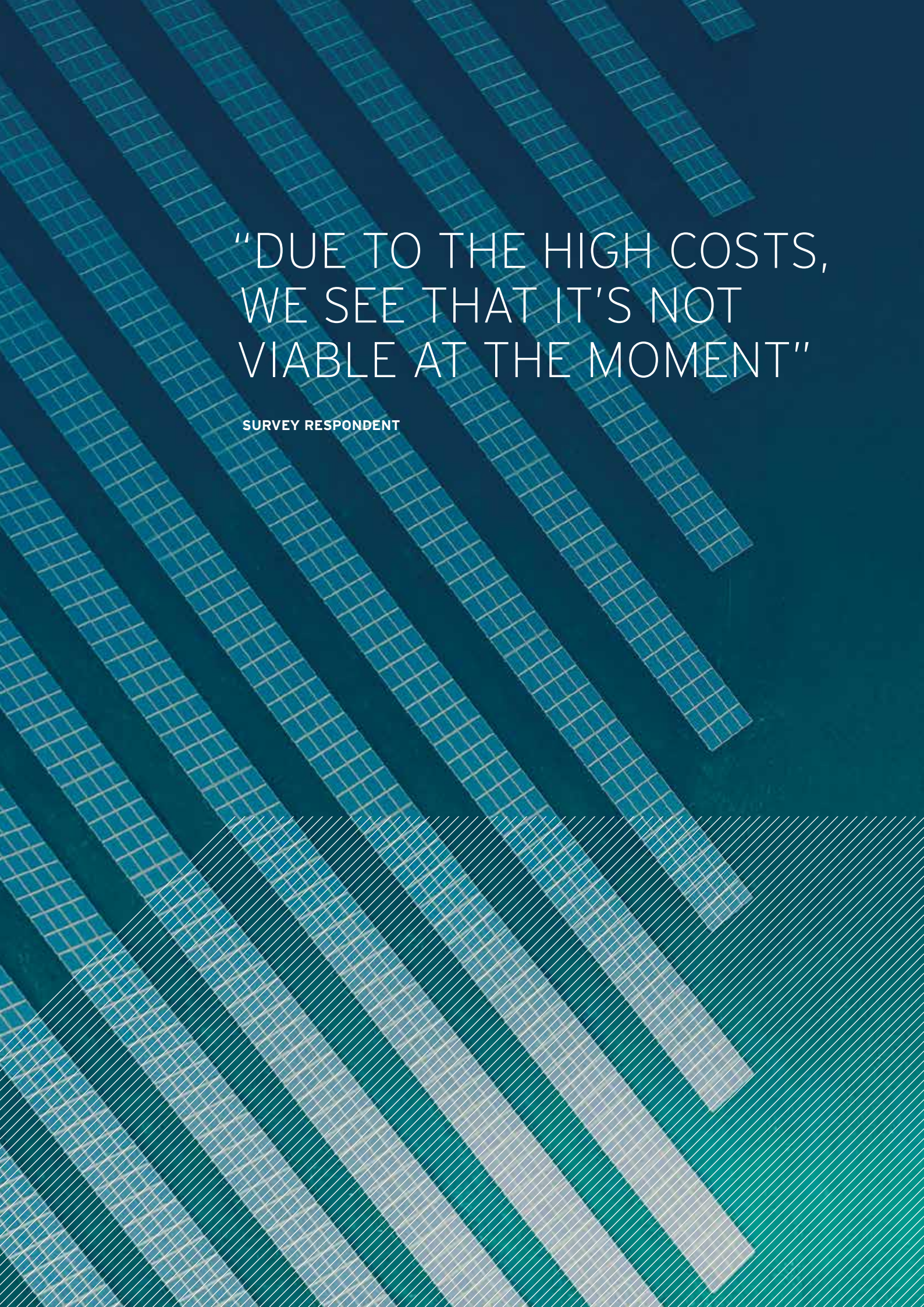
There appears to be some confusion among Australian corporates about the costs and benefits of renewables. And the perspective depends on whether or not the company plans to use more.

Companies planning to use more renewable energy are doing so for the financial benefits, while businesses with no intention to use renewables say it's because it's too expensive.

They can't both be right, can they?

This mismatch may be simply a case of familiarity. Companies already using renewables would likely have conducted in-depth cost-benefit analyses and therefore would be more familiar with the financials of renewable energy compared to those that have never used it. And companies with no intention to use renewable do cite lack of knowledge as one of their top three barriers.

It may also depend on the industry in which they operate. For example, companies that use lots of energy – such as those in mining, manufacturing and agriculture – are more likely to monitor and be aware of the cost of different types of energy. Interestingly, these industries are also the most likely to see benefits in using renewables to mitigate energy supply risks.



