Rooftop solar and storage report

H2 2023

CLEAN ENERGY COUNCIL

About this report

This is the first edition of a new 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 (CEC) 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

2023 saw rooftop photovoltaic ('PV') installations surpass a total of 20 GW installed capacity in Australia.

Collectively, rooftop solar is the second largest source of renewable electricity generation in Australia behind wind energy generation), and the fourth largest source of electricity generation, providing approximately 11.2 per cent of the country's power supply.

With 970MW of new rooftop solar systems installed in 2023, New South Wales broke the record for the highest annual installed capacity of any state ever recorded.

A third of the total small-scale, behind-the-meter battery installations in place since 2020 were installed in 2023.

The total number of rooftop solar installations in Queensland surpassed the one million mark, the first state to do so.

Installations & capacity trends

Solar PV installations

After a slight year-on-year rebound in total installed capacity for rooftop PV, 2023 was the first year in which the sector contributed over 10 per cent of total Australian electricity generation, reaching an 11.2 per cent share[1]. The total installed capacity of installed rooftop PV for 2023 reached **2.9 GW** from **314,507** units, surpassing the level of commissioned large-scale generation projects in 2023 (2.8 GW)**.** Additionally, rooftop PV reached a major milestone in March 2023, surpassing 20 GW of total installed capacity across the country[2].

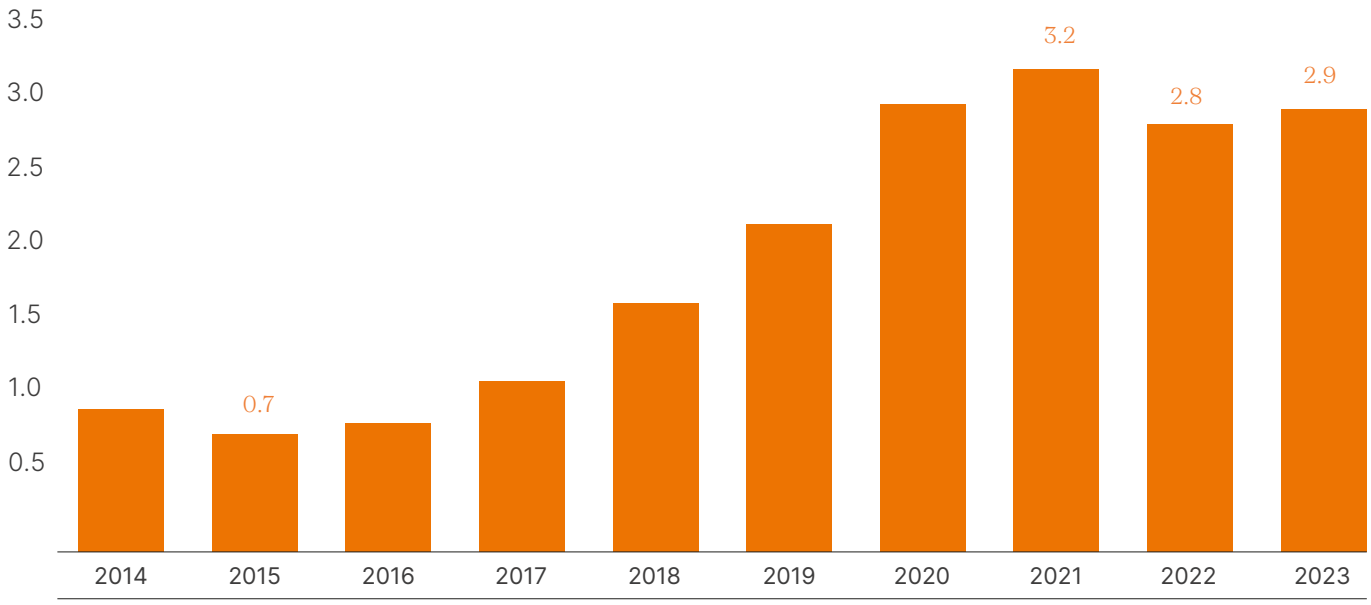

Figure 1: National installed rooftop PV capacity (GW), by year

[1] *Clean Energy Australia 2024*, Clean Energy Council
[2] *RenewEconomy* – https://reneweconomy.com.au/rooftop-solar-set-to-eclipse-coal-as-installations-reach-more-than-20gw/

