

Rooftop solar and storage report

January—June 2024





About this report

This is the second edition of the Clean Energy Council's (CEC) half-yearly report, monitoring the progress of the deployment of rooftop solar and behind-the-meter energy storage systems in Australia. The rooftop solar and battery installation data featured in this report is sourced from our data partner for these Rooftop Solar and Storage reports, SunWiz, with supplementary data from Green Energy Markets – the Clean Energy Council's data partner for our annual Clean Energy Australia report – referenced in some instances. The report's section on installer, product and approved seller accreditation draws on CEC data.

Acknowledgement of Country

We respect and acknowledge the diversity of communities, identities, and clan groups for all First Nations peoples throughout Australia and recognise the continuing connection to lands, waters and communities. We pay our respect to Aboriginal and Torres Strait Islander cultures; and to Elders past and present.

As a collective of diverse businesses operating on a national scale, we understand that the success of our endeavours is intrinsically linked to the wellbeing and prosperity of the communities we operate within. We acknowledge that Aboriginal and Torres Strait Islander communities are rich and diverse, reflecting a tapestry of cultures and backgrounds. This diversity underscores the importance of embracing a range of holistic solutions to address the unique challenges and opportunities that lie ahead.

We recognise the impact of human activity on the cultural landscape of Australia. We understand that these practices have not always been in harmony with the profound attachment and cultural custodianship that First Nations peoples have with the land.

We are committed to forging strong relationships with First Nations communities and stakeholders, recognising their unique perspectives and aspirations. We strive to engage in genuine, meaningful partnerships that honour their rights, culture, and self-determination.

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Highlights



Rooftop solar photovoltaic (PV) installations are on track to pass a total of **25 GW installed capacity in Australia by the end of 2024**. By comparison, black and brown coal combined for a total of 21.3 GW of installed capacity in the financial year to 2023-24.¹



With 454 MW of new rooftop solar systems installed in the first half of 2024, **New South Wales has led the way for the highest bi-annual installed capacity of any state**. It has held this title since 2018.



According to OpenNEM, rooftop PV **contributed 11.3%, or 13,479 GWh of Australia's total energy generation** for the first half of 2024.



There were nearly **30,000 battery units sold** in the first half of 2024.



New South Wales is the second state to pass **one million total rooftop PV installations**.



There are currently 7,250 approved rooftop solar, inverters and storage products across Australia, which represents a **12 per cent increase compared to the previous bi-annual report**.

¹ AEMO Integrated System Plan, 2024

Installations and capacity trends

Solar PV installations

Rooftop PV continues to be a key contributor to the nation's energy mix, with a generation share of 11.3% for the first half of 2024². The total installed capacity of rooftop PV for H1 2024 was **1.3 GW** from **141,364** units. This was well above the 310 MW worth of commissioned large-scale generation projects over the same period. With a grand cumulative total now of 24.4 GW, Australia is well on track to passing the 25 GW mark by the end of the year.

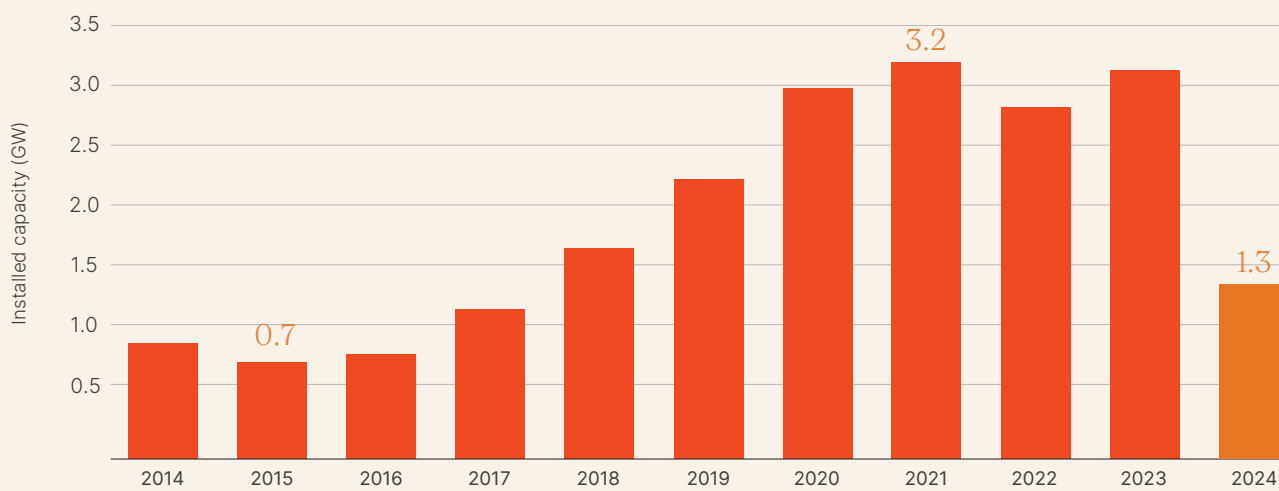


Figure 1: National installed rooftop PV capacity (GW), by year

² OpenNEM

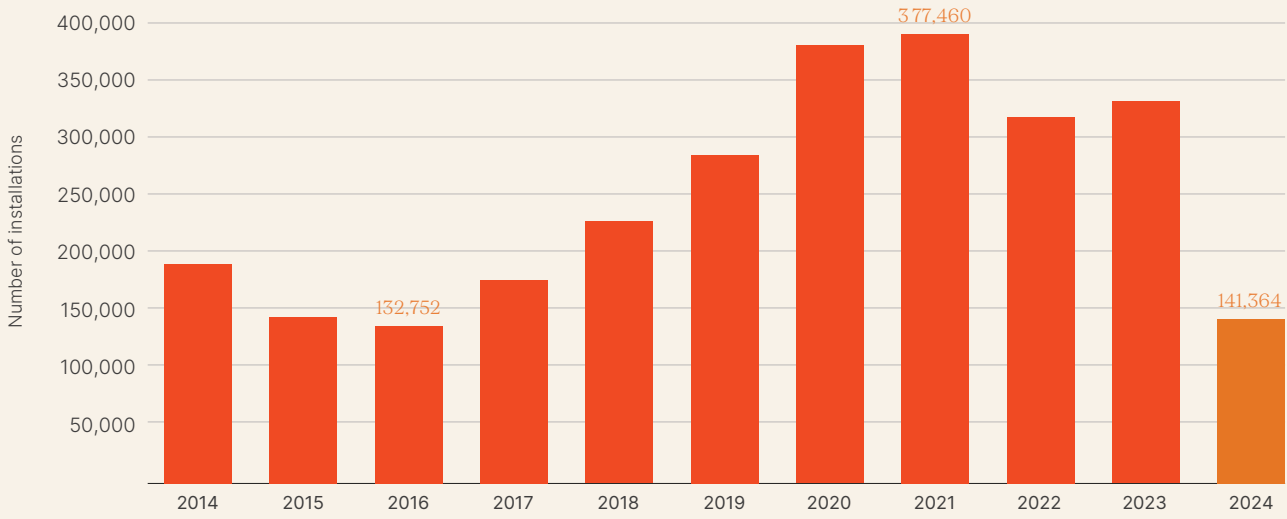


Figure 2: National number of systems installed, by year

Installation figures have fallen short of the halfway mark of the total seen in 2023 at 141,364 (-14.7 per cent), as did the installed capacity at 1.3 GW (-14.2 per cent). Despite not reaching the halfway mark, installation

figures compared to the same time period 12-months ago are almost exactly on par, with H1 2023 totaling 140,181, signaling that this is not evidence of an overall downwards trend.

