

THOUGHT LEADERSHIP STUDY

Australian renewable energy investment trends and outlook

Creating value from capital flow

Introduction

Where to for Australian renewables, and what opportunities – and challenges – lie ahead?

Over the last few years, we’ve seen great enthusiasm towards investment in Australia – it’s an attractive place to invest in for a number of reasons, including political and regulatory stability and legal certainty. Our sectors need both local and foreign investment to thrive.

We’re delighted to partner with Acuris to deliver *Australian renewable energy: investment trends and outlook 2019*. In this report, we have taken a closer look at the renewable energy sector, and the findings were encouraging.

The team researched the opinions of renewable energy investors and industry specialists (based both in Australia and overseas) to gauge their opinions on the investment opportunities, trends and challenges in Australia.

We look at current and future investment levels, foreign investment trends and expectations, and examine barriers to investment in Australian renewables (like high valuations, tech disruptions, and political and regulatory challenges).

We have concluded that Australia’s renewable energy sector will continue to flourish over the next 12-24 months. Global investors recognise the great opportunities in the Australian market. International interest in the sector is strong which should encourage policy makers to ensure our regulatory settings remain globally competitive.

It’s an exciting time to be involved in this growing sector, and, together with our clients, we look forward to exploring where the next couple of years will take us. We hope the findings in this report will be helpful for you, and we welcome you to contact us to further explore some of these important issues.



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Contents

| | |
|----------------------------------------------------------------|----|
| Introduction | 2 |
| Executive summary | 4 |
| Quick facts | 6 |
| Introduction: A bright future for Australian renewable energy | 8 |
| Regulation and financing: Strong support amid other challenges | 14 |
| Australian renewables: Sub-sector rewards and risks | 22 |
| Inbound interest: Opportunities for offshore investors | 28 |
| Financing and corporate PPAs | 34 |
| Developing trends and the mid-to long-term outlook | 36 |
| Appendix | 40 |
| Conclusion | 41 |
| Methodology | 42 |

Executive summary

Australia's renewable energy sector is expected to continue to boom in the year ahead as a new wave of global investors are waking up to the market's abundant opportunities. In our survey of 100 renewable energy investors from Australia and abroad, 68% say they will increase investments in the year ahead.

A further 22% say they will at least maintain current investment levels and none are planning to decrease their spending. Clearly, international interest is strong as the Australian renewables space continues to grow.

Investors have reason to be positive. Australia is home to a number of noteworthy advantages, from a reputable legal system to climate and topography that are ideal for solar, wind and water projects. Equally, policy support at various levels of government is creating additional incentives for the sector.

As an inbound market, foreign investors are especially hopeful. Many are looking to Australia as saturation in their home markets pushes them further afield, using partnerships and strategic alliances to buy and build assets.

For European renewables investors, lacklustre growth within the eurozone and an increasingly competitive market are creating incentives to turn to Australia. In Asia Pacific, meanwhile, uncertainty around government subsidies in Japan and overcapacity in China is causing investors to look overseas for opportunities. The strength of the US dollar and diminishing tax incentives in the US could likely drive domestic investors to Australia and respondents agree that investors from North America are likely to be very active for these exact reasons and others going forward.

Indeed, all signs continue to point to a bright future for renewable energy investors. The question is: Where now for Australian renewables, and what opportunities – and challenges – lie ahead?

To answer these questions and provide insight on current investment opportunities and the future direction of the industry, we asked global market participants about their expectations for the Australian renewables space in 2019 and beyond. Their insights and ground-level perspective have been invaluable in painting a picture of overall investment intentions, as well as the perceived opportunity areas and possible policy support in the near term.

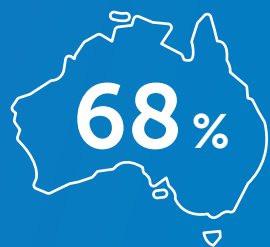
It also shows that amid rising confidence and anticipation among foreign investors, competition for greenfield projects and existing assets could intensify. And as with any investment – cross-border or domestic – there will inevitably be roadblocks to consider before investing.

This makes it even more imperative for prospective investors to have a game plan and proper guidance in order to win deals and secure value from their transactions.

We hope you find this an informative read and welcome you to join the conversation by reaching out to one of our partners.



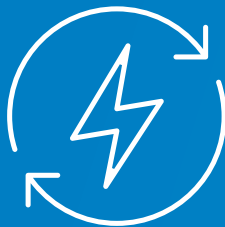
Quick Facts



of Australian and foreign investors will increase their investments in Australian renewables in the year ahead



The US, China and Germany will be the most active inbound investors from their respective sub-regions



Renewables developers will be the most active investor group according to

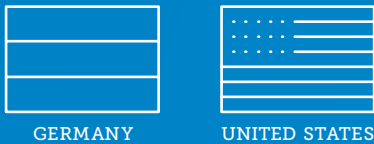
100%
of respondents

although

90%
of respondents say funds will also play a large role in investment/dealmaking



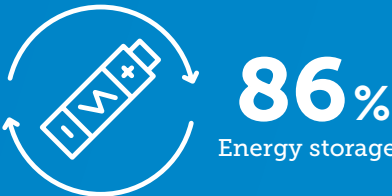
Respondents say Australia has the third most supportive financing environment globally for renewable energy projects, behind Germany and the US



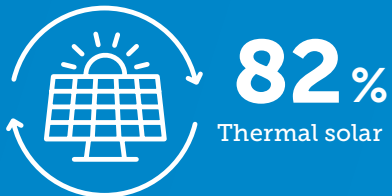
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Opportunity sub-sectors



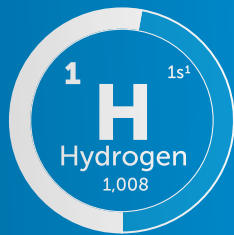
86%
Energy storage



82%
Thermal solar



80%
Biomass/Biogas/
Waste-2-Energy



Hydrogen viewed as the riskiest sub-sector

53%
View as riskiest sub-sector

47%
Still see opportunity



Barriers and Challenges

62%
Valuations

58%
Complexities/Uncertainties created in transitioning to renewables-based grid

57%
Instability around incentives



Foreign investment expectations

98%
say Asia Pacific investors will increase investments in the year ahead

84%
say the same for North American investors

50%
Say likewise for European investors



93%
of respondents say Australian government policies will be supportive in the year ahead

Australia's top advantages

81%
Political/Regulatory stability

78%
Climate and topography

74%
Legal certainty

Introduction: A bright future for Australian renewable energy

Our survey of renewable energy investors reveals remarkable levels of confidence in the Australian market, indicated by their intentions to increase investments in the year ahead. Additionally, these respondents highlight not only Australia’s key advantages, but also an increasingly supportive regulatory, political and financing environment.

The future is indeed promising for Australian renewables. High percentages of domestic and offshore investors report their intentions to commit more capital to the market in the year ahead. Overall, 68% will increase their investments, with 22% saying their investments will at least match current levels (Figure 1). None plan to reduce their renewable energy investments.

Looking at offshore intentions in particular, North American respondents are the most bullish with 65% planning increases. Meanwhile, 45% of Asia Pacific and 40% of European respondents will also make additional investments over the coming year.

Supporting these findings, the Managing Director of a China-based financial sponsor says the “agenda is to increase investments and diversify our industry participation over the next 12 to 24 months. Apart from China, we need to look for markets that are stable and industries that are made for the future.”

Australia’s attractiveness

A combination of advantages and market positives are contributing to respondents’ confidence in Australia and driving their appetite to invest. This is especially true among offshore investors, with many keen on Australia’s low-risk environment and high degree of legal certainty relative to other markets in Asia Pacific and globally.

Respondent commentary highlights the following areas as Australia’s biggest draws:

Political and regulatory stability

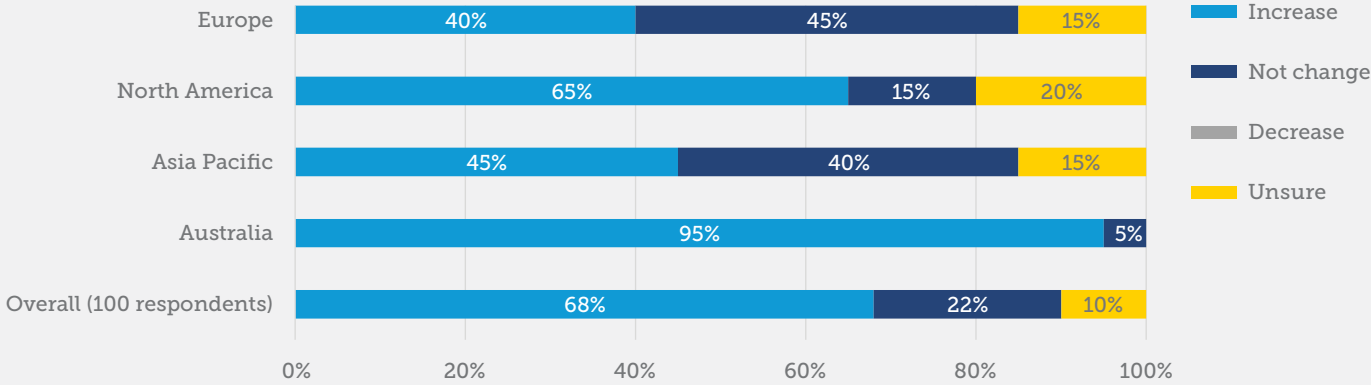
Political and regulatory stability stands out, with 81% of respondents saying this factor makes Australia an attractive market for renewable energy investments (Figure 2). On the surface, this is somewhat surprising. While a federal renewables target has been in place since 2001, energy is a political battleground and the country has struggled to develop a consistent energy policy. In 2014, Australia became the first country in the world to abolish carbon pricing.

It is likely that the positive respondent views are being shaped by the actions of state and territory governments, rather than federal policy.

Most states have set ambitious renewable energy targets. Victoria, for example, is aiming to generate 40% of its energy from renewables by 2025 – a target that is backed by state government measures including renewable energy certificate purchases, support for grid-scale battery storage and local grants.

Initiatives like these go some way to bridging the certainty gap. But renewable energy participants need further policy reform to facilitate Australia’s transition to a new generation fleet.

Figure 1.
Are you planning to increase, decrease or not change your current level of investment into Australian renewables in the next 12 months?



“The Australian thermal generation fleet is ageing. The reducing cost of mainstream renewable generation technology means that it is becoming cheaper to develop new renewable generation as compared to refurbishing ageing thermal generators.”

Clay Wohling, MinterEllison Partner

Climate and topography

Australia’s climate and topography (78%) is another major positive among investors. Indeed, Australia has more solar potential than any other developed nation on earth. It also has huge onshore and offshore wind resources. Meanwhile, the mountains of the Great Dividing Range have scope for extra pumped hydro energy storage, as does Tasmania.

Greenfield opportunities

66% point to abundant greenfield opportunities as a drawback. However, grid capacity, completing land-use considerations and losses between suitable sites and demand centres are hurdles being found by some projects. “Opportunities are greater, as much of the country is unoccupied with manmade structures,” says the Managing Director of a Chinese financial sponsor. “This allows new projects to be approved with far fewer constraints.”

Confidence in Australian renewables is also well-placed for other reasons. One is the massive opportunity to replace ageing coal-fired power stations. Nearly two-thirds of the country’s electricity is generated by burning coal – twice the OECD average – and the mean age of coal-fired power stations is 30 years. With environmental concerns rising and many coal-fired plant nearing retirement, renewable energy investors have everything to play for.

Another factor is saturation in some renewables markets which is forcing foreign investors to look toward Australia. Meanwhile, economic uncertainty in Europe could also be working to increase the level of our investments in Australia – and we want to stay connected to this economy that has impeccable stability,” says the Head of M&A at an Italy-based energy company.