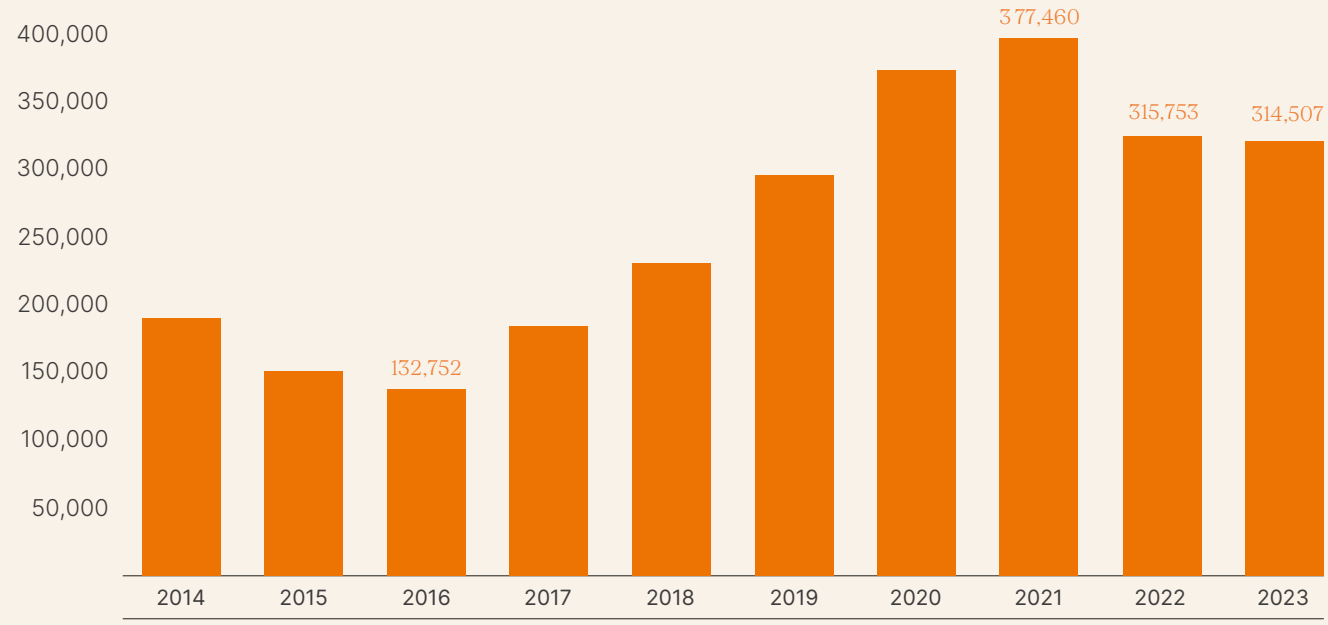

Figure 2: National number of systems installed, by year

While these installation figures fell just short of the total seen in 2022 at 315,753 (-0.4 per cent), the installed capacity rose from the 2.8 GW (+3.6 per cent) seen in the same year. This can be attributed to the growth in the average system size in 2023 reaching 9.4 kW, a new annual record. By way of comparison, according to SunWiz, the average system size a decade ago was 4.2 kW, and 7.10 kW five years ago.