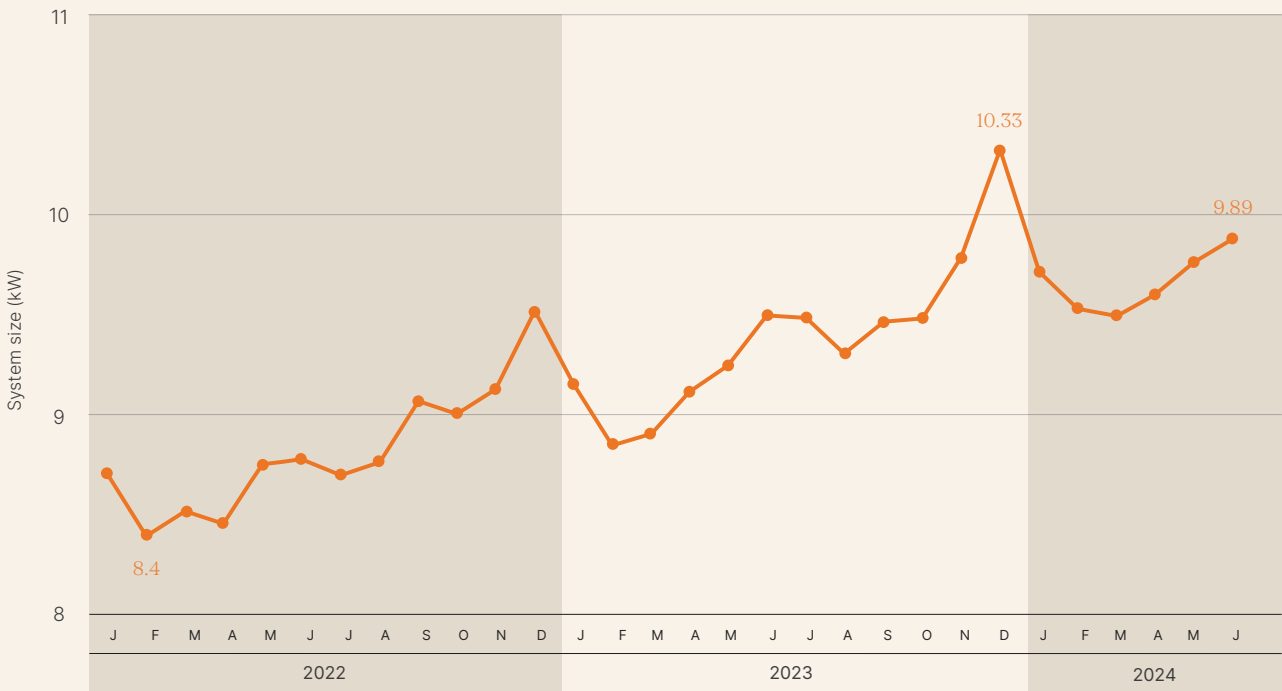


Figure 3: Average system size by registration month

The growth in the average system size in the first half of 2024 grew slightly to 9.7 kW, a new bi-annual record. By way of comparison, the average system size a decade ago was 4.3 kW, and 7.4 kW five years ago. The monthly

average system size for June was 9.9 kW. The graph above suggests a trend where the average system size initially falls after Christmas, before reaching new records by the end of the year.

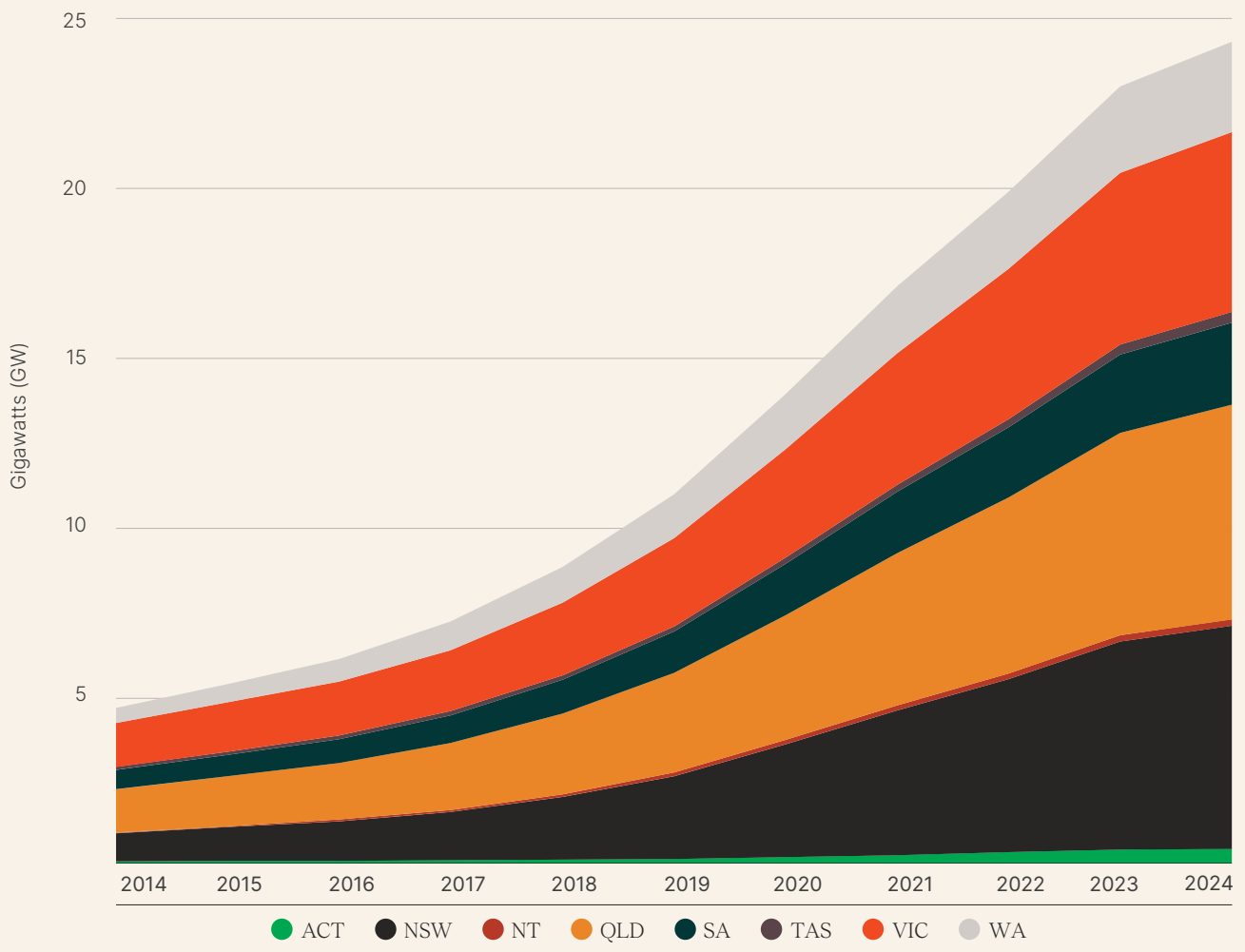


Figure 4: Cumulative annual capacity of rooftop PV, by jurisdiction

Around the states, New South Wales has led the way for highest installed capacity of any state, at 454 MW. Queensland and Victoria came in second and third place respectively with annual installed capacities of 360 MW and 246 MW. New South Wales boasts the highest level

of total installed capacity of rooftop PV with 6.6 GW – over a quarter of the entire Australian capacity. It also became the second state to surpass one million rooftop PV units installed across the state.

