ACIL ALLEN

Small-scale technology projections

2026-2035

16 January 2026

About ACIL Allen

ACIL Allen is a leading independent economics, policy and strategy advisory firm, dedicated to helping clients solve complex issues.

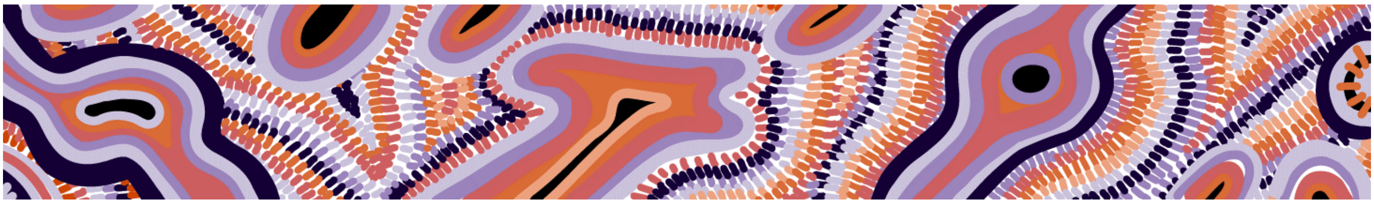
Our purpose is to help clients make informed decisions about complex economic and public policy issues.

Our vision is to be Australia's most trusted economics, policy and strategy advisory firm. We are committed and passionate about providing rigorous independent advice that contributes to a better world.

Report to:

Clean Energy Regulator

ACIL Allen acknowledges Aboriginal and Torres Strait Islander peoples as the Traditional Custodians of the land and its waters. We pay our respects to Elders, past and present, and to the youth, for the future. We extend this to all Aboriginal and Torres Strait Islander peoples reading this report.



Goomup, by Jarni McGuire

ACIL ALLEN

Contents

Figures

Contents

Tables

Summary Report

Executive summary

ACIL Allen has been engaged by the Clean Energy Regulator (CER) to undertake annual[1] small-scale system installation projections for the calendar years 2026 to 2035 for:

- small-scale solar PV
- eligible water heaters, which include solar water heaters (SWH) and air source heat pumps (ASHP).

We use an econometric model to project the uptake of new small-scale solar PV installations (referred to in this report as solar PV). The projections are largely a function of the payback period of installations.

For solar PV, the model is calibrated using historical data for solar PV installations in the period January 2015 to April 2025 and for each state/territory and customer type separately. Although data is available for installations up to end of October 2025, installers have up to 12 months to register an installation with the CER. Our analysis suggests solar PV installers typically register installations within around six months and hence we have omitted installations from May 2025 in the econometric model to avoid skewing the results.

It is assumed the 2025-2035 annual replacement[2] installations as a ratio of new installations are similar to the ratio observed in 2025, which is higher compared to historical levels. The higher rate of replacement is likely due to the introduction of the Cheaper Home Batteries Program. It is assumed that when a home battery is installed, the replacement PV installation is larger than the original installation, consistent with the assumed growth in average PV installation size.

Solar PV projections are presented for Base, Low and High scenarios, which are based on inputs and assumptions from the 2025 IASR Step Change, Slower Growth and Accelerated Transition scenarios, respectively. Assumptions for each scenario are detailed in the Appendix in sections A.7 and A.8.

For eligible water heater projections, we use a simpler approach compared to the approach to modelling solar PV installations under the Base case only. The projections of eligible water heaters consider recent historical installation trends and the relative cost of hot water technologies including government subsidies. We have assumed 2026-2035 annual new dwelling and replacement installations as a proportion of eligible dwellings are similar to the proportion in 2025 using historical data up to 30 September 2025.[3]

[1] Annual results are presented on a calendar year basis in this report.

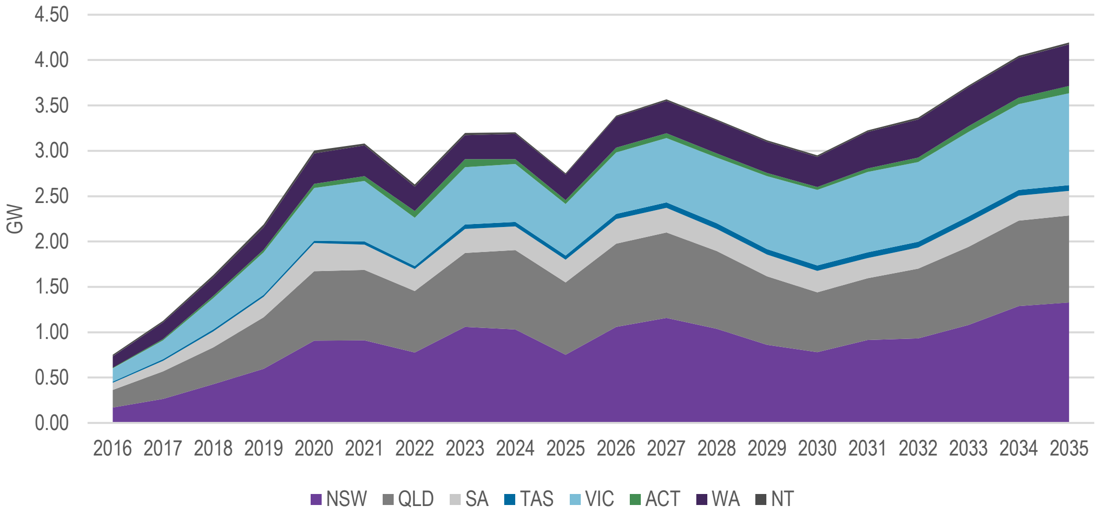
[2] A projection of replacement installations is required in addition to new installations since replacement installations are eligible to create STCs.

[3] We excluded historical data in October 2025 due to the impact of lagged registration of new installations, which is historically around 1 month for water heater systems.

Solar PV

Figure ES 1 shows historical and projected annual solar PV installations in GW by region for the period 2016 to 2035.

Figure ES 1 Historical and projected annual solar PV installations (GW) by region – Base case 2016-2035



Note: Actual installations up to 30 April 2025; projected thereafter and calibrated with available historical data to 31 October 2025. Includes new and replacement installations. Includes residential and commercial installations.

Source: ACIL Allen analysis using CER data

Installations in 2023 increased from 2022 levels due to lower payback periods compared with recent history. Lower payback periods in 2023 were primarily driven by higher avoided tariffs.

Installations in 2024 are similar to 2023 due to offsetting impacts of higher payback periods in the residential sector (resulting in lower residential installations), and lower payback periods in the commercial sector (resulting in higher commercial installations). Our analysis shows that the impact of higher retail tariffs is lagged by 2 years in the commercial market, compared to 1 year in the residential sector. This is likely due to the duration of electricity contracts for commercial customers, which can be 2-3 years compared to 1 year or less for residential customers.

Installations in 2025 are projected to decrease due to higher payback periods for residential and commercial sectors and the impact of supply constraints due to these resources going to the Cheaper Home Batteries Program. The supply constraints are assumed to commence in April 2025 and be resolved by April 2026.

Installations for both residential and commercial sectors are projected to increase in 2026 and 2027 in response to lower payback periods. This is due to lower installation costs and elevated avoided tariffs.

Installations are projected to decline in 2028, 2029 and 2030 in response to an increase in payback periods. The increase in payback periods is due in part to the reducing SRES deeming period, and lower projected avoided tariffs driven by the implementation of state-based schemes such as the New South Wales Electricity Infrastructure Roadmap, and national-schemes such as the expanded Capacity Investment Scheme (CIS) encouraging a strong rollout in utility scale renewable energy (including solar) and storage projects reducing wholesale electricity prices across these regions and interconnected regions. This not only reduces the avoided tariff but also reduces the rooftop PV feed-in tariff. In effect, the rollout of this new capacity slightly shifts investment in generation from small scale to utility scale.

Despite the SRES concluding in 2030, projected installations increase in 2031 to 2035 due to a decline in payback periods because of higher solar buy back rates (or solar feed-in-tariffs) combined with lower installation costs and elevated avoided tariffs. The solar buy back rates are based on the dispatch weighted price of solar, which are projected to increase after 2030 with the closure of coal-fired steam turbines and commissioning of utility scale storage projects. Avoided tariffs are projected to remain elevated due to the expected coal closures. Lower installation costs are due to assumed technology improvements and are based on the latest CSIRO GenCost projections prepared for AEMO's 2025 IASR.

Table ES 1 shows projected annual solar PV installations in GW by region for the period 2026 to 2035.

Table ES 1 Projected annual solar PV installations (GW) by region – Base case 2026-2035

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
NSW	1.06	1.16	1.04	0.86	0.78	0.91	0.93	1.08	1.29	1.33
QLD	0.92	0.94	0.86	0.75	0.66	0.68	0.77	0.86	0.94	0.96
SA	0.27	0.27	0.25	0.24	0.24	0.22	0.23	0.27	0.28	0.27
TAS	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
VIC	0.68	0.71	0.73	0.81	0.83	0.89	0.88	0.93	0.95	1.01
ACT	0.06	0.05	0.05	0.03	0.03	0.04	0.05	0.07	0.07	0.08
WA	0.34	0.36	0.36	0.34	0.33	0.40	0.42	0.43	0.44	0.46
NT	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Total Australia	3.39	3.57	3.35	3.12	2.95	3.23	3.36	3.72	4.05	4.19

Note: Includes new and replacement installations. Includes residential and commercial installations. Values may not sum to total due to rounding.

Source: ACIL Allen analysis using CER data

Table ES 2 shows projected number of residential solar PV installations (in '000s) by region for the period 2026 to 2035, from the modelling. These residential installation numbers are then multiplied by the assumed average installation size, which increases over time (see Figure 3.3) as households take account of a likely increase in consumption due to uptake of electric vehicles. We have not projected the number of installations in the commercial market segment, instead our projections of commercial installations are expressed in kW terms and included together with residential installations (in kW) in Table ES 1. In our model, eligible commercial roof space is characterised by kW available, due to the large range of roof size spaces available in this market.

Table ES 2 Projected number of residential solar PV installations ('000s) by region – Base case 2026-2035

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
NSW	80	84	75	61	55	69	71	82	98	100
QLD	68	69	62	54	48	53	61	67	72	72
SA	21	19	17	17	16	15	16	19	20	19
TAS	5	5	5	5	5	5	5	5	5	5
VIC	59	56	56	59	61	65	65	70	71	76
ACT	4	4	3	3	2	3	4	5	5	6
WA	37	37	36	33	30	35	36	35	35	35
NT	1	1	1	1	1	1	1	1	2	2
Australia	276	275	256	232	219	247	260	284	307	315

Note: Includes new and replacement installations. Values may not sum to total due to rounding.

Source: ACIL Allen analysis using CER data

Figure ES 2 compares the projected installations under the Base, Low and High scenarios.

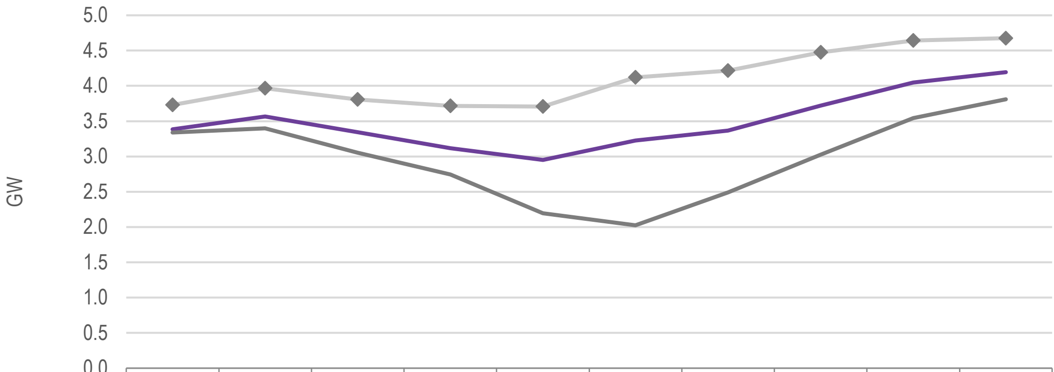
Key inputs assumed in the Low scenario include higher technology costs, higher fuel costs, and lower electricity demand, which translate to higher installation costs and lower avoided tariffs.

Under the Low scenario, lower PV installations from 2029 to 2035 are driven by higher payback periods, which are due to higher installation costs and lower avoided tariffs.

Key inputs assumed in the High scenario include lower technology costs, lower fuel costs and higher electricity demand, which translate to lower installation costs and higher avoided tariffs.

Under the High scenario, higher PV installations are driven by lower payback periods, which are due to lower installation costs and higher avoided tariffs.

Figure ES 2 Projected annual solar PV installations (GW) by scenario - 2026-2035



	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Base	3.39	3.57	3.35	3.12	2.95	3.23	3.36	3.72	4.05	4.19
Low	3.34	3.40	3.05	2.74	2.19	2.02	2.49	3.03	3.54	3.81
High	3.73	3.97	3.81	3.72	3.71	4.12	4.22	4.47	4.64	4.68

Note: Includes new and replacement installations. Includes residential and commercial installations.

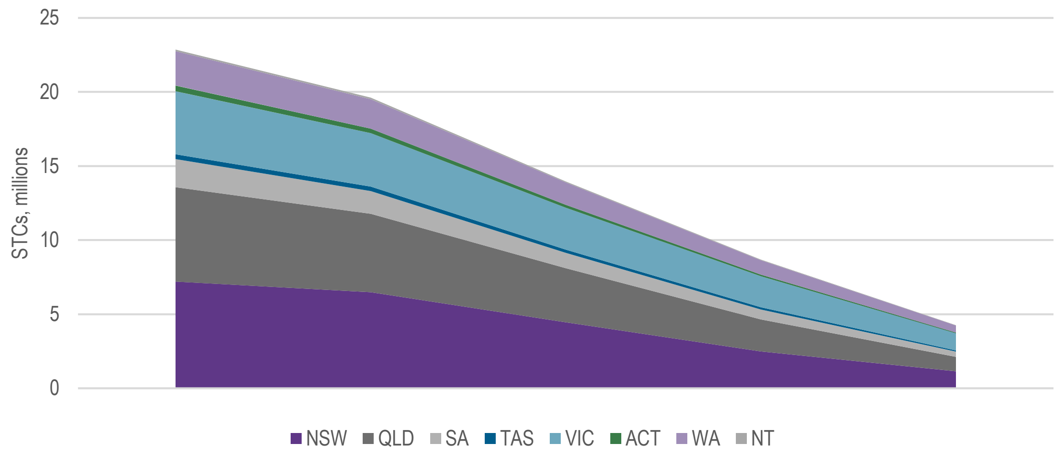
Source: ACIL Allen analysis using CER data

Figure ES 2 shows projected STC creations from solar PV for the period 2026 to 2030. Projected annual STC creations from solar PV decline over the period due to the declining deeming period.