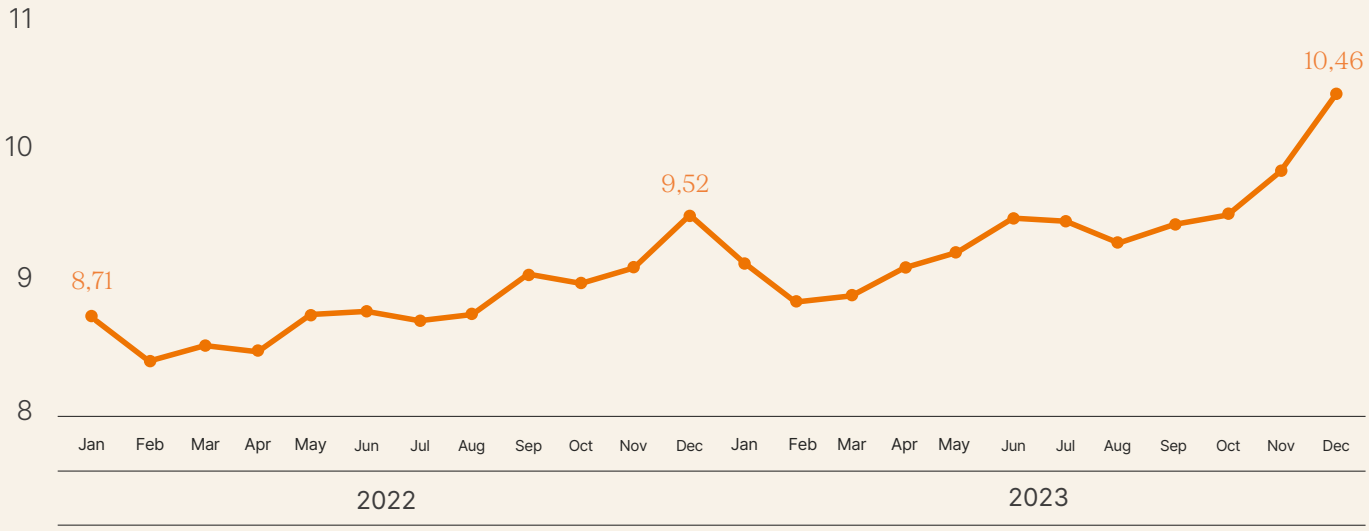

Figure 3: Average system size (kW) by registration month

Around the states, in 2023 New South Wales broke the record for highest annual installed capacity of any state, at 970 MW. Queensland and Victoria came in second and third place respectively with annual installed capacities of 751 MW and 571 MW. Queensland broke a significant milestone as the first state to reach over a million rooftop PV installations. Four states or territories enjoyed an increase in total annual installed capacity when compared to the previous year in 2022.