"DUE TO THE HIGH COSTS, WE SEE THAT IT'S NOT VIABLE AT THE MOMENT"

SURVEY RESPONDENT

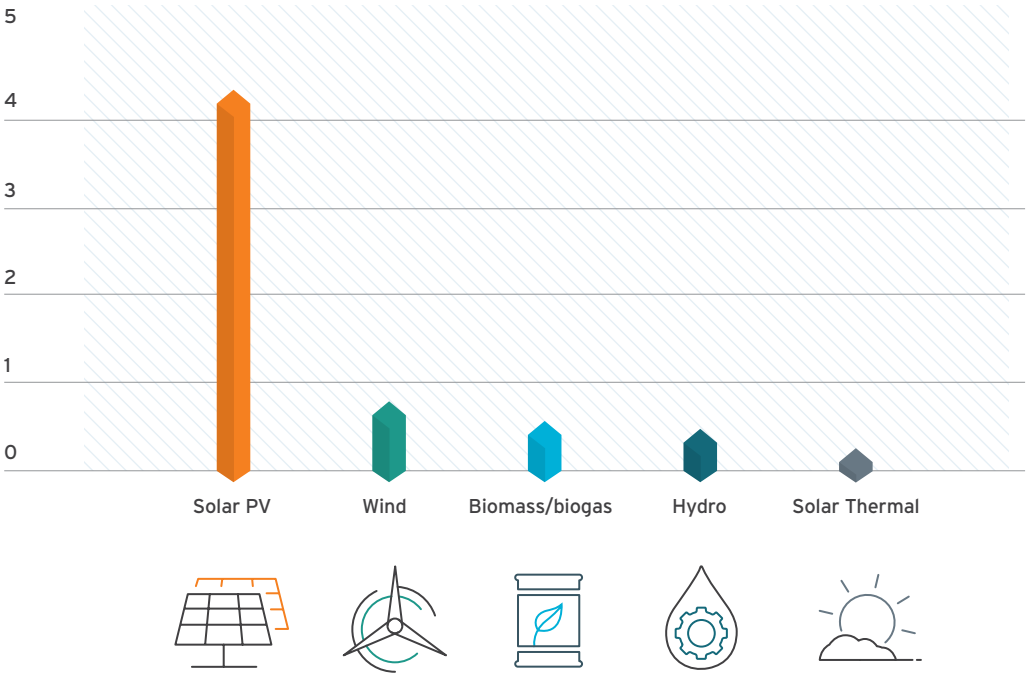
The future looks solar

Solar PV is the most popular choice for future investment. Over 80% of companies planning to increase their uptake of renewables in the near future are prioritising this technology.

One of the main drivers for choosing solar is its plummeting cost. Between 2010 and 2015 the cost of solar PV dropped 58%, and could fall by the same amount again by 2025.[1]

While wind energy is expected to be one of the major sources of renewable energy to the national grid, it's not as cost effective for on-site generation compared to solar PV.

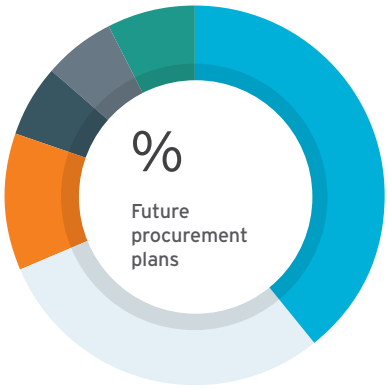
What renewables do companies intend to use in the next 12-18 months? (weighted out of 5)



1 IRENA (2016). The power to change: Solar and wind cost reduction potential to 2025. [http://www.irena.org/DocumentDownloads/Publications/IRENA_Power_to_Change_2016.pdf]

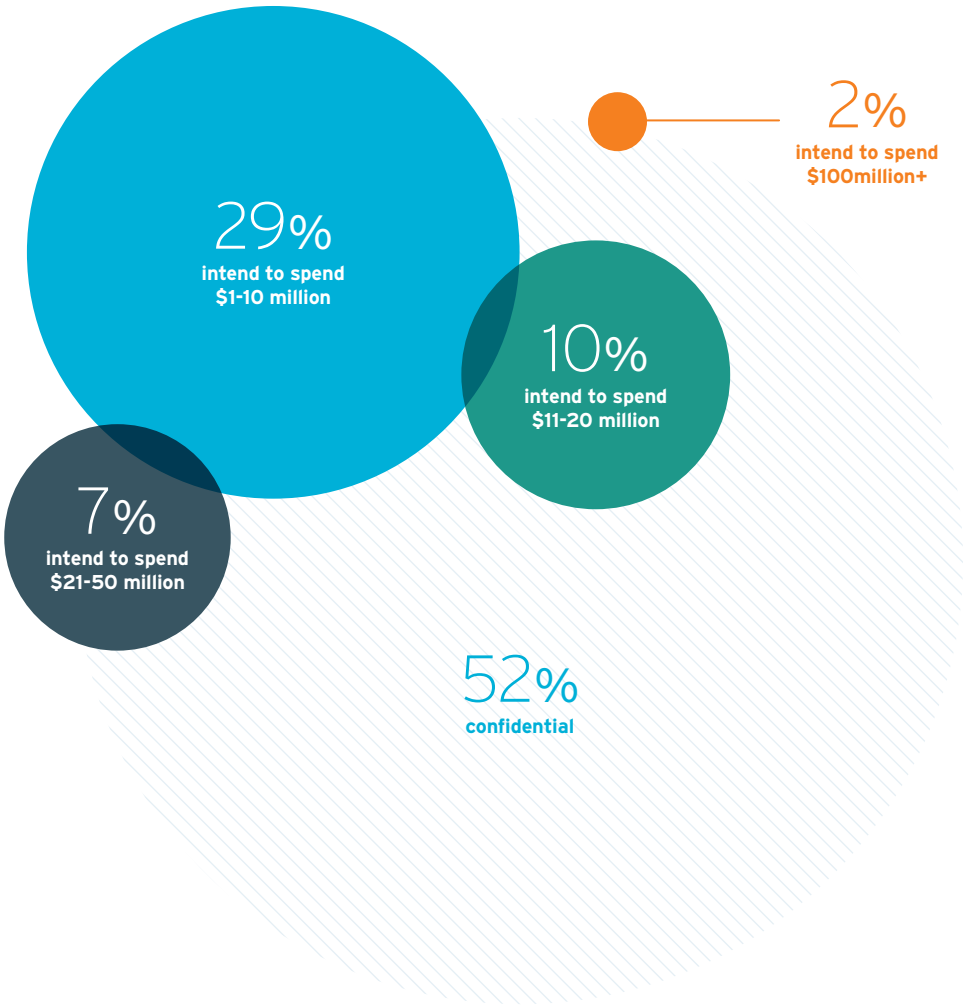
The most popular arrangement for corporates that currently use renewables and aim to use more is on-site generation, whereas companies using renewables for the first time say they plan to use PPAs.