Battery installations

Battery attachments to rooftop PV are steadily growing, with the cumulative total passing 140,000 in the second quarter of 2024. The first half of 2024 saw nearly 30,000 battery sales, and the rolling 12-month quarterly average of battery sales has been revised to a record of 14,555.

In the first half of 2024, 20.7 per cent of rooftop solar installations had an accompanying small-scale battery installed, indicating the ongoing potential for further uptake.

The Clean Energy Council (CEC) released its [Home Battery Saver Program](#) in 2024 with the objective of providing a rebate for customers to take up home battery systems. If this program is implemented, it will support the delivery of AEMO's projected ~34.5GW of embedded storage by 2030 – equivalent to 3.5m 10kW batteries or 7m 5kW batteries. Achieving these outcomes will also mean that Australian customer save, on average, over \$1100 on their electricity bills over the course of the ISP projections (2024 – 2050).

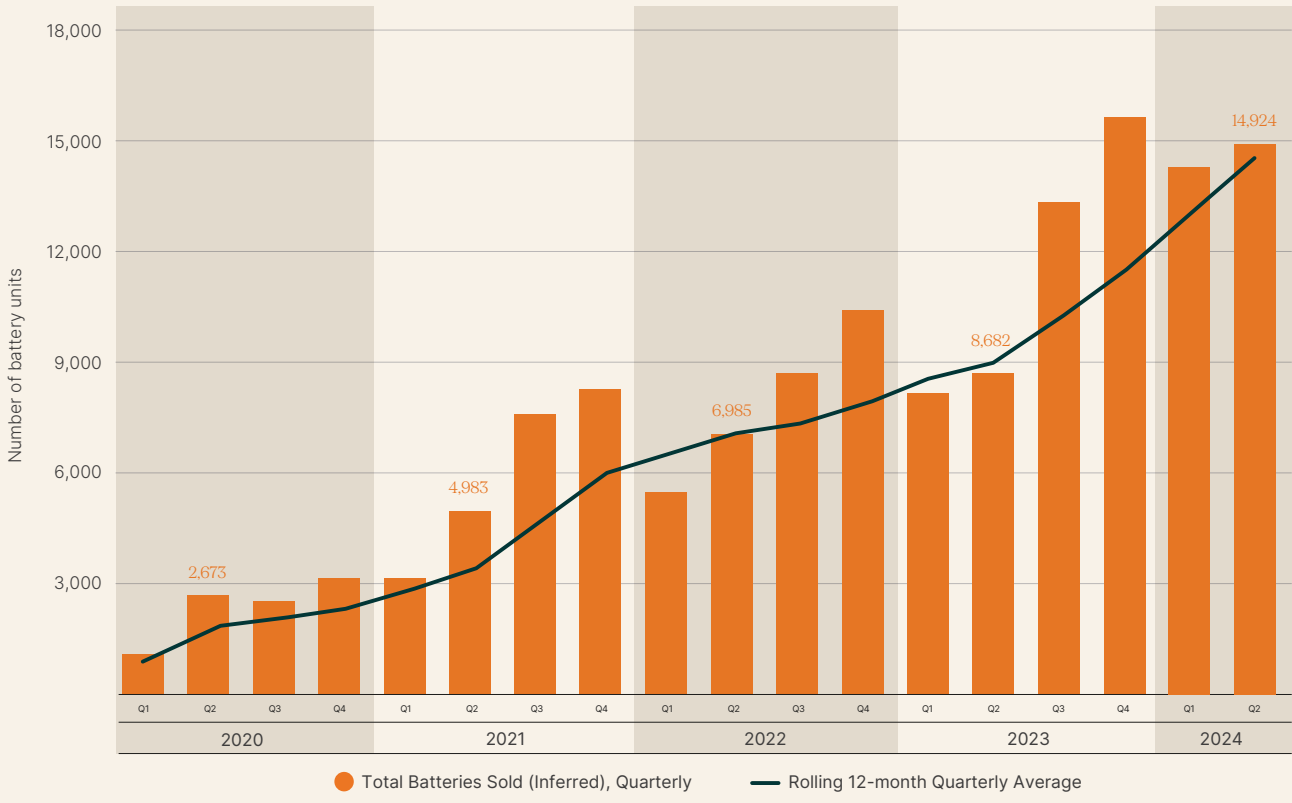


Figure 5: Total battery sold, quarterly

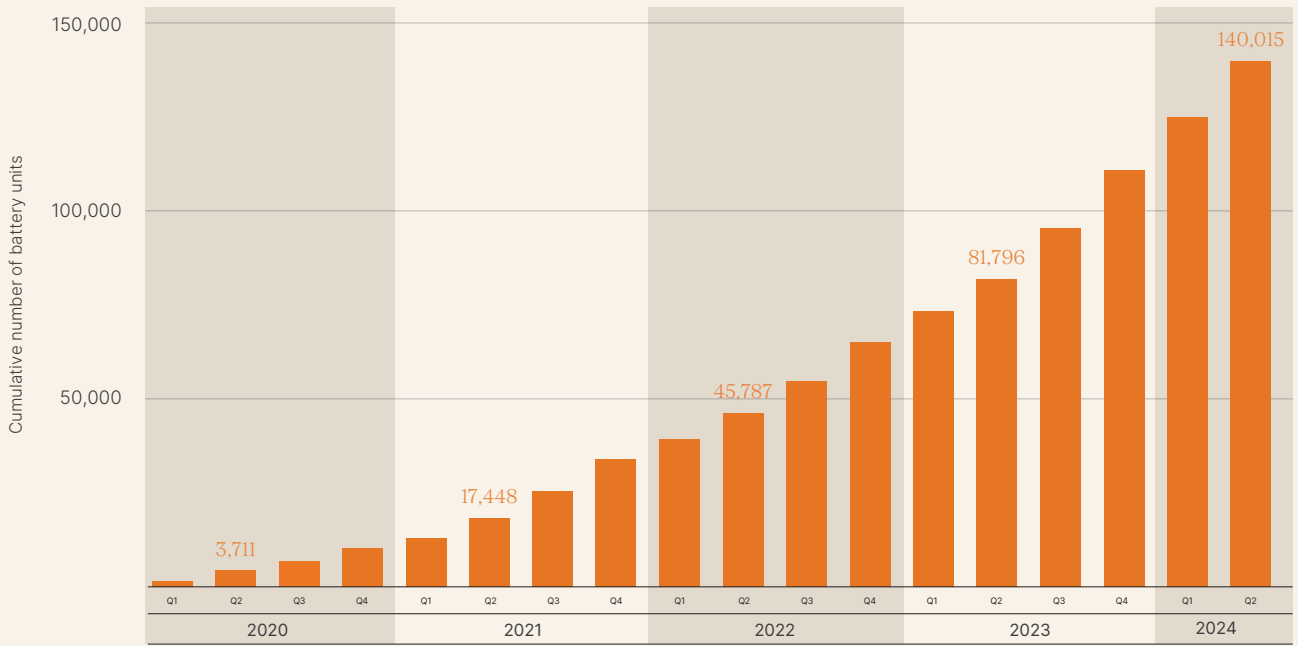


Figure 6: Cumulative battery sales, quarterly

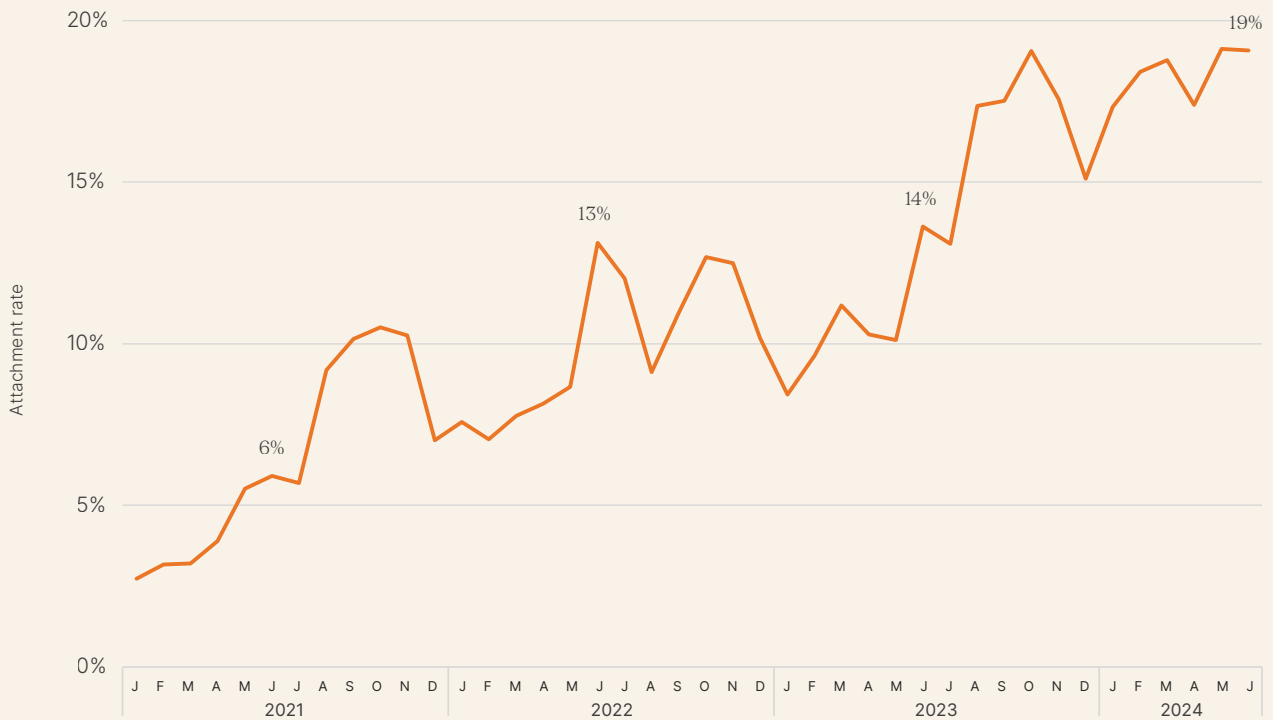


Figure 7: Home battery attachment rate to households with rooftop PV, monthly

The attachment rate of home batteries connected to households with rooftop PV continues a gradual upward trend year on year. The month ending to June 2024 reached an equal high of 19%. This shows an increase of 5% when compared to the same time 12 months ago.

Industry programs

The CEC plays an integral role in Australia's regulatory and compliance framework of accreditation for individual installers, products, and retailers. The CEC administered an accreditation program for installers, supplying prerequisite training, full and provisional accreditation, and continuous professional development for 16 years. Following the Clean Energy Regulator's call for application and evaluation process for installer and design accreditation in late 2023 for operators of the accreditation scheme, the CEC decided not to apply to continue operating an installer accreditation scheme and the CEC's administration of the program ended has now ended.

