



> Renewable Energy & the Property Market

Does having a renewable energy plant nearby raise the value of your property?

ABOUT RENEWABLE ENERGY

Renewable energy is energy collected from renewable resources that are replenished on a human timescale. Currently, these include sunlight, wind, water and geothermal heat. While some view renewable energy as an unlimited resource, others see it as a sustainable substitute for fossil fuels.

By achieving net zero emissions by 2050, Australia will become a leading nation in sustainability and renewable energy. This will ensure international recognition and potentially increase migration and tourism from other nations. As part of Australia's projected fiscal policy, a significant amount of funding will be allocated to private companies to incentivise spending on renewable energy projects.



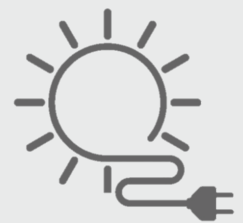
NET ZERO BY 2050, IMPACT ON PROPERTY MARKET?

OVERVIEW

Renewable energy has the power to deliver lasting benefits to the local city and its people. If maintained, renewable energy plants can add to the circular flow of income in the domestic economy. Due to many environmental factors including global warming, many international governments have committed to net zero emissions. This includes Australia, which has outlined plans to shift from its highly dependent, coal-based economy to net zero emissions by 2050.

From a real estate perspective, three questions are proposed:

- To what extent does the addition of renewable energy plants impact property prices, and if so, how great is the multiplier effect?
- Does renewable energy assist in the costs of living for locals?
- Through the circular flow of income, can the creation of new housing supply occur?



HOUSING PRICE GROWTH IN EXISTING LGAs WITH RENEWABLE INITIATIVE(S)

The table below outlines Local Government Areas (LGA) that accommodate renewable energy projects (i.e. solar or wind farms). LGAs which have had renewable projects constructed in 2017 were chosen to show how the housing market in those areas have reacted and performed since the installation of renewable initiatives.

LGA	State	Energy Type	2017 Median Price (\$)	1 Year Growth	2 Year Growth	5 Year Growth*
Broken Hill	NSW	Wind	\$99,750	16.8%	18.4%	43.8%
Glenn Innes	NSW	Wind	\$205,750	2.0%	-6.9%	34.7%
Griffith	NSW	Solar	\$320,000	4.5%	12.3%	36.0%
Colac Otway Shire	VIC	Wind	\$352,250	4.8%	-0.6%	44.9%
Upper Lachlan	VIC	Wind	\$294,000	-1.4%	8.1%	51.0%
Moorabool	VIC	Wind	\$440,000	12.0%	15.4%	36.7%

Demographic and Property Market

What is the impact?



NATIONAL - LOCAL GOVERNMENT AREAS

LGA	State	Energy Type	Unemployment Rate	5-year Population Growth*	Wage Price Growth*	Total New Dwellings \$	Unit Rental Yield#	House Rental Yield#
Broken Hill	NSW	Wind	6.1%	-0.7%	17.7%	138	4.4%	7.6%
Cabonne	NSW	Solar	1.1%	2.8%	15.4%	1	0%	5.0%
Colac-Otway	VIC	Wind	3.7%	6.5%	17.2%	293	4.7%	4.5%
Dandaragan	WA	Solar	2.6%	4.2%	8.9%	47	0%	5.0%
Western Plains Regional	NSW	Solar	3.1%	29.1%	16.0%	3,573	6.0%	5.6%
Glen Innes Severn	NSW	Wind	6.3%	1.1%	10.3%	25	2.9%	5.0%
Griffith	NSW	Solar	2.0%	5.3%	23.4%	1,230	5.4%	3.5%
Hindmarsh	VIC	Wind	3.1%	-0.4%	21.7%	-	0%	6.6%
Moorabool	VIC	Wind	4.1%	15.4%	22.1%	3,089	3.7%	2.8%
Moynes	VIC	Wind	2.5%	5.1%	19.9%	59	0%	4.5%
Parkes	NSW	Solar	3.4%	-1.7%	18.6%	210	3.6%	5.1%
Upper Lachlan	NSW	Wind	3.9%	9.6%	20.8%	195	0%	3.7%