The model translates the projected installations and capacity of small-scale PV systems into projected STC creations by applying a zonal production factor based on the location of the system (accounting for region and solar zone) and an assumed weighting by zone (Table 2.2).

The calculation of STC creation considers the declining deeming period[4] (Table 2.1), as well as any overhang or creation delays from previous periods, and an assumed creation lag based on analysis of recent creation lags (the difference between installation and creation date).

Figure ES 3 Projected annual STCs (in millions) from solar PV by region – Base case 2026-2030

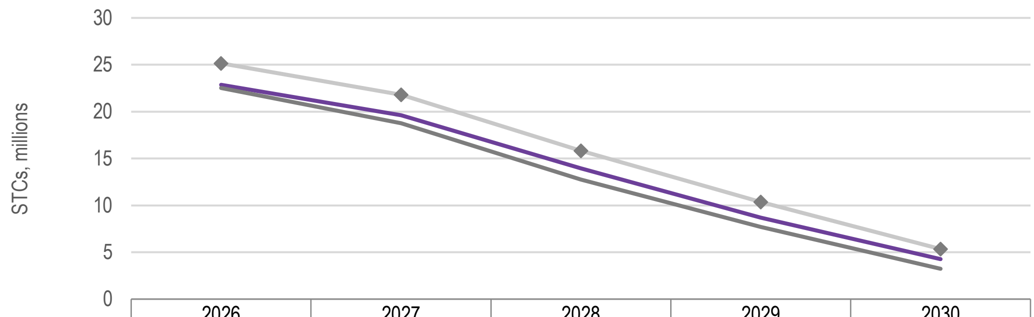


Note: STC creations are presented by creation year.

Source: ACIL Allen analysis using CER data

Figure ES 3 shows projected STC creations from solar PV for the period 2026 to 2030 under the Base, Low and High scenarios.

Figure ES 4 Projected annual STCs (millions) solar PV, by scenario – 2026-2030



	2026	2027	2028	2029	2030
Base	22.86	19.62	13.96	8.69	4.27
Low	22.52	18.77	12.76	7.69	3.24
High	25.16	21.82	15.84	10.36	5.34

[4] This analysis assumes that installers will continue to claim STCs until the end of the scheme.

Eligible water heaters

In this report, we refer to eligible water heaters, which covers eligible hot water technologies under the scheme – solar water heater (SWH) and air source heat pump (ASHP).

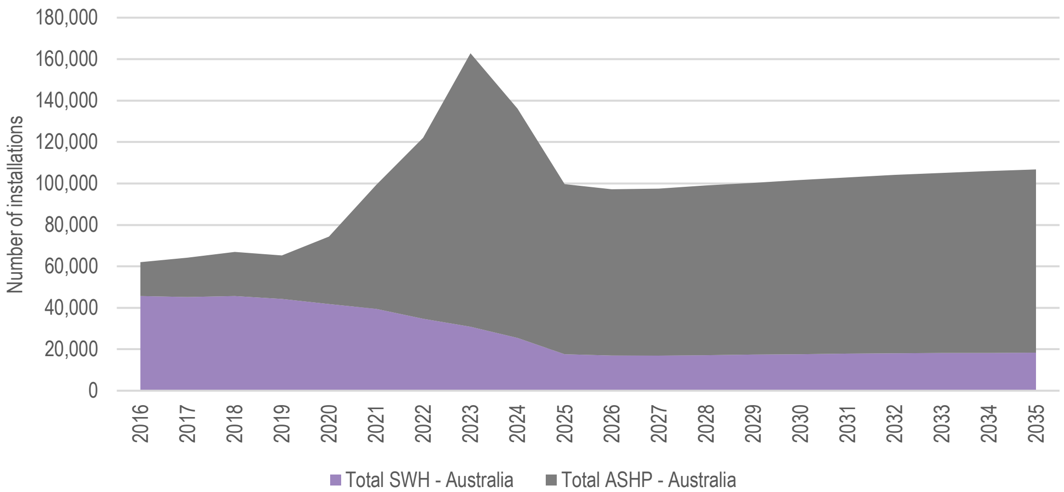
Figure ES 4 shows the historical and projected annual installation of eligible water heaters, by technology type for the period 2016 to 2035.

SWH was the dominant installation technology type for both new and replacement categories until 2020, from which point ASHPs replacing electric water heaters increased noticeably in Victoria. The driver for the sharp increase in uptake of replacement ASHP appears to be the generous financial incentive under the Victorian Energy Upgrade (VEU) scheme and banning of gas connections in new home builds. In late 2022 and continuing into 2023 and 2024, a notable increase in ASHP replacing existing electric water heaters in New South Wales appears to be a response to financial incentives under the NSW Energy Savings Scheme (ESS). The drop in 2024 and 2025 is driven by a decrease in replacement ASHPs in NSW and Queensland, which is likely due to the winding back of financial incentives, such as the increase in co-payments from $30 to $200 for hot water replacements and the lowering of baselines under the NSW ESS from June 2024, and Climate Smart Energy Savers rebate in Queensland closed at the end of 2023.

For the period 2026-2035, we assume that replacement installations as a percentage of eligible dwellings is equal to the percentage in 2025.

For the period 2026-2035, we assume that new dwelling installations as a percentage of total new dwellings equal to the percentage in 2025[5]. This percentage includes of the impact of updates to the National Construction Code to 7-star efficiency from May 2024, which now accounts for the energy usage of household appliances such as hot water systems.

Figure ES 5 Historical and projected annual eligible water heater installations by technology – 2016-2035



Note: Actual installations up to 30 September 2025; projected thereafter.

Source: ACIL Allen analysis

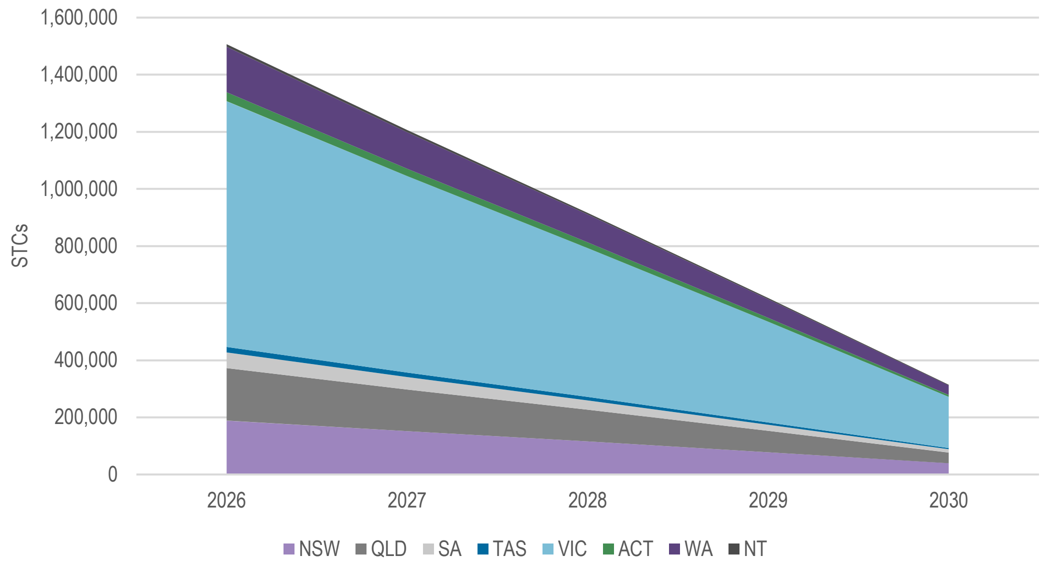
[5] Historical data to 30 September 2025. We excluded historical data in October 2025 due to the impact of lagged registration of new installations, which is historically around 1 month for water heater systems.

For all regions, we assume that current financial incentives and regulations remain at a similar level over the projection period, except for announced changes such as the increase in co-payments from $30 to $200 for hot water replacements, and the lowering of baselines under the NSW ESS from June 2024, and the updates to the National Construction Code to 7-star efficiency from May 2024.

Our analysis of payback periods (refer to Appendix) for eligible water heaters indicates a favourable payback period for ASHP compared to SWH from around 2021 due to higher energy efficiency of ASHP.

Figure ES 5 shows projected annual STC creations from eligible water heaters for the compliance years 2026 to 2030. Projected annual STC creations from eligible water heater installations decrease over the period, due to the impact of the declining deeming periods.

Figure ES 6 Projected annual STCs from eligible water heaters by region – 2026-2030

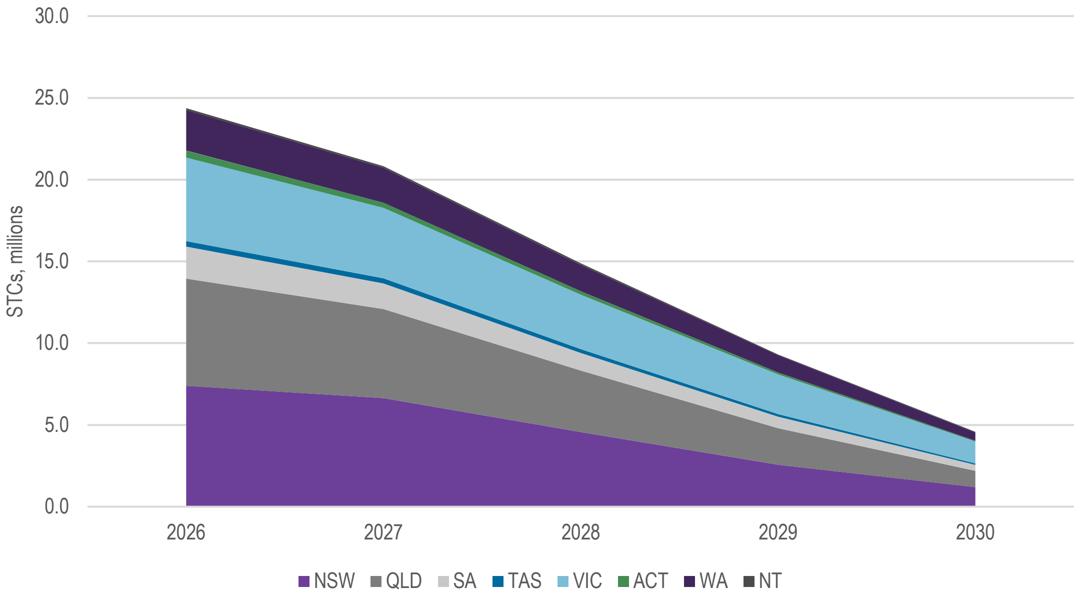


Source: ACIL Allen analysis

Total STCs

Figure ES 6 and Table ES 5 show projected total annual STC creations by creation year for 2026 to 2030, which are the sum of projected STCs from solar PV and eligible water heater installations. STCs from home BESS installations are excluded from these estimates.

Figure ES 7 Total projected annual STCs (in millions) from PV and hot water, by region – Base case 2026-2030



Note: STC creations are presented by creation year. Excludes STCs from home BESS installations.

Source: ACIL Allen analysis

Table ES 3 Projected total annual STC creations (in millions) from PV and hot water, by creation year – Base case 2026 to 2030

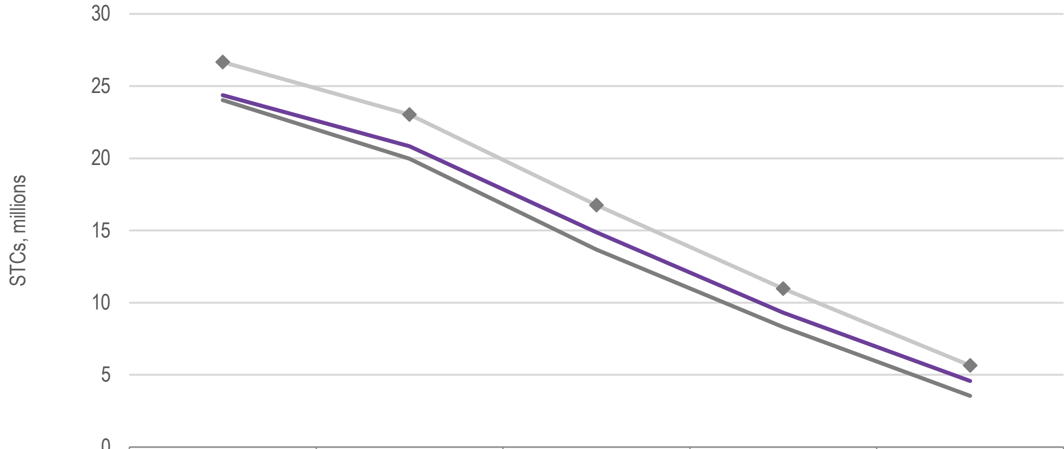
	2026	2027	2028	2029	2030
Solar PV	22.9	19.6	14.0	8.7	4.3
SHW/ASHP	1.51	1.21	0.92	0.62	0.31
Total STCs (millions)	24.4	20.8	14.9	9.3	4.6

Note: Excludes STCs from home BESS installations.

Source: ACIL Allen analysis

Figure ES 11 shows projected sum of STCs from solar PV and eligible hot water heater installations for the period 2026 to 2030 under the Base, Low and High scenarios.

Figure ES 8 Projected annual STC creations (in millions) from PV and hot water, by scenario – 2026-2030



	2026	2027	2028	2029	2030
Base	24.4	20.8	14.9	9.3	4.6
Low	24.0	20.0	13.7	8.3	3.5
High	26.7	23.0	16.8	11.0	5.7

Note: STC creations are presented by creation year. STCs from hot water heaters do not vary between Base, Low and High scenarios. Excludes STCs from home BESS installations.

Source: ACIL Allen analysis using CER data

ACIL ALLEN

Main Report

1 Introduction

The Clean Energy Regulator (CER) administers the Small-scale Renewable Energy Scheme (SRES) that creates financial incentives for investment in eligible small-scale renewable energy systems. Eligible small-scale renewable energy systems include solar photovoltaic (solar PV), solar water heater (SWH), air source heat pump (ASHP) and other small generation units (SGUs). SGUs are defined as those systems with capacity of no more than 100kW. The number of small-scale technology certificates (STCs) required to be surrendered by liable entities is set each year by the small-scale technology percentage (STP). In setting the STP, the CER, in the past, has considered inputs from qualified external consultants.

1.1 The brief

The CER has engaged ACIL Allen to undertake projections of:

- the number of small-scale solar PV installations (up to 100 kW)
- the capacity of small-scale solar PV installations (up to 100 kW)
- small-scale technology certificate (STC) creation

The projections cover calendar years 2026 to 2035 for the following technology types:

- small-scale solar PV
- solar water heaters (SWHs)
- air source heat pump (ASHPs).

The projections are provided for commercial and residential installations for each state and territory in Australia.