In February 2024, the Clean Energy Regulator announced the Solar Accreditation Association (SAA) as the new accreditation body, the CEC has now concluded the accreditation hand over to SAA.

The CEC remains the accrediting body for products and retailers through the New Energy Tech Code of Conduct (NETCC). The following section of this report outlines the product accreditation and NETCC activity for H1, 2024.

Product accreditation

The CEC maintains a list of approved products that are eligible for installation, based on their compliance with Australian and International Standards. The CEC's product accreditation program is delivered in collaboration with government, electrical safety regulators, certifiers, network providers and product manufacturers to ensure only approved products enter the Australian market.

The CEC's approved product list includes:

- Inverters and power conversion equipment – compliant with relevant Australian and International Standards.
- Solar PV modules – compliant with AS/NZS 5033.
- Energy storage devices – compliant with the Best Practice Guide: Battery Storage Equipment – Electrical Safety Requirements.

Only approved solar PV modules have access to financial incentives, as only solar PV systems that are accredited and listed by the CEC are eligible to receive small-scale technology certificates (STCs) under the Small-scale Renewable Energy Scheme (SRES). Additionally, state government programs – Victoria's Solar Homes, Queensland's Battery Booster and South Australia's Solar Flexible Exports - have included or adapted the CEC's approved products list as a requirement for participation in their schemes.

The CEC also runs a testing and compliance program to assist in the upkeep of product approval lists. This encompasses proactive internal audits of the database of approved products and their relevant certifications and targeted product testing. In most cases, the testing sources a product via blind buying to be forwarded to an independent testing lab in Australia or overseas.

In the first half of 2024 there have been 245 applications received, while 174 applications were approved. A monthly breakdown over the last six months for both applications and approvals are shown below:

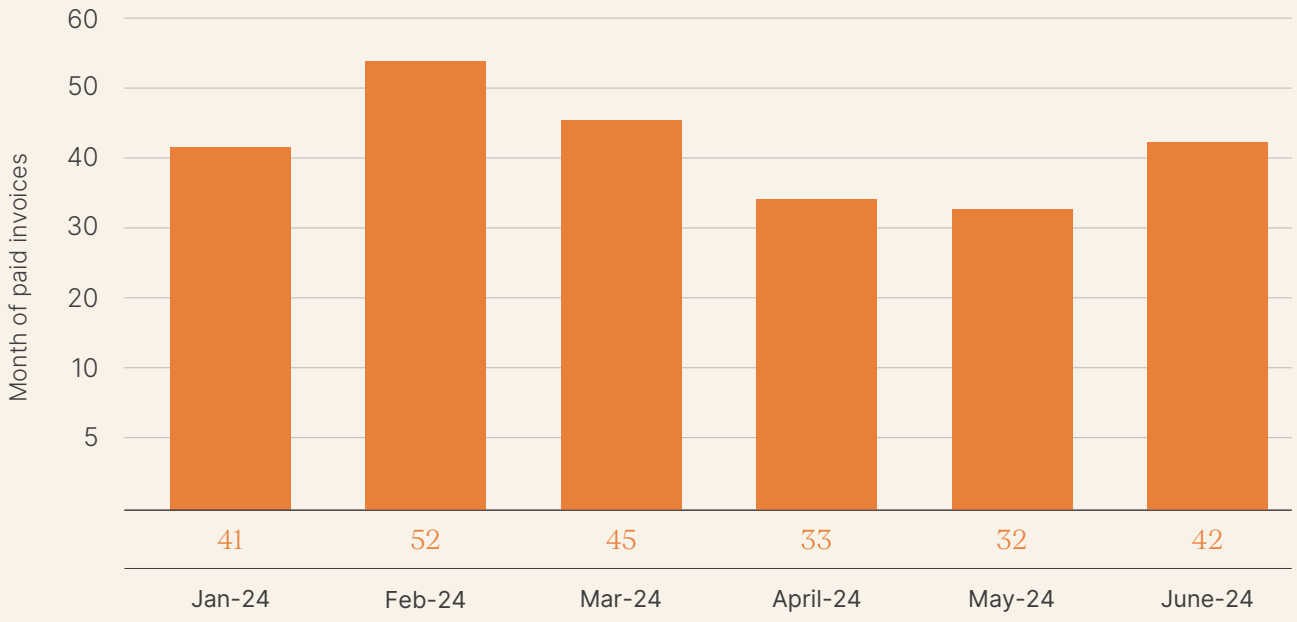


Figure 8: Total applications received in H1 2024, monthly

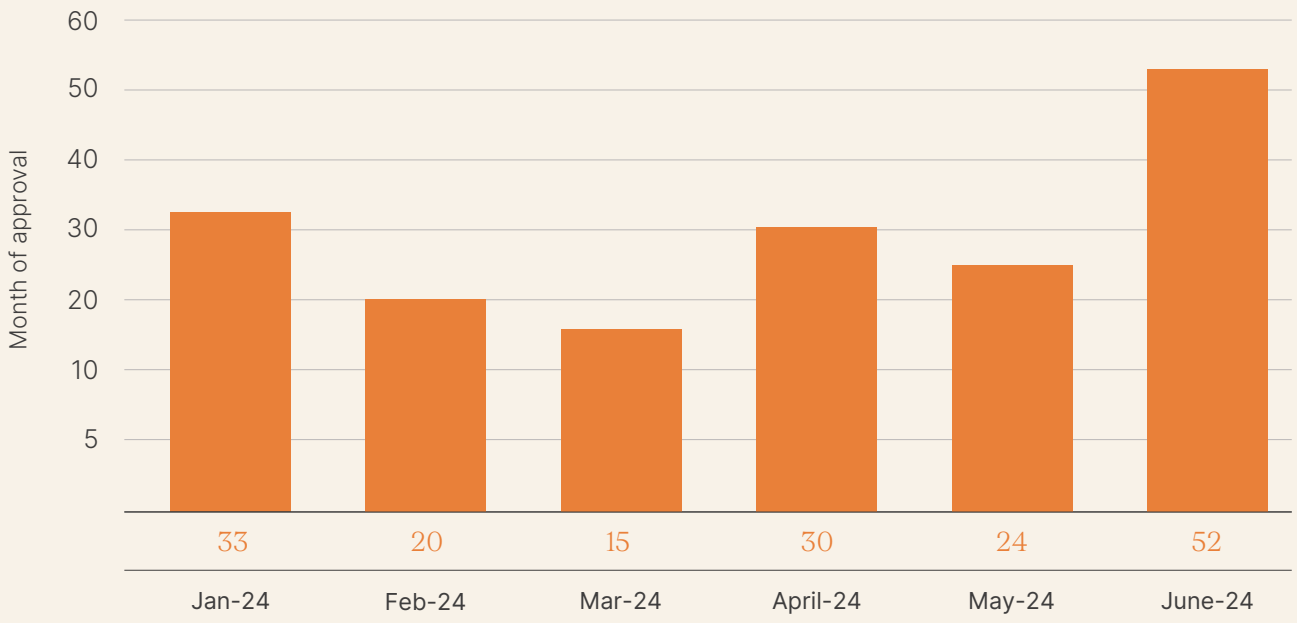


Figure 9: Total applications approved in H1 2024, monthly

The Clean Energy Council recorded a high volume of applications in Q1 2024, resulting in an increased application timeline for H1 2024. The processing time is currently four to six weeks; however, this timeline can be impacted by the quality and completeness of information provided by applicants to the CEC.

To meet growing demand, the Products team have expanded from four to nine specialists over the past six months, resulting in 28 additional applications approved in June 2024 compared to May 2024. The sharp increase

in personnel is to align with the unprecedented volume of applications received in H1 2024 and support the continued growth of the industry. The Clean Energy Council will continue to review resourcing for this program going forward, to ensure a smooth transition to a new standard and reduce processing time and costs to the industry.

There are currently 7,250 approved rooftop solar, inverters and storage products across Australia, which represents a 12 per cent increase compared to the previous bi-annual report. A breakdown of the number of each product type is seen below.

Product type	Number of products	Number of manufacturers
Inverter model	1,620	108
PV Modules model	5,075	115
Battery model	555	86

Table 1: Approved product breakdown

Source: Clean Energy Council

A battery was the only product which had been mandatorily recalled by the Australian Competition and Consumer Commission (ACCC).

The Product Listing Review Panel was established in 2016 to provide an independent panel with industry and consumer representation. It is responsible for hearing appeals from companies whose products have been de-listed or refused listing by the CEC. To ensure the product listing scheme is operating effectively the Panel meets regularly to identify ongoing objectives.

There were no new standards released in H1 for public comment.

New Energy Tech Consumer Code (NETCC)

The New Energy Tech Consumer Code (NETCC) reflects a concerted effort by the clean energy sector to ensure that the energy transition is conducted in a manner that protects new energy technology consumers and it fair, equitable and sustainable.

The Code establishes minimum standards of good practice and consumer protection to be provided by signatories ranging across all aspects of the customer experience. This covers initial marketing and promotion, offering, quoting, contracts, finance and payments, installation, operation, warranties, and dispute resolution processes. This commitment is crucial in building consumer trust and confidence in the renewable energy sector and encouraging innovation and development of choice for consumers.

To become a New Energy Tech Approved Seller, a provider must demonstrate it meets the requirements of the NETCC and is committed to ongoing compliance with the standards.

The CEC, as the Administrator of the NETCC has been impactful in establishing and strengthening the NETCC program since its launch in 2023, including developing technology specific Consumer Information Products, which provide step-by-step guides that outline what consumers should look out for, what questions to ask which guides decision making. It has also helped implement the compliance program to ensure Code Signatories' practices adhere to the NETCC, and customer complaints of alleged non-compliance are investigated.