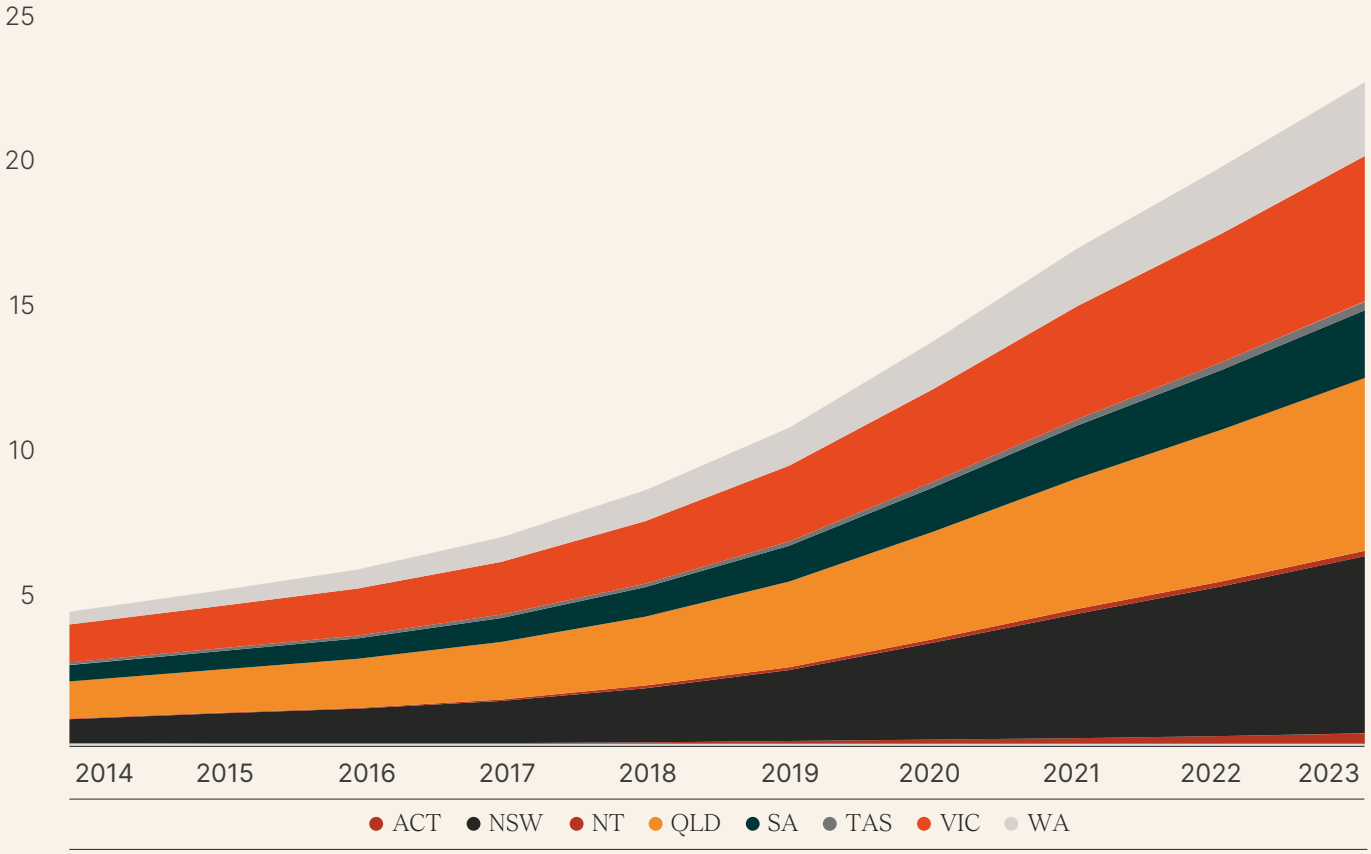

Figure 4: Cumulative annual capacity (GW) of rooftop PV, by jurisdiction

Battery installations

Battery attachments to rooftop PV are steadily growing, passing 150,000 since 2020. Over a third of these recorded battery installations occurred in 2023 alone, with Q4 holding the highest count of quarterly installations at 18,427. This is a 35.3 per cent increase when compared to the same quarter 12 months ago.

In 2023, only 18 per cent of small-scale batteries were installed alongside rooftop solar installations, indicating the potential for further uptake. The Clean Energy Council 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 that the attachment rate will increase.

