



AUSTRALIAN  
**ENERGY**  
COUNCIL

# SOLAR REPORT

## QUARTER 1 2025

Australian Energy Council

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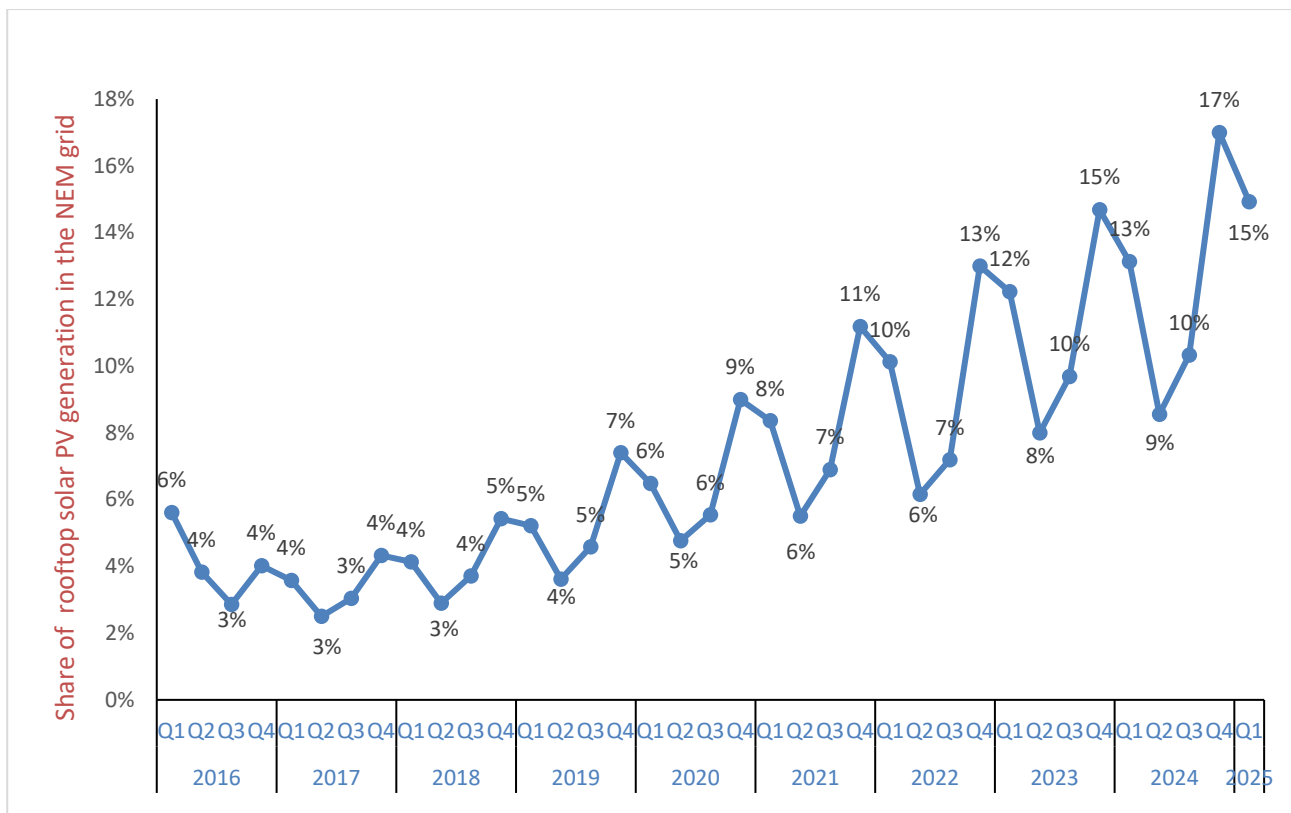
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## SECTION I: STATE OF SOLAR IN AUSTRALIA

The penetration of Australian rooftop photovoltaics (PV) in the energy market continues to grow and contributed roughly 15 per cent (approximately 8,172 GWh) of the National Electricity Market's total electricity generation in Q1 2025 – a 14 per cent increase from just one year earlier (figure 1). The graph below shows rooftop solar is becoming an increasingly substantial component of the electricity generation mix.