MULTIPLIER EFFECT

While residing within 100m of a renewable energy plant may not be ideal, the surrounding LGA strongly benefits through the drop in energy prices. While the fiscal growth solely from proximal plants is small (3% across the properties lifespan), it can significantly raise a region's property value. Property values rise due to the increased demand created in the area. The value of a home may also increase with the installation of solar panels.

The LGAs above have taken the initiative to develop and construct renewable energy plants. This has led to higher rental yields, population growth, wage price growth and lower unemployment rates as a result of investment into the domestic economy. Overall, these demographics have improved, which is a positive sign for investors, as a strong tenancy base can be created and maintained under these indicators.



Renewable International Market

How have they tracked?



INTERNATIONAL CASE STUDIES

Positive effects on multiplier variables and aspects can be seen as the use of renewable energy rises across many nations, sometimes even surpassing the use of coal and gas. Below are examples from three different parts of the world. Each case study is unique in terms of renewable energy initiative, local economic and demographic make up, and future strategy. However all three case studies quoted positive outcomes such as: reduced electricity costs, re-direction of state and national budgets to other aspects of the economy (i.e. housing and health), availability of better quality electricity, and a more vibrant local economy due to interstate and/or international migration to the area. This flows to the housing sector as the areas become more liveable, perpetuating forecasted higher house prices.

Mount Signal 3 Solar Farm, California, USA



Details:

¹ The Mount Signal 3 Solar Farm, also known as the Imperial Valley Solar 1, is a Solar Photovoltaic power plant, and was completed in December 2018. The project boasts a 328 MW power output, producing enough energy for 114,000 homes in California. Spread over 2000 acres of low productivity farmland, this project has a high cost benefit ratio, with the project costing \$577.96M.

Commentary:

¹ The Solar Farm has impacted the area through its offsetting of 530,000 tonnes of carbon dioxide emissions per year, with 770,000 MWh being produced. The local property market has since benefitted from an increased level of reduced costs, assisting in attracting more residents to the area. California is home to 1/8 of American residents, so the reduction in power prices will assist local cost of living. However, the introduction of the new solar farm will struggle to offset other increasing costs including buying and renting property.

Cadiz Solar Farm, Bacolod City, Philippines



Details:

² The Cadiz Solar Power Plant in the Philippines, is one of the largest solar power facilities in Southeast Asia. Opened in March 2016, the 176 Hectare Facility was built to withstand the typhoon-prone area in Cadiz. Cadiz was constructed at \$10.0B, with Helios Solar Energy funding the project. At the time of writing, the plant is the 7th Largest in the world.

Commentary:

² Producing 132.5 MW's of renewable power, the area can benefit from decreased energy prices, as well as the provision of sustained new employment for locals. The domestic economy can result in several improvements with less investment in overseas coal, into other social improvements including housing and health. The world has benefitted with 94,627 tonnes of CO2 savings per year as a result of the plants initiation. More than 40,000 of impoverished families without electricity in remote areas now have access to power in their homes.

Solar Park Meuro, Schipkau, Germany



Details:

³ Solar Park Meuro is a Solar Photovoltaic power plant, and commenced between 2011-12. The project boasts a 168 MW power output, producing enough energy for 17,500 homes in Schipkau. Spread over 150 Hectares situated on the remains of an old lignite mine, this project has a high cost benefit ratio, with the project costing \$140.0M.