Our research suggests that PPAs offer a good entry point for businesses wanting to go down the path of renewable energy as this type of arrangement is considered to offer more flexibility than GreenPower purchases.



- **64%** On-site self-generation for electricity
- **48%** PPA for electricity
- **19%** GreenPower purchase
- **10%** Off-site self-generation for electricity
- **10%** Via third-party agreement
- **12%** Other

What is the planned spend of Australian businesses investing in renewable energy?



Putting your money where your mouth is: investment outlook is positive

We asked companies looking to increase their use of renewables how much money they actually plan to invest over the next 12-18 months.

Understandably, about half declined to answer on the basis of commercial confidentiality or because budgets were still being finalised.

But of those that did respond, the majority expect to spend in the order of $1-$10 million. All of these companies say they are prioritising on-site generation or PPAs for solar PV.

Some companies, all of which happen to be in the construction industry, are looking to invest $11-$50 million, while another plans to invest more than a $100 million.

Based on this data, it's estimated that corporate renewable investment over the next 18 months in Australia could be in the range of $439-$910 million.[2]

The sectors most likely to be investing in renewable energy up to June 2018 in Australia are construction, mining, financial and insurance services, and agriculture and food processing.

2 This estimate is based on assumption that the investment by companies that declined to provide their spend on the basis of confidentiality would be the same, proportionately, as for those companies that did.

WHAT CUSTOMERS WANT

Companies work hard to understand the changing needs and behaviour of consumers. But when it comes to renewable energy, Australian businesses appear to be way out of step with their customers.

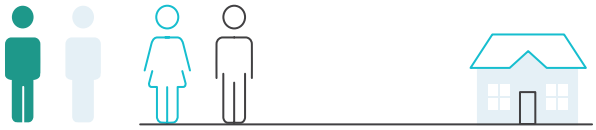
Most companies (57%) think customers have no expectations for them to use or increase renewables. But this is very different to what Australian consumers told us.

Not only do the majority of Australians believe big business should be using more renewable energy, most said they that if they had the choice they'd choose a product or service made with renewable energy over one that wasn't.

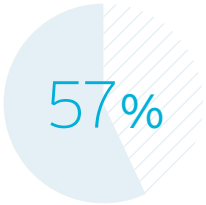
What businesses think their customers want vs. what they say they want (%)

Business

VS



Customers



of companies think their customers have **no** expectation for them to use renewables

80% Australian consumers believe big businesses should be using more renewable energy

76% would choose a product or service made with renewable energy over a comparable one that wasn't

64% would pay a premium for products or services made with renewable energy

‘And we’re willing to pay for it’

Almost two-thirds (64%) of consumers say they would also pay more for products or service made with renewable energy, as opposed to energy from fossil fuels. Over a third would pay 1-5% more and another 28% would pay over 5% extra.

Age and demographics have an impact on people’s view of corporate Australia’s use of renewables. Despite being highly cost conscious, younger Australian’s are the most willing to spend extra to have their products and goods made with renewable energy. Almost one-quarter of 18 to 29 year olds are willing to pay more than a 10% premium for it.

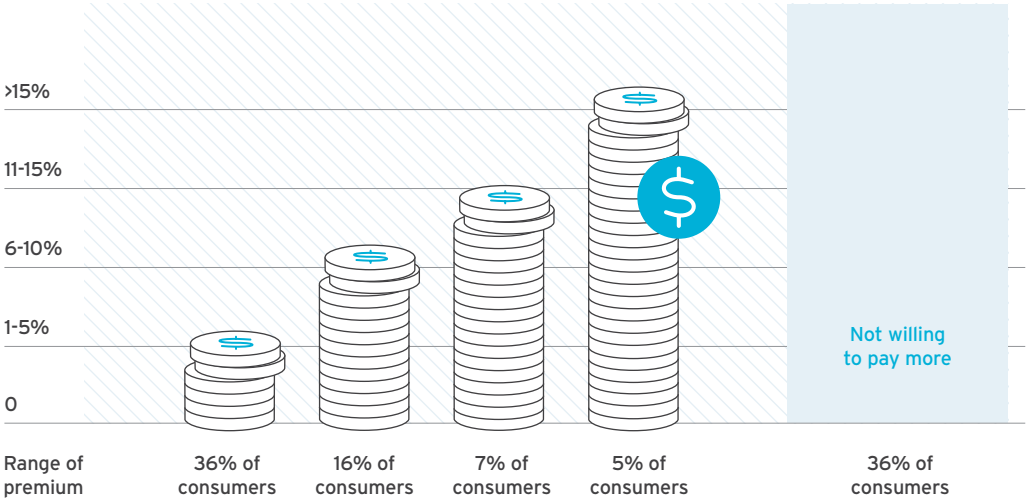
Companies using renewables more aligned to customers, recognise impact on brand