Signatories of the NETCC agree to comply with a several obligations, including:

- Avoidance of high-pressure sales tactics.
- No offers of finance in unsolicited sales not regulated by the National Consumer Credit Protection Act (2009).
- Responsible provision of consumer finance products, with effective dispute resolution and avenues to address customer hardship.
- Clear and accurate advertising.
- Education to consumers on their rights.
- Provision of clear product performance and maintenance information.
- Extra steps taken to protect vulnerable consumers.
- Implementation of effective complaints handling processes.

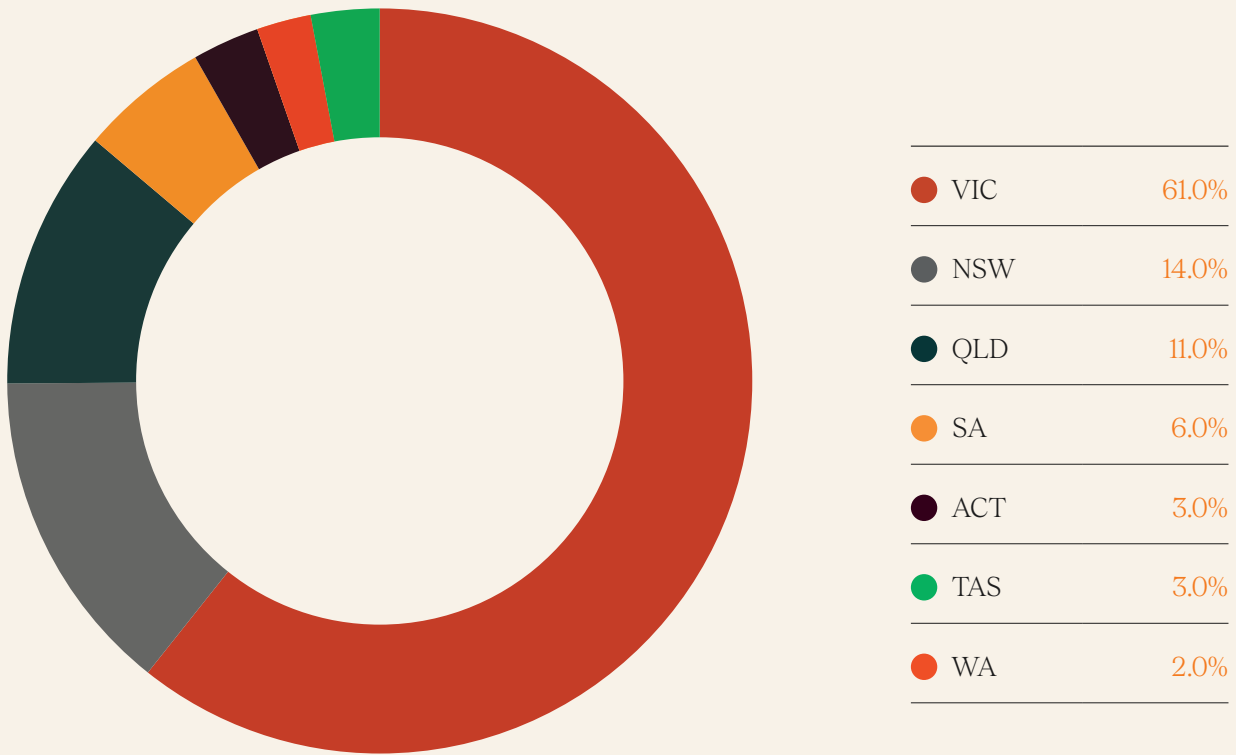


Figure 10: Share of approved sellers by state

The majority of approved NETCC sellers are from Victoria, with a share of 61 per cent. Next is New South Wales with 14 per cent, then Queensland with 11 per cent.

The NETCC program has been observing a slight increase in signatories from New South Wales as a result from local government sustainability rebate programs mandating the NETCC, including Shellharbour Council, Randwick City Council and the City of Canterbury Bankstown. Within these schemes, the inclusion of Approved Retailers through the Code has promoted trust for customers

participating in the scheme and has ensured high quality products are being installed in households.

Launched in 2024, the Household Energy Upgrades Fund (HEUF) is a specialist \$1 billion fund, administered by the Clean Energy Finance Corporation, to provide discounted consumer finance products to assist households upgrade their homes. To be eligible for a HEUF discounted green loan, the retailer must be NETCC accredited, promoting high standards of consumer protection and highlighting the NETCC as a trusted program for governments.

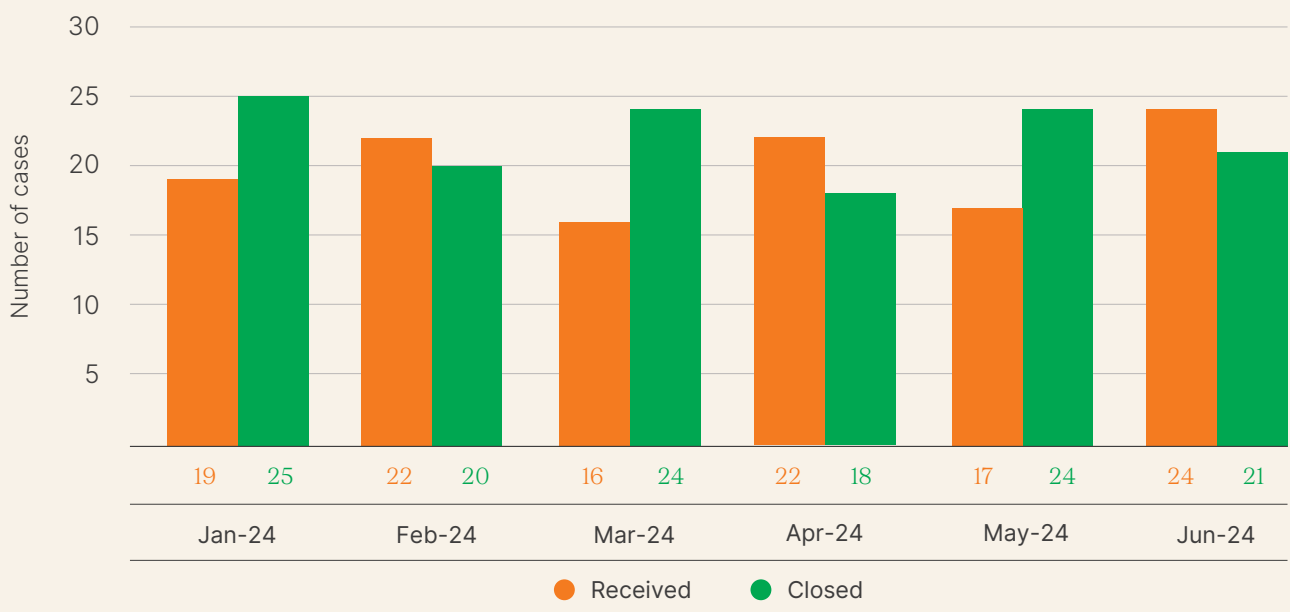


Figure 11: Monthly NETCC cases received and closed

A NETCC case is any complaint or dispute lodged by a consumer against a New Energy Tech Approved Seller. The NETCC sets out clear requirements that Approved Sellers must comply with in the sale and supply of New Energy Tech products and services. The majority of NETCC cases are received from new energy tech consumers. However, the CEC (the NETCC Administrator) can investigate alleged non-compliance from various sources.