Commentary:

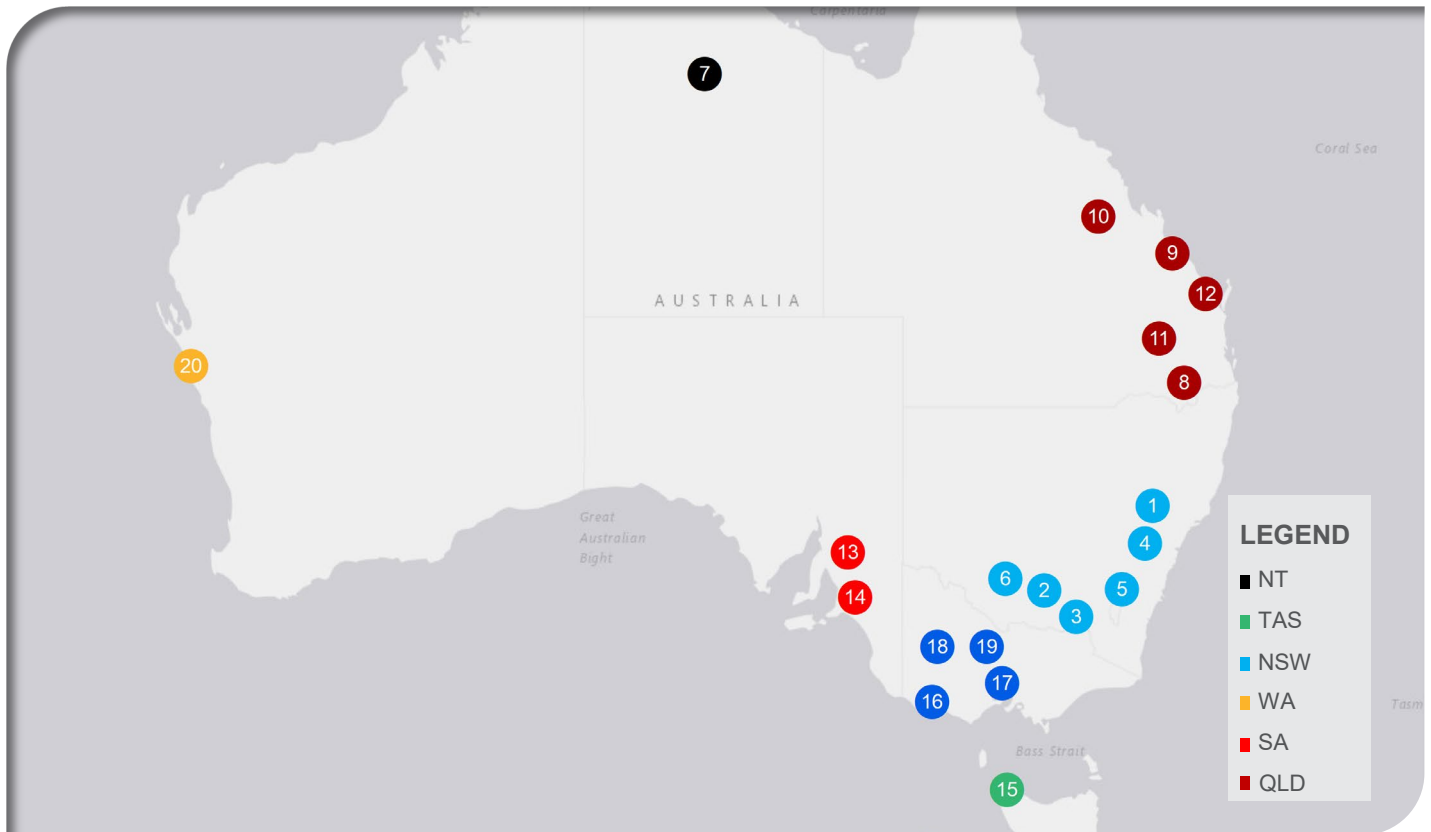
³ Schipkau residents can benefit from the addition of 166 MW power output, which will assist in offsetting over 52,000 tonnes of Co2 per year. The plant has impacted the local area as Solar is more cost effective than coal to produce, leading to residents paying less. This has assisted in accommodating all time highs international migration to Germany at 1.1M people at the year, which is a 13% annual increase. The addition of the solar plant will assist in attracting international migrants to Schipkau and improve the property market.