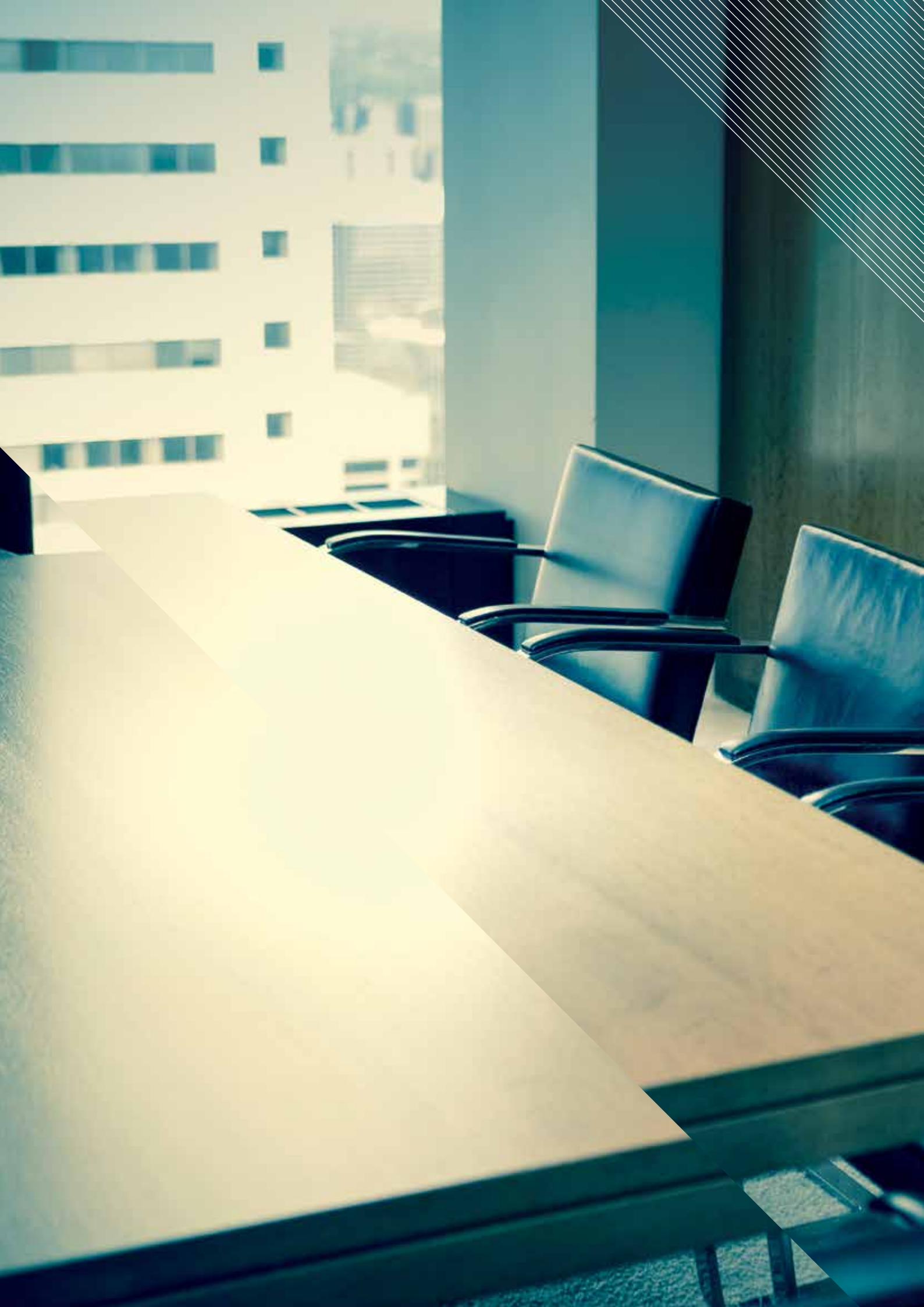
Interestingly, corporates that already use renewable energy are more closely aligned to current trends. Almost two-thirds recognise that customers expect them to either consider or use renewables.

And they’re also more likely to believe that using renewables will have a positive impact on their company’s brand.

It appears businesses that use renewables have tapped into the pulse of consumers more accurately than their non-using peers.

Will customers pay more if a company uses renewable energy? (%)





THE BUSINESS CASE FOR CORPORATE RENEWABLES

2

AUSTRALIAN CORPORATES RISK FALLING BEHIND THEIR INTERNATIONAL COMPETITORS

WHAT'S HAPPENING IN OTHER COUNTRIES

While it's difficult to compare directly corporate renewables in Australia with other markets, a range of evidence suggests that our large businesses are falling behind many of their global peers.

For example, research conducted in the US last year by PwC found that 72% of companies surveyed were actively pursuing additional renewable energy purchases. Compare this with our survey, which found only 46% of Australian corporates plan to increase their use of renewables in the short-term.

In fact, big corporations are becoming leading proponents for renewables. BNEF reports that seven of the world's largest companies[3] have renewables targets for the short to medium-term; and all are aiming to be 100% renewables in the long-term.

According to RE100, a global campaign to encourage companies to go 100% renewable, 87 of the world's leading companies, including IKEA, Walmart, Proctor and Gamble, Nestle, Nike, and Bank of America have also committed themselves to this goal.