Investment trends: Totals and top deals
In recent years, investor confidence in the market has translated into consistent project dealflow. In 2018, 49 projects (greenfield, brownfield and refinancings) reached financial closes worth AU\$12.04bn (US\$8.6bn), saw increases of 11% in deals and 41% in dollars spent. These totals have followed a consistent uptrend since 2014 (Figure 3).

As these transaction totals trend up, so too has investor appetite for large-scale projects. A case in point is the Star of the South, Australia’s first offshore wind farm. The 2GW scheme will be built off

the coast of the state of Victoria with a transaction value of almost AU\$8.4bn (US\$6bn) and backing by Denmark-based fund management company Copenhagen Infrastructure Partners. Another megaproject is Snowy Hydro 2.0, a AU\$4.9bn (US\$3.5bn) scheme to boost hydroelectric generation. The project, if it proceeds, will play a vital part in supporting renewables via pumped storage, adding 2GW of energy generation and providing 175 hours of storage for the National Electricity Market.

In terms of M&A, deal value for renewable energy transactions hit a record AU\$7.56bn (US\$5.4bn) in 2018 – a near tenfold increase over 2017, according to Mergermarket data (Figure 4).

Deal volume in 2018 was down slightly on the previous year, although with a total of 13 deals, this was more than twice the average for the period 2010-16.

Much of the rise in value in 2018 is accounted for by a single megadeal: the acquisition by the Government of Australia of an 87% stake in Snowy Hydro Ltd for AU\$6.72bn (US\$4.8bn), taking federal ownership of Snowy Hydro to 100%. The federal takeover paves the way for the Commonwealth to progress consideration of the Snowy Hydro 2.0 project, mentioned above.

Other deals of note include the acquisition of Murra Warra wind farm from Renewable Energy Systems (RES) and Macquarie Capital by Swiss-based investment manager Partners Group Holding for AU\$198.8m (US\$142m). Meanwhile, UK-based infrastructure investor John Laing Group has added to its renewable energy portfolio with an AU\$107.8m (US\$77m) investment in the Sunraysia solar farm developed by Australian-Chinese developer, Maoneng.

AU\$
\$7.56
BILLION

In terms of M&A, deal value for renewable energy transactions hit a record AU\$7.56bn (US\$5.4bn) in 2018 – a near tenfold increase over 2017

Figure 2.
What makes Australia attractive for investments into renewable energy?

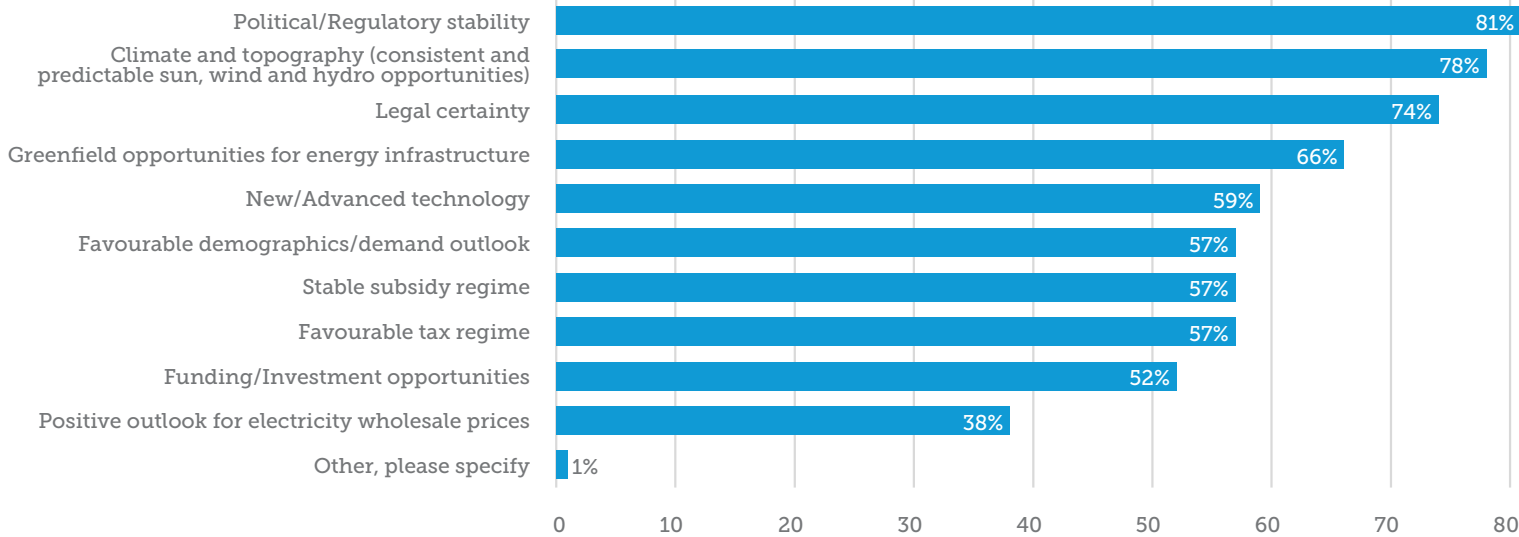


Figure 3. Australian infrastructure (renewable energy) transaction trends (financial close)

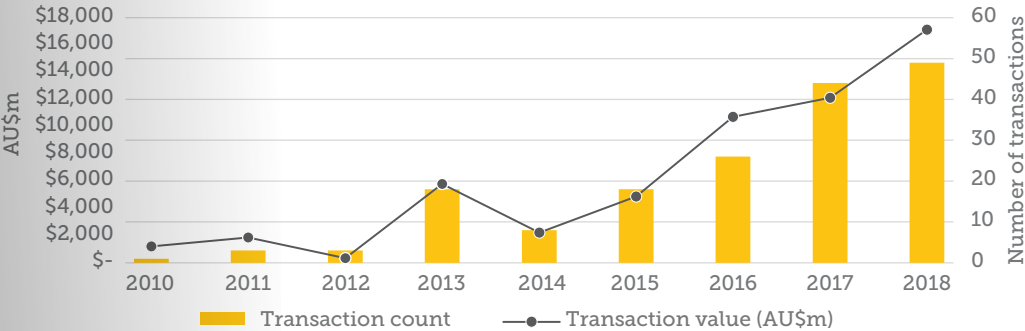
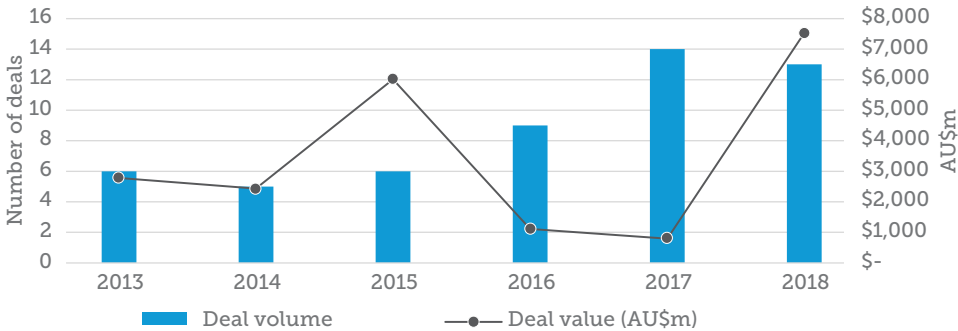


Figure 4. Australian renewable energy M&A





“

Whilst the exponential take up of renewable generation has raised a number of challenges, governments, regulators and the industry have all recognised that systems need to quickly evolve to meet these challenges. This will lead to greater regulatory and legal certainty as some of the challenges which have negatively impacted on renewable generation projects in the past are addressed.”

Clay Wohling, Partner

Regulation and financing: Strong support amid other challenges

Australia’s positive political and regulatory climate and supportive financing environment are only expected to grow stronger, with respondents hopeful that the country will maintain a high rank in competitiveness among global markets. However, Australia is not without its challenges. Respondents highlight several key roadblocks.

Investors are overwhelmingly positive about the policy outlook regarding Australian renewables. The survey shows that 92% of respondents expect government policies to become more supportive, with 45% expecting policies to become “very supportive” in the next 12 months (Figure 5). None of the survey respondents suggest that government policy will be unsupportive. This finding is backed by respondent feedback that shows political and regulatory uncertainty is the lowest-ranked challenge for investors (Figure 6).

Policy perspectives
However, our survey shows that Australian respondents are the most circumspect about government policy in their own country. Just over a third (36%) see policy as being very supportive, the lowest of any respondent group. As noted earlier, Australian respondents are well aware of the limitations of national government policies and instead look to state governments for support.

Among foreign investors, there are significant variations in sentiment as far as government policy is concerned. European investors are the most hopeful toward a “very positive” environment while North American and Asia Pacific investors are more circumspect. However, all Asia Pacific investors think policy will be supportive at some level.

From these findings, have European investors spotted something in the Australian market that everyone else has missed? European renewables investors have been active for much longer and perhaps know that while supportive policies are desirable, the plummeting cost of renewable energy means that government indifference is no longer a deal-breaker. Solar costs per megawatt hour, for example, are now three times lower than a decade ago.

Beyond this, European investors could be betting on a pro-renewables shift at the federal level. In tandem with this, they will be mindful of the robust pro-renewables policies already put in place by state governments.



Across the debt and equity capital stack there is a clear uptick in commitments from domestic and global pools of capital in the Australian renewables sector, evidenced by an 11% increase in deals and 41% increase in dollars spent in renewables projects in 2018.

New products are being developed, facilitating investors not only meeting their fiduciary obligations but also capturing the financial opportunities that the sector presents.

Stuart Johnson
MinterEllison Managing
Partner Capital Markets
and Corporate

Figure 5.
How supportive will
Australian government
policies toward the
renewable energy sector
be in 12 months’ time?