**Figure 1: Share of rooftop PV generation in the NEM grid**



Source: Australian Energy Council analysis

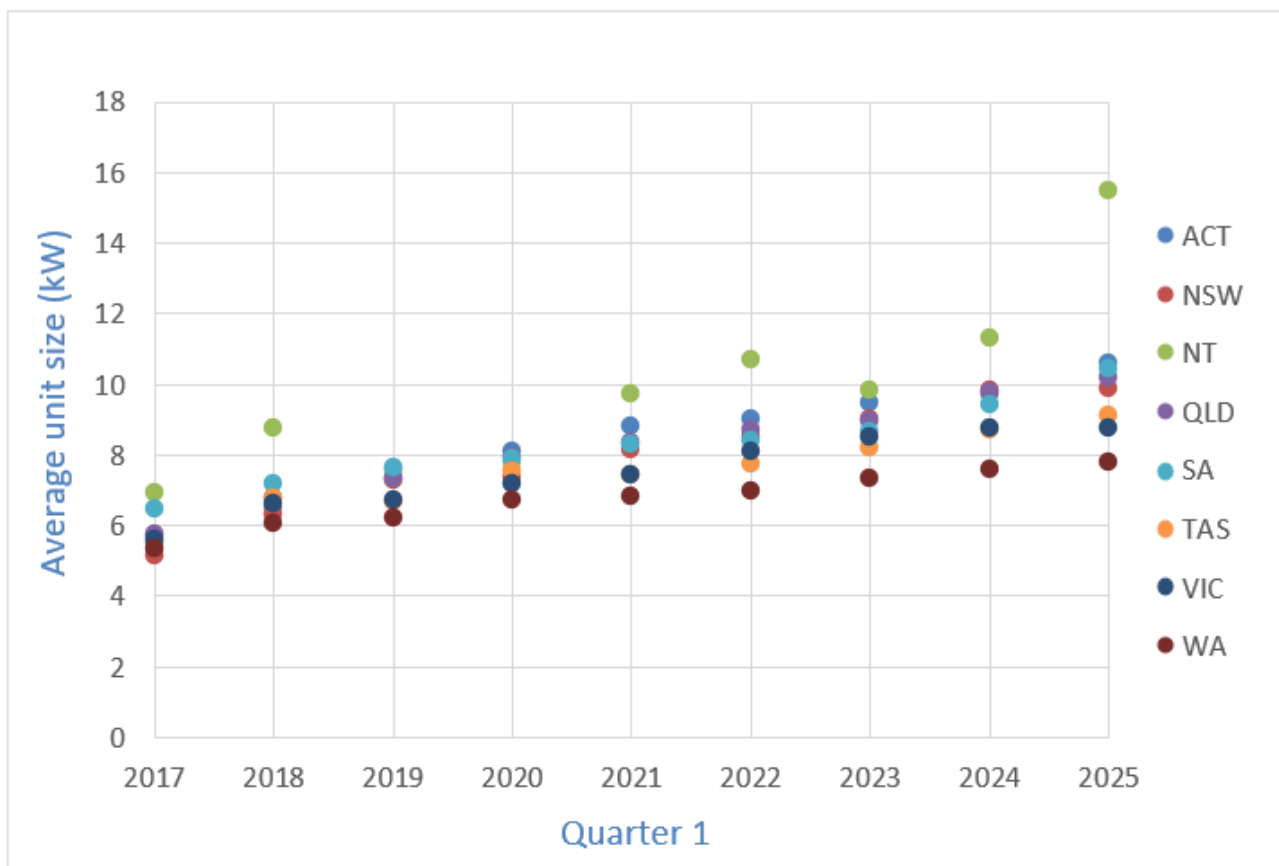
In the first quarter of 2025, the capacity of rooftop solar installations for homes and businesses surpassed 26 GW, with over 4.1 million photovoltaic systems now operational across the country, according to data from the Clean Energy Regulator (CER).

We are also seeing a consistent increase in the size of the rooftop solar systems being installed in Australia. Figure 2 illustrates the size of the average rooftop solar system in the first quarter of each year since 2017. The chart shows the upward trend across all states and territories, with the Northern Territory showing the most pronounced growth. In Q1 2025, NT reached the highest average system

size in the country at 15.5 kW. The Territory has a unique profile - it accounts for just 0.3 per cent of total national capacity and 0.2 per cent of installations. Despite having a relatively small number of systems, the installations are significantly larger. The larger rooftop solar systems compared to other parts of Australia is encouraged by factors like higher electricity costs, generous feed-in tariffs, and the region's abundant solar resources. Overall, there are now 23,000 rooftop solar systems installed, while the Territory has 85,000 dwellings, according to the ABS. It is worth noting, the NT also has a much higher proportion of renters than other parts of Australia which will impact the uptake of systems.

Other states have also shown steady growth in system sizes, driven by increasing demand for larger residential systems and small-scale commercial installations. In Q1 2025 the average system size in the ACT, Queensland, and South Australia exceeded 10 kW. New South Wales and Queensland continue to lead in both installations and overall capacity, representing 59 per cent and 56 per cent of the national totals, respectively. Their average system sizes are 9.9 kW (NSW) and 10.2 kW (Qld), made up of a mix of residential and commercial installations.