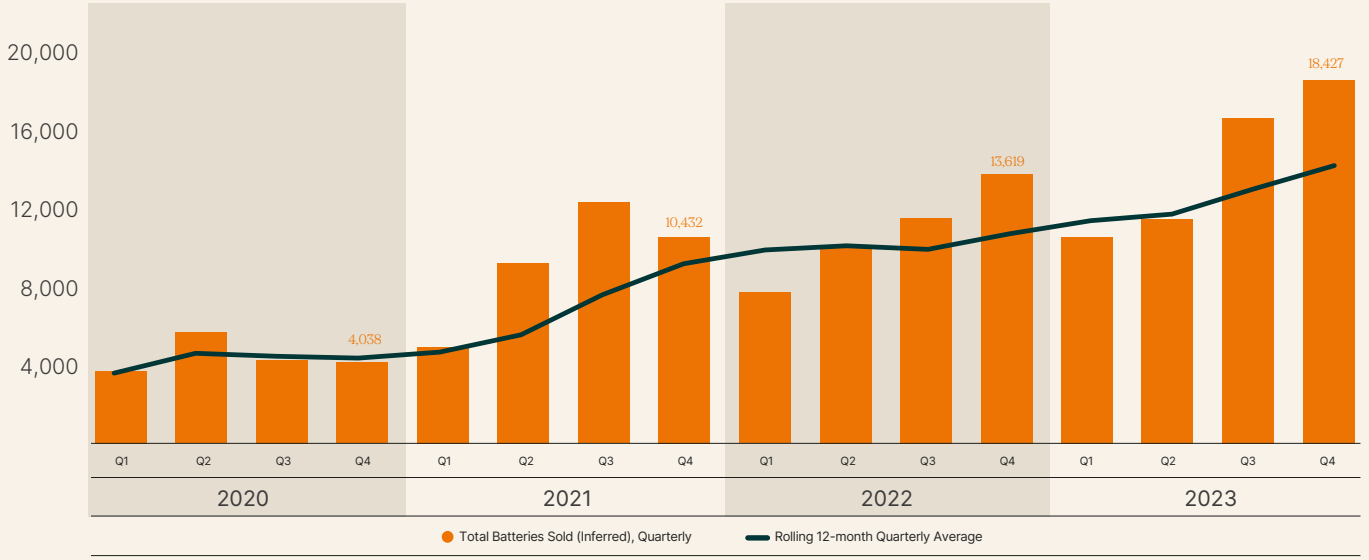

Figure 5: Total battery installations, by quarter

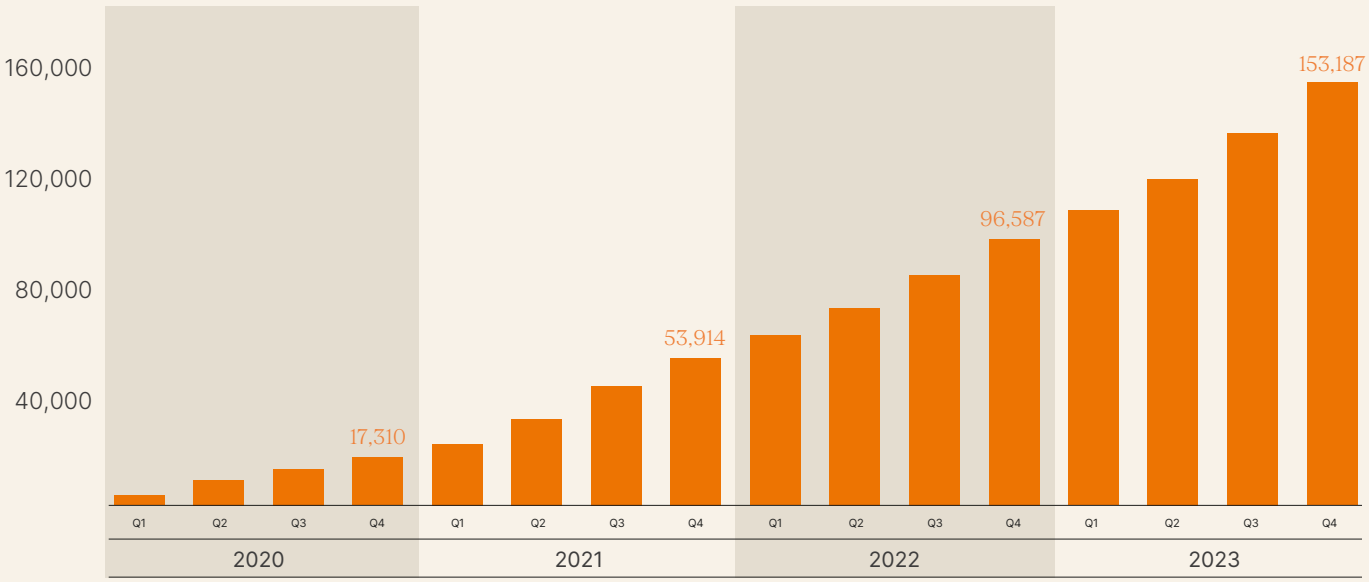

Figure 6: Cumulative battery installations since 2020, by quarter

Regulation Industry Programs & Advisory Services

The Clean Energy Council (CEC) plays an integral role in Australia's systems of accreditation for individual installers, products, and retailers. The CEC previously administered an accreditation program for installers, supplying prerequisite training, full and provisional accreditation, and continuous professional development. After operating as an administrator of this program for over 16 years, the CEC decided to withdraw from this sector and services have now ceased.

In February 2024, the Clean Energy Regulator announced the Solar Accreditation Association (SAA) as the new accrediting body, the CEC is currently in the process of handing over accreditation to SAA.

Transitioning out of the role of administering accreditation has allowed the CEC to focus on strong advocacy for the solar industry and we remain the accrediting body for products and retailers through the New Energy Tech Consumer Code (NETCC). The following section of this report outlines the product accreditation and NETCC activity for H2, 2023.

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.

These products are supported by financial incentives, as only systems with CEC listed products 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 the scheme.

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.

There are currently 6,478 approved consumer energy resources (CER) products across Australia. A breakdown of the number of each product type is seen below.

Product type	Number of products	Number of manufacturers
Inverter model	1,506	99
PV Modules model	4,437	101
Battery model	535	83

Table 1: Approved product breakdown.

Source: Clean Energy Council

To date, there have been three product recalls from the Australian Competition and Consumer Commission (ACCC). All are inverters with an AC connector that has been deemed non-compliant.

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 two inverter standards which were out for public comment recently. The details for each are:

- AS/NZS 4777.1:2022 Grid connection of energy systems via inverters, Part 1: Installation requirements
    - This is a full revision of the AS/NZS 4777.1 Standard – the last revision was 2016
- AS/NZS 4777.2:2020 Amd 2:2023 Grid connection of energy systems via inverters, Part 2: Inverter requirements
    - This is an amendment to the 2020 version of the standard

New Energy Tech Consumer Code (NETCC)

In 2019, the Clean Energy Council, the Australian Energy Council, the Smart Energy Council and Energy Consumers Australia lodged an application for ACCC authorisation for the NETCC on behalf of themselves and future signatory providers of new energy technologies.

The NETCC establishes minimum standards of good practice and consumer protection to be provided by Approved Sellers 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.

The intention of the NETCC is to raise standards of consumer protection for providing residential and small business customers with new energy technology products (such as solar and home batteries), strengthening consumer confidence, and encouraging innovation and development of choice for consumers.