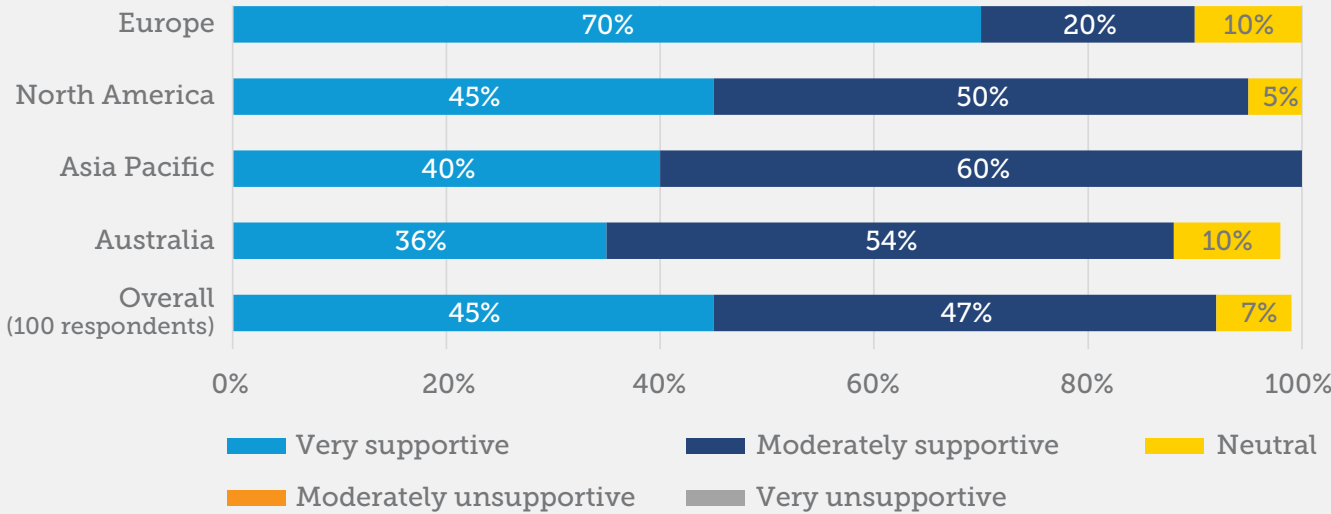
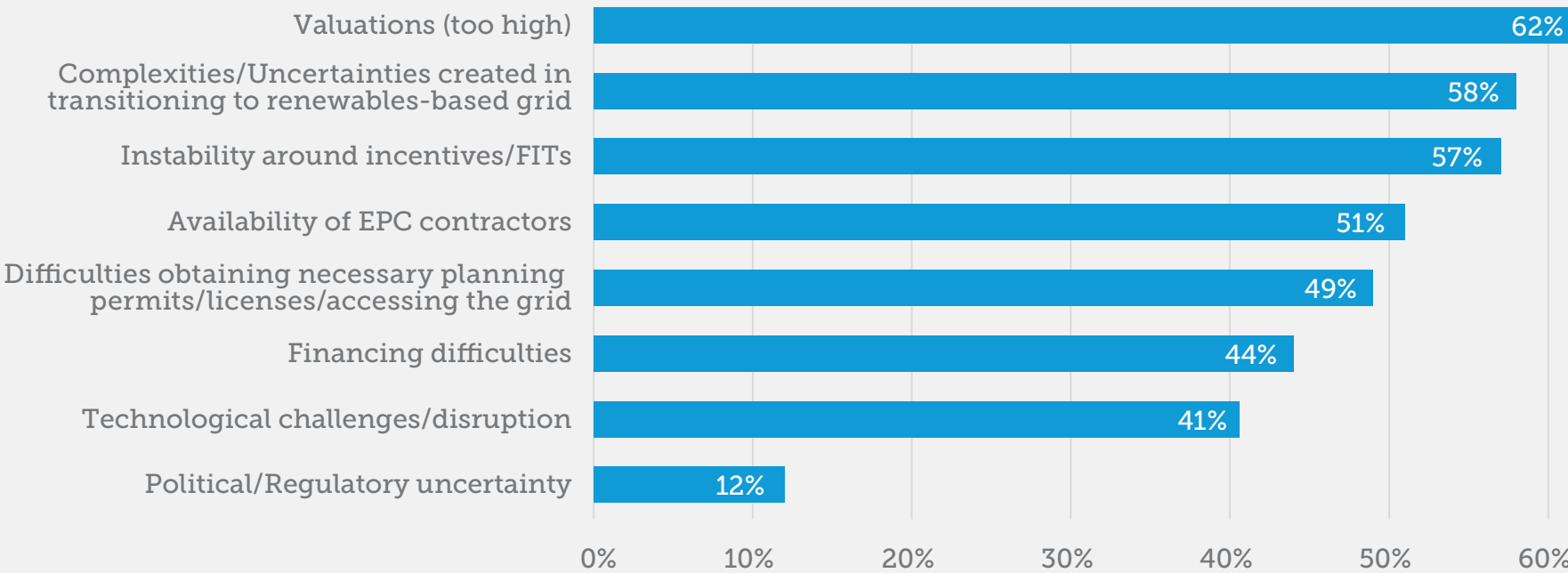


Figure 6.
Which of the following
will be the most
significant barrier/
challenge to investment
in Australian renewables
in the next 12 months?



Regulatory reforms: help needed?

Despite respondent confidence and the positive political outlook, regulatory reform is still needed to assist with the development of renewables projects in Australia. Investors see a federal carbon emissions scheme or emissions target scheme as the most important reform going forward (Figure 7).

Australia already has the Renewable Energy Target (RET). RET is one of the main factors behind the recent surge in Australian renewable energy and the scheme is on track to hit its 2020 target.

Beyond RET, there is little clarity on how Australia will achieve its Paris goals. Carbon pricing would help. Given political sensitivities, however, it would be a bold move for the government to risk reviving a carbon tax in the near future.

With the uncertainty around federal policy, respondents are looking to state and territory governments for leadership. All states, with the exception of Western Australia, have committed to renewable energy targets and/or net zero emissions targets.

In addition to targets, a number of specific policy measures have been implemented at state level. These include: reverse auction programmes to support renewable energy projects (Australian Capital Territory, Queensland and Victoria), state government PPA (Northern Territory), grid-scale battery support (Victoria), a pumped hydro feasibility study (Tasmania’s “Battery of the Nation”) and battery grants for households (ACT, South Australia and Victoria).

Favourable financing outlook

Australia’s positive financing environment is playing a decisive part in the renewable energy boom, with bank lenders and institutional investors racing to tap into the green economy. “There’s still a wall of investment looking for a home,” Rob Ward, Head of Advisory, Australia, at Mitsubishi UFJ Financial Group – one of Australia’s biggest renewable energy lenders – told the Sydney Morning Herald recently.

The survey shows that Australia ranks among the top three countries for financing globally, with 85% saying Australia has the most supportive financing environment for renewables projects at present (Figure 8).

The outlook is even better: 95% expect Australia to be among the countries offering the most supportive environment in 12 months’ time. Only Germany and the US ranked higher; findings that strongly suggest Australia is becoming the dominant market for renewable energy projects in Asia Pacific.

Also, and as noted in figure 6, financing worries rank low in the hierarchy of challenges facing investors. Just 44% expect these to be a barrier over the next 12 months, reflecting the continued willingness of banks to lend on renewable energy schemes. While questions have emerged regarding the potential impact that Australia’s Royal Commission and its investigation into banking misconduct could have, looking at the wider regulatory context, it is still too early to tell how this will influence investment appetites among banks and superannuation companies. Following the Final Report’s release, we outlined important strategies that will enable financial services organisations, financial institutions and organisations in other industries to restore community trust. More information is available in our report *Delivering sustainable stakeholder value in a post-Hayne Royal Commission world*, available [here](#).



Australia ranks among the top three countries for financing globally, with 85% saying Australia has the most supportive financing environment for renewables projects at present



95% expect Australia to be among the countries offering the most supportive environment in 12 months’ time

Figure 7. What is the most important regulatory reform or government program to assist the development of renewable projects in Australia?

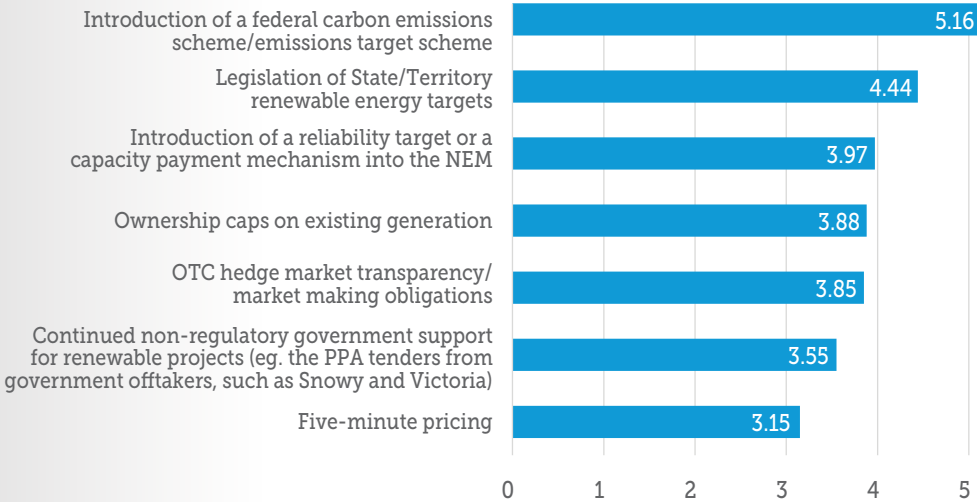
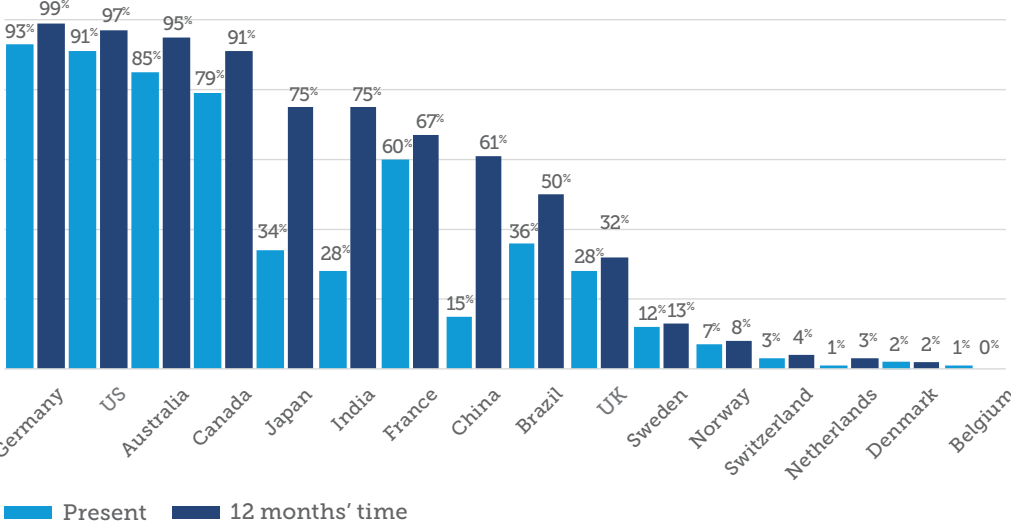


Figure 8. Which of the following countries has the most supportive financing environment for renewables projects at present? Which will have the most supportive environment in 12 months’ time?



Financing renewables around the world: How does Australia stack up?

Australia is witnessing a surge in renewable energy investment. Data published by Australia’s Clean Energy Council shows that a total of 25 wind and solar projects reached financial close in 2018 with a value of AU\$6.3bn (US\$4.5bn). How does this compare with the rest of the world?

Globally, investment in clean energy amounted to more than AU\$462bn (US\$330bn) in 2018, according to Bloomberg New Energy Finance. Europe saw more than AU\$103.6bn (US\$74bn) pumped into clean energy in 2018 – up 27% on 2017. In the US, meanwhile, investment exceeded AU\$89.6bn (US\$64bn). In China, clean energy investments totalled AU\$140bn (US\$100bn).

To put this in perspective, renewables investment in Australia amounted to about AU\$252 (US\$180) per person in 2018. That puts Australia slightly behind the US, but well ahead of Europe and China, each of which invested about half of the Australian per capita total.



70%

of North American investors worry about instability around incentives

65%

of Asia Pacific investors are most concerned by uncertainty associated with Australia's transition to a renewables-based grid

60%

of Asia Pacific investors are most concerned by the transition to feed-in tariffs

Understanding the obstacles

Despite this optimism, renewable energy investors still face challenges. High valuations are expected to pose the biggest obstacle, according to 62% of respondents in figure 6. “Assets developed in Australia usually carry higher valuations because of the quality and technology with which they are developed,” observes the Director of an Australian financial sponsor.

Transitioning to a renewables-based grid is another stumbling block, mentioned by 58% of respondents (which we examine in the sidebar *Breaking the gridlock: Moves are afoot to boost Australia’s creaking transmission networks*).

Availability of EPC contractors is highlighted by 51%. Additionally, more than three-quarters (77%) agree with the statement “strong competition (from new players and sub-contractors stepping up as full EPC providers) and rising costs will result in a substantial exit from the market of established EPC businesses in Australia.” (Appendix-1).