In this report, ACIL Allen provides the assumptions, methodology and results of analysing and projecting the uptake of small-scale technology installations.

2 Methodology

Our approach to modelling the uptake of small-scale technology is outlined in the sections below, by technology type.

2.1 Our approach to modelling STC creation by solar PV

We have used our in-house econometric model of small-scale PV uptake to develop projections of STC creation by each state and territory for calendar years 2026 to 2035 for residential and commercial customers.

The projections of new[6] installations are largely a function of the payback period of installations. The model is calibrated using historical data in the period January 2015 to April 2025 and for each state/territory and customer type separately. Although data is available for installations up to end of October 2025, installers have up to 12 months to register an installation with the CER. Our analysis suggests installers typically register an installation within around six months and hence we have omitted installations from May 2025 in the econometric model to avoid skewing the results.

The model uses a logistic function to determine the probability of a new installation based on statistically significant factors drawn from a suite of potential factors such as payback period, interest rates, etc. For residential installations, these projected probabilities are then applied to remaining eligible dwellings to determine the number of new installations. For commercial installations, the projected probabilities are applied to remaining eligible commercial rooftop space in kW.[7]

For residential installations, the capacity of new residential installations is determined by applying an assumed capacity (kW) per installation to the projected number of installations produced by the model. The assumed capacity per installation in 2026 to 2035 is assumed to grow consistent with recent history with a limit of 12 kW per installation. For commercial installations, we apply the projected probabilities directly to the available commercial roof space, expressed in kW terms, to find the projected new installations in kW terms.

We use population projections from the Department of Climate Change, Energy, the Environment and Water (DCCEEW) (via the CER), and residential and non-residential dwelling projections from the Australia Bureau of Statistics (ABS). The uptake model also considers the recent demand and supply impacts of COVID-19, heavy rainfall, and flooding in parts of Australia, and supply chain bottlenecks, as well recent changes to interest rates and cost of living. The model also considers technical factors of small-scale solar panels like the impact of degradation on energy output.

Additional key inputs for the model consist of system size, system costs, system performance[8] (output) by region, regional retail electricity prices and avoided retail tariffs, deeming period, regional daily consumption profiles and solar exports, government feed-in-tariffs, upfront subsidies, state and territory schemes, and an assumed lag between the timing of these factors and the decision by a household or business to install a system.

---

[6] We model new installations and then assume a percentage uplift by region which is on average around 25% to the projected new installations to account for replacements based on the recent historical uplift.

[7] Eligible commercial roof space is characterized by kW available due to the large range of roof space sizes in this market segment.

[8] Based on historical data from the CER. The model does not explicitly consider microinverter technology, although it would be implicitly considered to the extent that actual installations adopted microinverters.

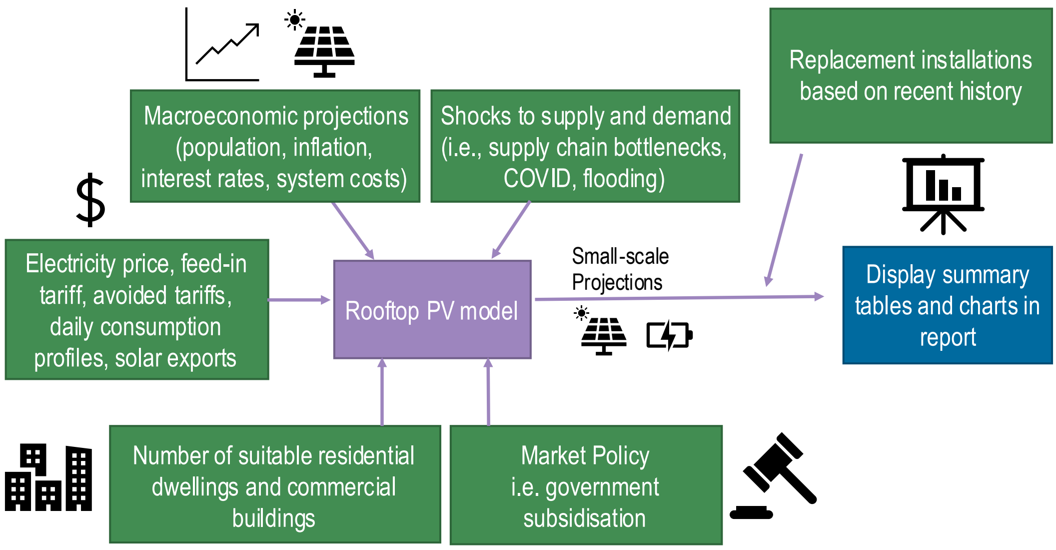
Retail electricity price projections are developed using our in-house retail price model, which includes as inputs, projected wholesale electricity prices from our PowerMark wholesale electricity market simulator which has been developed over the past 30 years in parallel with the development of the NEM and WEM, projected renewable energy policy costs, network costs, retailer operating and prudential costs, and retail margin. ACIL Allen uses its electricity retail model extensively in simulations and sensitivity analyses conducted on behalf of industry and regulator clients. The retail model also considers tariff reform. As well as projected retail prices, two outputs from the retail model are the costs a household or small business avoids if installing rooftop PV, and the solar feed in tariff for surplus energy exported to the grid.

A detailed table of assumptions used in this analysis is presented in Appendix A.

Our small-scale PV uptake model provides projections of the number of installations, system size, their aggregate capacity and output.

Figure 2.1 presents a high-level diagram of the small-scale solar PV uptake model used in this analysis.

Figure 2.1 High-level diagram of small-scale solar PV model inputs and outputs



Source: ACIL Allen

The model translates the projected capacity of small-scale PV installations into projected STC creations by applying a zonal production factor based on the location of the system (accounting for region and solar zone) and an assumed weighting by zone (Table 2.2). The calculation of STC creation considers the declining deeming period (Table 2.1), as well as any overhang or creation delays from previous periods, and an assumed creation lag based on analysis of recent creation lags (the difference between installation and creation date).

Table 2.1 STC deeming period (years) by year of installation

	2024	2025	2026	2027	2028	2029	2030
Deeming period (years)	7	6	5	4	3	2	1

Source: CER

Table 2.2 Locational production factors, by state and territory

	Solar Zone 1	Solar Zone 2	Solar Zone 3	Solar Zone 4	Solar output values by state (MWh/kW)
Zone rating (MWh/kW)	**1.622**	**1.536**	**1.382**	**1.185**	
NSW	0%	2%	97%	1%	1.38
QLD	0%	2%	98%	0%	1.38
SA	0%	1%	99%	0%	1.38
TAS	0%	0%	0%	100%	1.19
VIC	0%	0%	32%	68%	1.25
ACT	0%	0%	100%	0%	1.38
WA	1%	3%	93%	2%	1.39
NT	13%	86%	2%	0%	1.54

Source: ACIL Allen analysis of CER data

Other SGUs

While STCs can be created by small-scale solar PV, wind or hydro systems, small-scale solar PV systems are historically the dominant technology and expected to remain so. Other SGUs generating electricity and STCs from wind and hydro comprise only a small proportion of the total number of SGUs. The CER reports that on 14 November 2025 only 446 installations out of a total of 4.24 million SGUs were wind and hydro SGUs[9]. Given that this category comprises such a small proportion of total SGUs, we have excluded this category from the analysis.

2.2 Our approach to modelling STC creation by water heating systems

Solar water heater (SWH) and air source heat pump (ASHP) systems are generally installed when an existing water heater requires replacement or in conjunction with a new build dwelling.

Therefore, we adopt a simpler modelling approach for projecting eligible water heaters compared to the modelling approach for projecting small-scale solar PV. Our projections of SWH and ASHP are based on two key markets – new installations and replacements.

1. New installation projections of SWH and ASHP are based on the same projections of new residential dwellings and commercial buildings, by region as adopted in the projection of rooftop PV installations.
2. Replacement installation projections of SWH and ASHP are based on the following factors:
   a) relative cost of replacement technology (e.g., SHW or ASHP), including the technology being replaced (e.g., gas hot water or less-efficient electric hot water)
   b) government incentives/subsidies (e.g., state-based energy efficiency schemes and state-based policies for transitioning away from gas use).

To project the number of eligible water heater installations in new dwellings, we have analysed the percentage of new dwellings in each region where an eligible water heater was installed.

[9] CER Small-scale installation postcode data, Table 2, accessed at: https://cer.gov.au/markets/reports-and-data/small-scale-installation-postcode-data on 14 November 2025.

To project the number of replacement eligible water heaters, we have analysed the number of replacement installations as a percentage of residential dwellings, which shows an increase in almost all regions over the last 2-3 years. Likely drivers include the introduction of financial incentives under state-based energy efficiency schemes, government incentives to encourage households to replace old gas and electric water heaters, and an increase in retail electricity prices. For the period 2026-2035, we assume that replacement installations as a percentage of eligible dwellings is equal to the percentage in 2025. 2025 is selected because it represents the most recent replacement rates which are based on current policies and incentives.

For the period 2026-2035, we assume that new dwelling installations as a percentage of total new dwellings equal to the percentage in 2025. This percentage includes of the impact of updates to the National Construction Code to 7-star efficiency from May 2024, which now accounts for the energy usage of household appliances such as hot water systems.

The model translates the projected installations of each eligible hot water system into projected STC creations by applying the deeming period to an assumed average value of STCs per installation per year. The average value of STCs per installation varies by region, technology type, system brand/model and deeming year, with an average value of 3 STCs per installation. Projected STCs decline due to the declining deeming period. We have assumed no changes to jurisdictional support mechanisms or regulations occur over the projection period.

2.3 Base case

We have modelled a Base case, which is broadly consistent with the DCCEEW emissions projections, but incorporate updates for some inputs. Key assumptions for the Base case include adopting the Step Change scenario from the 2025 ESOO for grid demand, population projections from the Centre for Population, fuel costs from AEMO 2025 IASR, and federal government policy of reaching 82% renewables by 2030. Low and High scenarios adopt assumptions from 2025 IASR for the Slower Growth and Accelerated Transition scenarios, respectively.

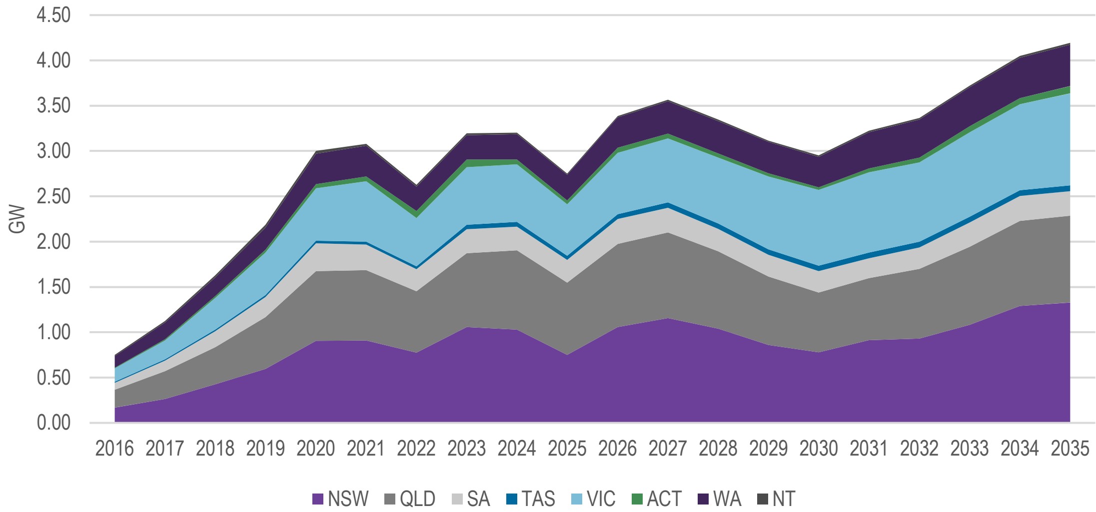
3 Results

This chapter presents historical and projected installations under the SRES scheme.

3.1 STC creation from solar PV SGUs

Figure 3.1 shows historical and projected annual solar PV installations by region. The values are presented on a calendar year basis.

Figure 3.1 Historical and projected annual solar PV installations (GW) by region – Base case 2016-2035



Note: Actual installations up to 30 April 2025; projected thereafter and calibrated with available historical data to 31 October 2025. Includes new and replacement installations. Includes residential and commercial installations.

Source: ACIL Allen analysis using CER data

Installations rose strongly during 2016 and 2017 on the back of rapidly falling PV system costs and continued to rise in 2018 and 2019 due to the lagged effect of higher retail prices which occurred after the unexpected closure of Hazelwood in 2016-17.Despite payback periods rising in 2020 and 2021, installations rose to record levels in 2020 and 2021 due to the impact of COVID related restrictions which increased spending power and saw a widespread transition of centralised to remote working and learning. Installations declined in 2022 due to rising installation costs. Installations in 2023 have increased from 2022 levels due to lower payback periods compared with recent history. Lower payback periods in 2023 are primarily driven by higher avoided tariffs.

Installations in 2024 are similar to 2023 due to offsetting impacts of higher payback periods in the residential sector (resulting in lower residential installations), and lower payback periods in the commercial sector (resulting in higher commercial installations).

Our analysis shows that the impact of higher retail tariffs is lagged by 2 years in the commercial market, compared to 1 year in the residential sector. This is probably due to the duration of electricity contracts for commercial customers, which can be 2-3 years compared to 1 year or less for residential customers.

Installations in 2025 are projected to decrease due to higher payback periods for residential and commercial sectors and the impact of supply constraints (e.g., number of qualified installers/electricians) due to these resources going to the Cheaper Home Batteries Program. The supply constraints are assumed to commence in April 2025 and be resolved by April 2026.

Installations for both residential and commercial sectors are projected to increase in 2026 and 2027 in response to lower payback periods. This is due to lower installation costs and elevated avoided tariffs.

Installations are projected to decline in 2028, 2029 and 2030 in response to an increase in payback periods. The increase in payback periods is due to, in part to the reducing SRES deeming period, and lower projected avoided tariffs driven by the implementation of state-based schemes such as the New South Wales Electricity Infrastructure Roadmap, and national-schemes such as the expanded Capacity Investment Scheme (CIS) encouraging a strong rollout in utility scale renewable energy (including solar) and storage projects reducing wholesale electricity prices across these regions and interconnected regions. This not only reduces the avoided tariff but also reduces the rooftop PV feed-in tariff. In effect, the rollout of this new capacity slightly shifts investment in generation from small scale to utility scale.

Despite the SRES concluding in 2030, projected total installations are at a similar level in 2031, which is a result of an increase in residential installations and a decrease in commercial installations. Commercial installations decrease in 2031 while residential installations increase in this year due to the difference in lagged effect of avoided tariffs (2-year lag for commercial compared to 1-year lag for residential).