Who's doing what? Renewables at some of the world's top companies

Microsoft	Currently purchase renewable power equivalent to 100% of electricity use; has installed 2,288 solar panels at its Mountain View campus in California
Apple	100% powered by renewables in 23 countries including China and the US, and is aiming for 100% in all countries; is building 200MW of solar in China
Google	Has a target of 100% renewable energy for it's operations, focusing on direct purchasing and on-site generation
Facebook	Aiming for 50% renewables in all data centres by 2018, and 100% in the long-term
Amazon	Aiming for 50% renewables for its web services arm by 2018, and 100% in the long-term; recently announced plans to build a 253MW wind farm in Texas
Wells Fargo	Has set a target of 100% renewable electricity for its global operation by 2017
Johnson & Johnson	Currently has 54MW of on-site renewable capacity and has set a target of 100% for all its facilities
Walmart	Aims to generate half its energy from renewable sources by 2025 (compared to 25% currently)
IKEA	Currently produces more than half of its energy from renewable sources: it operates over 300 wind turbines and has installed 700,000 solar panels on its stores and distribution centres, and plans to be a net exporter of renewable energy by 2020

3 Based on market capitalisation in 2015 financial year. Not all sectors are included in the peer comparison. Sectors were chosen if greater than one company in top 10, or if sector was of substantial interest (BNEF).

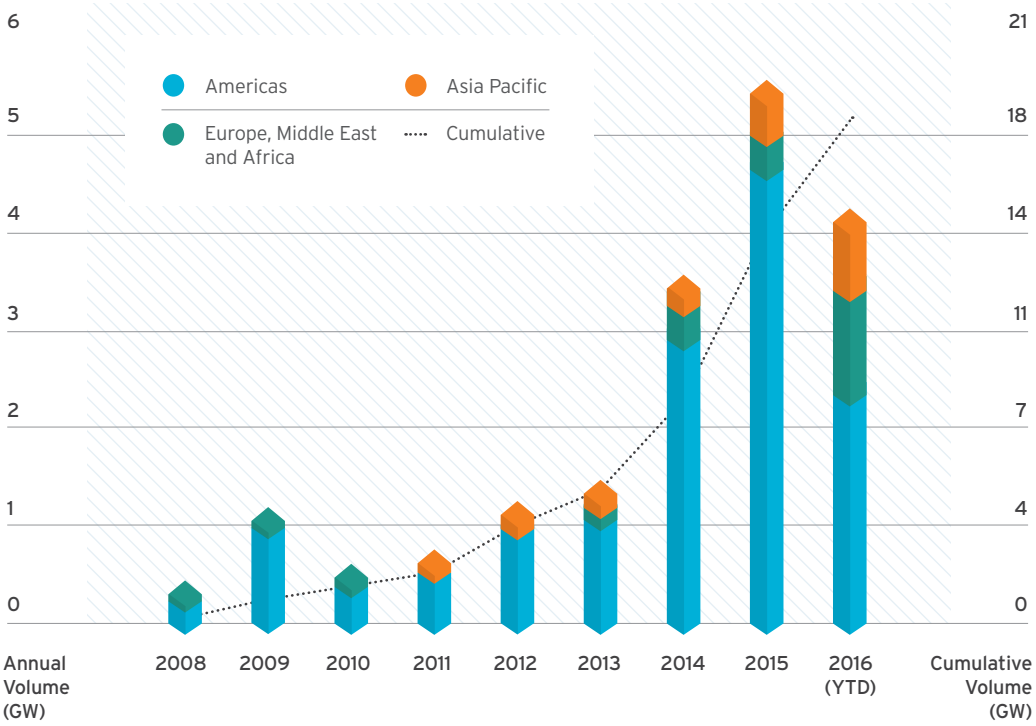
While some of the strongest growth is happening in the US and the EU, the momentum towards corporate uptake of renewables energy is evident in nearly all markets.

Tata Motors, India's largest automotive manufacturer, has recently committed to using renewables to supply 100% of its electricity – which is currently more than 390,000MW hours each year – by 2030.

In the UK, PPA deals have surged over 300% since 2013, and now total 687MW, or 37% of the corporate renewables deals in the Europe, Middle East and Africa (EMEA) region, according to BNEF.

In China, corporate renewable deals are being driven both by local companies, such as Broad Group and Elion, and Western companies like Apple, which are looking to increase the use of renewable energy in their local manufacturing operations.

Global Corporate PPAs by region and year 2008-16YTD (gigawatts)



CASE STUDY

GENERAL MOTORS

General Motors is a global automobile manufacturer that produces vehicles in 30 countries. The company has a 20-year history of using renewable energy, which dates back to it's first landfill gas project in 1995.

In 2005, GM added solar to it's renewables portfolio and in the last few years has signed PPAs for wind energy. The company currently uses 48MW of solar energy at 22 facilities.

GM says it saves $5 million annually from using renewable energy, a number it anticipates will increase as more projects come online and the supply of renewable energy increases.

GM plans to generate or source 100% of electrical power for its 350 operations in 59 countries with 100 percent renewable energy – such as wind, sun and landfill gas – by 2050.

"We believe, and continue to prove, there is economic opportunity in addressing climate change." David Tulauskas, GM's Director of Sustainability.

$5m

in savings annually from renewables

20yr

history of renewables

GM

http://there100.org/general-motors

CASE STUDY

APPLE

Apple currently powers all its operations in the US, China and 21 other countries with 100 percent renewable energy. In 2015, renewable energy powered 93 percent of its operations around the world.