2022 and Beyond

How are we tracking?



RENEWABLE TOP PROJECTS DEVELOPMENT MAP



Location	Project [£]	State	LGA	Estimated Value [Ⓜ]	Commence Date [Ⓜ]
1	Merriwa Solar Farm	NSW	Upper Hunter	\$1,610,000,000	10/01/2024
2	Yarrabee Solar Farm	NSW	Federation	\$1,000,000,000	06/04/2023
3	Culcairn Solar Farm	NSW	Greater Hume	\$636,600,000	15/08/2022
4	Wallerawang Battery Energy Storage System	NSW	Lithgow	\$404,000,000	10/04/2023
5	Gunning Solar Farm	NSW	Upper Lachlan	\$380,000,000	29/07/2024
6	Hay Solar Farm	NSW	Hay	\$120,000,000	08/04/2023
7	Australia-asean Power Link (Aapl)	NT	Barkly Shire	\$30,000,000,000	12/02/2024
8	Macintyre Wind Farm - Macintyre Wind Farm Precinct	QLD	Southern Downs Regional	\$1,100,000,000	01/05/2022
9	Aldoga Solar Farm	QLD	Gladstone Regional	\$550,000,000	07/11/2022
10	Dysart Solar Farm	QLD	Isaac Regional	\$200,000,000	12/01/2023
11	Blue Grass Solar Farm	QLD	Western Downs Regional	\$200,000,000	01/01/2021
12	Banksia Solar Farm	QLD	Bundaberg Regional	\$100,000,000	18/11/2022
13	Goyder South Hybrid Renewable Energy Facility	SA	Goyder	\$3,000,000,000	08/08/2022
14	Pallamana Solar Farm & Battery Storage Facility	SA	Murray Bridge	\$350,000,000	03/10/2022
15	Robbins Island Renewable Energy Park	TAS	Circular Head	\$1,200,000,000	04/03/2024
16	Willatook Wind Farm	VIC	Southern Grampians	\$800,000,000	24/07/2023
17	Melton Renewable Energy Hub	VIC	Melton	\$800,000,000	22/02/2023
18	Wimmera Plains Energy Facility	VIC	Yarriambiack	\$450,000,000	18/08/2024
19	South Energy Raywood Solar Farm	VIC	Greater Bendigo	\$300,000,000	04/02/2023
20	Murchison Hydrogen Renewables Project	WA	Northampton	\$10,000,000,000	14/10/2024

Australian Government initiatives on renewable energy and sustainable housing. How do we compare to other countries?

Australia is committed to creating clean energy sources and prioritising renewable energy.

⁸Australia has committed to creating clean energy sources and prioritising renewable energy. Under the 'Powering Australia' plan, the Australian government will:

- Reduce Australia's emissions to 43% below 2005 levels by 2030 and legislate Australia's net zero 2050 target
- Provide \$20 billion to upgrade the electricity grid to support more renewable power
- Provide a \$100 million co-investment for 85 solar banks to ensure more households can benefit from rooftop solar
- Provide \$500 million towards developing clean hydrogen industrial hubs and storage projects in regions across Australia.

Sustainable housing in Australia

¹⁰ The demand for green and energy efficient housing is growing in Australia. The Government has started to incentivise owners to make their building more sustainable. One initiative by Sydney City Council provided a free service for energy, water and waste assessments for apartment buildings and the technical support needed for environmental upgrades. Similarly, the Green Council of Australia has proposed a green-rating system for detached housing, meaning Australia will have a reliable, internationally-recognised sustainability rating tool for all residential properties.