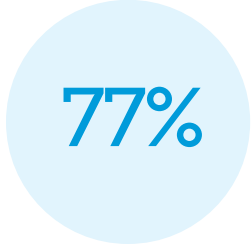
Instability around renewable incentives is seen as a challenge by 57%. Underlying this is Australia’s lack of an overarching energy policy and reliance on ad hoc state initiatives for support.

Looking at commentary among the individual investor groups, European investors worry most about high valuations (75%), a challenge that is less of a concern for North American and Asia Pacific respondents (Figure 9). Exchange rates are a likely factor: the US dollar (and the Japanese yen to a lesser extent) have gained ground on a weakening Australian dollar over the last 12 months, making Australian assets look cheaper. The Euro/Australian dollar rate, by contrast, has swung back and forth.

Europe’s concerns over valuations could also reflect the types of projects investors are considering: offshore wind, for example, is an area where Europe leads the world, yet valuations for offshore wind are typically higher than for land-based renewables.

North American investors worry about instability around incentives (70%) compared with the global average of 57%. Availability of contractors is also a concern for nearly two-thirds (65%). “Valuations will be much higher because of infrastructure costs in Australia,” says the Managing Director of a US bank. “The cost of labour could make the investors think otherwise.”

Asia Pacific investors are most concerned by the transition to a renewables-based grid (65%) and feed-in tariffs (60%). Meanwhile, difficulty obtaining permits and valuations is mentioned by 55%.

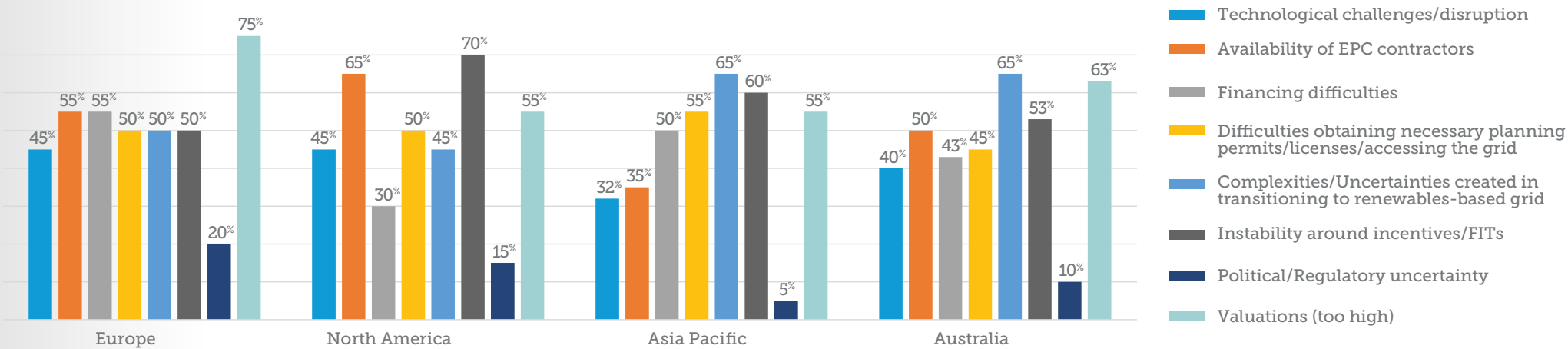


Agree with the statement “strong competition (from new players and sub-contractors stepping up as full EPC providers) and rising costs will result in a substantial exit from the market of established EPC businesses in Australia.”



European investors worry most about high valuations (75%), a challenge that is less of a concern for North American and Asia Pacific respondents

Figure 9. Which of the following will be the most significant barrier/challenge to investment in Australian renewables in the next 12 months?



Breaking the gridlock: Moves are afoot to boost Australia’s stressed electricity networks

Lack of grid capacity means there is no guarantee that new renewable energy schemes will be hooked up to the transmission network. Bottlenecks in the grid make it difficult for developers to attract financing and many projects never make it beyond the drawing board due to complications in getting power to end users.

This problem has arisen due to the grid’s design. Current networks date from the coal era, when generation was dominated by big thermal power stations in the classic “hub and spokes” model with power stations at the centre. Renewable energy, by contrast, is highly dispersed, with much of it lying at the fringes – the spokes of the traditional grid – where transmission capacity is limited.

The mismatch between renewables and grid construction adds to these problems. Renewable generation (particularly solar PV) can be built rapidly, but financing, planning and building new grid infrastructure can take years. Scale is another factor. “With Australia having such a large landmass, it’s going to be challenging to lay renewable-based grids,” says the CIO of an Australia-based financial sponsor.

The situation could be about to improve. In New South Wales, for example, the state government is working with transmission operator TransGrid to upgrade connections with the neighbouring states of Queensland, South Australia and Victoria. Better connections will expand the market for renewables and boost the reliability of supplies for millions of Australians.

Australian renewables: Sub-sector rewards and risks

Respondents highlight the sub-sectors where they feel opportunities will be most abundant while also highlighting those that are still perceived as high-risk. Energy storage (opportunities) and hydrogen (risks) stand out.

Investors see rich opportunities in Australia’s burgeoning renewables sector. All sub-sectors achieve strong scores, indicating confidence across the board as well as an expectation of opportunities. Underpinning this is an “out with the old” attitude, with many pointing to renewable power and clean energy as most likely to meet system reliability requirements compared to fossil fuels.

Figure 10. Which sub-sectors of renewable energy have the most opportunities (are most attractive) and which have the most risks in Australia?

Energy storage: The way forward

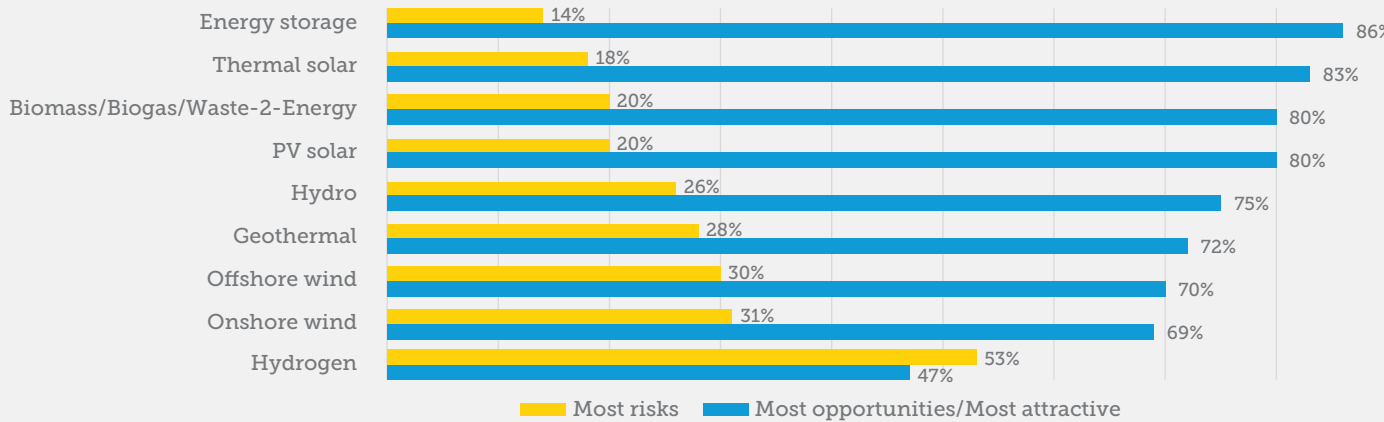
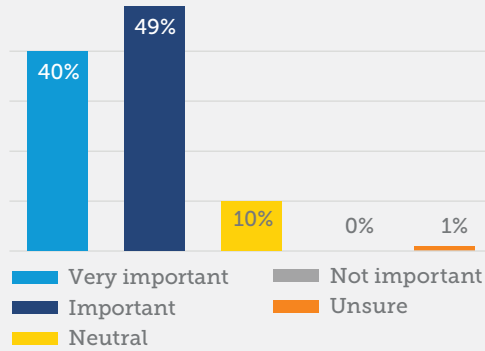
Energy storage ranks top for opportunities (according to 86% of respondents) and it is also seen as the least risky sub-sector (Figure 10). Storage performs two vital functions: one is storing energy for which there is no immediate demand; the other is the ability to respond too quickly to address system instability.

Respondents see combined generation and storage as the way forward: 50% say that hybrid solutions (which bring together wind, solar and storage) have huge potential for Australia. Only 18% disagree (Appendix-1).

“Selling renewable energy in the forward contract market by firming it with dispatchable generation is going to be the critical next step,” says the Head of Investment at an Australia-based financial sponsor.

Equally, positive sentiment towards storage is confirmed by investors’ views on batteries. Eighty-nine percent see these as important to some extent when considering future renewable energy investments (Figure 11).

Figure 11. How important is the inclusion of battery storage capabilities when considering investing in future renewable energy projects in Australia?



Hydrogen: Fuel of the future?

Hydrogen has the greatest risks out of all the renewable energy sub-sectors, according to 53% of respondents. However, a significant proportion (47%) also see opportunity.

Hydrogen’s potential as a zero-carbon fuel – when produced via electrolysis using renewables – is vast. Hydrogen can replace natural gas for industrial and domestic use and can also be used in fuel cells for electric vehicles.

Export potential is equally huge. According to a report by ACIL Allen Consulting for the Australian Renewable Energy Agency (ARENA), hydrogen exports could contribute AU\$1.7bn a year to the Australian economy by 2030. Prospective markets include China, Japan, South Korea and Singapore. Political support is growing and the federal government is developing a national hydrogen strategy.

The risk for investors is that the cost of producing hydrogen via renewable energy will remain high.

“Hydrogen will benefit from coal mining,” says an Australian investment director. “It is an important component in energy storage, which will be a significant industry in the future. Before the prices of assets go up, it’s valuable to invest carefully in this sub-sector.”

Nevertheless, investors are energised: 65% agree that Australia’s hydrogen economy will cross an inflection point in the year ahead, allowing the country to become a primary supplier for energy markets within the next 12-24 months (Appendix-1).



“

Hydrogen is seen as one of the essential levers in the global push to decarbonise. For these reasons, we are seeing significant activity across the entire hydrogen value chain: production, storage, distribution, export and end use. The progress that's been made in the developing hydrogen and fuel cells sector over the last year is hard to ignore. There is a perceptible momentum and it's only a matter of time before the industry reaches tipping point.”

Eliza Bartlett, MinterEllison Special Counsel



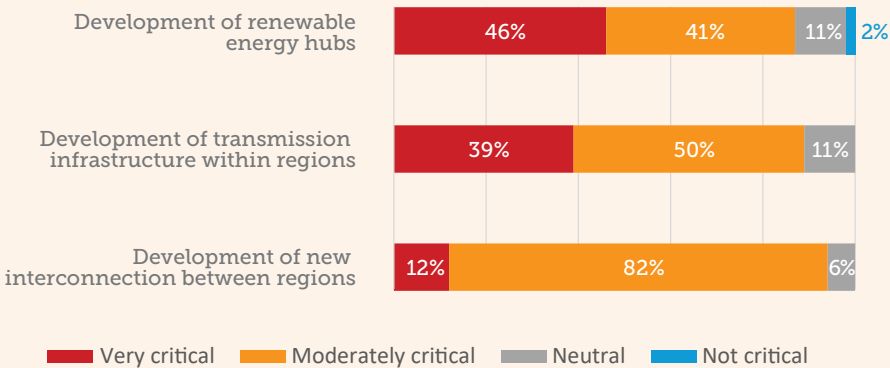
Solar:
Broader uptake on the horizon

Thermal solar (which uses reflected solar energy to generate heat and power) and PV solar (which uses photovoltaic cells) receive a high placing, with 83% and 79.8% respectively identifying the sub-sectors as having the most opportunities. Despite the high ranking of solar technologies, there is uncertainty over the uptake of rooftop solar (supported by battery storage) among large property owners and industrial businesses in the year ahead. 60% are unsure if this will transpire and only 34% agree that there will be a substantial uptake (Appendix-1).