The first half of 2024 saw 120 NETCC cases received, while 132 were closed. This is a 63% increase compared to the number of cases closed in the previous 6-month period which saw 122 cases received and 81 cases closed by the Administrator, highlighting a strong performance in closing cases at a rate higher than when they are submitted.

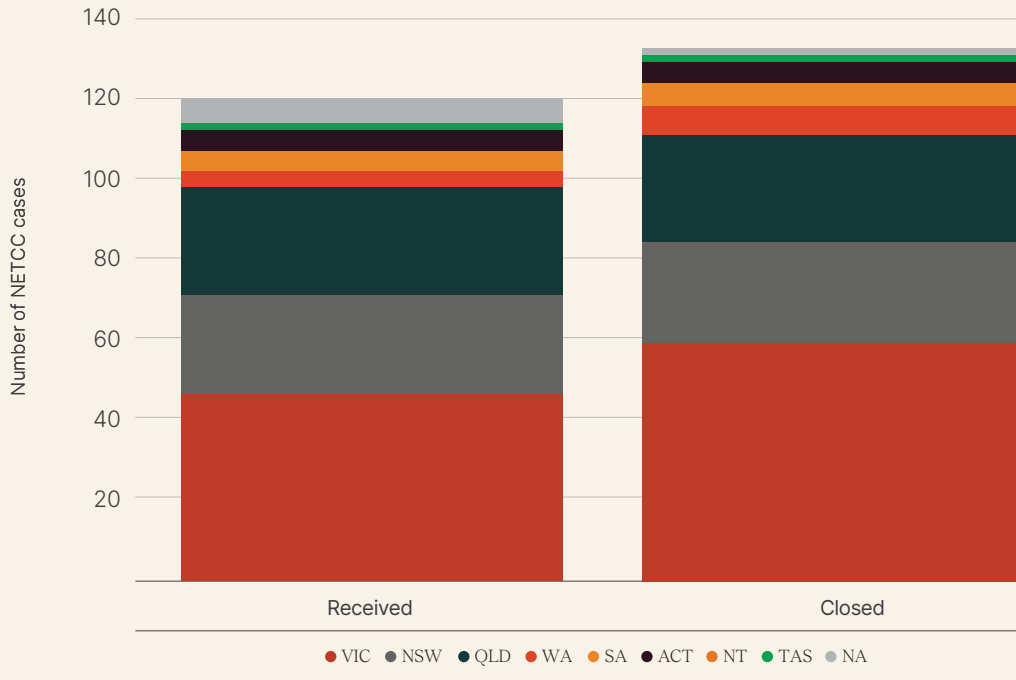


Figure 12: Bi-annual NETCC cases received and closed by state/territory, H1 2024

Of the received cases in the first half of 2024, the majority were from Victoria at 47. Next were Queensland and New South Wales, with 27 and 24, respectively. This is consistent with the ratio of Signatories from these three states as 61% of Signatories are based in Victoria, 14% in New South Wales and 11% in Queensland.

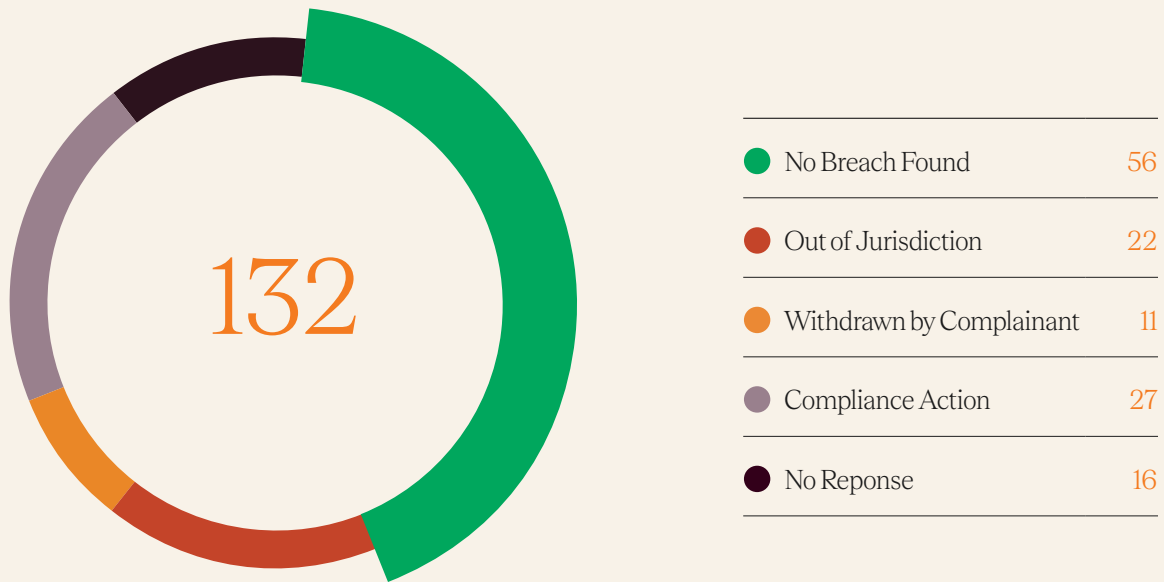


Figure 13: NETCC closed complaint case outcomes, H1 2024

Of the 132 cases closed in the first half of 2024, 27 resulted in enforcement action against the Signatory. For further information on enforcement actions undertaken by the Administrator and trends of non-compliance observed, please visit the [NETCC Compliance activity page](#).

For closed cases that result in no breach found or out of jurisdiction, the NETCC Administrator may refer the complainant to an external body that can assist them with their complaint or dispute. The next section goes further to explain how referral notices can assist complainants.

Closed cases that result in 'no response' or 'withdrawn by complainant' are generally closed as the Administrator has not obtained sufficient evidence or consent to progress with an investigation.