**Figure 2: Average unit system size of rooftop PV in the first quarter of each year in Australia**

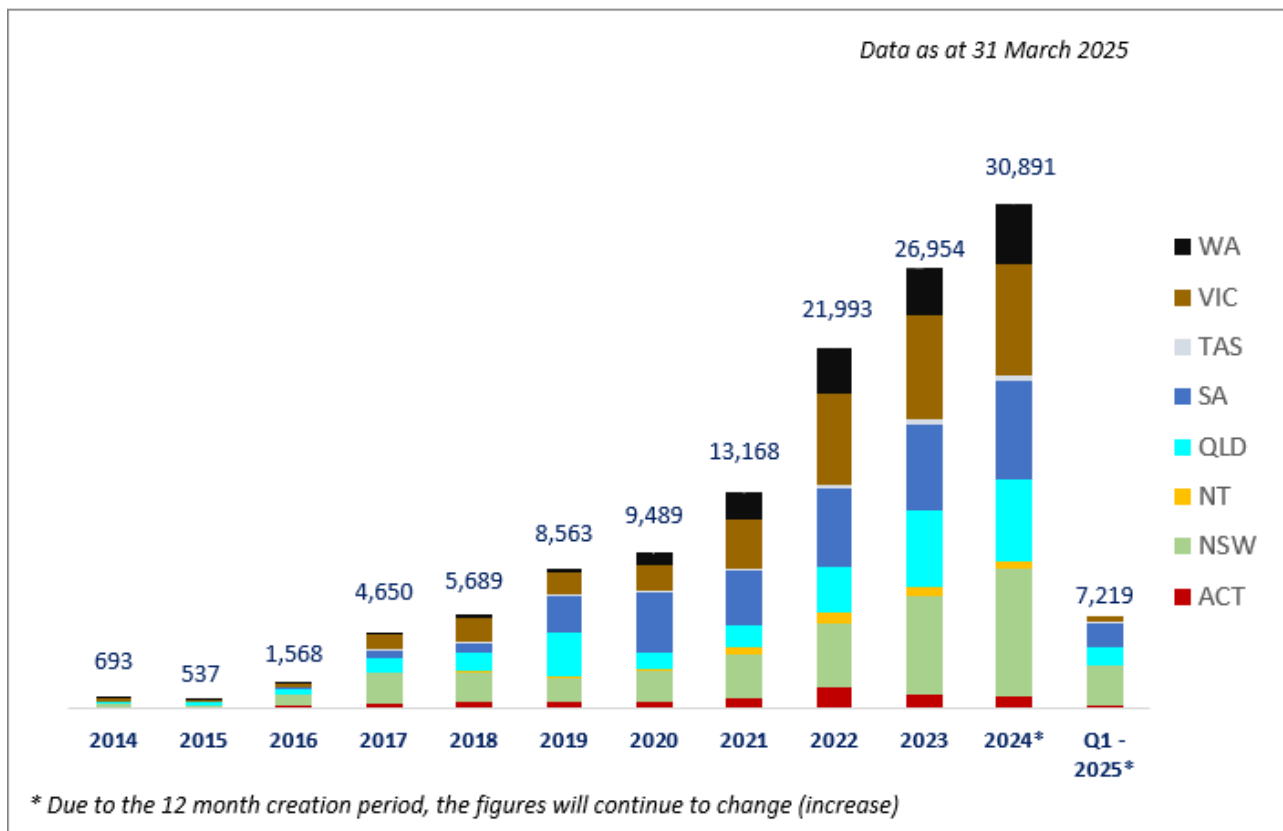


Source: Clean Energy Regulator data, Australian Energy Council analysis, data as of 24 April 2025

### Battery installations with rooftop solar

In Q1 2025, over 7,200 batteries were installed alongside rooftop solar systems across Australia. New South Wales led with 2,379 installations, followed by South Australia (1,476) and Queensland (1,060). Victoria and Western Australia recorded 1,170 and 776 installations, respectively, while the Northern Territory added 81, continuing its trend of high battery uptake relative to system count. Battery adoption remains strong in states with high solar penetration, reflecting increasing consumer interest in energy independence and bill savings.

**Figure 3: Number of solar PV installations with concurrent battery installations, per state since 2014**



Source: Clean Energy Regulator data, Australian Energy Council analysis, data as of 24 April 2025

Following the Australian Labor Party's Federal election victory on 3 May 2025, attention has turned to their pre-election commitment – the “Cheaper Home Battery Program”. This ambitious initiative to accelerate battery adoption alongside the growing rooftop solar sector will provide a substantial rebate and financing mechanisms for residential and commercial battery installations. This strategic initiative specifically targets 1.8 GWh of new distributed storage capacity by 2027, addressing critical grid stability challenges created by variable renewable generation, while enabling the typical household to increase self-consumption of the solar they produce from 30 per cent to over 80 per cent. While formal implementation is still pending, the program is expected to be well-received and to help accelerate the adoption of residential battery storage.

Since the last Solar Report, there have been no changes to state policies for solar and battery storage installations (see Table 1).

**Table 1: Current Government Policies**

State/ Territory	Policy Incentive (Solar & Battery)	Energy target
Australian Capital Territory	<ul style="list-style-type: none"> <li>No specific policy</li> </ul>	<ul style="list-style-type: none"> <li>to deliver a 70 per cent cut in emissions by 2035 compared to 2005 levels</li> <li>net zero by 2050</li> </ul>
New South Wales	<ul style="list-style-type: none"> <li>NSW Govt Solar Battery Rebate<sup>1</sup>. Discount range \$770 and \$1150 for a 6.5 kWh battery; or \$1600 and \$2400 for a 13.5 kWh battery</li> </ul>	<ul style="list-style-type: none"> <li>NSW emission reduction of 70% by 2035 and achieve net zero by 2050</li> </ul>
Northern Territory	<ul style="list-style-type: none"> <li>Home and Business Battery Scheme allows residents to buy and install batteries and inverters with a maximum grant of \$5,000 (reducing from \$6,000) from 1 July 2024.<sup>i</sup></li> </ul>	<ul style="list-style-type: none"> <li>50 per cent by 2030</li> </ul>
Queensland	<ul style="list-style-type: none"> <li>Battery Booster program<sup>2</sup> closed to new conditional approval applications 8 May 24.</li> </ul>	<ul style="list-style-type: none"> <li>50 per cent by 2030</li> </ul>
South Australia	<ul style="list-style-type: none"> <li>The Sustainability Incentives Scheme is currently fully allocated for FY2024/25</li> </ul>	<ul style="list-style-type: none"> <li>100 per cent by 2030</li> </ul>
Tasmania	<ul style="list-style-type: none"> <li>No specific policy</li> </ul>	
Victoria	<ul style="list-style-type: none"> <li>Solar Battery Loans<sup>3</sup>: Interest-free loans up to \$8,800 for eligible households.</li> </ul>	<ul style="list-style-type: none"> <li>65 per cent by 2030</li> <li>95 per cent by 2035<sup>4</sup></li> </ul>
Western Australia	<ul style="list-style-type: none"> <li>No specific policy</li> </ul>	