Residential installations increase in 2031 to 2035 and projected commercial installations increase in 2033 to 2035, due to a decline in payback periods because of higher solar buy back rates (or solar feed-in-tariffs) combined with lower installation costs and elevated avoided tariffs. The solar buy back rates are based on the dispatch weighted price of solar, which are projected to increase after 2030 with the closure of coal-fired steam turbines and commissioning of utility scale storage projects. Avoided tariffs are projected to remain elevated due to the expected coal closures which are projected to occur over multiple years in the early 2030s. Lower installation costs are due to assumed technology improvements and are based on the latest CSIRO GenCost projections prepared for AEMO's 2025 IASR.

Australia wide weighted average payback periods for small-scale solar PV are shown in Appendix A.

Table 3.1 shows projected annual solar PV installations in GW by region for the period 2026 to 2035.

Table 3.1 Projected annual solar PV installations (GW) by region – Base case 2026-2035

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
NSW	1.06	1.16	1.04	0.86	0.78	0.91	0.93	1.08	1.29	1.33
QLD	0.92	0.94	0.86	0.75	0.66	0.68	0.77	0.86	0.94	0.96
SA	0.27	0.27	0.25	0.24	0.24	0.22	0.23	0.27	0.28	0.27
TAS	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
VIC	0.68	0.71	0.73	0.81	0.83	0.89	0.88	0.93	0.95	1.01
ACT	0.06	0.05	0.05	0.03	0.03	0.04	0.05	0.07	0.07	0.08
WA	0.34	0.36	0.36	0.34	0.33	0.40	0.42	0.43	0.44	0.46
NT	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Total Australia	3.39	3.57	3.35	3.12	2.95	3.23	3.36	3.72	4.05	4.19

Note: Includes new and replacement installations. Includes residential and commercial installations. Values may not sum to total due to rounding.

Source: ACIL Allen analysis using CER data

Table 3.2 shows projected number of residential solar PV installations (in '000s) by region for the period 2026 to 2035. We have not projected the number of installations in the commercial market segment, instead our projections of commercial installations are expressed in kW terms and included together with residential installations in Table 3.1. This is because eligible commercial roof space is characterised by kW available, due to the large range of roof size spaces available in this market.

Table 3.2 Projected number of residential solar PV installations ('000s) by region – Base case 2026-2035

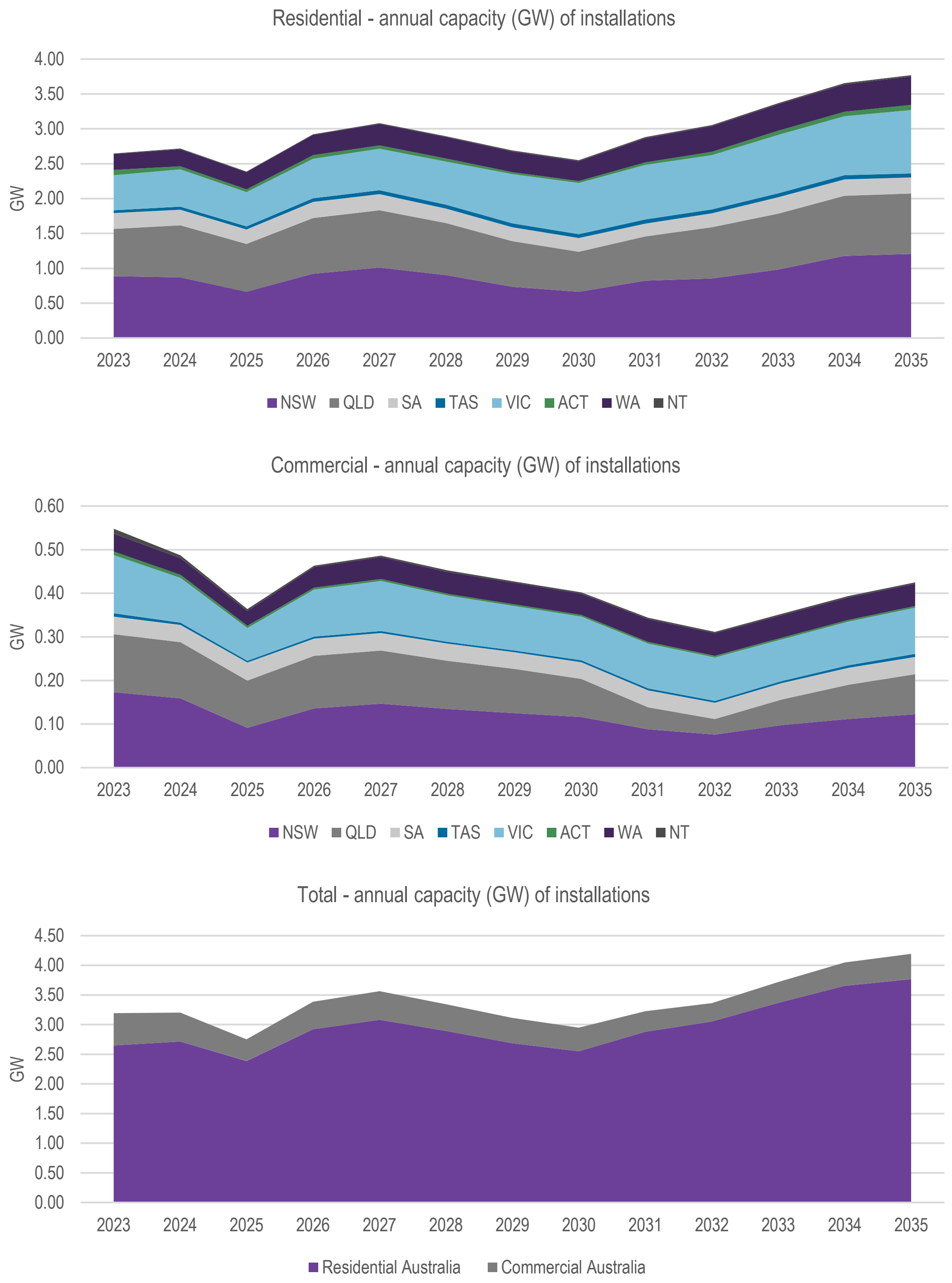
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
NSW	80	84	75	61	55	69	71	82	98	100
QLD	68	69	62	54	48	53	61	67	72	72
SA	21	19	17	17	16	15	16	19	20	19
TAS	5	5	5	5	5	5	5	5	5	5
VIC	59	56	56	59	61	65	65	70	71	76
ACT	4	4	3	3	2	3	4	5	5	6
WA	37	37	36	33	30	35	36	35	35	35
NT	1	1	1	1	1	1	1	1	2	2
Australia	276	275	256	232	219	247	260	284	307	315

Note: Includes new and replacement installations. Values may not sum to total due to rounding.

Source: ACIL Allen analysis using CER data

Figure 3.2 shows projected annual solar PV installations in GW by market segment (residential or commercial) and by region.

Figure 3.2 Historical and projected annual solar PV installations (GW) – Base case 2023-2035



Note: Actual installations up to 30 April 2025; projected thereafter and calibrated with available historical data to 31 October 2025. Includes new and replacement installations. Includes new and replacement installations.

Source: ACIL Allen analysis

Residential installations in 2024 have decreased and are projected to continue to decrease in 2025 due to higher payback periods and supply constraints. Residential installations are projected to projected to increase in 2026 and 2027 in response to lower payback periods. This is due to lower installation costs and elevated avoided tariffs.

Installations are projected to decline in 2028, 2029 and 2030 in response to an increase in payback periods. This is due to lower projected avoided tariffs driven by the implementation of state-based schemes such as the New South Wales Electricity Infrastructure Roadmap, and national-schemes such as the expanded Capacity Investment Scheme (CIS) encouraging a strong rollout in utility scale renewable energy and storage projects reducing wholesale electricity prices across these regions and interconnected regions. Most of this new capacity is projected to enter the market between 2027 and 2030 which is projected to have the greatest impact on payback period for residential installations from 2028 (one-year lagged impact).

Projected residential installations increase in 2031 to 2035 due to a decline in payback periods because of higher solar buy back rates (or solar feed-in-tariffs) combined with lower installation costs and elevated avoided tariffs. The solar buy back rates are based on the dispatch weighted price of solar, which are projected to increase after 2030 with the closure of coal-fired steam turbines and commissioning of utility scale storage projects. Avoided tariffs are projected to remain elevated due to the expected coal closures. Lower installation costs are due to assumed technology improvements and are based on the latest CSIRO GenCost projections prepared for AEMO's 2025 IASR.

Commercial installations in GW are projected to decrease in 2025 due to higher payback periods in the commercial sector and the impact of supply constraints (e.g., number of qualified installers/electricians) due to these resources going to the Cheaper Home Batteries Program. The supply constraints are assumed to commence in April 2025 and be resolved by April 2026.

Installations for the commercial sector is projected to increase in 2026 and 2027 in response to lower payback periods. This is due to lower installation costs and elevated avoided tariffs. Our analysis shows that the impact of higher retail tariffs is lagged by 2 years in the commercial market, compared to 1 year in the residential sector. This is probably due to the duration of electricity contracts for commercial customers, which can be 2-3 years compared to 1 year or less for residential customers. We included the recent Victoria Energy Upgrade Solar Panel upfront discounts for commercial solar greater than 30kW in this analysis from October 2025.

Commercial installations in GW are projected to projected to decrease in 2028 to 2032 in response to higher payback periods that are driven by falling avoided tariffs and solar buy back rates. Projected commercial installations increase in 2033, 2034 and 2035 due to a decline in payback periods because of higher solar buy back rates (or solar feed-in-tariffs) combined with lower installation costs and elevated avoided tariffs.

This market segment has a higher sensitivity than the residential sector to payback periods. This is likely due to commercial customers being more actively engaged in consideration of future electricity tariffs. Interest rate levels were considered in this analysis but were not a significant driver. Other factors that may drive commercial installations in the future, such as ESG pressures, have been considered but not included in this analysis due to limited or unavailable historical data.

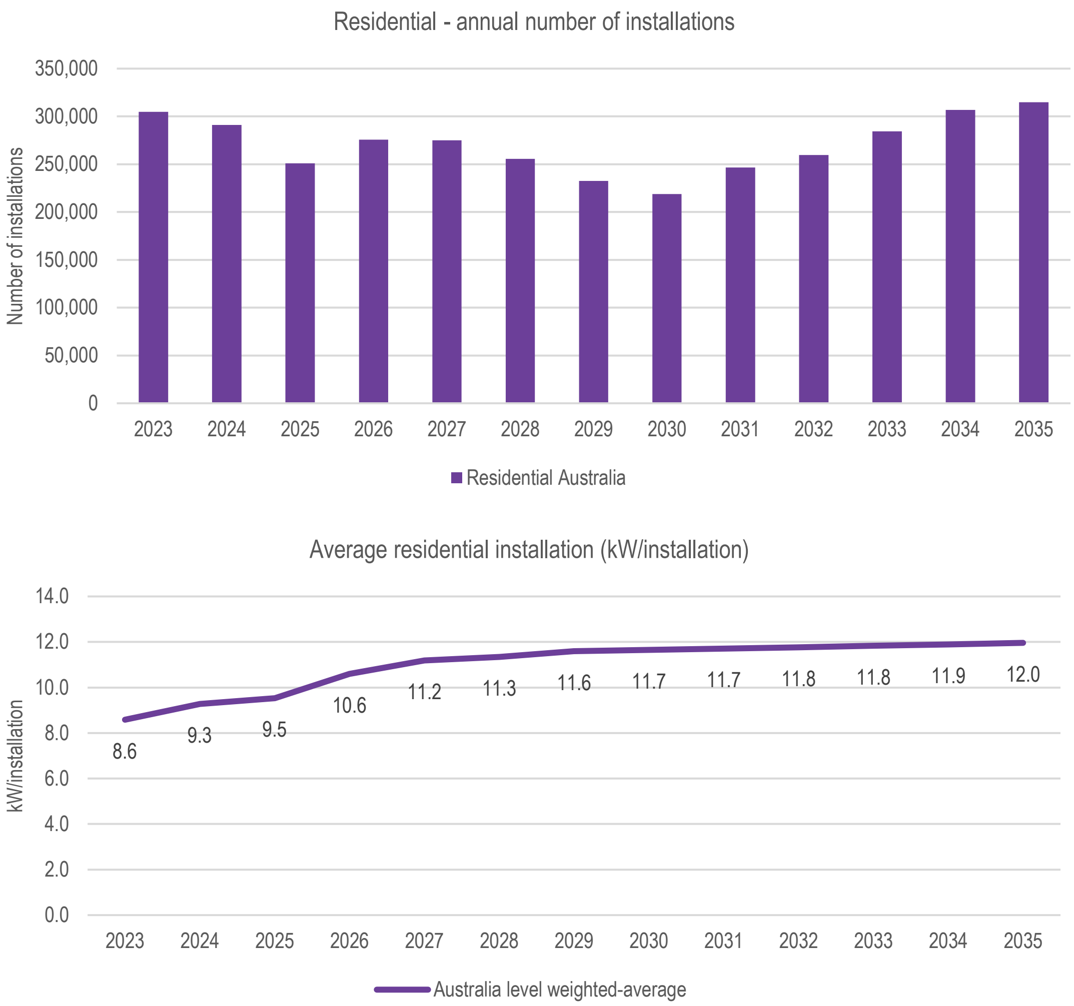
Figure 3.3 shows the historical and projected number of installations and the average size of installations for the residential segment.

Projected installations from the model are multiplied by the assumed regional average installation size to arrive at installation capacity in kW terms.

The weighted-average residential installation size across Australia is assumed to continue to increase from approximately 9.3 kW in 2024 to 12 kW by 2035.

It is assumed that average installation size continues to grow, from its current value of 9.5 kW, as households take account of a likely increase in consumption due to uptake of electric vehicles. We limit the average system size to 12 kW given limitations of roof space. It is worth noting the rate of growth in average size slows between 2026 and 2029 as the average size approaches the assumed limit of 12 kW, and due to the declining panel subsidies under the SRES.

Figure 3.3 Historical and projected number of residential installations (top panel) and average installation size (lower panel) – Australia, Base case



Note: Actual installations up to 30 April 2025; projected thereafter and calibrated with available historical data to 31 October 2025. Includes new and replacement installations. Includes new and replacement installations.

Source: ACIL Allen analysis

Figure 3.4 compares the projected installations under the Base, Low and High scenarios.