Grid pressure easing

The transition to a renewable-energy-supported grid is a top concern. However, 62% of investors agree that grid connection issues will become easier in the year ahead, with 32% strongly agreeing (Appendix-1). Several network developments are viewed as critical to facilitating further renewable investment (Figure 12). These include development of renewable energy hubs (46% say this is very critical), transmission infrastructure within regions (39% say this is very critical) and new interconnection between regions (12% say this is very critical).

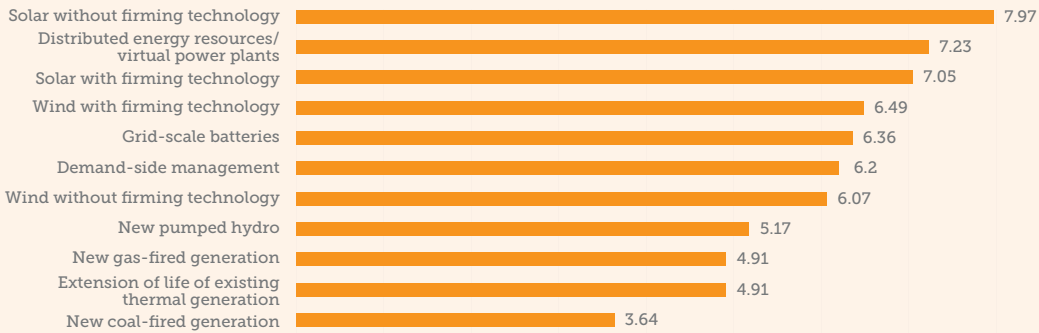
Figure 12. To facilitate further renewable investment projects, how critical are each of the following network developments to the Australian market?



Renewable energy hubs are already a reality. Hubs combine wind and solar assets (and sometimes battery storage) within the same region or location, so output is less intermittent. Colocation of assets also reduces environmental impact, eases the approvals process and makes better use of grid infrastructure. Examples include the Gullen Range wind farm and solar park in New South Wales.

Most ambitious of all is the planned Asian Renewable Energy Hub – a vast 11,000+MW project combining wind and solar in Western Australia. This is not only expected to meet the needs of Australian power users, but also electricity markets as far away as Indonesia and Singapore. The combination of wind and solar is designed to provide natural firming, with sunshine by day and high wind speeds by night.

Figure 13. Within the next 10 years, as existing thermal generation reaches the end of its life, what will most likely meet system reliability requirements in Australia?



Smarter energy

Distributed energy resources and virtual power plants (VPPs) are ranked second by investors with an eye to the long term (Figure 13). VPP orchestration eliminates the chaos inherent in large renewable energy systems and eases grid pressure. Technologies such as artificial intelligence (AI) and blockchain hold the key.

AI, for example, plays an integral part in DERMS (distributed energy resources management systems). Electricity suppliers can use DERMS to orchestrate thousands of grid-connected assets, from solar panels and batteries to power stations. Horizon Power, a utility, is piloting this technology in Western Australia.

Blockchain, meanwhile, looks set to play a vital role in virtual microgrids – local marketplaces where connected energy users can buy and sell electricity. The Australian Renewable Energy Agency (ARENA) launched a trial of this technology last year in Victoria.

“Anything smart is going to lead the market now,” confirms the MD of an Australian bank. “A virtual power plant which provides flexible power to relieve the load on the grid will be a significant development which will be very reliable.”

Fossil fuels in decline: The new normal?

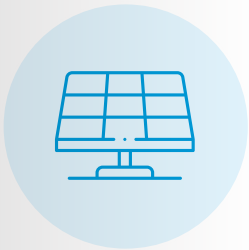
Just as the findings illustrate respondents’ confidence in the rise of renewables and smarter energy solutions, so too do they show a decline in the enthusiasm towards

fossil fuels. More than a third (36%) disagreed with the idea that coal projects would continue to be profitable in the future and 26% were unsure of the future of coal in Australia’s energy mix (Appendix-1). Looking at respondent expectations for the next decade, new coal-fired generation ranked last out of 11 generation and storage technologies in figure 13, with gas-fired generation taking the second to last spot.

There are a number of reasons for the decline of fossil fuels in power generation. Reputation is one: institutional investors and banks are looking to decarbonise their portfolios and they are uneasy about tipping new money into thermal assets.

Political risk is another factor. Carbon pricing or tighter emissions controls, were they to be introduced, could quickly render new coal-fired plants uneconomic long before they were technically depreciated. New-build coal is seen as too risky.

Above all, economic factors are pushing against fossil fuels. The levelised cost of energy from renewables is at or approaching that of coal (helped by low or zero input costs, because renewables need no fuel). Finally, financing for energy infrastructure based on PPAs is being driven by counterparties who are actively seeking renewables, to reduce their carbon footprint.



Despite the high ranking of solar technologies, there is uncertainty over the uptake of rooftop solar (supported by battery storage and backup diesel generators) among large property owners and industrial businesses in the year ahead.

36%

More than a third (36%) disagreed with the idea that coal projects would continue to be profitable in the future and 26% were unsure of the future of coal in Australia’s energy mix

Inbound interest: Opportunities for offshore investors

Offshore capital will increasingly participate in the market, driving investment and competition into the near term. Equally, various strategic and private groups will influence dealflow, led by renewable energy developers and rising interest from regional and domestic funds.

Uncertainty in more established international renewable energy markets is driving international investors beyond their own borders in search of new markets and consistent returns. This search among investors from both advanced and emerging markets is working to Australia's advantage in terms of attracting inbound investment.

North America:

US inbound leading the way

The US stands out as the single biggest expected investor in the Australian renewable sector over the next year. Looking at the data, 84% of respondents believe the US and Canada will increase their level of investment over the coming 12 months (Figure 14) – the bulk of which (81%) will derive from US investors looking to enter or expand within the Australian market (Figure 15). This suggests a reversal of the somewhat subdued trajectory of US inbound investment in the period 2017 to 2018 (Figures 16 & 17).

As noted, the strength of the US dollar is one likely factor behind the improved sentiment. Tax and trade policies in the US are also a consideration. US tax incentives for renewables are being wound down, while import tariffs on everything from solar cells to steel mean higher building costs. These factors are squeezing developer margins at home, creating an incentive to look to abroad.

Commenting on these trends, the Director of Strategy of a France-based energy company says, the "US will ramp up their investments and look at Australia to break away from their competitive domestic market and participate in new greenfield projects in a market that has better stability and more prospects."



Asia Pacific: Onward and upward?

Respondents are nearly unanimous, with 98% saying investment from Asia Pacific will rise over the coming year, and 45% saying the uptick will be significant. China (30%) and Japan (27%) are expected to lead this wave of investment. This builds on momentum in terms of deal value that has been building since 2017.

"While there is going to be an increase in investments from all three regions, I believe the highest will be from Japan, which is finding it difficult to locate investment opportunities within the domestic market," says the Managing Director of a Swiss bank.

Given their economic muscle and renewables expertise, it is no surprise that China and Japan are expected to figure so prominently. Additionally, a number of domestic and geopolitical factors are also in play.

In Japan, uncertainty around government renewable energy subsidies could be one reason for investors to look overseas. In China, meanwhile, there is overcapacity in the home market and last year the government began blocking new subsidised projects. This could encourage investors from these jurisdictions to look further afield, although capital controls imposed by Beijing may continue to put the brakes on Chinese investment.

"The Chinese market is highly competitive, which pushes participants to explore new, foreign markets," says the CFO of a New Zealand-based energy company. "Chinese investors have funds available and will not shy away from competing in the Australian market, irrespective of the valuation."

Europe:
Putting on the brakes?

Only 50% of respondents expect European inbound investment to increase over the next 12 months while 13% expect it to decrease. European investors are the only ones expected to invest less in the year ahead. Germany (39%) is expected to lead inbound investments, followed by the UK (18%) and France (17%).

Numerous factors could be behind this sentiment. First, a period of cooling off could be overdue: European inbound investment in Australia has seen sharp increases since 2016, with value and volume increasing threefold. Second, currency wobbles and political uncertainty – including Brexit – are likely to be weighing on sentiment. Third, high valuations also threaten to hold back investment, a concern mentioned among European respondents. Yet, the position is finely balanced: market saturation and lacklustre growth in the eurozone could yet provide an incentive to look overseas.



Only 50% of respondents expect European inbound investment to increase over the next 12 months

Figure 14.
What do you expect will happen to the level of investment into the Australian renewables sector from the following international investor groups in the next 12 months?

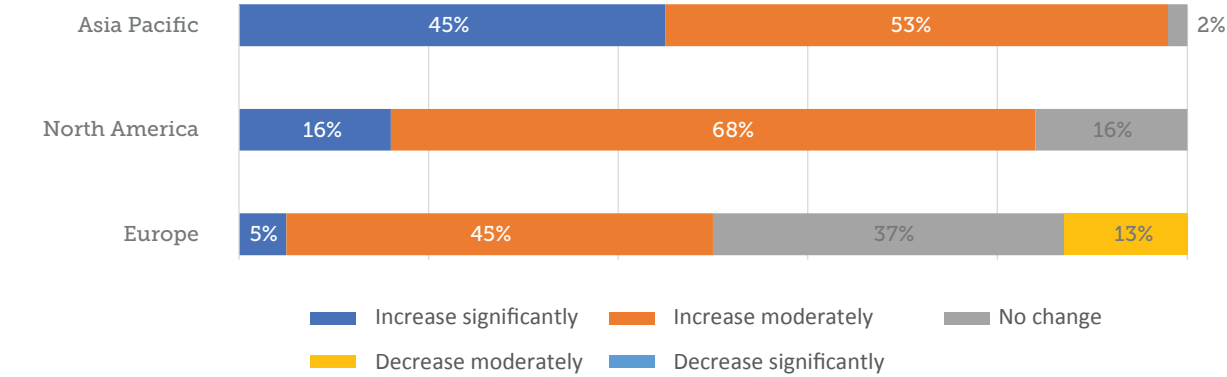


Figure 15.
Which countries specifically will be active?