<sup>1</sup> [NSW Government Battery Rebate](#), from 1 November 2024

<sup>2</sup> [Battery Booster Rebate](#)

<sup>3</sup> [Solar Battery Loans for financial year 2024-25](#)

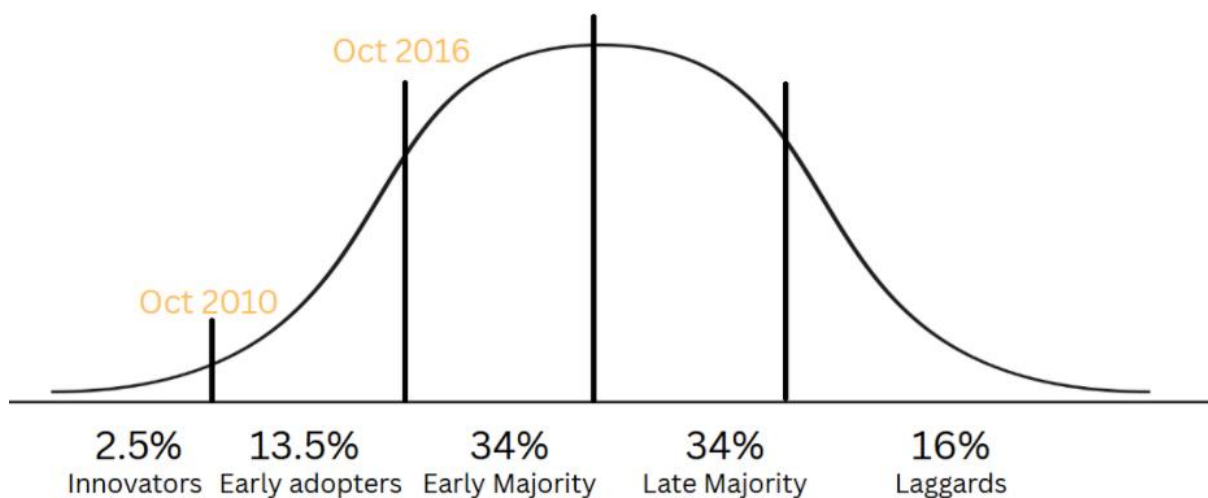
<sup>4</sup> [Victorian renewable energy and storage targets](#), page last updated 15 February, 2023

## SECTION II: TWO DECADES OF ROOFTOP SOLAR - ADOPTION RATES

It has been 25 years since the Renewable Energy (Electricity) Act 2000 established the market for renewable energy certificates (RECs) that came into effect on 1 April 2001. For residential rooftop solar, the Act enables the Small-scale Renewable Energy Scheme (SRES), which provides financial incentives through Small-scale Technology Certificates (STCs). These certificates reduce the upfront cost of solar systems for households. The Clean Energy Council (CEC) supports this scheme by accrediting installers and approving solar products; only systems installed by CEC-accredited professionals using CEC-approved equipment are eligible for STCs. Together, the Act and certificates have played a key role in driving rooftop solar adoption across Australia.

The past quarter-century has witnessed a remarkable transformation of Australia's energy landscape. Clean Energy Council data first published in April 2001, when there were just a handful of pioneering rooftop solar installations, to March 2025, where over four million Australian households are now generating their own electricity. In this article, we look at distinct patterns in how different regions have embraced small-scale PV technology. Before we look at any divide between "high installation" and "low installation" areas, we will look at the rooftop technology adoption curves across Australia to identify pioneering regions and what timeframe includes "pioneers".

**Figure 4: Rooftop Solar Technology Adoption Curve in Australia**



**Source:** Adoption categories based on the *Technology Adoption Lifecycle*, popularized by Everett M. Rogers in *Diffusion of Innovations* (1962).

Figure 4 applies the *Technology Adoption Lifecycle* to rooftop solar technology uptake across Australia, classifying the timeframe when they reached key adoption milestones. Classification of adoption phase is derived from cumulative rooftop PV installation data (up to March 2025), using defined cut-off dates aligned with typical adoption curve thresholds. Drawing on the theory, rooftop solar adoption in Australia took over nine years for rooftop solar to reach just 2.5 per cent of dwellings (from April 2001 to October 2010), marking the “Innovators” stage. That’s roughly 240,000 rooftop solar installations out of approximately 9.1 million dwellings across Australia. However, adoption accelerated, taking only six more years to reach the “Early Adopters” phase by October 2016. As of April 2025, rooftop solar is installed on about 40 per cent of Australian dwellings, indicating the transition into the “Early Majority” stage. This reflects how new technology gains momentum once early success is visible and barriers to adoption fall.

While the *Technology Adoption Lifecycle* provides a useful timeframe for understanding rooftop solar uptake, the initial analysis reveals that a large number of postcodes (nearly 90 per cent of postcodes or 2,530 postcodes and 485 Local Government Areas (LGAs)) registered installations by October 2010, technically classifying them as “Innovators.” This broad classification masks important regional differences in growth patterns over time. To extract more meaningful insights, we focus on the top 5 per cent of regions (24 LGAs) with the highest number of installations by October 2010. These regions alone accounted for more than a third (35.1 per cent) of all rooftop solar systems installed during the Innovator phase (table 2). This highlights a strong early concentration of adoption in a small number of pioneering areas. Although by March 2025, their combined share slightly declined which indicates some broadening of adoption, these regions still continued to be strong adopters of rooftop solar.