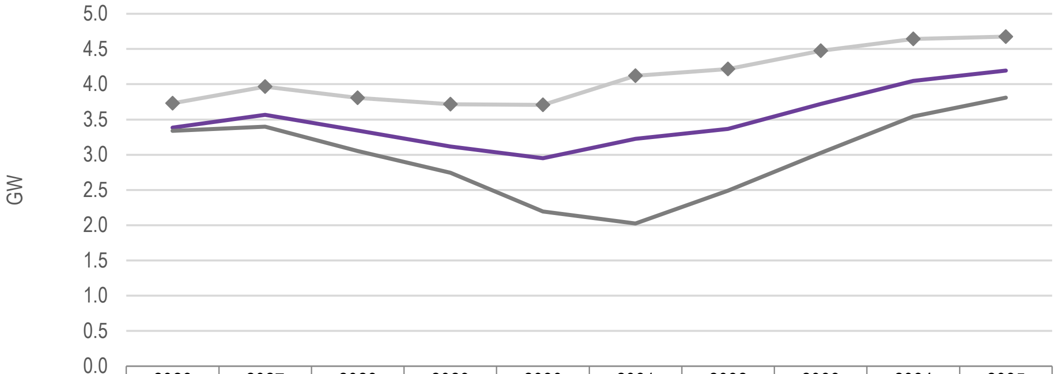
Key inputs assumed in the Low scenario include higher technology costs, higher fuel costs, and lower electricity demand, which translate to higher installation costs and lower avoided tariffs.

Under the Low scenario, lower PV installations from 2029 to 2035 are driven by higher payback periods, which are due to higher installation costs and lower avoided tariffs.

Key inputs assumed in the High scenario include lower technology costs, lower fuel costs and higher electricity demand, which translate to lower installation costs and higher avoided tariffs.

Under the High scenario, higher PV installations are driven by lower payback periods, which are due to lower installation costs and higher avoided tariffs.

Figure 3.4 Projected annual solar PV installations (GW) by scenario - 2026-2035



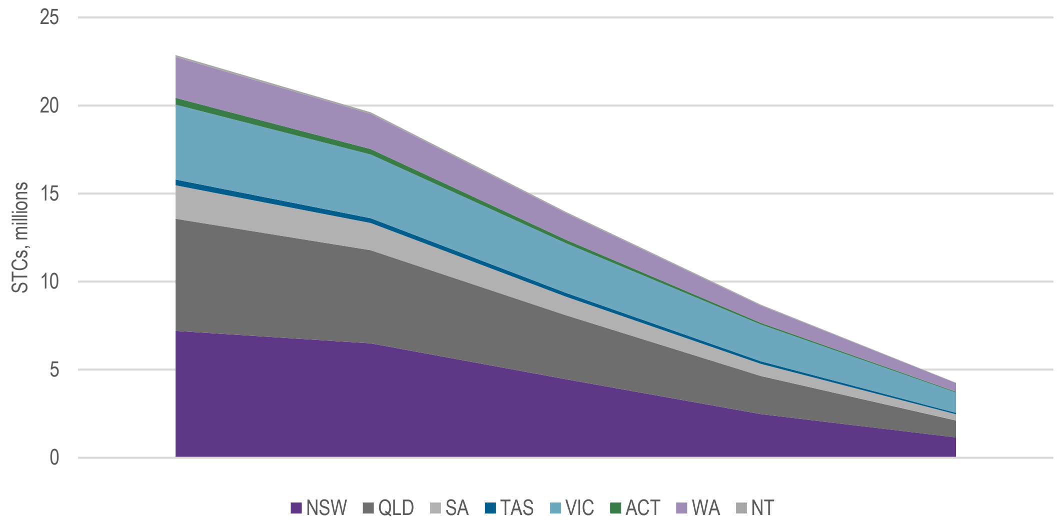
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Base	3.39	3.57	3.35	3.12	2.95	3.23	3.36	3.72	4.05	4.19
Low	3.34	3.40	3.05	2.74	2.19	2.02	2.49	3.03	3.54	3.81
High	3.73	3.97	3.81	3.72	3.71	4.12	4.22	4.47	4.64	4.68

Note: Includes new and replacement installations. Includes residential and commercial installations.

Source: ACIL Allen analysis using CER data

Figure 3.5 and Table 3.3 show the projected annual STC creations, by creation year, from solar PV for the 2026 to 2030 compliance years. Projected STC creations are the product of the projected solar PV system size in kW from Table 3.1, the postcode zone rating in Table 2.2, and the deeming period in Table 2.1. The calculation of STC creation incorporates any overhang or creation delays from previous periods, and an assumed creation lag based on analysis of recent creation lags (the difference between installation and creation date).

Figure 3.5 Projected annual STCs (in millions) from solar PV by region – Base case 2026-2030



Note: Includes residential and commercial STC creations. STC creations are presented by creation year.

Source: ACIL Allen analysis using CER data

Total STC creations from solar PV are projected to decline across the projection period due to the combination of the drivers of declining installations described earlier and the falling deeming period.

Table 3.3 Projected annual STCs (in millions) from solar PV, by creation year – Base case 2026-2030

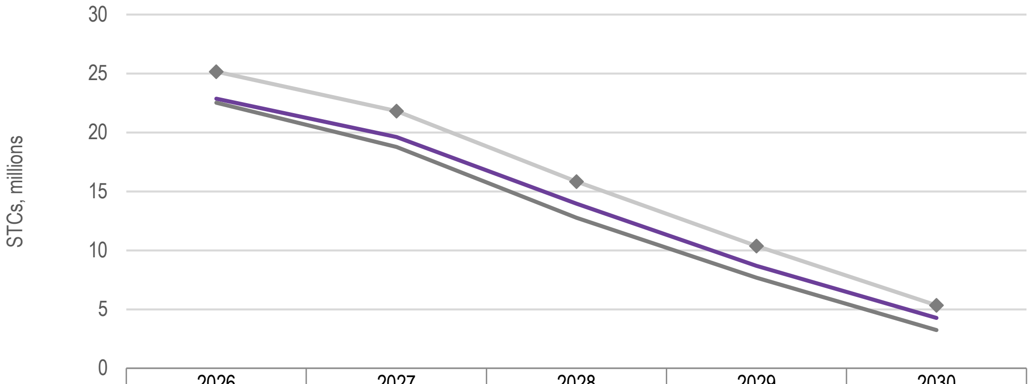
	2026	2027	2028	2029	2030
NSW	7.2	6.5	4.5	2.5	1.2
QLD	6.4	5.3	3.6	2.2	1.0
SA	1.9	1.5	1.0	0.7	0.3
TAS	0.3	0.3	0.2	0.1	0.1
VIC	4.3	3.6	2.8	2.1	1.2
ACT	0.4	0.3	0.2	0.1	0.0
WA	2.3	2.0	1.5	1.0	0.5
NT	0.1	0.1	0.1	0.1	0.0
Australia	22.9	19.6	14.0	8.7	4.3

Note: Includes residential and commercial STC creations. STC creations are presented by creation year.

Source: ACIL Allen analysis

Figure 3.6 shows projected STC creations from solar PV for the period 2026 to 2030 under the Base, Low and High scenarios.

Figure 3.6 Projected annual STCs (in millions) solar PV, by scenario – 2026-2030



	2026	2027	2028	2029	2030
Base	22.86	19.62	13.96	8.69	4.27
Low	22.52	18.77	12.76	7.69	3.24
High	25.16	21.82	15.84	10.36	5.34

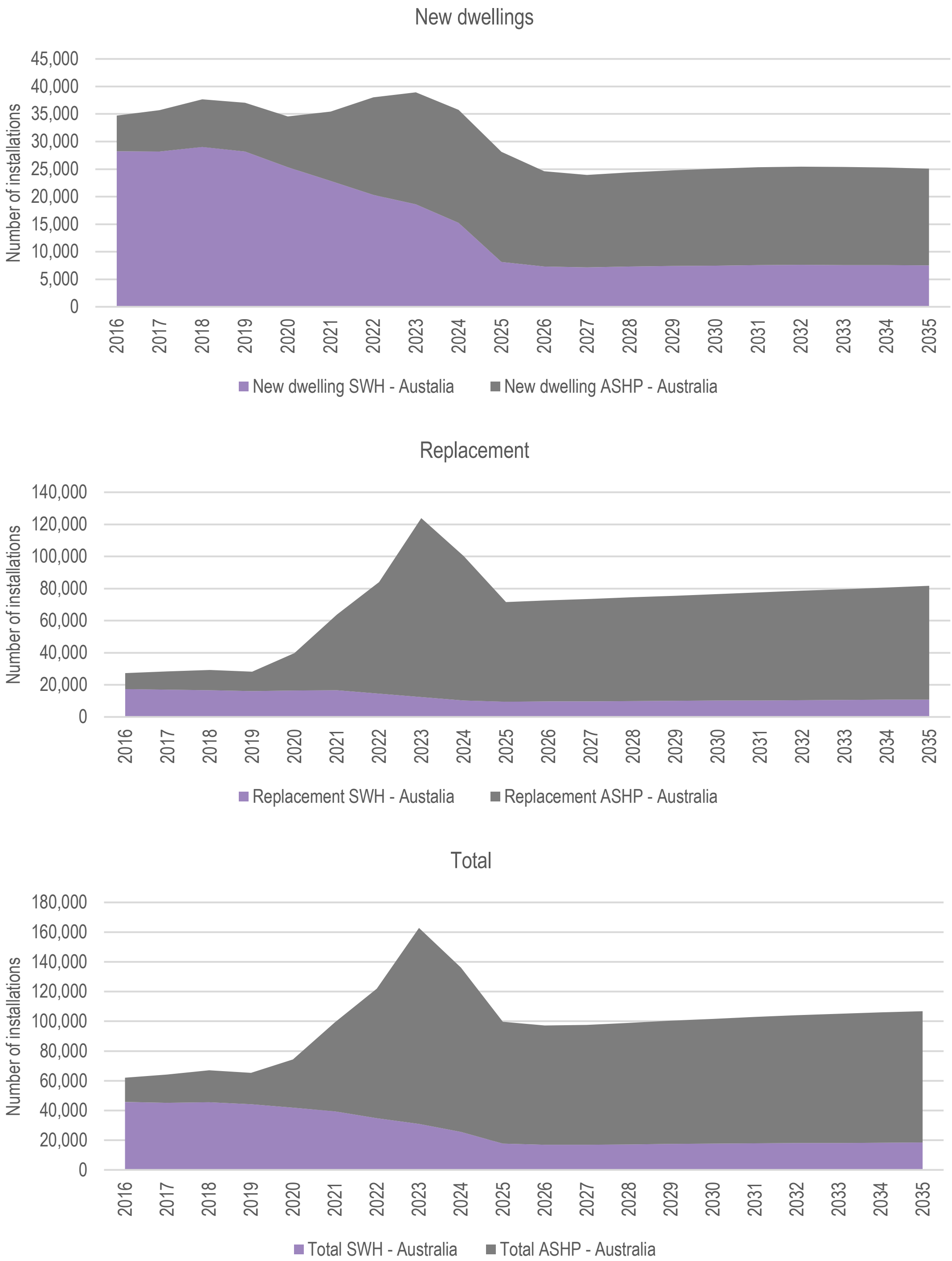
Note: STC creations are presented by creation year.

Source: ACIL Allen analysis using CER data

3.2 STC creation from eligible water heaters

Figure 3.7 shows the historical and projected annual eligible water heater installations by installation reason and technology type.

Figure 3.7 Historical and projected annual eligible water heater installations, by installation reason and technology type – 2016-2035



Note: Historical data up to 30 September 2025; projected thereafter.

Source: ACIL Allen analysis

New dwelling installations have historically tracked along at a consistent annual level, with ASHP growing in market share. In 2025, eligible hot water heaters installed in new dwellings have declined and are projected to decline further in 2026 due to projected decline in eligible new dwellings.

We project new dwelling installations of eligible water heaters based on recent installation rates as a percentage of projected new dwellings. Likely drivers include the recent update to the National Construction Code to 7-stars which now accounts for the energy usage of household appliances such as hot water systems. The percentages adopted for new dwellings, which vary by region, average 14% of eligible dwellings for ASHP and 10% for SWH.

ASHP replacement installations have increased significantly between 2020 and 2025, with the majority of ASHP installations replacing existing electric water heaters. Likely drivers include the introduction of financial incentives under state-based energy efficiency schemes, government incentives to encourage households to replace inefficient water heaters, and an increase in retail electricity prices. The drop in replacements in 2024 and 2025 is driven by a decrease in replacement ASHPs in NSW and Queensland, which is likely due to the winding back of financial incentives, such as the increase in co-payments from $30 to $200 for hot water replacements and the lowering of baselines under the NSW ESS from June 2024, and Climate Smart Energy Savers rebate in Queensland closed at the end of 2023.

For the period 2026-2035, we assume that replacement installations as a percentage of eligible dwellings is equal to the percentage in 2025. The percentages adopted for replacements, which vary by region, average 0.05 % of eligible dwellings for ASHP and 0.01% for SWH replacements.

Despite the market share of SWH replacements declining significantly from 57% in 2019 to 17% in 2022, this proportion has slowed and remained steady at around 10%-13% in 2023, 2024 and 2025, with most of these SWH installations replacing older SWH systems. The regions with the highest replacement rates in 2025 are Queensland, Western Australia and the Northern Territory, which is likely due to better solar resource in these regions, resulting in more favourable payback periods.

For the period 2026-2035, we assume that the proportion of new dwelling installations remains consistent with the 2025 level, as it reflects the introduction of the National Construction Code to 7-star efficiency from May 2024, which now accounts for the energy usage of household appliances such as hot water systems.

For all regions, we assume that current financial incentives and regulations remain at a similar level over the projection period, except for announced changes such as the increase in co-payments from $30 to $200 for hot water replacements, and the lowering of baselines under the NSW ESS from June 2024, and the updates to the National Construction Code to 7-star efficiency from May 2024..

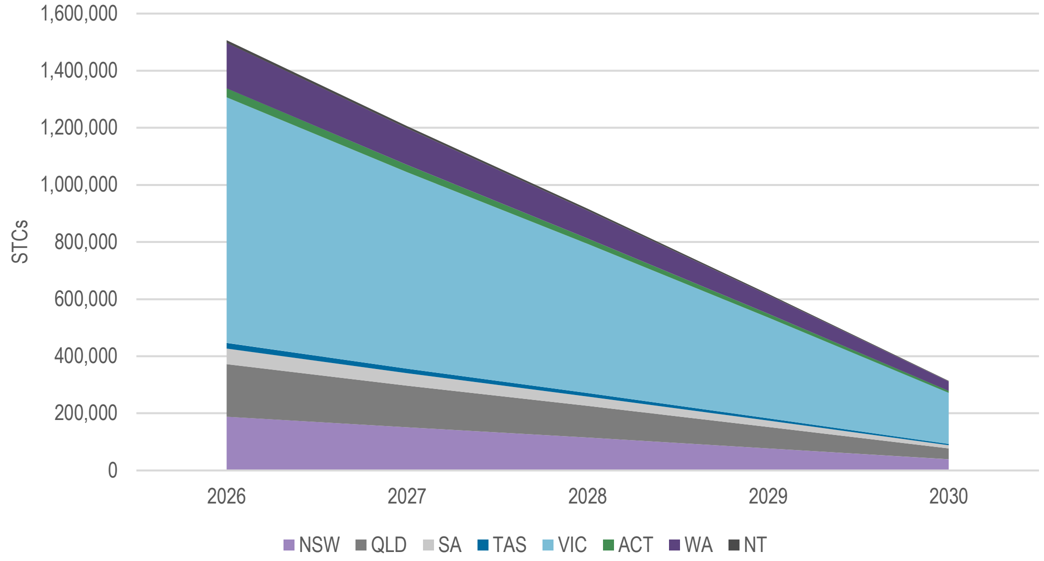
Our analysis of payback periods (refer to Appendix) for eligible water heaters indicates a favourable payback period for ASHP compared to SWH due to higher energy efficiency of ASHP and lower installation costs (including subsidies), which is why our projections reflect a higher proportion of ASHP installations.