Last year Apple joined global renewable energy initiative RE100, reaffirming its commitment to reaching 100 percent renewable energy across all it's operations worldwide.

Apple is also driving renewables into its manufacturing supply chain. The company is building 200MW of solar in China, starting with a 170MW solar project in Inner Mongolia, to begin offsetting its manufacturing emissions. It's also working with suppliers to install more than 4GW of new clean energy worldwide, including 2GW in China by 2020.

In the past five years, Apple claims to have reduced the carbon footprint of its facilities by 64 percent thanks to clean energy use, avoiding over 1 million metric tons of carbon emissions.

"Apple is committed to running on 100 percent renewable energy, and we're happy to stand beside other companies that are working toward the same effort." Lisa Jackson, Apple's Vice President of Environment, Policy and Social Initiatives.

93%

powered by renewables in 2015, aiming for 100%

64%

reduction in carbon emissions in last 5 years

http://www.apple.com/newsroom/2016/09/apple-joins-re100-announces-supplier-clean-energy-pledges.html

"THE COST OF SOLAR PV IS NOW COMPETITIVE WITH RETAIL RATES"

SURVEY RESPONDENT

INCREASING UPTAKE & INVESTMENT

Good business

It makes good business sense for companies to look at increasing their uptake of, and investment in, renewable energy.

Ongoing technological advances in design, materials and production, accompanied by a growing body of experience in planning, finance and installation are delivering cheaper, more reliable forms of renewable energy every year.

Sometimes the economic benefits to a company can be modest, and other times substantial. General Motors, for example, has reported saving US$5 million annually from using renewable energy, with this figure likely to increase significantly as future projects come online.

And while important, there's more to business than just the bottom line. Renewables help lower business risk, by reducing exposure to volatile fossil fuel prices and enabling companies to gain greater control over energy costs. They can also help firms strengthen their social licence to operate, meet customer needs and differentiate their brand.

The falling costs of renewables

A major driver for the uptake of corporate renewables around the world is the fact that sources like wind and solar are getting steadily cheaper.

According to BNEF, the cost of wind energy is already competitive with fossil fuels in many countries today, is expected to drop another 41% by 2040.

Even more notable is the declining cost of utility-scale solar, which is expected to fall 60% from the current $74-$220/MWh range to around $40/MWh in the same period.

In fact, in most countries solar will be the lowest cost generation technology by 2030, accounting for almost half of the new generating capacity added.

And of course, any unexpected hikes in the price of fossil fuels over the next couple of decades could see the value proposition for renewables rise even faster than predicted.

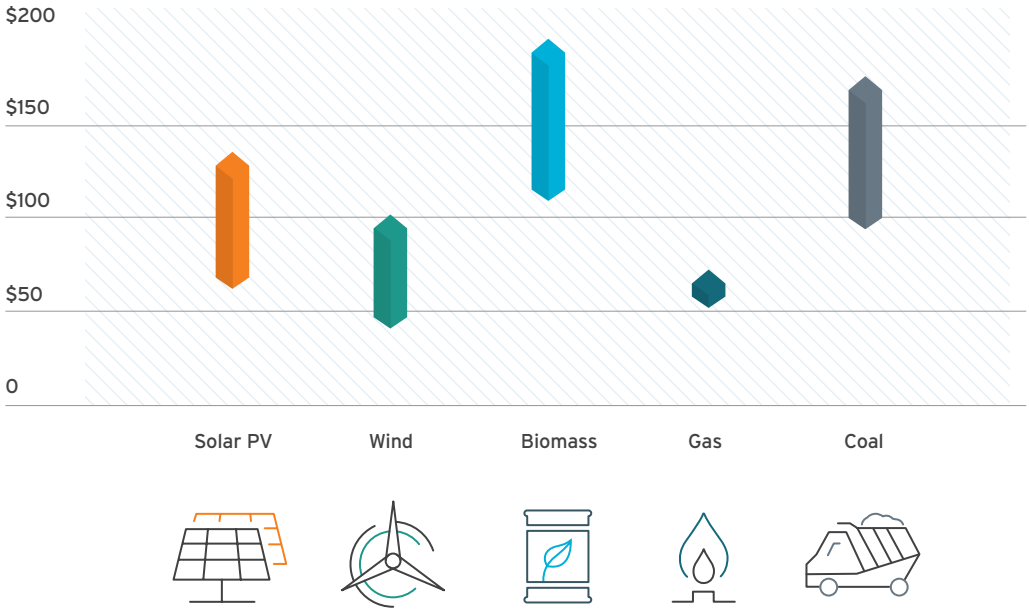
Managing volatility

Renewable energy sources, particularly when combined with storage technologies, like batteries, can help companies manage the volatility associated with gas and electricity prices and supply in Australia.

With both gas and electricity prices at record highs – and rising – this is a significant and growing issue for all corporates, not only those businesses that traditionally require large amounts of energy.

Unlike fossil fuels, the cost of renewable energy is known in advance, stable and locked in; it doesn't move around.