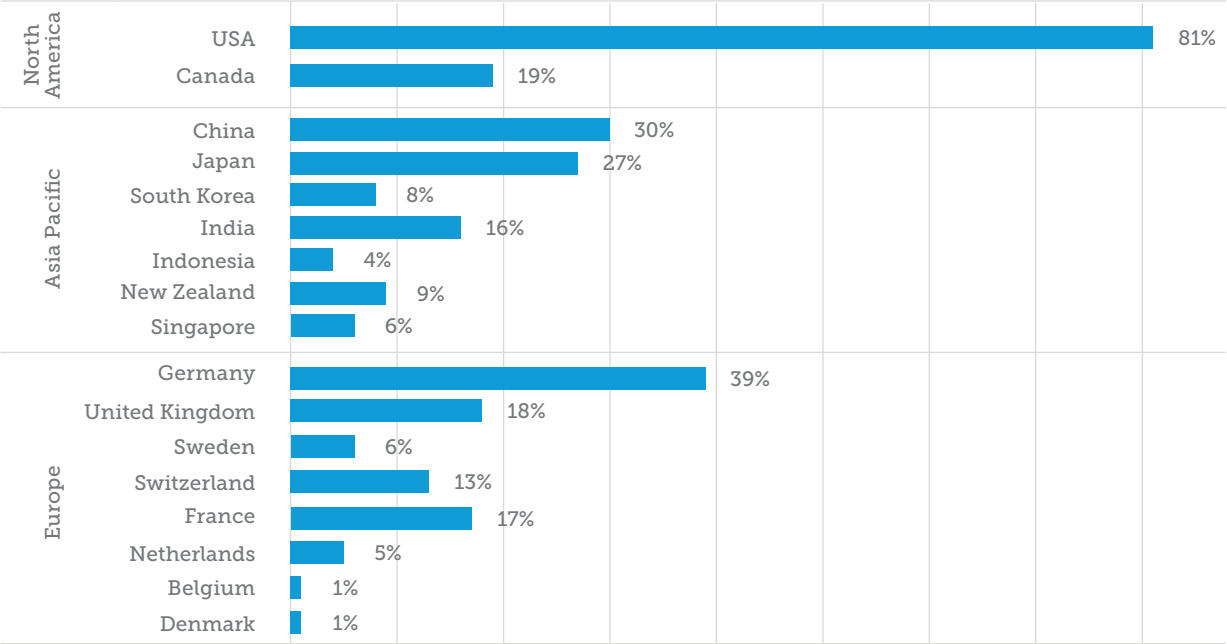


Figure 16.
Foreign inbound renewable energy investments

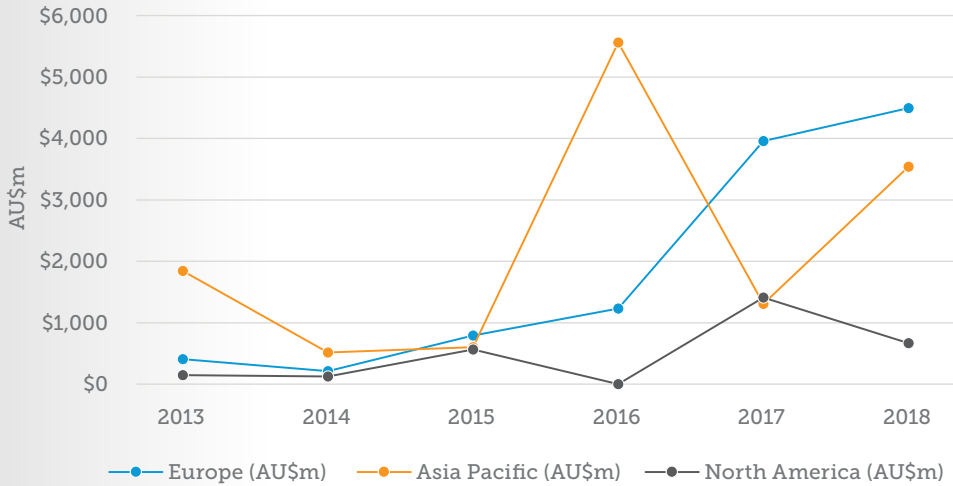
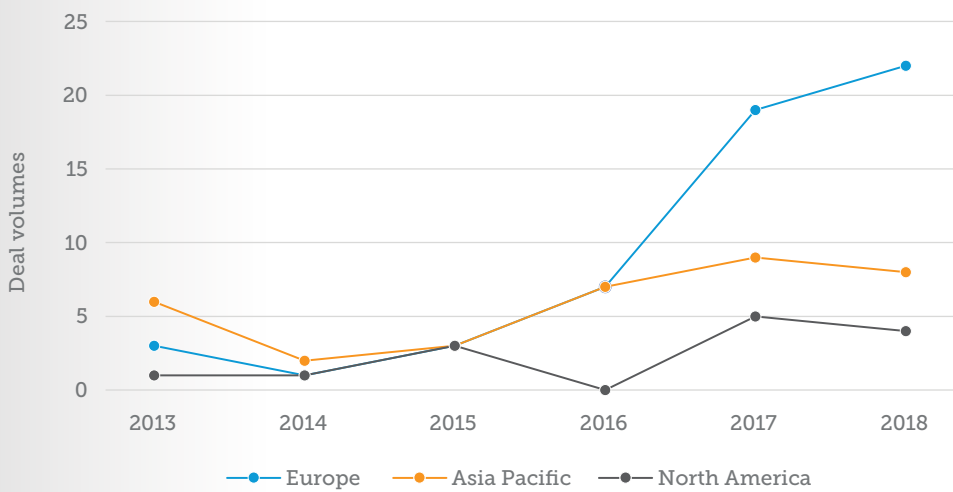


Figure 17.
Foreign inbound renewable energy deal volumes



“

Renewable targets (in the Commonwealth, State & Territory governments) are driving increased investment in large-scale renewable energy projects in Australia. However, additional increased investment in large-scale renewables is still required, and our expectation is that foreign investors will be key.”

Geread Dooley,
MinterEllison Japan Practice Leader

Corporate and private investors: Funds set their sights

Renewable energy developers will be most active in the Australian renewables market in the year ahead, according to 100% of respondents (Figure 18). This finding is somewhat unsurprising, however, sentiments on the role of other participants shows budding interest in Australia’s potential from a variety of capital sources.

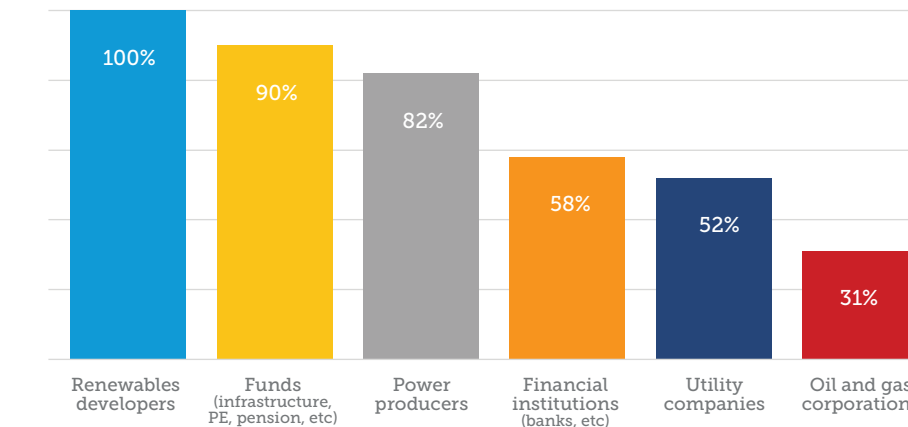
For instance, various funds – including specialist infrastructure funds, private equity and pension/superannuation funds – will be major players in the Australian renewables space in the year ahead, according to 90% of respondents. The attractions for these institutional investors are clear: renewables can provide stable, long-term returns – they also allow investors to decarbonise their portfolios for those looking for clean, green asset additions. Renewable energy, therefore, is a win-win for such investors.

Diving further into these findings, most respondents (73%) agree that private capital will be led by regional renewables funds, similar to Singapore-based Equis (Appendix-1). These Asia-based funds will also be increasingly competitive against other international investment firms.

Generally, the increased activity from these funds and private investors could drive secondary deals in the renewables space, and 74% agree that this will likely happen in 2019 and beyond (Appendix-1).

At the far end of respondent sentiments, traditional energy firms are perceived to be the laggards. While power producers figure prominently in the expected investor mix (cited by 82%), only 52% see utility companies as being the most active investors over the next 12 months. Oil and gas companies ranked last: only 31% expect them to be the most active investors.

Figure 18.
Which of the following corporate/financial sponsor groups do you expect to be most active in the Australian renewables market in the year ahead?



Financing and corporate PPAs

Corporate power purchase agreements (PPAs) are expected to continue to play an important role in the Australian renewable energy story going forward with respondents anticipating increases in the number of off take agreements.

Corporate PPAs are helping to turn renewable energy into a reality – and this is true not only for big energy consumers, but also for developers.

Why PPAs matter

While PPAs can be used with any type of energy, they are increasingly associated with renewables. Purchasers are typically large organisations: in Australia, these include governments, universities, minerals processing and factories.

For energy purchasers, PPAs are a key risk management tool. Attractions include price certainty and improved green credentials. Recent electricity price shocks and accelerating environmental concerns are fuelling the rise of offtake agreements.

Developers are also increasingly interested in PPAs. What makes PPAs so important is that they can be used to underwrite renewable energy schemes: corporate PPAs allow developers to lock in future revenue streams and reduce the cost of capital.

The amount of power delivered under renewable PPAs rose 75% between 2017 and 2018.

PPA investor outlook

Looking at the short term, 83% of respondents expect corporate PPAs to increase over the next 12 months, with 6% anticipating a significant increase (Figure 19). The long-term outlook is even more upbeat: 93% see PPAs increasing with 45% expecting the proportion to rise significantly over the next five years.

The positive outlook for PPAs is shared by the Head of M&A at a Denmark-based energy company: “It should be easier for corporates to make energy purchase agreements in Australia. The regulations support purchase agreements because it is helping the country add to their revenue through these deals.”

Financing with PPAs

Corporate PPAs have clear attractions as a financing and risk management tool. However, they are relatively new to corporate Australia (outside of the large industrial sector) and participants may still be finding their way.

The data shows 44% of investors think it will be easy to finance new renewable contracts with corporate PPAs over the coming year (Figure 20). Fourteen percent, meanwhile, say it will not be easy.

European investors are the most positive with 55% saying that PPA-backed renewable contracts will be moderately easy to finance. North American investors are more circumspect, with 45% thinking they will be moderately easy. Thirty percent of Asia Pacific investors think financing renewables with PPAs will be moderately easy, although 5% say it will be very easy.

These figures reflect levels of maturity and experience of investors within domestic PPA markets: US investors were the first to adopt PPAs on a large scale more than a decade ago, followed by those in Europe. Asia Pacific continues to trail behind these regions in terms of PPA adoption.

Figure 19.
What will happen to the number of corporate PPAs over the course of the next 12 months in Australia? In five years’ time?

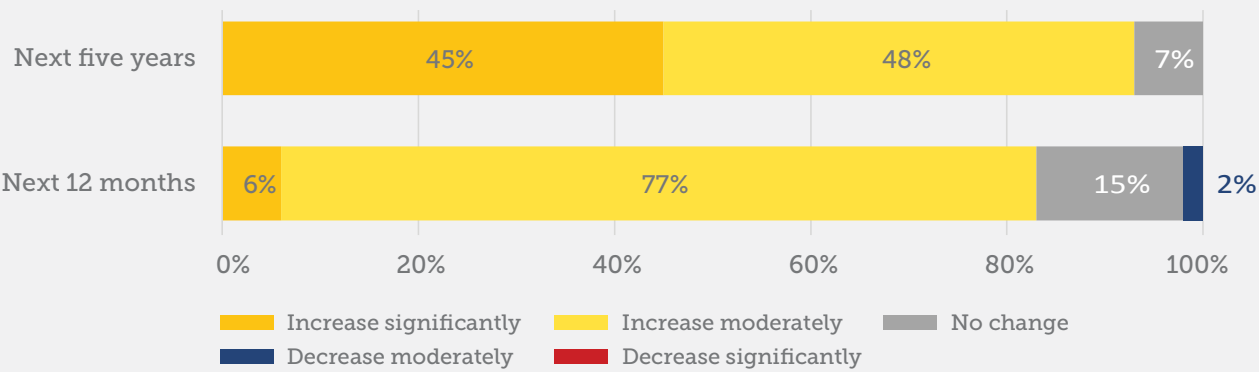
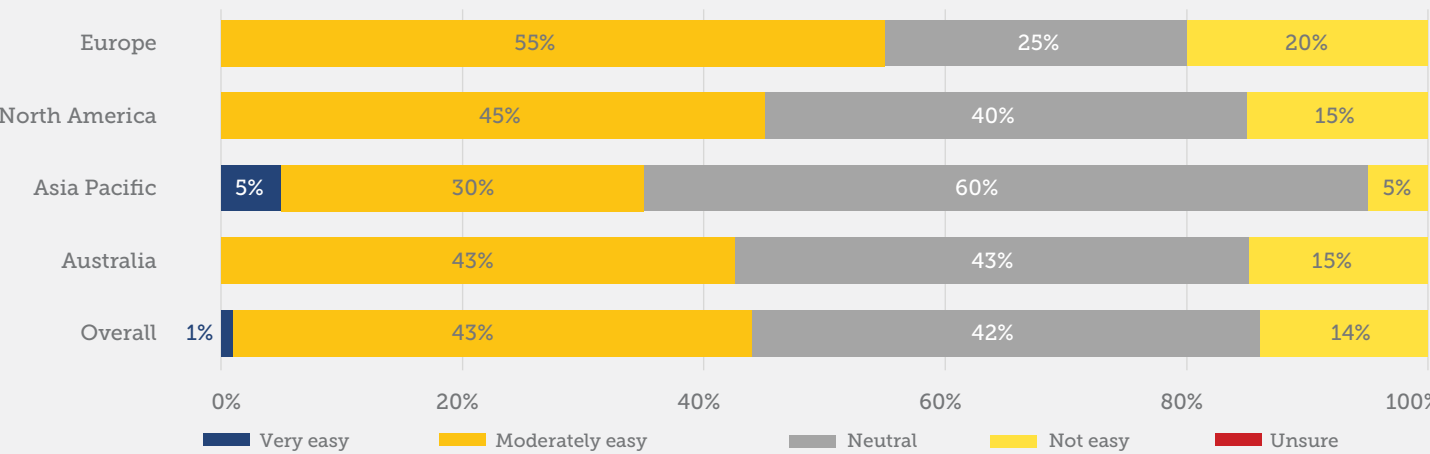