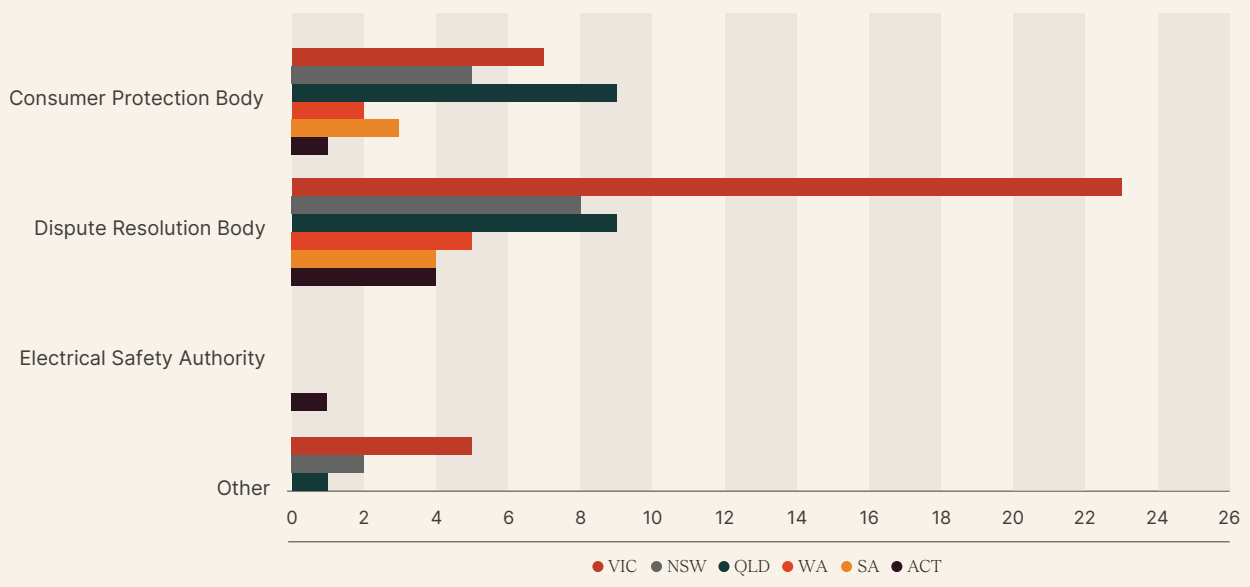


Figure 14: Referral notice types by state/territory, H1 2024

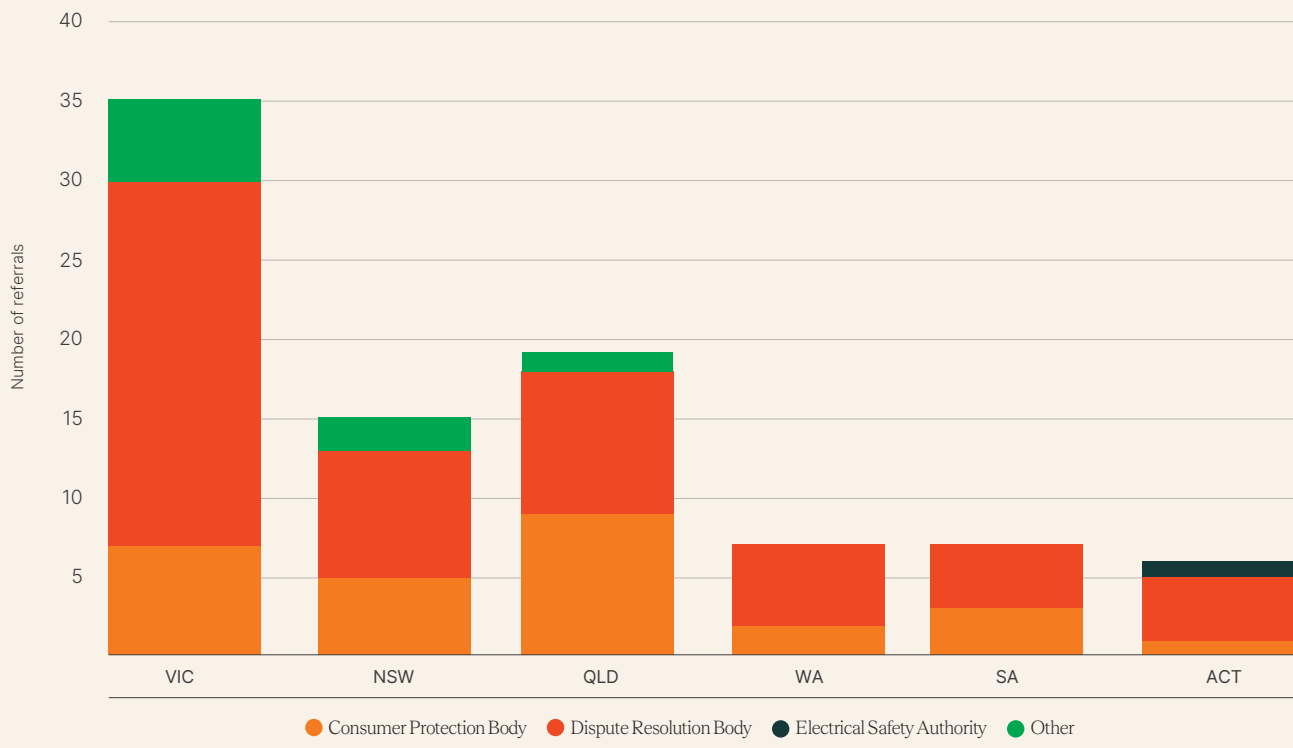


Figure 15: Referral state/territory by notice type, H1 2024

Where an incident or complaint is outside the NETCC's jurisdiction, the complainant is provided with a referral notice based on the nature of the complaint. This ensures the matter is addressed by the appropriate external body such as a dispute resolution body, regulator, or consumer protection authority. The NETCC Administrator (the CEC) is not a dispute resolution body and does not have the jurisdiction under the Code to arbitrate commercial, civil, or financial disputes. This may result in investigations where the Administrator only investigates some aspects of a complaint and provides referral advice for others.

During the first half of 2024, the NETCC Administrator provided referral advice to 35 Victorian-based complainants. This was the most for any region and reflects most complaints coming from Victorian-based consumers. Of these 35 referral notices, 23 went to Victoria's dispute resolution body, the Victorian Civil and Administrative Tribunal and seven went to Victoria's consumer protection authority, Consumer Affairs Victoria.

The second-highest number of referral notices received by complaints were from Queensland at 19; 8 referral notices were provided for Fair Trading Queensland and 8 for the Queensland Civil and Administrative Tribunal.

Referral notices to other external bodies were also provided to complainants 8 times. These other bodies include but are not limited to the Clean Energy Regulator, Solar Victoria, Solar Accreditation Australian and the Essential Services Commission.

Consumer information products

The Administrator has introduced new products to assist consumers with the purchase and maintenance of their new energy tech.

The NETCC website contains various [Consumer Information Products](#) to assist consumers with the installation and use of their new energy tech.

These products inform consumers how to research their options before purchasing and can help consumers get the most value from their energy system. These free Consumer Information Products were developed in collaboration with Energy Consumers Australia to explain key information to help consumers make informed purchased decision. The guides cover:

- Solar
- Battery Storage
- Home Energy Monitoring
- Going off Grid
- Electrical Vehicles.

Glossary

Battery	Any home battery installation which is a complement to an already existing solar PV unit.
Consumer energy resources (CER)	Defined as solar PV, battery storage and inverters on the CEC product accreditation list and installed behind the meter by consumers.
NETCC	New Energy Tech Consumer Code is a voluntary code of conduct designed by peak industry and consumer bodies to build upon existing mandatory consumer protection regulations defined by the Australian Competition and Consumer Commission (ACCC) (New Energy Tech Consumer Code Clean Energy Council)
Product accreditation	Defined as the Clean Energy Council's list of approved modules, inverters and batteries that meet Australian Standards for use in the design and installation of solar and battery storage systems in Australia (Products Clean Energy Council).
Referral Notice	Referral advice that is provided to complainants to escalate their matter to external regulatory service bodies in the case that the incident is outside NETCC jurisdiction.
Rooftop (solar) PV	Defined as systems up to the size of 100kW.

Disclaimer

Due to a change in methodology, the inferred battery sold data has reported lower results when compared to the H2 2023 edition of this report. The reasoning for this change of methodology was to account for additional data sources, thus improving the accuracy of attachment rates. This methodology under-reports batteries retrofit to existing PV systems, hence the figures are lower than SunWiz's annual tally which incorporates annually-updated data source.




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