**Table 2: Share of rooftop solar householders classified as “Innovators” (installed by October 2010)**

Top % of LGAs by Oct 2010	Number of LGAs (Total =500)	Share of total installations	
		Apr 2001 to Oct 2010	Apr 2001 to Mar 2025
5%	24	35.1%	31.3%
10%	48	52.1%	45.6%
20%	96	73.5%	64.4%

Source: Clean Energy Regulator data, Australian Energy Council analysis, data as of 24 April 2025

### **Innovators with Sustained Momentum**

Among these top 24 LGAs, Brisbane stands out significantly, representing 4.9 per cent of all installations by 2010 and increasing its share to 5.2 per cent by March 2025. Brisbane has seen the highest uptake of any LGA. Other LGAs such as Gold Coast and Moreton Bay also experienced growth in their national share, rising from 2.8 per cent to 3.3 per cent and 2.4 per cent to 3.0 per



cent, respectively. This trend suggests that several of the earliest adopters not only led the initial wave but continued to outpace the national average in installation growth.

Most LGAs experienced modest changes in share over time, indicating a degree of consistency in their contribution to national totals. For instance, Blacktown in New South Wales maintained a steady share (1.3 to 1.4 per cent), as did Fraser Coast in Queensland (1.2 to 1.2 per cent) and Wanneroo in Western Australia (1.5 to 1.4 per cent).

### **Pioneering Regions Reaching Plateau**

Conversely, a number of LGAs that were prominent in the early period saw a decline in their relative share by March 2025. For example, Queensland's Sunshine Coast fell from 2.7 per cent to 1.5 per cent, Redland (NSW) from 1.5 per cent to 0.8 per cent, and Parramatta (NSW) from 1.2 per cent to 0.7 per cent. These decreases suggest that while these areas were early adopters, installation growth in other LGAs has since caught up or surpassed them, diluting their overall share. While the national uptake has become more distributed over time, many of these LGAs maintained a prominent role in the overall solar landscape.

Some LGAs in New South Wales (Ballina, Northern Beaches, Parramatta, Tweed, and Wollongong), Victoria (Brimbank), and Western Australia (Kalamunda) have decreased their share of total installations over time, they no longer rank within the top 5 per cent by March 2025. Instead, new regions have emerged as leaders. LGAs such as Ipswich and Townsville in Queensland, Port Adelaide Enfield in South Australia, Cardinia, Casey, and Wyndham in Victoria, and Rockingham and Swan in Western Australia have seen strong growth, rising into the top 5 per cent of rooftop solar adopters by the end of March 2025. The table below shows the changing dynamics in solar uptake and trendlines, with emerging growth areas surpassing some of the early leaders.

**Table 3: Top 24 LGAs classified as “innovators” with highest number of rooftop installations**

State	Local Government Area	Share of total installations (Up until October 2010)	Share of total installations (Up until March 2025)	Trend line
ACT	Unincorporated ACT	1.1%	1.4%	
NSW	Ballina	1.0%	0.6%	
NSW	Blacktown	1.3%	1.4%	
NSW	Central Coast (NSW)	1.3%	1.3%	
NSW	Hornsby	1.0%	0.9%	
NSW	Lake Macquarie	1.4%	1.1%	
NSW	Northern Beaches	1.1%	0.7%	
NSW	Parramatta	1.2%	0.7%	
NSW	Tweed	1.0%	0.7%	
NSW	Wollongong	0.9%	0.7%	
QLD	Brisbane	4.9%	5.2%	
QLD	Fraser Coast	1.2%	1.2%	
QLD	Gold Coast	2.8%	3.3%	
QLD	Logan	1.3%	1.4%	
QLD	Moreton Bay	2.4%	3.0%	
QLD	Redland	1.5%	0.8%	
QLD	Scenic Rim	1.2%	0.8%	
QLD	Sunshine Coast	2.7%	1.5%	
SA	Onkaparinga	1.5%	1.0%	
SA	Tea Tree Gully	0.9%	1.0%	
VIC	Brimbank	1.0%	0.6%	
WA	Kalamunda	0.9%	0.7%	
WA	Wanneroo	1.5%	1.4%	

Source: Clean Energy Regulator data, Australian Energy Council analysis, data as of 24 April 2025

### Late Entrants

At the other end of the adoption spectrum, a number of LGAs had no rooftop solar installations prior to October 2010, placing them outside the "Innovator" category entirely. These include regions such as Bland (NSW), MacDonnell and Victoria Daly (NT), Napranum and Winton (QLD), and several remote LGAs in Western Australia. The uptake has been slow and dispersed. By March 2025, their cumulative contributions remain minimal with a combined share of less than 0.1 per cent of total

installations nationally. This pattern likely reflects several factors that might have delayed solar adoption in these regions, such as:

- Remote/rural locations with sparse populations.
- Potentially challenging grid connectivity issues.
- Economic factors specific to these communities.