Figure 20.
How easy will it be to finance new renewable contracts with corporate PPAs over the next 12 months in Australia?



“New retailers are entering the market, and contracting models and trading platforms are becoming increasingly more customer friendly. The increasing popularity of PPAs in other jurisdictions (eg. Europe and the USA), also suggests that the PPA market in Australia should continue to mature and deepen.”

Joel Reid, MinterEllison Partner

Developing trends and the mid-to long-term outlook

Various sectors stand to benefit from the uptake of renewables in Australia. Agribusiness and mining stand out for their potential to link up with renewable power developments.

Australia's economy is more energy dependent than most. To put this in context, Australia uses 16% more energy for every dollar of GDP it produces than the OECD average and nearly 44% more energy than Europe.

One reason for this is that mining is an important part of Australia's industrial mix. The industry is inherently energy intensive and consumption has increased sharply in recent years. The same is true of agribusiness. Farmers say energy productivity is down more than 20% in a decade and agricultural production is intensifying, adding to energy costs.

For these reasons, agriculture and mining need reliable, low-cost, low-carbon energy delivered at scale. Renewables could hold the key.

Agribusiness: Where next?

Australia's geography gives it a natural advantage when it comes to renewables – and harvesting energy could soon become as important as harvesting crops. Nearly three-quarters of respondents (74%) see agriculture as among the most promising for utility-scale off take (Figure 21). Based on respondent commentary, the following themes emerge:

Tapping into the big farm advantage

With an average size of more than 4,300 hectares, Australia's farms are among the biggest in the world. Farmers are therefore uniquely placed to deploy utility-scale renewables. According to the Managing Director of an Australian bank, "Farms can be transformed into energy hubs because of their size. They will be able to provide space for installations and help in the generation and supply of electricity and other energy sources across Australia."

Boosting profitability with renewables

Energy inputs are a major cost. In sectors such as chicken meat and sugar production, energy accounts for 16% of the gross value of production (GVP). Renewable energy could transform the arithmetic. According to the Head of Investment at an Australian financial sponsor, the "profitability of the agriculture sector will increase as relative costs that farmers pay for energy will be slashed by the use of renewable energy."

Free-standing farms

Grid electricity can be an expensive option. What's more, blackouts in some regions in recent times have called the reliability of grid supplies into question. Farmers need energy certainty in terms of cost and dependability. Renewable energy paves the way to self-reliance. According to the Managing Director of a US bank, "renewable energy can create free-standing farms and

get them off the grid. This will allow them to protect their businesses from increasing energy prices and develop better quality crops at much lower cost."

Sundrop Farms near Port Augusta in South Australia highlights the potential. Facilities include a 20-hectare greenhouse, with heating and cooling provided by a concentrated solar power plant. The farms grow tomatoes, cucumbers and peppers – crops which traditionally depended on massive inputs of energy from fossil fuels.

Smart farms boost exports

Renewables could pave the way for an agricultural revolution – not only in terms of lower costs, but also in terms of the range of crops and livestock that can be supported. "Every farm is capable of providing renewable energy in different forms," observes the partner of a Netherlands-based financial sponsor. "Farmers will look for smart methods to cultivate and supply produce across the country, which will be quite similar to the Netherlands." Renewable energy is already helping farmers to cultivate marginal land, desalinate seawater and power greenhouses. All of this is good for exports. "There will be a major upward spike in the quality of the produce from Australia, which is trusted all over the globe," predicts the CFO of an Australia-based energy company.



Mining: Unearthing opportunities

The mining sector – including petroleum, coal, crude oil and gas – is a major power consumer and, as noted earlier, energy productivity is low. Miners who depend on grid electricity are at the mercy of fluctuating power prices. With mining exports a vital foreign exchange earner, efficiency improvements are vital.

Renewable energy has the potential to deliver the required transformation by reducing costs and emissions. Investors agree, with 48% seeing mining and resources as among the most promising for offtake arrangements.

Extracting greater value

Investors emphasise the cost-savings offered by renewable energy. The CEO of a New Zealand-based energy company says: “A considerable portion of energy is utilised by the mining industry. Opting for renewable sources will reduce the strain on the carbon pricing of mining industries and create a more cost-effective environment for them.”

The opportunity for capital reallocation is another attraction. “The mining industry can make better investments as the price of energy will be far lower than what they are paying now,” says the partner of a UK-based financial sponsor.

Greener mining

Mining is a major carbon emitter and high-growth sub-sectors, such as liquefied natural gas production, are partly responsible for recent increases. Additional electricity consumption is a factor.

Renewables have a part to play in cutting mining-related emissions. “The mining industry could witness a drastic drop in operational costs as they will be liberated from the use of conventional energy,” says the Managing Director of a China-based financial sponsor. “Carbon pricing schemes will also tend to benefit mining companies through their use of renewables.”

Shifting to renewables will not only improve profitability, but will also help miners to meet their corporate social responsibility obligations and cement a positive reputation.

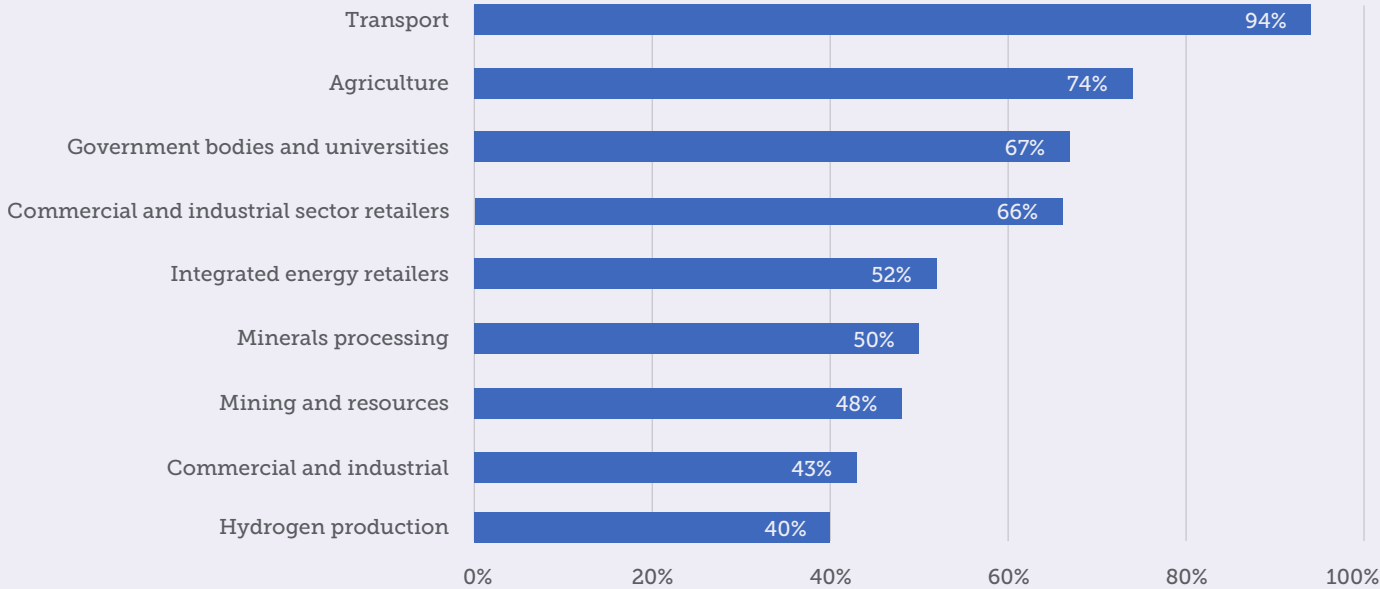
Offtake trends

The need to lock in energy prices and fulfil wider social objectives – including meeting self-imposed environmental targets – are two trends driving demand for PPA off take. Transport (94%) is seen as the most promising off taker. As a big energy user, it has much to gain from PPAs and the trend towards long-term, fixed-price electricity procurement is clear. Sydney Airport, for example, recently signed an eight-year PPA with CWP Renewables and Origin Energy.

Agriculture, as noted, is also attracted to PPA price stability. Government bodies and universities, highlighted by 67% of investors, will also tap into PPAs. The City of Melbourne, the University of New South Wales and Queensland University already have.

Reputation is a key PPA driver. With the possible exception of agriculture, the top four PPA sub-sectors are all firmly in the public eye. It is likely that these sub-sectors are anticipating shifts in public attitudes. By contrast, the bottom four sub-sectors, from mineral processing to hydrogen, have a lower public profile and face fewer external social pressures to get ahead of the curve.

Figure 21.
What sectors are most prospective for offtake arrangements for utility-scale renewable projects in Australia?