More detailed information on regional subsidies for eligible water heaters are provided in the Appendix.

Figure 3.8 and Table 3.4 show the projected annual STC creations from eligible water heater installations for the 2026 to 2030 compliance years.

The model translates the projected installations of each eligible hot water system into projected STC creations by applying the deeming period to an assumed average value of STCs per installation per year. The average value of STCs per installation varies by region, technology type, system brand/model and deeming year, with an average value of 3 STCs per installation. Projected STCs decline due to the declining deeming period.

Figure 3.8 Projected annual STCs from eligible water heaters by region – 2026-2030



Note: Includes residential and commercial STC creations. STC creations are presented by creation year.

Source: ACIL Allen analysis using CER data

Table 3.4 Projected annual STCs from eligible water heater installations – 2026-2030

	2026	2027	2028	2029	2030
NSW	188,455	151,656	115,458	77,526	39,299
QLD	184,069	145,723	110,994	74,889	37,931
SA	54,945	43,555	32,908	22,076	11,168
TAS	19,220	15,720	11,943	8,027	4,019
VIC	860,187	688,142	522,133	352,986	179,418
ACT	31,834	25,725	19,518	13,167	6,674
WA	159,055	127,821	97,088	65,453	33,265
NT	9,120	8,024	6,366	4,369	2,241
Australia	**1,506,885**	**1,206,367**	**916,410**	**618,492**	**314,015**

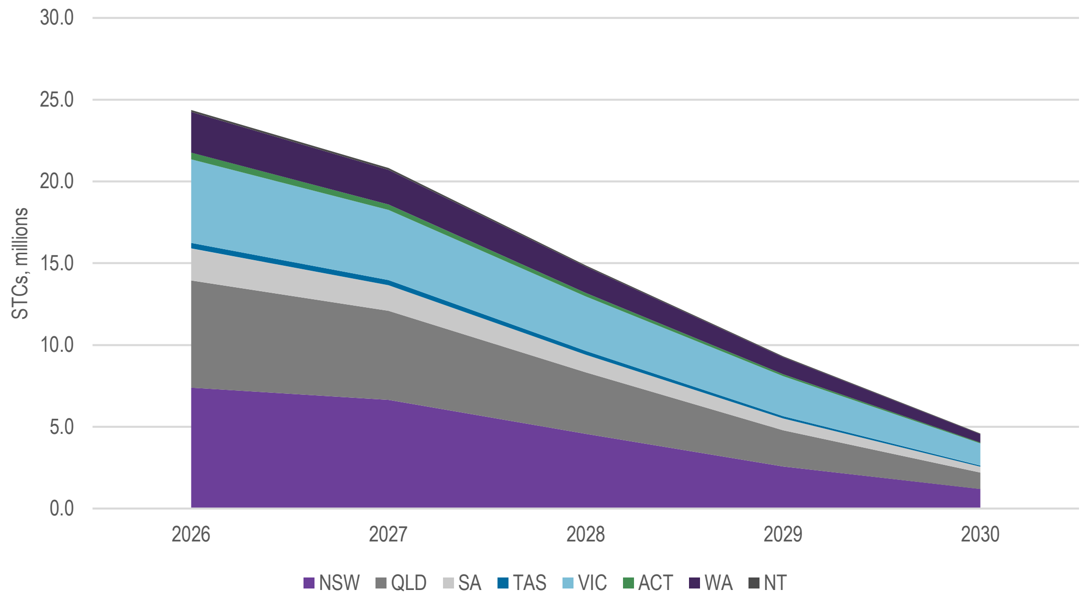
Note: Includes residential and commercial STC creations. STC creations are presented by creation year.

Source: ACIL Allen analysis

3.3 Total STC creations

Figure 3.9 and Table 3.5 provide projected total STC creations by creation year for 2026 to 2030 compliance years, which are the sum of projected STCs from solar PV and eligible water heater installations. STCs from home BESS installations are excluded from these estimates.

Figure 3.9 Total projected annual STCs (in millions), by region – Base case 2026-2030



Note: STC creations are presented by creation year. Excludes STCs created from home BESS installations.

Source: ACIL Allen analysis

Table 3.5 Projected total annual STC creations (in millions), by creation year – Base case 2026 to 2030

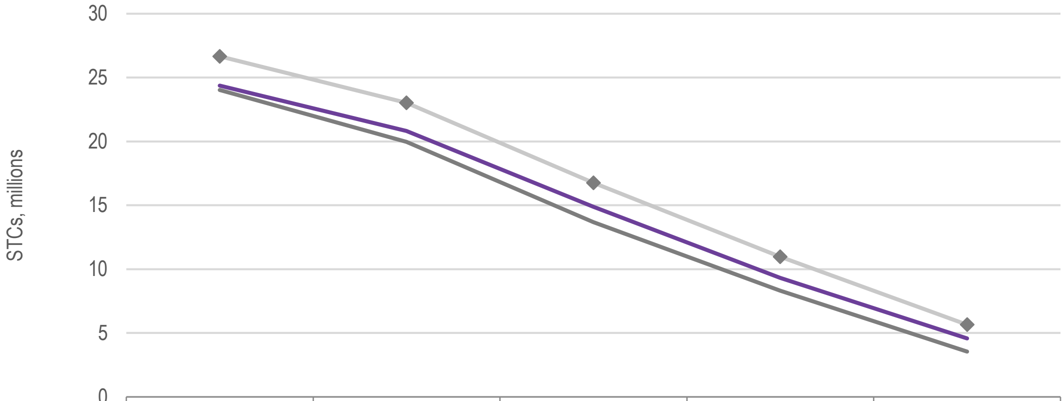
	2026	2027	2028	2029	2030
Solar PV	22.9	19.6	14.0	8.7	4.3
SHW/ASHP	1.51	1.21	0.92	0.62	0.31
Total STCs (millions)	24.4	20.8	14.9	9.3	4.6

Note: Excludes STCs created from home BESS installations.

Source: ACIL Allen analysis

Figure 3.10 shows projected sum of STCs from solar PV and eligible hot water heater installations for the period 2026 to 2030 under the Base, Low and High scenarios.

Figure 3.10 Projected annual STC creations (in millions) from PV and hot water, by scenario – 2026-2030



	2026	2027	2028	2029	2030
Base	24.4	20.8	14.9	9.3	4.6
Low	24.0	20.0	13.7	8.3	3.5
High	26.7	23.0	16.8	11.0	5.7

Note: STC creations are presented by creation year. STCs from hot water heaters do not vary between Base, Low and High scenarios. Excludes STCs from home BESS installations.

Source: ACIL Allen analysis using CER data

Appendices

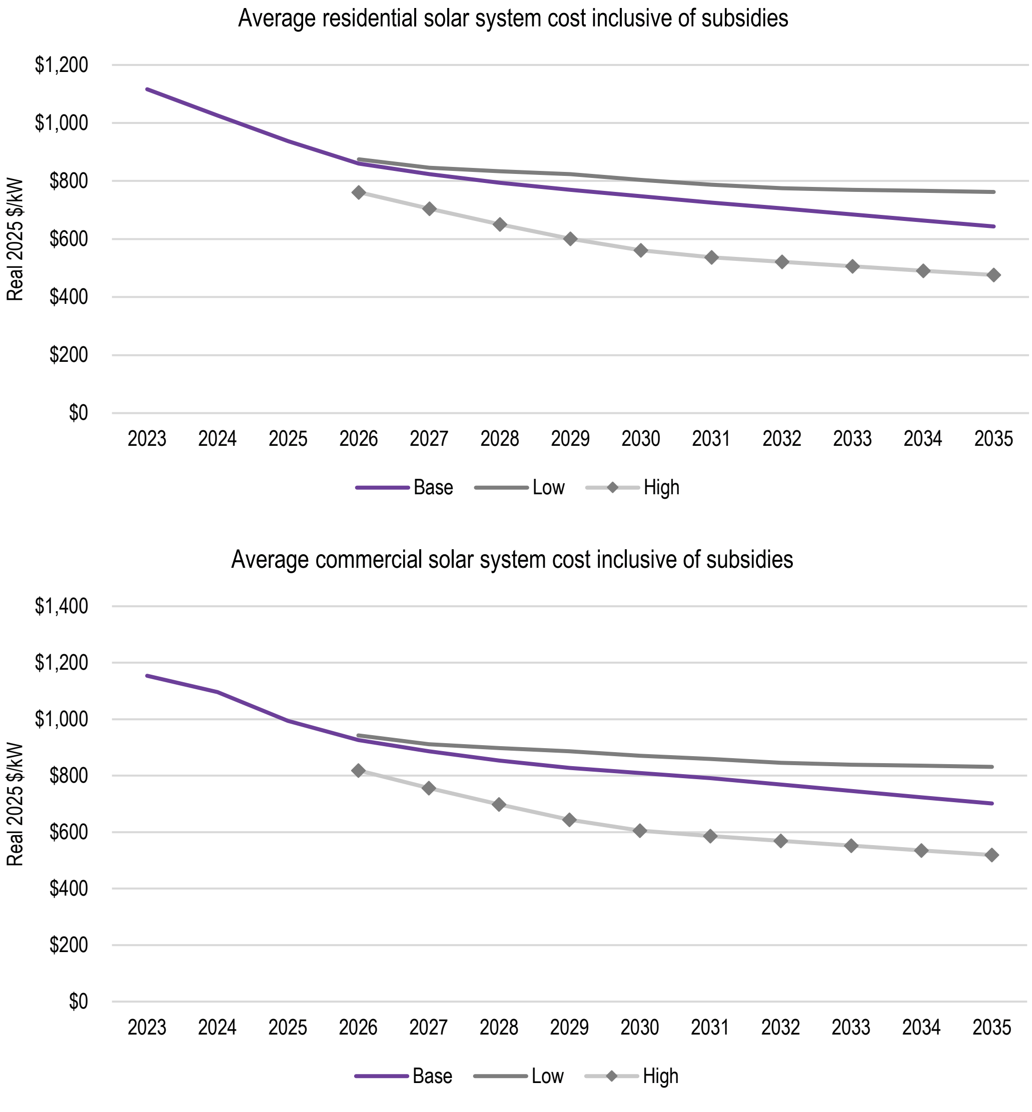
A Assumptions

The key assumptions underpinning the projections are outlined in this Appendix.

A.1 Installation costs

Historical solar PV installation costs are sourced from Solar Choice, are inclusive of subsidies, and are used as a starting point in 2025 for the projections. We assume gross installation costs (excluding subsidies) experience a decline based on learning rates from CSIRO's GenCost reports provided as an input to AEMO's 2025 IASR (ranging from 8% decline in 2025 to 3% decline by 2035 in the Base case).

Figure A.1 Average solar system cost inclusive of subsidies (Real 2025 $)

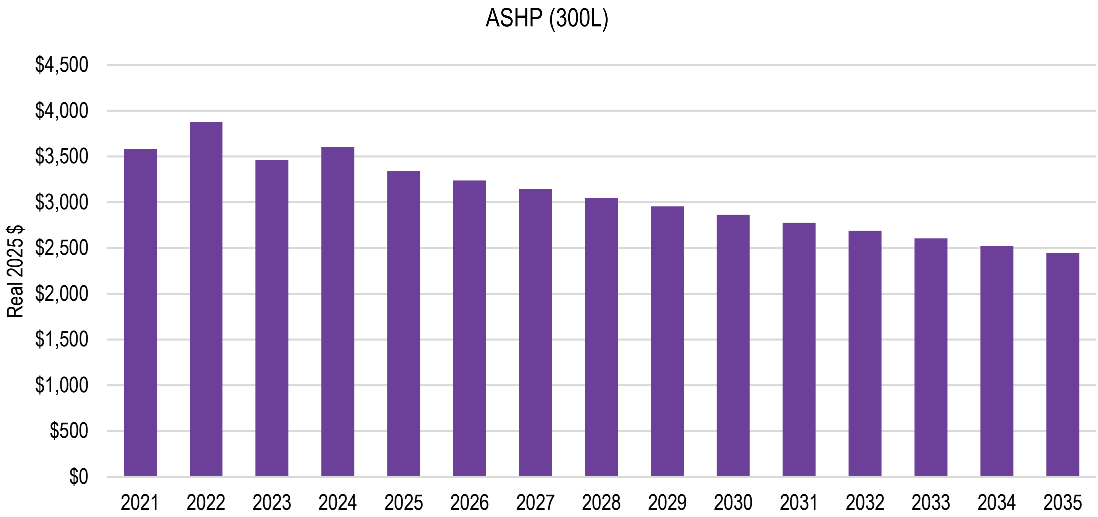


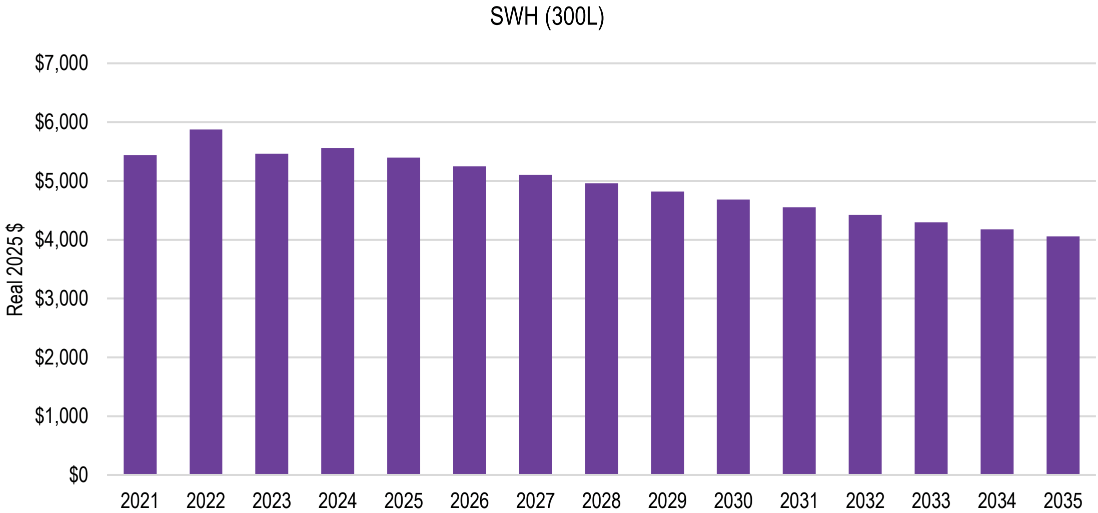
Source: ACIL Allen analysis of Solar Choice data and GenCost projections.