**Table 4: Late Entrants**

	Total installations by March 2025	Share of installation by March 2025
<b>NSW</b>		
Bland	1638	0.040%
<b>NT</b>		
MacDonnell	241	0.006%
Victoria Daly	49	0.001%
<b>QLD</b>		
Napranum	89	0.002%
Quilpie	272	0.007%
Winton	41	0.001%
<b>WA</b>		
Dalwallinu	57	0.001%
Kent	154	0.004%
Koorda	8	0.000%
Lake Grace	74	0.002%
Morawa	134	0.003%
Narembeen	58	0.001%
Trayning	168	0.004%
Upper Gascoyne	417	0.010%
Wongan-Ballidu	235	0.006%

Source: Clean Energy Regulator data, Australian Energy Council analysis, data as of 24 April 2025

## Conclusion

Understanding these adoption patterns provides crucial insights for industry stakeholders planning the next phase of market engagement. Innovator regions identified in this analysis are likely to continue to have high growth potential for solar and solar-related products. However, many of these top early entrants are now nearing saturation points, signalling a shift in opportunity from new installations toward system upgrades, battery storage, and performance optimisation. As the market matures, it will be important to track whether these early solar champions are also leading in the uptake of complementary technologies, such as home battery systems and electric vehicles. Their trajectory may offer a preview of how and where integrated, consumer-led energy systems will evolve across Australia.

## SECTION III: LEVELISED COST OF ENERGY

The Levelised Cost of Energy (LCOE) is the cost of energy per kilowatt hour (kWh) produced. When this is equal to or below the cost consumers pay directly to suppliers for electricity, this is called grid parity. Table 2 shows the LCOE for solar in Australia's major cities, indicative retail prices and current Feed-in tariff (FiT) rates. The detailed methodology can be found in the Appendix.

The retail comparison rates are representative variable rates and do not include supply charges. For all capital cities, excluding Perth and Hobart, retail prices are based on the implied usage charges from St Vincent de Paul's tracking of market offers, which was last updated in July 2024. Perth prices are regulated and obtained from Synergy (2 cents/kWh for solar export between 3pm to 9pm). Hobart prices were obtained from Aurora Energy's Tariff 31, while Darwin prices are obtained from Jacana Energy's regulated residential usage charges. Tables 5, 6 and 7 show the LCOE across major cities at different discount rates.

**Table 5: Central estimate: 5.08 per cent discount rate (ten-year average mortgage rate)**

All figures in \$/KWh	System Size						Retail prices	FIT
	3 kW	4 kW	5 kW	6 kW	7 kW	10 kW		
Adelaide	\$0.10	\$0.09	\$0.08	\$0.08	\$0.08	\$0.08	\$0.43	\$0.05
Brisbane	\$0.10	\$0.09	\$0.09	\$0.08	\$0.08	\$0.08	\$0.31	\$0.06
Canberra	\$0.10	\$0.09	\$0.08	\$0.08	\$0.08	\$0.07	\$0.26	\$0.09
Darwin	\$0.11	\$0.11	\$0.11	\$0.11	\$0.10	\$0.10	\$0.28	\$0.24
Hobart	\$0.14	\$0.12	\$0.12	\$0.11	\$0.11	\$0.11	\$0.30	\$0.10
Melbourne	\$0.12	\$0.11	\$0.10	\$0.10	\$0.10	\$0.09	\$0.28	\$0.05
Sydney	\$0.11	\$0.10	\$0.09	\$0.09	\$0.09	\$0.08	\$0.32	\$0.07
Perth	\$0.09	\$0.08	\$0.08	\$0.08	\$0.08	\$0.08	\$0.45	\$0.02

Source: Australian Energy Council analysis, April 2025

**Table 6: Low cost of capital sensitivity: 6.39 per cent discount rate (low current standard variable rate)**

All figures in \$/KWh	System Size						Retail prices	FIT
	3 kW	4 kW	5 kW	6 kW	7 kW	10 kW		
Adelaide	\$0.10	\$0.09	\$0.09	\$0.08	\$0.08	\$0.08	\$0.43	\$0.05
Brisbane	\$0.11	\$0.10	\$0.09	\$0.09	\$0.09	\$0.08	\$0.31	\$0.06
Canberra	\$0.10	\$0.09	\$0.08	\$0.08	\$0.08	\$0.08	\$0.26	\$0.09
Darwin	\$0.11	\$0.12	\$0.11	\$0.11	\$0.11	\$0.10	\$0.28	\$0.24
Hobart	\$0.14	\$0.13	\$0.12	\$0.12	\$0.11	\$0.12	\$0.30	\$0.10
Melbourne	\$0.13	\$0.11	\$0.11	\$0.10	\$0.10	\$0.10	\$0.28	\$0.05
Sydney	\$0.11	\$0.10	\$0.09	\$0.09	\$0.09	\$0.09	\$0.32	\$0.07
Perth	\$0.09	\$0.09	\$0.08	\$0.08	\$0.08	\$0.08	\$0.45	\$0.02

Source: Australian Energy Council analysis, April 2025

**Table 7: High cost of capital sensitivity: 16.00 per cent discount rate (indicative personal loan rate)**

All figures in \$/KWh	System Size						Retail prices	FIT
	3 kW	4 kW	5 kW	6 kW	7 kW	10 kW		
Adelaide	\$0.16	\$0.14	\$0.13	\$0.12	\$0.12	\$0.12	\$0.43	\$0.05
Brisbane	\$0.17	\$0.15	\$0.14	\$0.13	\$0.13	\$0.12	\$0.31	\$0.06
Canberra	\$0.16	\$0.14	\$0.12	\$0.12	\$0.12	\$0.11	\$0.26	\$0.09
Darwin	\$0.19	\$0.20	\$0.18	\$0.18	\$0.17	\$0.16	\$0.28	\$0.24
Hobart	\$0.23	\$0.21	\$0.19	\$0.19	\$0.18	\$0.18	\$0.30	\$0.10
Melbourne	\$0.20	\$0.18	\$0.16	\$0.15	\$0.15	\$0.14	\$0.28	\$0.05
Sydney	\$0.18	\$0.15	\$0.14	\$0.13	\$0.13	\$0.13	\$0.32	\$0.07
Perth	\$0.15	\$0.13	\$0.12	\$0.12	\$0.12	\$0.12	\$0.45	\$0.02

Source: Australian Energy Council analysis, April 2025

### Small and large business - Levelised cost of electricity

Tables 8 and 9 show the estimated cost of electricity production for commercial-sized solar systems. As businesses look to reduce overhead costs, installation of larger-scale solar systems continues to increase.