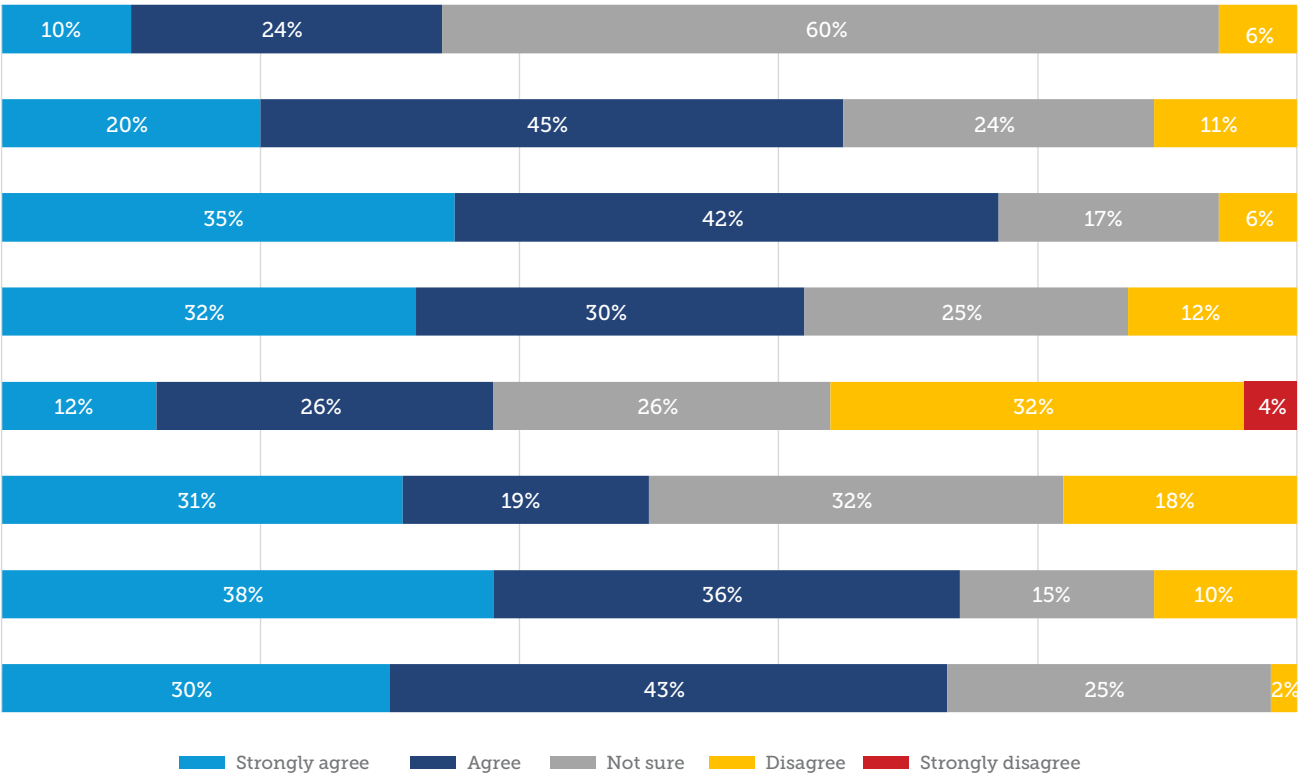
“Miners are proactively looking to use ‘green’ or lower emission energy to reduce their carbon footprint. This is being achieved through PPAs with renewable generations or the installation of on-site generation. In the latter case, in addition to on-site renewable generation, coal miners are using gas released from their mining activities to fuel mine-mouth power stations. These measures have commonly allowed the miner to derive a dual benefit of reducing energy costs and lowering fugitive carbon emissions.”

Simon Scott, MinterEllison Partner

Appendix

Appendix-1.
For each of the following statements, please select from the following options: (A) strongly agree, (B) agree, (C) not sure, (D) disagree, (E) strongly disagree (Select one for each statement)

- There will be a substantial uptake of rooftop solar (supported by battery storage and backup diesel generation) among large property owners and industrial businesses in the year ahead in Australia
- Developments in Australia's hydrogen economy will cross an inflection point in the year ahead and allow the country to become a primary supplier for energy markets within the next 12-24 months
- Strong competition (from new players and sub-contractors stepping up as full EPC providers) and rising costs will result in a substantial exit from the market of established EPC business in Australia
- Grid connection issues and complexities will become easier in the year ahead in Australia
- Coal projects will continue to be "bankable" (profitable) into the foreseeable future in Australia
- Hybrid solutions combining wind, solar and storage hold huge potential for Australia
- There will be an increase in secondary deals involving renewable energy assets in Australia in 2019
- Regional renewables funds (similar to Singapore-based Equis) will be increasingly active and competitive in the Australian market



Conclusion

Will Australia’s renewable energy sector continue to grow and provide further investment opportunities in the years ahead? From our respondents and the associated research, the answer is a resounding “Yes”. This is due to the positive policy environment and Australia’s numerous advantages as an investment destination for renewables. Indeed, the current uptrend in investment is unlikely to stall. As Australia continues to carve out its place as a global renewables market, the time may be ripe to get involved in the historic shift from traditional fossil fuels to cleaner, renewables sources of energy.

However, the current outlook is not without its challenges. Rising interest in the country and sector will also see increased competition for assets from a variety of domestic and international sources of capital. Likewise, investors do need to recognise that there are certain risks associated with renewable energy assets that need to be evaluated, and most likely via a “boots on the ground” approach.

Perhaps the real question then is: to what extent will overwhelmingly positive expectations and increased competition change the nature of investing in Australian renewables? And what kind of strategy must investors – especially those offshore – use to find the best opportunities, maximise their investments and extract the most value?

These are the questions that will prove most valuable in the future for investors. MinterEllison is committed to finding the answers to help its clients navigate the Australian market and find value in this promising sector.

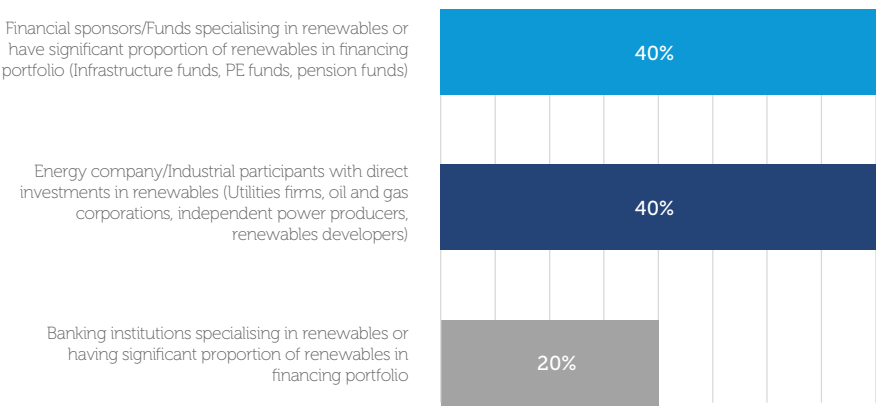
Methodology

From January to February 2019, MinterEllison commissioned Acuris Studios, the publishing division of Acuris, to canvas the opinions of 100 renewable energy investors to gauge their opinions on the investment opportunities, trends and challenges in Australia. 60% were based outside Australia while 40% were domestic Australian firms. All respondents had in the past 12-24 months developed/funded/invested in at least one Australia-based renewable energy project.

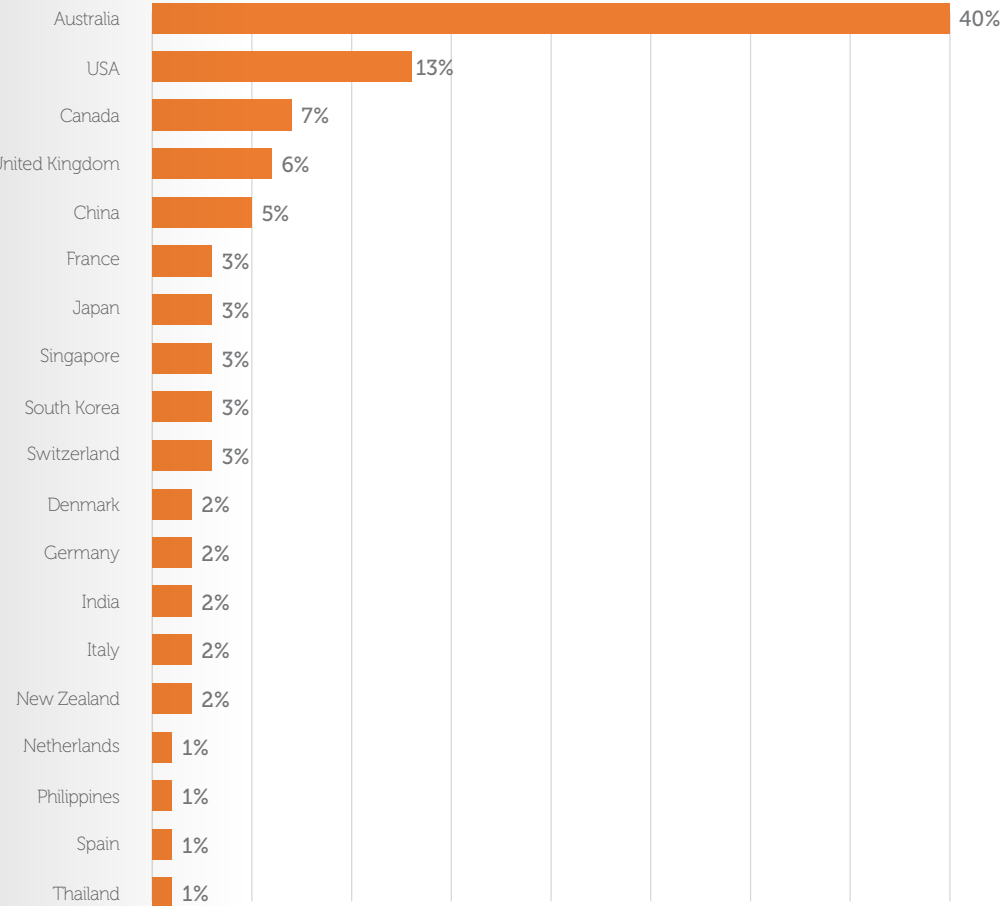
Within the graphed survey results, percentages may not sum to 100% due to rounding, or when respondents were allowed to choose more than one answer.

All quoted data is proprietary Mergermarket and Inframation Group data unless otherwise stated.

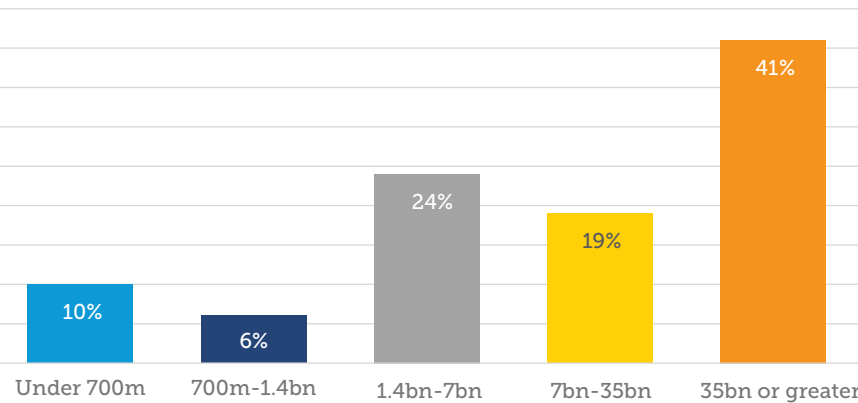
Which of the following best describes your organization?



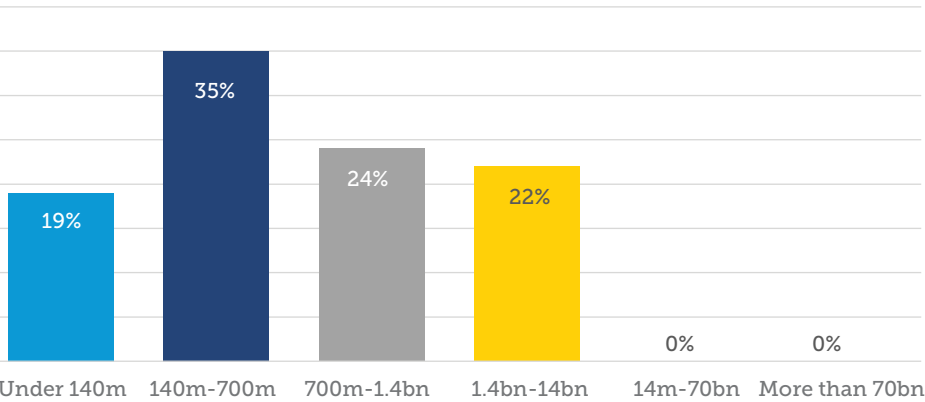
Where is your organization/firm based (Specify domicile country)?



What was your organisation's most recent annual revenue/assets under management (US\$)?



What has been the level of your Australian renewable energy investment over the past 12 months? (Please select one, US\$)



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