⁹ The Smart Green Apartments initiative in Sydney showed promising results when applied to the Aria apartments in Waterloo. Residents now pay \$61,000 per year less in energy bills due to lighting upgrades, rooftop solar panels and new speed drives on pumps and fans.

State Government rebates and initiatives have supported further use of renewable energy in homes across Australia. The table below outlines some current green/energy efficient mortgage grants and discounts in action across the world.

Green/Energy Efficient Mortgage Grant And Discounts			
Canada	USA	Australia	United Kingdom
<p>⁴ Canada Greener Homes program:</p> <ul style="list-style-type: none"> • Provides large retrofits/ renovations to access grants/ interest-free loans (up to \$40,000) • 2.6 billion/7 years. • Grant = \$5000 for energy efficient renovations + \$600 for EnerGuide evaluation. • 2021 Federal budget equals \$4.4 billion/5 years. 	<ul style="list-style-type: none"> • ⁵ Tax credit for energy efficient homes, builders (up to \$2,000) + renewable energy products (geothermal heat pumps, small wind turbines, fuel cells) equals 30% running by 2019, 26% running between 2019-2023 and 22% if installed by 2024 or after. • Must achieve 50% savings over 2006 Energy Code (ECC). 	<ul style="list-style-type: none"> • ⁶ Some lending institutions offer a green finance solution. • Clean Energy Finance Corporation (CEFC)- This is an Australian Government-owned green bank which supports finance for green energy. The corporation funds \$10 billion worth of clean energy projects. • CEFC invests in green home loans- Bank of Australia is #1 provider taking CEFC finance for energy efficient home loans below \$1.5 million. • Discounts on loans up to 0.4% for 5 years. • Initial \$60 million 2020 has been extended by \$30 million in 2021 due to strong demand. 	<ul style="list-style-type: none"> • ⁷ The UK government scrapped the Green Homes grants 12 months ago. • The ban on onshore wind farms has been lifted. • The Energy Security Strategy plans to secure 50GW of offshore wind capacity by 2030 (enough to power every home in the UK), and increase the UK's current 14GW of solar capacity to 70GW by 2035.

Moving forward - How will future renewable projects affect property prices?

PRD.



To what extent does the addition of renewable energy plants impact property prices, and how great is the multiplier effect? Does the development of renewable energy help to lower locals' costs of living?

To answer these questions, a forecasted growth framework has been created to streamline the growth of a property that is close to a renewable project. As renewable energy is an unlimited resource, it can unfold in its multiplier effect for an extended period. For the purposes of the report, this will be referred to as a multiplier of up to five years. Since using exact prices of properties close to a renewable energy initiative can be skewed due to the property type and time of build, this report considers property prices at an LGA level only.

The introduction of renewable energy can significantly help a region draw in new residents. This is largely because rising inflation and economic growth have increased living expenses, making any decrease in expenses—especially power—a significant deciding factor when choosing where to buy real estate. This has the result of raising the demand for real estate, which raises the price of real estate. The average price growth over the past one, two, and five years has been 6.5%, 7.8%, and 41.0%, according to data on previous renewable energy projects. These were added to the 2022 median house price in areas where a new renewable energy initiative is planned, shown in the table below.

Through the circular flow of income, can the creation of new housing supply occur?

The circular flow model illustrates how money circulates in an endless cycle from producers to households and back again. Money in the housing market moves from buyers to sellers, who then make investments in other sectors. Recent sellers frequently use the proceeds from the sale of their house to fund the construction of new homes in more affordable neighbourhoods (to take advantage of their capital gains). By bringing one more home to a market that is already undersupplied, this in turn contributes to the current housing supply. Additionally, this investment in home construction helps to create jobs, which further adds to the circular flow of income.

Analysis of LGAs with renewable energy initiatives revealed that there was little planned for residential development. For instance, only 59 and 1 new residential developments, respectively, have been approved in Moyne and Cabonne LGAs since 2017. Through the circular flow of income, a more vibrant economy and greater housing demand should lead to the production of housing supply, whether it be through greenfield or other initiatives. This, however, also depends on the adaptability of the regional planning authorities, both at the State and Local Council levels, to permit the growth of new housing supply at a rate that is consistent with demand.