Hot water installation costs in 2025 are sourced from manufacturer websites, with adjustments made for STC subsidies, state-based subsidies, and the appliance price index (to adjust to pre-2025).

The higher cost in 2022 is because of an increase in the unsubsidised price of systems and a reduction in the STC subsidy due to declining deeming period. In addition, the deeming period was 9 years for heat pumps in 2022, which is 1 year less than the 10-year deeming period which applied to all systems installed pre-2022.The reduction in 2023 is due to several state-based subsidies. The higher cost in 2024 is due to the reduction in the STC subsidy due to declining deeming period and the reduction in some state subsidies. The decline in unsubsidised costs in the period after 2025 outstrips the impact of the declining STC subsidy.

Figure A.2 Average eligible water heater cost inclusive of subsidies (Real 2025 $)





Source: ACIL Allen analysis of hot water system manufacturer prices

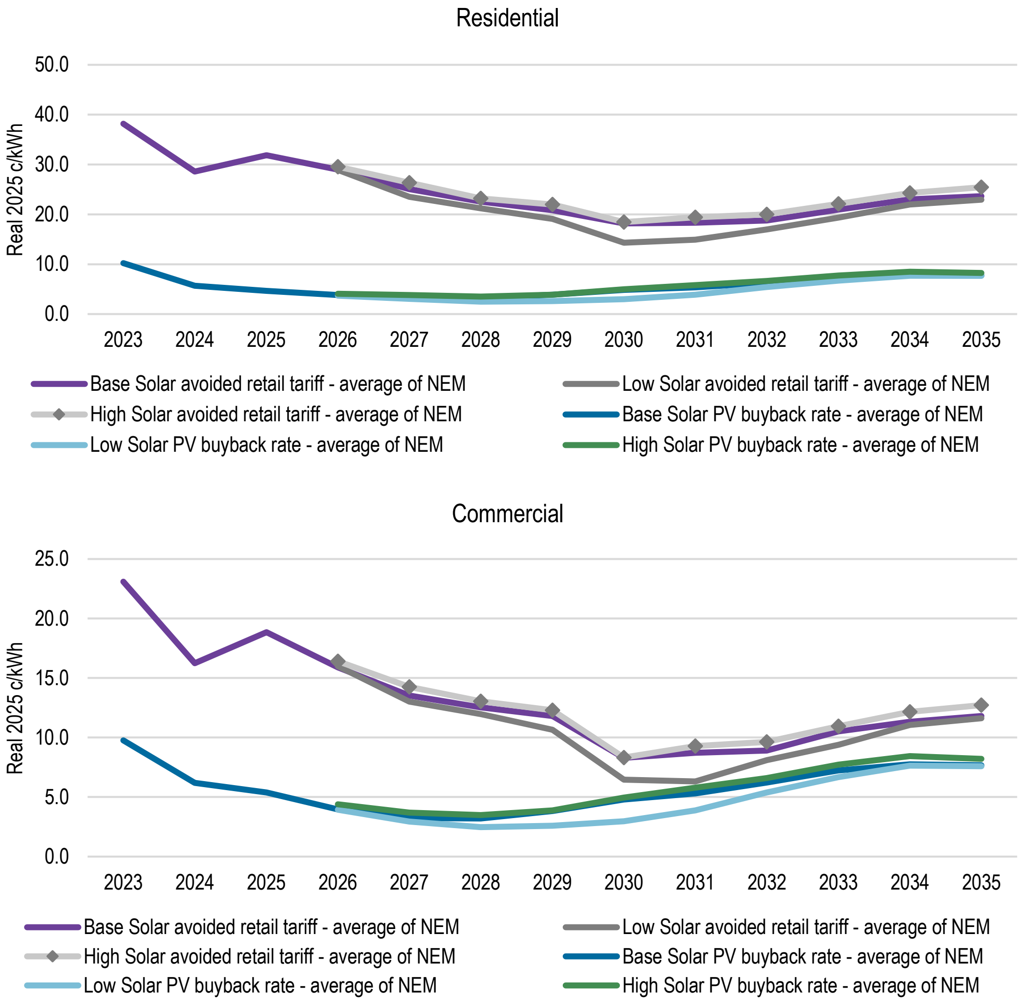
A.2 Electricity prices

Retail tariffs include wholesale, network, environmental, and retailing costs. Wholesale electricity costs are modelled using our in-house PowerMark market simulator. Network, environmental and retailing costs are based on data from publicly available sources such as the AER determinations regulator determinations and AEMO.

Projected avoided tariffs decline over the period to around 2030 because of assumed build out of significant renewable and storage capacity, incentivised by state-based schemes such as the NSW Roadmap and Australia-wide schemes such as the expanded Capacity Investment Scheme (CIS). Solar avoided tariffs include the variable network component only.

Solar buyback rate (or the solar feed-in tariff) reflects the projected generation-weighted price of solar PV. This is projected to decline over time because of assumed build out of significant renewable capacity. From around 2030, the solar buyback rate is projected to increase with the expected closure of large amounts of steam turbine capacity (coal-fired and gas-fired) and commissioning of utility scale storage projects. After 2030, avoided retail prices are elevated due to the expected closures.

Figure A.3 Solar avoided retail tariffs and solar buyback rate in the NEM (real 2025 c/kWh)



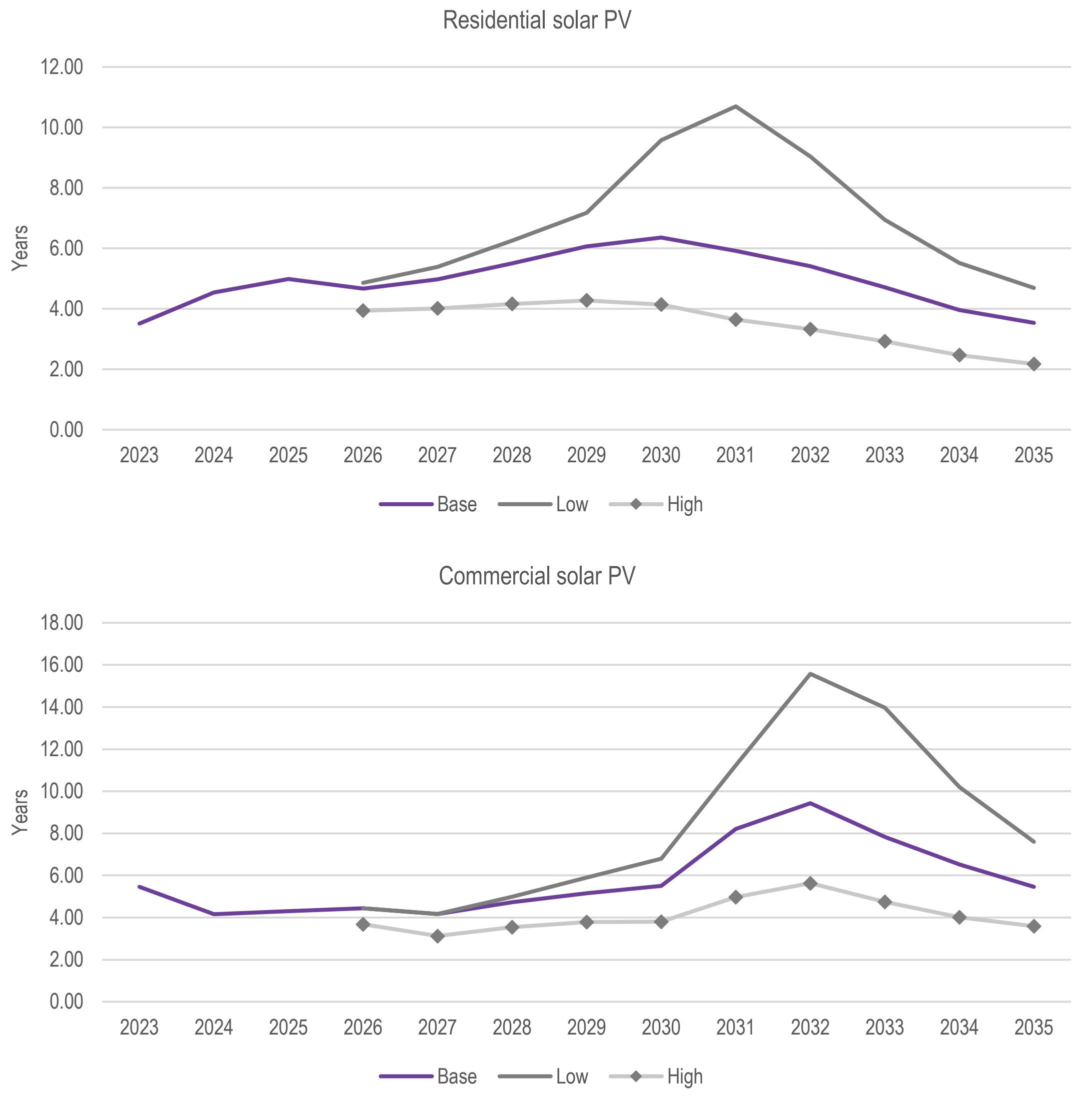
Source: ACIL Allen analysis

A.3 Payback periods

Average payback periods for small-scale solar installations are a function of the upfront installation cost, and the future value of avoided electricity expenditure and the revenue received from PV exports. The model takes account a lagged impact of electricity prices (lagged by 1 year for residential and 2 years for commercial) on installation rates and is already considered in the payback periods shown below. The projected increase in payback periods is driven by the projected decline in retail electricity tariffs and solar feed-in-tariffs, which offsets the impact of declining installation costs.

The increase in payback periods to 2032 (residential) and 2034 (commercial) is due to the projected decline in avoided tariffs and solar by back rates for the reasons discussed in A.2. The decline in payback periods after 2032 (residential) and after 2034 (commercial) is due to higher solar buy back rates (or solar feed-in-tariffs) combined with lower installation costs and elevated avoided tariffs. The solar buy back rates are based on the dispatch weighted price of solar, which are projected to increase after 2030 with the closure of coal-fired steam turbines and commissioning of utility scale storage projects. From 2030, avoided retail tariffs are elevated because of the expected closures.

Figure A.4 Average payback period (years) for solar PV



Source: ACIL Allen analysis

Average payback periods for eligible hot water systems are a function of the upfront installation cost, and the future value of avoided electricity expenditure. There is no lag assumption for the impact of electricity prices in the payback periods for eligible hot water systems. This reflects that replacement decisions generally occur soon after the failure of an existing hot water system or are tied to the timing of construction of a new dwelling. ASHP payback periods are lower than SWH, which reflects higher energy efficiency and lower installation cost of ASHP.

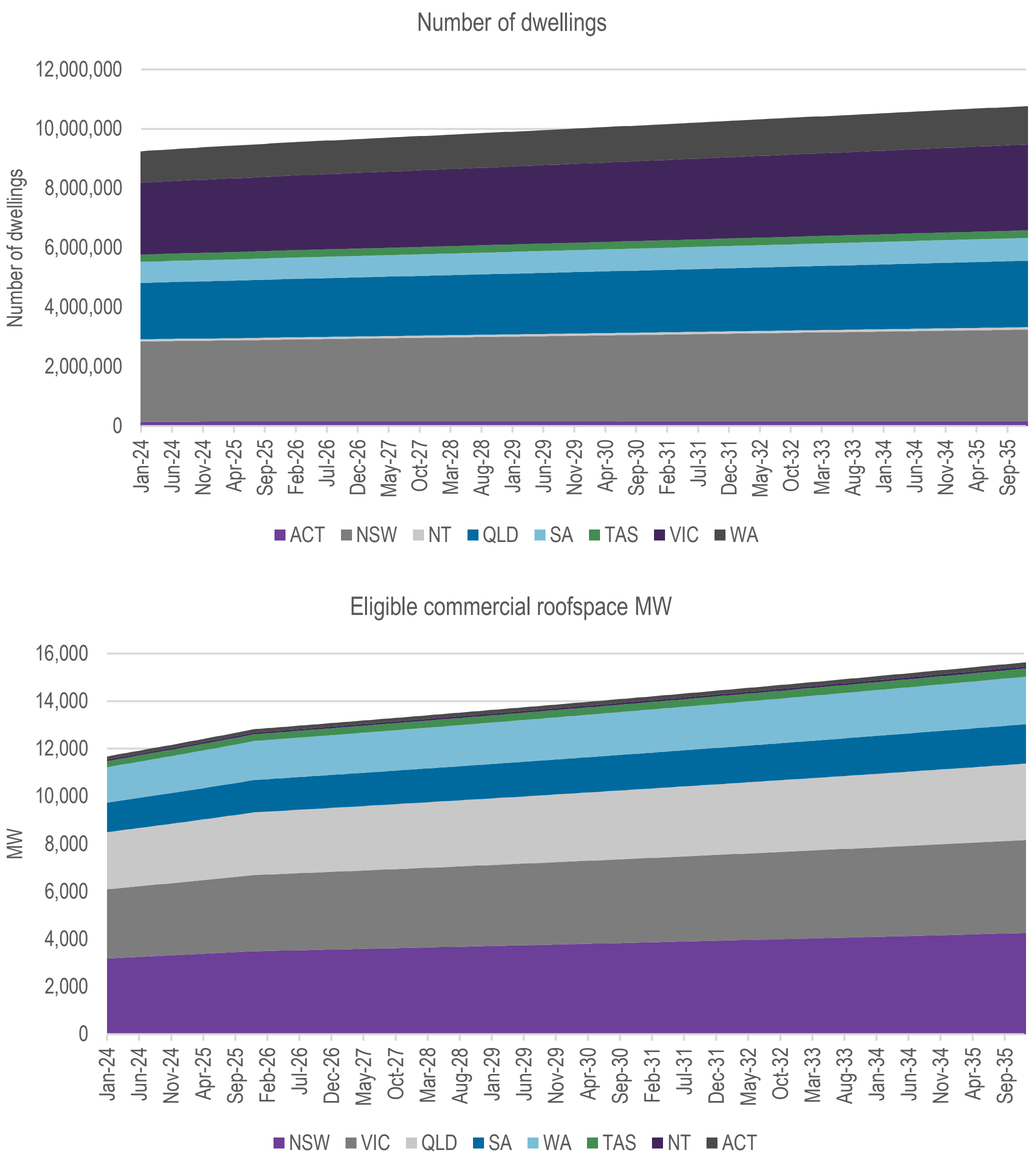
Figure A.5 Average payback period (years) for eligible water heaters

Source: ACIL Allen analysis

A.4 New dwellings and commercial roof space

Figure A.6 shows assumed eligible dwellings (for residential installations) and commercial roof space for (commercial installations). Commercial roof space is characterised in MW terms rather than numbers of buildings because of the large roof size range in this market segment.