Business tariffs differ to residential retail tariffs. Depending on the size of the customer and the amount of energy used, businesses can negotiate lower prices. If a business was to consume all electricity onsite, the electricity prices in Tables 7 and 8 would represent the cost per kWh of consumption from the energy generated from different system sizes listed. For businesses, installation occurs if the benefits of installation outweigh the cost.

**Table 8: Central estimate: 4.91 per cent discount rate, ten-year average small business interest rate**

All figures in \$/KWh	System Size				
	10kW	30kW	50kW	70kW	100kW
Adelaide	\$0.08	\$0.09	\$0.09	\$0.09	\$0.08
Brisbane	\$0.08	\$0.08	\$0.08	\$0.08	\$0.08
Canberra	\$0.08	\$0.10	\$0.09	\$0.08	\$0.08
Hobart	\$0.12	\$0.10	\$0.10	\$0.10	\$0.09
Melbourne	\$0.10	\$0.10	\$0.10	\$0.10	\$0.09
Sydney	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09
Perth	\$0.09	\$0.08	\$0.09	\$0.08	\$0.08

Source: Australian Energy Council analysis, April 2025

**Table 9: Central estimate: 6.59 per cent discount rate, ten-year average large business interest rate**

All figures in \$/KWh	System Size				
	10kW	30kW	50kW	70kW	100kW
Adelaide	\$0.09	\$0.09	\$0.10	\$0.10	\$0.09
Brisbane	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09
Canberra	\$0.09	\$0.11	\$0.10	\$0.09	\$0.09
Hobart	\$0.13	\$0.11	\$0.11	\$0.11	\$0.10
Melbourne	\$0.10	\$0.10	\$0.11	\$0.10	\$0.10
Sydney	\$0.09	\$0.09	\$0.10	\$0.09	\$0.09
Perth	\$0.09	\$0.09	\$0.10	\$0.09	\$0.08

Source: Australian Energy Council analysis, April 2025

## SECTION IV: PAYBACK PERIOD, DETAILED MODEL

The payback period for rooftop solar photovoltaic (PV) systems in Australia is an important consideration for homeowners, as it determines how long it takes to recoup the initial investment. It is defined as the year when the cumulative savings are greater than the cumulative costs of a solar PV system. Savings represent the avoided cost of consumption, and any revenue received from FiTs. The cumulative cost incurred represents the initial investment and the time value of money. A detailed methodology is contained in Appendix 2.

While solar panel installation requires an upfront investment, homeowners benefit from lower electricity bills by relying less on grid power and selling surplus electricity back to the grid for FiT credits. Recently, as wholesale electricity prices have dropped, many retailers have reduced their FiT offerings, making solar installations less attractive. Many retailers now offer time-varying tariffs, which offer higher rates during peak demand periods, usually in the late afternoon. Here we only use simple average FiT when estimating payback periods to get a clearer understanding of potential savings for households. Table 10 highlights the payback period for different system sizes across Australia. The short payback periods in many cities provide strong incentives for customers to adopt solar PV installations.

Each household's energy consumption patterns play a crucial role in determining the actual savings. Homes with higher electricity usage during peak generation times will benefit more from their solar investments compared to those with lower consumption. Therefore, while rooftop solar can yield significant financial benefits, the specific payback period is influenced by system size, tariff structures, and individual energy usage. An energy plan offering the highest solar feed-in tariff may not always be the most cost-effective choice overall, as it could involve higher supply and usage charges compared to other plans. So, it is essential to select an energy plan subject to householders' historical electricity consumption and the amount of solar energy they export.

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**Table 10: Payback period for solar PV (at 5.08 and 6.39 per cent discount rate)**

	Interest Rate %	System Size (kW)					
		3 kW	4 kW	5 kW	6 kW	7 kW	10 kW
Assumed Export Rate		60%	65%	74%	77%	80%	90%
Adelaide	5.08	4	3	4	4	4	6
	6.39	4	3	4	4	4	7
Brisbane	5.08	6	5	5	5	6	7
	6.39	4	3	4	4	4	7
Canberra	5.08	5	4	4	4	4	4
	6.39	5	4	4	4	4	4
Darwin	5.08	6	7	8	8	8	9
	6.39	7	8	9	10	9	11
Hobart	5.08	7	7	7	7	6	8
	6.39	8	7	7	7	7	10
Melbourne	5.08	8	7	7	7	8	10
	6.39	9	8	8	9	9	13
Sydney	5.08	5	5	5	5	5	6
	6.39	6	5	5	5	5	7
Perth	5.08	3	3	4	4	5	10
	6.39	3	3	4	5	5	10

Source: Australian Energy Council analysis, April 2025

Cities like Adelaide and Perth have the shortest payback times, as low as 3–4 years, due to higher solar output and better returns. Sydney and Canberra also perform well, with payback around 4–5 years. In contrast, Darwin, Hobart, and Melbourne see longer paybacks, ranging from 7 to 13 years, due to less favourable solar conditions. Generally, smaller to mid-sized systems (3–7 kW) pay off faster, and higher interest rates slightly extend the payback period.