LGA	State	Future Renewable Projects			
		2022* Median House Price	1 year Projected Growth	2 year Projected Growth	5 year Projected Growth
Bundaberg Regional	QLD	\$430,500	\$458,339	\$463,971	\$607,199
Gladstone Regional	QLD	\$410,000	\$436,513	\$441,878	\$578,285
Southern Downs Regional	QLD	\$385,000	\$409,897	\$414,934	\$543,023
Rockhampton Regional	QLD	\$410,000	\$436,513	\$441,878	\$578,285
Federation	NSW	\$420,000	\$447,160	\$452,655	\$592,389
Upper Lachlan	NSW	\$600,000	\$638,800	\$646,650	\$846,270
Upper Hunter	NSW	\$440,000	\$468,453	\$474,210	\$620,598
Lithgow	NSW	\$500,000	\$532,333	\$538,875	\$705,225
Greater Bendigo	VIC	\$580,000	\$617,507	\$625,095	\$818,061
Southern Grampians	VIC	\$365,000	\$388,603	\$393,379	\$514,814
Melton	VIC	\$635,000	\$676,063	\$684,371	\$895,636
Murray Bridge	SA	\$339,100	\$361,028	\$365,465	\$478,284
Northampton	WA	\$350,000	\$372,633	\$377,213	\$493,658

Notes and References

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2022 encapsulates sales transactions for 2022 (01/01/2022 – 28/09/2022) only.

Property median price growth has been sourced from APM Pricefinder

Future housing supply has been sourced Cordell Connect database

Project Development mapping utilises Esri ArcGI,

¹ Power Technology <https://www.power-technology.com/marketdata/mount-signal-3-solar-pv-park-us/>

² Trinasolar https://www.trinasolar.com/sites/default/files/CadizSolar_Philippines_CaseStudy0816FINAL.pdf

³ Route You <https://www.routeyou.com/en-de/location/view/47895305/solarpark-meuro>

⁴ CMHC <https://www.cmhc-schl.gc.ca/en/professionals/project-funding-and-mortgage-financing/funding-programs/all-funding-programs/canada-greener-homes>

⁵ Energy Star https://www.energystar.gov/about/federal_tax_credits/renewable_energy_tax_credits

⁶ CEFC <https://www.cefc.com.au/>

⁷ The Guardian <https://www.theguardian.com/environment/2021/mar/27/uk-government-scraps-green-homes-grant-after-six-months>

⁸ Australian Government <https://www.energy.gov.au/>

⁹ Stirling Capital <http://www.stirlingcapital.com.au/was-greenest-healthiest-building-set-for-canning-bridge/>

¹⁰ Smart line <https://www.smartline.com.au/mortgage-news/market-insights/are-australians-demanding-greener-homes/>

ψ Commencement date quoted for each project is an approximate only, as provided by the relevant data authority, PRD does not hold any liability to the exact date.

£ Projects refers to the top renewable developments within Australia

μ Estimated value is the value of construction costs provided by relevant data authority, it does not reflect the project's sale/commercial value.

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PRD Research Division provides reliable, unbiased, and authoritative property research and consultancy to clients in metro and regional locations across Australia

Our extensive research capability and specialised approach ensures our clients can make the most informed and financially sound decisions about residential and commercial properties.

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As the first and only truly knowledge based property services company, PRD shares experience and knowledge to deliver innovative and effective solutions to our clients.

We have a unique approach that integrates people, experience, systems and technology to create meaningful business connections. We focus on understanding new issues impacting the property industry; such as the environment and sustainability, the economy, demographic and psychographic shifts, commercial and residential design; and forecast future implications around such issues based on historical data and fact.

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