Levelised cost of electricity in Australia 2016 ($/MWh)



Source: Bloomberg New Energy Finance

Customers, brand and social licence to operate

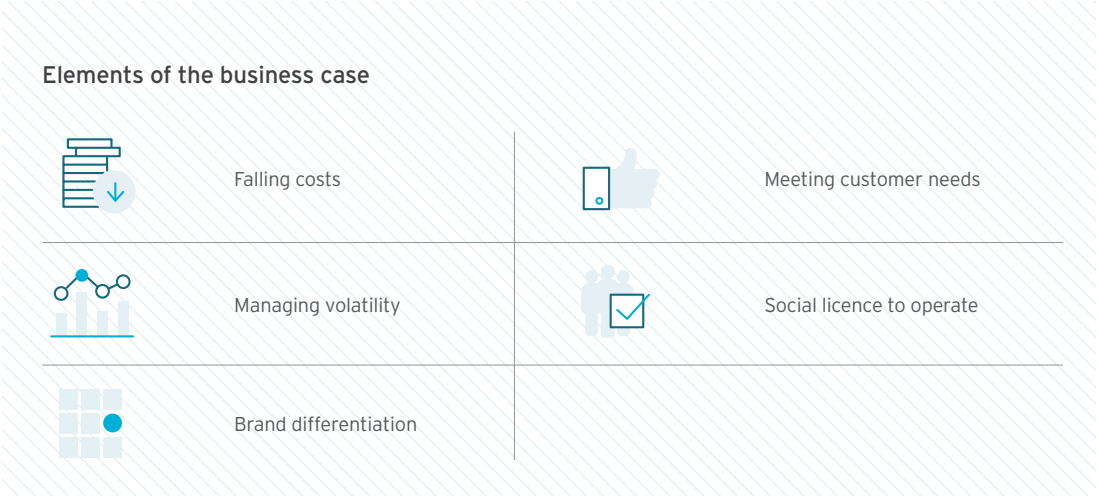
As our survey found, there's a real disconnect between what companies think their customer want, and what they actually want when it comes to renewables.

In today's increasingly competitive and digitised marketplace, where the competition is often just a click away, it's important for companies to respond to changing customer needs and behaviour. Businesses that can build renewables into their core business strategy, and communicate that to customers, should find themselves at a competitive advantage to their peers that do not.

Lifting their use of renewable energy can also help companies consolidate their sustainability credentials and strengthen their social licence to operate.

In a world where trust in business is falling, and pressure for good behaviour and transparency is rising, a social licence is no longer simply a 'nice to have', but a necessity.

Elements of the business case



RENEWABLES STRATEGY FOR THE C-SUITE

A recent article in the Harvard Business Review, *Energy Strategy for the C-Suite*,[4] argues that most firms approach energy as merely a cost to be managed. But this is a strategic mistake that overlooks the enormous opportunities to reduce risk, improve resilience and create new value.

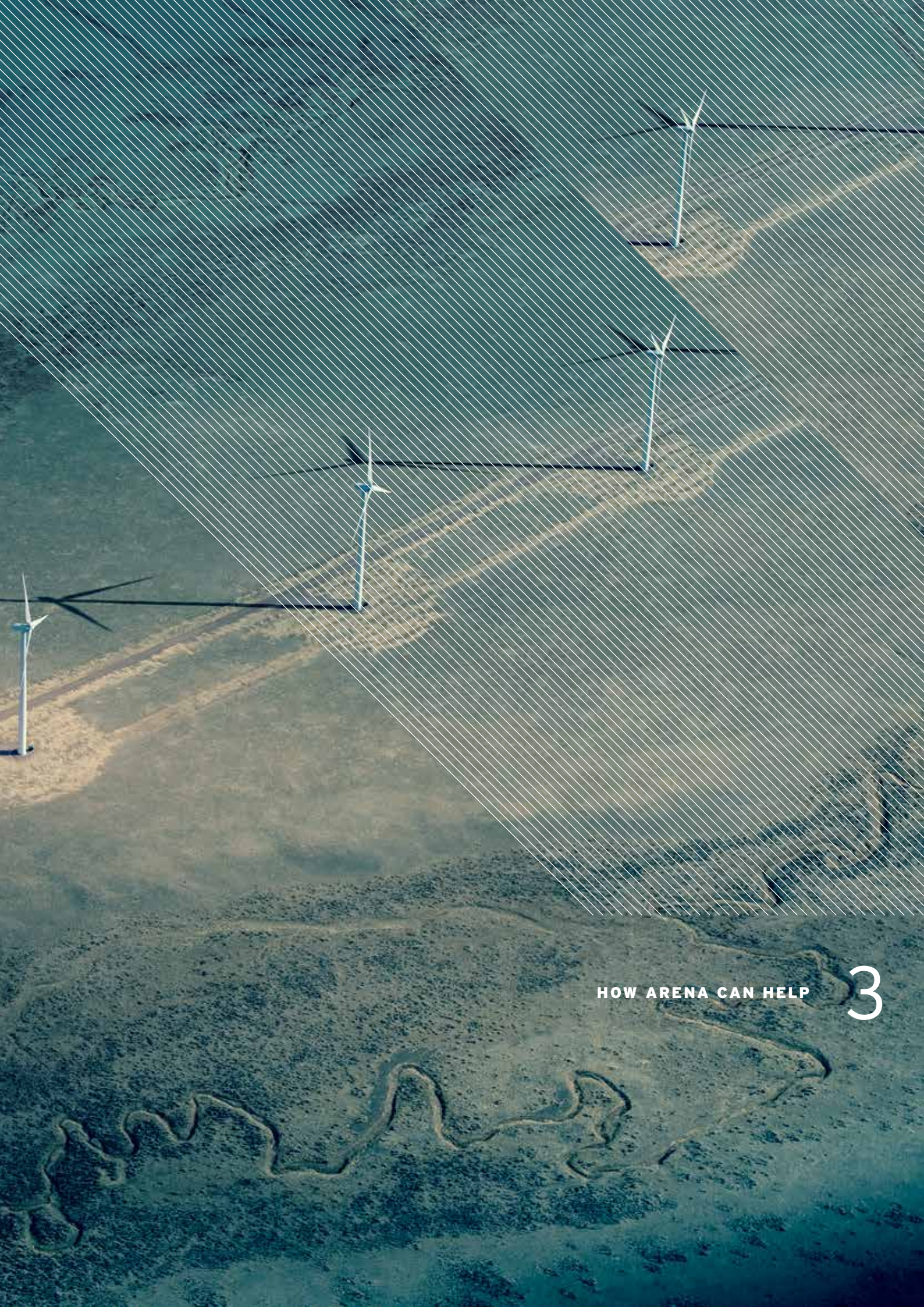
The authors identify five key steps in applying best practices to create a robust energy strategy that leads to competitive advantage.