## SECTION V: METHODOLOGY APPENDIX

### 1. Solar installations methodology

Analysis from the CER's monthly data allows us to estimate the amount of solar PV installed in Australia. Since November 2015, the CER has consistently released data dated as at the first of each month. The new consistent release date allows us to provide a more accurate estimate of the capacity of recent installations. Due to the lag in reporting of new installations, however, the CER data takes up to 12 months to be finalised.

### 2. Payback period methodology

This methodology outlines our approach in calculating the payback period for solar panels installed across capital cities in Australia. Our analysis includes the following:

- Initial investment
- Discount rate
- Efficiency
- System degradation rate
- Export rate
- Avoided usage cost
- FiT

Initial investment, discount rate, efficiency and system degradation rate are described in appendix 1. Key difference to LCOE calculation is the payback period assumes no annual maintenance cost.

#### Calculation

Payback period occurs when  $\sum \text{savings} > \sum \text{cost}$

Where:

Savings = (usage cost x  $(1 + \text{CPI})^t$  x consumption / 100) + (Export x FiT)

Cost = investment x  $(1 + \text{real discount rate})^t$

t = years

#### Avoided cost and FiT

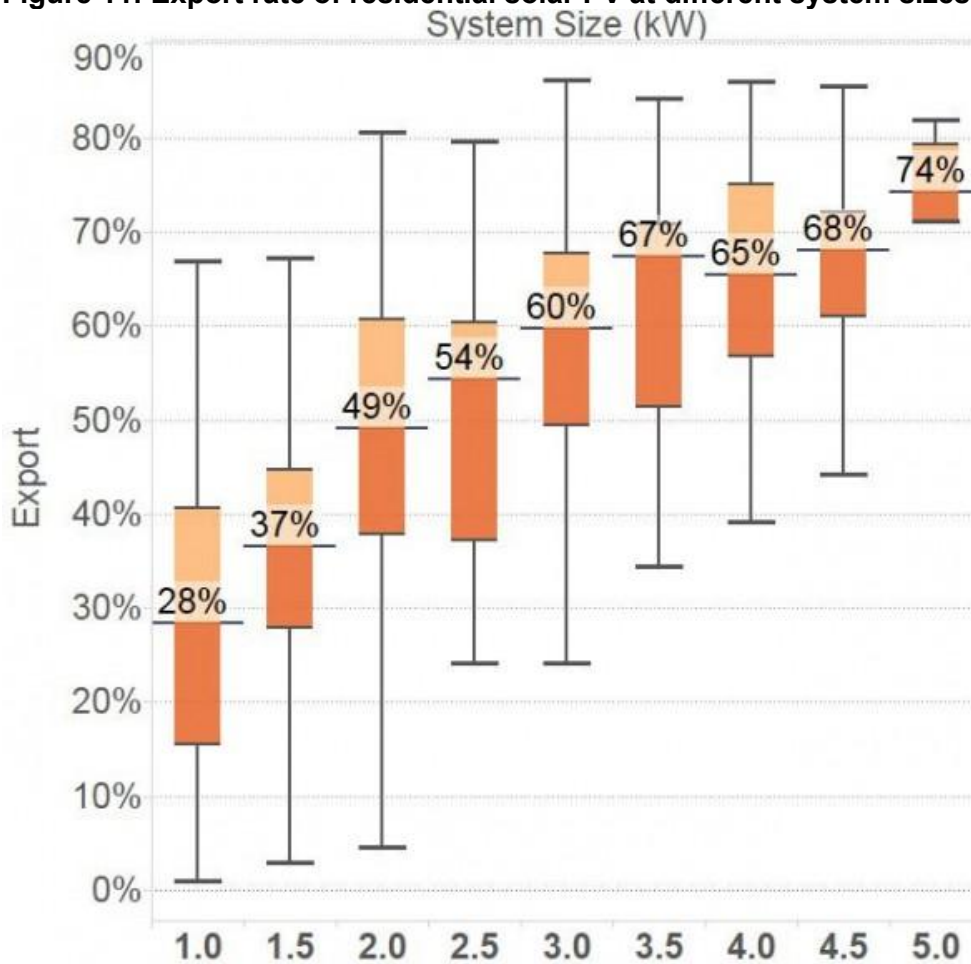
The onsite consumption is multiplied by the retailer's usage charges. CPI has been applied to the usage charge to allow for growth in retail prices. The excess energy is exported to the grid and the customer is expected to receive the mandatory FiT or a realistic market offer where mandatory tariffs are not applicable.

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### Export rate

The percentage of onsite consumption and electricity which is exported to the grid is calculated using the median value from Sunwiz' analysis<sup>ii</sup>. See Figure 11 below.

**Figure 11: Export rate of residential solar PV at different system sizes**



Source: Sunwiz' analysis, 2015

<sup>i</sup> <https://nt.gov.au/industry/business-grants-funding/home-and-business-battery-scheme>

<sup>ii</sup> Sunwiz, [Solar Pays Its Way on Networks](#). Last accessed 17 June 2015.