Figure A.6 Eligible dwellings projection (top panel) and eligible commercial roof space MW (lower panel)

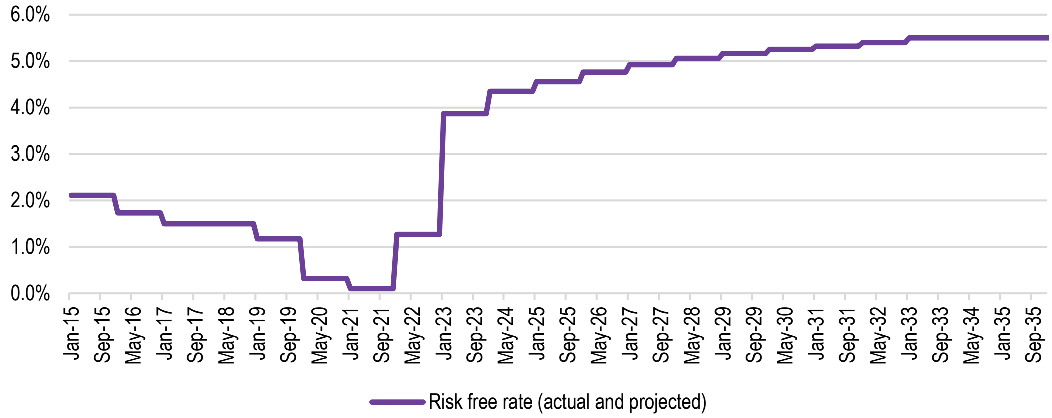


Source: ACIL Allen analysis of ABS and Institute for Sustainable Futures data

A.5 Interest rates

ACIL Allen has used 10-year government bond data from the RBA to represent the risk-free rate. We assume projected rates continue at current levels, increasing slightly to converge to a long-term view of 5.5%.

Figure A.7 Historical and projected risk-free rate



Source: ACIL Allen analysis of RBA data

A.6 Government subsidies

For the hot water analysis, current government rebates and energy efficiency schemes are assumed to remain at similar levels throughout the projection period. Assumed subsidies are detailed in Table A.1.

Table A.1 Government subsidies for ASHP and SWH

States	Rebate programs	SWH or ASHP	Details	Conditions	Residential/ Business	Source
VIC	Solar homes program	Both	Households: 50% on SWH or ASHP or up to $1400 an eligible locally made hot water product. In combination with rebate on solar panel possible.	Certain conditions need to be satisfied to receive the hot water rebate.	Residential	https://www.solar.vic.gov.au/hot-water-rebate

States	Rebate programs	SWH or ASHP	Details	Conditions	Residential/ Business	Source
VIC	Victorian Energy Upgrades	Both	All Victorian households and businesses can receive discounts when upgrading gas or electric hot water systems. Discounts for hot water upgrades for households and businesses: - Replacing electric hotwater for Heat pump hot water heater ($630) - Replacing electric hotwater for Solar-boosted hot water system ($910) - Replacing gas water heater for Heat pump hot water heater ($560) - Replacing gas water heater for Solar-boosted hot water system ($700)	Upgrading gas or electric hot water systems (a minimum 5-year warranty).	Residential and small business	https://www.energy.vic.gov.au/victorian-energy-upgrades/products/hot-water-system-discounts
NSW	Household energy saving upgrades	Both	Unlike a rebate, this incentive is provided as an upfront discount in the quote provided to you for the installation of a new hot water system. If eligible, discounts can range between: - up to $640 when you replace an electric water heater with an air source heat pump water heater - up to $330 when you replace a gas water heater with an air source heat pump water heater.	Replacement of existing electrical or gas hot water heater to air source heat pump	Residential and small business	https://www.energy.nsw.gov.au/households/rebates-grants-and-schemes/household-energy-saving-upgrades/upgrade-your-hot-water
QLD	Climate smart energy savers rebate (CLOSED in 2024)	Both	Standard rebate for ASHP and SWH is $800, low-income rebate is $1,000 (NOW CLOSED in 2024).	Must replace another appliance	Residential	https://www.qld.gov.au/housing/home-modifications-energy-savings/climate-smart-energy-savers/about
SA	-Retailer Energy Productivity Scheme -Adelaide City	Both	REPS: Amounts vary depending on models ($348 on YESS, $847 on Adelaide heat pumps) Adelaide City: All residential properties can replace a hot water system with a 50% rebate up to $2,000.	Replacement existing water heaters. There are no conditions that state that the REPS and Adelaide city rebate can't be used together. Household can only apply to one type of REPS rebate, so if a household has already used it for another energy efficiency system it can't access this. Residents of Adelaide can also apply for the Adelaide City top up.	Residential and small business	https://www.escosa.sa.gov.au/industry/reps/faqs/households-businesses https://www.cityofadelaide.com.au/about-council/grants-sponsorship-incentives/incentives-for-sustainability/#Incentives_5831394

States	Rebate programs	SWH or ASHP	Details	Conditions	Residential/ Business	Source
ACT	Energy efficiency improvement scheme Home Energy Support: Rebates for Homeowners Sustainable Household Scheme Sustainable Business Program	Both	- The scheme is enacted by different retailers like the Energy-efficient electric water heater upgrade from ActewAGL. ActewAGL provides a rebate of $1,250 of the purchase price of a new hot water heat pump for ACT Residents (only for ActewAGL customers), and get $250 credit on ActewAGL electricity bill. - Concession holders can also get a 50% rebate up to $2,500 for an hot water heat pump and can combine the rebate with a zero-interest loan of up to $10,000 to help with the remaining costs. - Low-interest loan of $2,000-$15,000 on energy efficient products is also available for households. - Eligible businesses may receive rebates of up to $10,000 for energy and water efficiency upgrades.	Only for replacement of gas or electric hot water heater.	Residential and small business	https://www.climatechoices.act.gov.au/policy-programs/energy-efficiency-improvement-scheme https://www.climatechoices.act.gov.au/policy-programs/home-energy-support-rebates-for-homeowners https://www.climatechoices.act.gov.au/policy-programs/sustainable-household-scheme https://www.climatechoices.act.gov.au/policy-programs/sustainable-business-program
TAS			No rebates available.			
NT			No rebates available			
WA			No rebates available			

Source: Various government websites

A.7 Data sources

Table A.2 summarises the key input assumptions and data sources used in this analysis.

Table A.2 Key assumptions and data sources

Key input assumption	Data source
Population	Centre for Population projections 2024-25 to 2035-36. Post 2035-36 based on population growth rates in the 2023 Intergenerational Report.
Residential dwelling projections, inflation	ABS 'mid' case projections
Commercial roof space	Institute for Sustainable Futures report on available roof space for solar PV in Australia assessed at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://apvi.org.au/wp-content/uploads/2019/06/isf-rooftop-solar-potential-report-final_.pdf
Interest rates	RBA
Retail electricity prices	Wholesale energy costs from ACIL Allen PowerMark wholesale electricity market simulator, renewable energy costs from the CER, retailing costs from regulatory reports, network costs from regulatory determinations
PV system costs	Historical costs from Solar Choice; projected based on AEMO 2025 IASR: Low scenario: Slower growth Medium scenario: Step change High scenario: Accelerated transition
Hot water system costs and energy efficiency ratings	Current costs from Choice and various hot water system manufacturer websites; projected based on similar decline rate of solar PV system costs.
Historical SRES installations	CER
Deeming periods	CER
Locational production factors	CER
Government incentives/subsidies/schemes	Various State Government and Regulator websites
Uplift factor to account for replacement installations relative to new installations.	ACIL Allen analysis of CER data
Lag between installation and STC creation	ACIL Allen analysis of CER data

Source: DCCEEW via CER

A.8 Wholesale electricity market modelling assumptions

Projected electricity prices used in this analysis are based on projections of the NEM under a Base case, Low scenario and High scenario. The Base case is broadly consistent with the DCCEEW emissions projections but incorporate updates for some inputs. Key assumptions for the Base case include adopting the Step Change scenario from the 2025 ESOO for grid demand, population projections from the Centre for Population, fuel costs from AEMO 2025 IASR, and federal government policy of reaching 82% renewables by 2030. Low and High scenarios adopt assumptions from 2025 IASR for the Slower Growth and Accelerated Transition scenarios, respectively. Table A.3 summarises the key assumptions adopted in the scenarios that are pertinent to the period to 2035.

Table A.3 Overview of National Electricity Market scenario assumptions

<table>
<tr><th>Assumptions</th><th colspan="4">Details</th></tr>
<tr><td>Electricity demand</td><td colspan="4">• Base case: AEMO 2025 Electricity Statement of Opportunities (ESOO) Step Change scenario
• High case: AEMO 2025 ESOO Accelerated Transition scenario
• Low case: AEMO 2025 ESOO Slower Growth scenario</td></tr>
<tr><td>Federal greenhouse gas emission policies</td><td colspan="4">• Economy-wide 43% reduction in GHG emissions below 2005 levels by 2030 and a net zero emissions target by 2050.
• National target of 82% renewable energy generation by 2030 (see note on Capacity Investment Scheme below).</td></tr>
<tr><td rowspan="2">State based schemes</td><td>NSW
NSW Roadmap capacity of:
– 16 GW renewables by 2030 within designated Renewable Energy Zone (REZ)
– 2 GW long-duration storage by 2030
– 5 GW long-duration storage by 2034</td><td>QLD
– Queensland’s new government has committed to keep its coal generators online for longer and shown support for smaller pumped hydro projects as part of broader efforts to transition to renewable energy and ensure energy reliability in the state. The Reference case assumes four small pumped hydro plants (500 MW/ 4,000 MWh each) coming online between 2035 and 2038.</td><td>TAS
TRET targets of 15,750 GWh (150%) of renewable energy by 2030 and 21,000 GWh (200%) by 2040.</td><td>VIC
VRET targets of 40% by 2025, 65% by 2030 and 95% by 2035.
No new build is required for the VRET beyond what is already committed (noting that the target is calculated based on a percentage of total local energy dispatch). However, the second round VRET auction (VRET2) with a further six projects totaling 623 MW of grid-based solar PV projects and an additional 365MW/600MWh of battery storage has been included.
Victoria energy storage targets:
– At least 2.6 GW storage capacity by 2030
– At least 6.3 GW storage capacity by 2035
Offshore wind capacity target:
– 2 GW of offshore wind capacity by 2032
– 4 GW by 2035</td></tr>
<tr><td colspan="4">SA: The government has indicated a 100 per cent net renewable energy ambition by 2030. The SA government announced its Hydrogen Jobs plan in December 2022. It includes the development of a 250 MW electrolyser, a 200MW hydrogen-fuelled power generator and a hydrogen storage facility by the end of 2025.</td></tr>
<tr><td>Capacity Investment Scheme (CIS)</td><td colspan="4">The Capacity Investment Scheme (CIS) aims to:
– deliver 40 GW of new capacity nationally, made up of 26 GW of renewable capacity and 14 GW of clean dispatchable capacity. In the Base and High cases, approximately 22 GW of renewable capacity and 11.5 GW of 4-hour equivalent dispatchable capacity are assumed to be developed within the NEM. Under the</td></tr>
</table>

<table>
<tr><th>Assumptions</th><th colspan="3">Details</th></tr>
<tr><td></td><td colspan="3">Low case, about 12 GW of renewable capacity and 5 GW of 4-hour equivalent dispatchable capacity are assumed for the NEM (with the remaining capacity allocated to non-NEM grids)
– fill expected reliability gaps in the energy network as ageing coal-fired power stations exit
– deliver the Australian Government's 82% renewable electricity by 2030.</td></tr>
<tr><td>Electricity supply (beyond new supply driven by state-based schemes)</td><td>Committed projects
– Named new entrant projects are included in the modelling where there is a high degree of certainty that these will go ahead (i.e., project has reached financial close)
– Includes the Federal Government's Snowy 2.0 by 2030.
– Where appropriate, existing and committed new investment is accounted for in the state based and federal schemes to avoid double counting</td><td>Assumed new entry and closures
– 400 MW of corporate PPAs across New South Wales and Victoria entering from mid-2026 to reflect the continued appetite by larger corporates to demonstrate their green credentials as well as reduce electricity costs ahead of the rollout of the various state-based schemes
– Committed or likely committed generator closures included where the closure has been announced by the participant (Torrens Island B in 2028, Yallourn in 2028, Eraring in 2029, Callide B in 2031, and Bayswater in 2033).</td><td>Projected new entry and closures
– Beyond committed and assumed projects, only commercial generic new entrants are introduced within the modelling.
– Closure of existing generators where the generator is projected to be unprofitable over an extended period of time or the generator's expected closure year as indicated to AEMO – whichever is earlier.</td></tr>
<tr><td>Gas and coal prices into gas-fired and coal-fired power stations</td><td colspan="3">• Base case: AEMO 2025 IASR Step Change scenario
• High case: AEMO 2025 IASR Accelerated Transition scenario
• Low case: AEMO 2025 IASR Slower Growth scenario</td></tr>
<tr><td>Interconnectors</td><td>Existing interconnection
Assumed transfer capabilities updated to reflect recent history and known constraints (e.g., related to planned outages as part of upgrade works).</td><td colspan="2">AEMO 2025 IASR and the latest Transmission Augmentation Information.
IASR committed and actionable projects included:
– EnergyConnect (Jul 2027)
– VNI West (Dec 2031)
– Marinus Link (Stage one: Dec 2030, Stage 2: Dec 2034)
– QNI medium (Mar 2033)</td></tr>
</table>

Melbourne
Suite 4, Level 19, North Tower
80 Collins Street
Melbourne VIC 3000 Australia
+61 3 8650 6000

Sydney
Suite 603, Level 6
309 Kent Street
Sydney NSW 2000 Australia
+61 2 8272 5100

Brisbane
Level 15, 127 Creek Street
Brisbane QLD 4000 Australia
+61 7 3009 8700

Canberra
Level 6, 54 Marcus Clarke Street
Canberra ACT 2601 Australia
+61 2 6103 8200

Perth
Level 12, 28 The Esplanade
Perth WA 6000 Australia
+61 8 9449 9600

Adelaide
167 Flinders Street
Adelaide SA 5000 Australia
+61 8 8122 4965

ACIL Allen Pty Ltd
ABN 68 102 652 148

acilallen.com.au