Top business thinkers understand the importance of renewables, not only to energy strategy but also to company strategy more broadly. This explains why many of the world's leading brands are placing it at the heart of what they do and aiming to procure 100% of their energy from renewable sources.

So what's stopping Australia's big businesses from following suit? Clearly, misconceptions around costs and benefits are a major barrier; access to knowledge and information is another. It seems that many companies just don't realise the opportunity on their doorstep.

Five steps to build a renewable energy business case

4 *Energy Strategy for the C-Suite* by Andrew Winston, George Favaloro and Tim Healy. Harvard Business Review, January/February 2017.



HOW ARENA CAN HELP 3

ARENA HAS THE DUAL OBJECTIVES OF IMPROVING THE COMPETITIVENESS OF RENEWABLE ENERGY AND INCREASING SUPPLY OF RENEWABLE ENERGY IN AUSTRALIA

ARENA has $800 million until 2022 to invest in projects and initiatives that hasten the commercialisation of renewable energy solutions and diversify Australia's energy mix. Our investments span the commercialisation pathway from research and development to demonstration and pre-commercial deployment projects.

ARENA also shares knowledge to help the renewable energy industry, businesses and other stakeholders learn from each other's experiences.

Project funding

ARENA funds activities that are expected to advance renewable energy technologies towards commercial readiness, improve business models or reduce overall industry costs.

We take a portfolio approach to investments, providing grant funding along the innovation chain for ARENA from research in the laboratory to large-scale pre-commercial deployment activities.

ARENA's recently released investment plan, *Innovating Energy*, outlines the Agency's new funding priorities which include 'Improving Energy Productivity'. Under this priority, ARENA is looking for projects that:

- Accelerate improvement in energy productivity and adoption of renewable energy by industry
- Improve energy productivity in the transport sector, including electrification and switching to renewable fuels
- Integrating renewable energy into cross-sector value chains.

If part of your company's renewable energy strategy aligns with this investment priority and would help develop the industry as a whole, there may be the opportunity to consider a funding application. Refer to our Investment Plan or contact us to find out more.

Knowledge sharing

ARENA has learnt a lot since the agency was created four year ago. This knowledge is used to help develop renewable energy technologies that are best suited to Australia's diverse geography as well as the energy needs of our households and businesses.

We share this knowledge with industry, researchers, financiers and investors, governments and regulators, and the Australian community.

We're also tapped into a global network of knowledge providers, including the International Renewables Energy Agency (IRENA) and the Business Renewables Centre at the Rocky Mountains Institute in the US.

Companies interested in saving costs and managing volatility by incorporating renewables into their energy strategy can find helpful guides, tools, reports and models at our knowledge bank.

ABOUT THE SURVEY

Between September and December 2016 we spoke with executives from more than 90 of Australia's largest public and private companies (ASX200 and top 200 private) to find out where Australian corporates are at on renewables, what's holding them back or propelling them forward, and their plans for the future.

And to see whether companies and their customers were on the same page, we also spoke with Australian consumers about their willingness to pay for services and products made using renewable energy.

The following is a snapshot of the survey respondents.

Type of company

The 92 respondents were about evenly split between top 200 private and ASX200 companies.

53% private

47% ASX200

Industry

Respondents were from a broad range of industries across the Australian economy.

Agriculture, Forestry and Fisheries	14%
Construction	14%
Financial and Insurance services	9%
Information, Communication and Media	9%
Mining	9%
Manufacturing	8%
Real estate and rental hiring	8%
Transport, postal and warehousing	7%
Retail trade	6%
Electricity, gas, water, and waste services	3%
Art and recreation	3%
Accommodation and food services	1%
Administrative and support services	1%
Other services	1%

Roles and functional areas

Respondents were all executives that had responsibility for either making or influencing decisions about renewable energy, and worked in the following functional areas.

Environment & Sustainability	41%
Production & Operations	15%
Procurement & Supply Chain	14%
Property & Facilities	14%
Energy Generation & Procurement	7%
General Management	2%
Other	7%

Omnibus survey

A total of 1,032 Australians over the age of 18 years took part in the omnibus survey. The sample size was chosen to reflect the demographics of the Australian population in 2016.

MALE

101 18-29 years

187 30-49 years

211 50+ years

FEMALE

109 18-29 years

194 30-49 years

230 50+ years

31.2% Rural, regional or remote

68.8% Capital city

Further information is available at
arena.gov.au

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