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.

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 Code. To maintain the integrity of the program, Approved Sellers may be audited to ensure their practices adhere to the NETCC, and customer complaints of alleged non-compliance are investigated.

The NETCC program is overseen by representatives from peak industry and consumer bodies, collectively known as the NETCC Council. The CEC, as the administrator of the NETCC program, registers code signatories, undertakes compliance activities and dispute resolution on behalf of the NETCC Council. The NETCC program replaced the Approved Solar Retailer (ASR) program in February 2023.

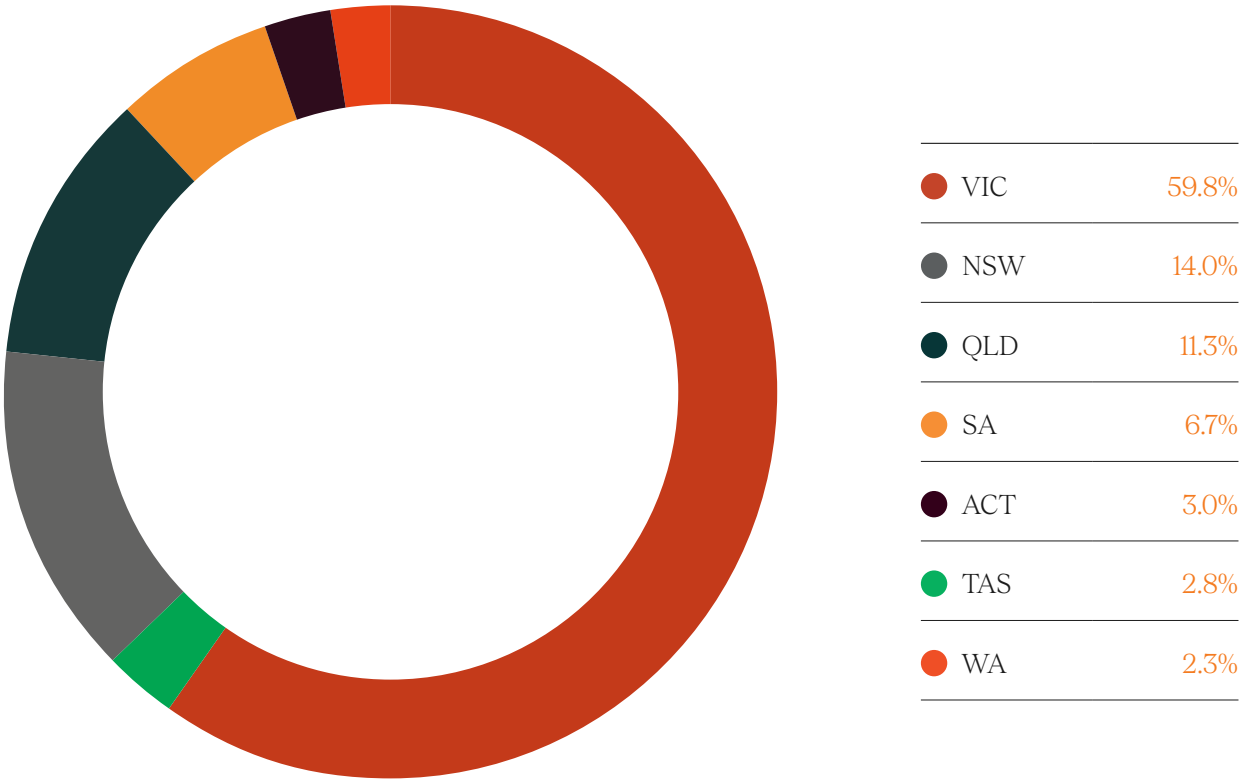

Figure 7: Breakdown of Approved Sellers by state

The majority of Approved Sellers are from Victoria, with a share of 59.8 per cent. Next is New South Wales with 14 per cent, then Queensland with 11.3 per cent.

The NETCC has been included as a requirement in State Government programs - Victoria's Solar Homes, Tasmania's Energy Saver Loan Scheme, and the ACT's Next Gen Battery Storage Program. Within these schemes, the inclusion of Approved Sellers through the Code has promoted trust for customers participating in the scheme and has ensured high quality products are being installed in households. The increased uptake of signatories in Victoria, ACT and Tasmania reflects the importance of rebate schemes in promoting consumer protection and highlights the NETCC as a trusted program for governments.

A NETCC case is raised following any complaint or activity identified relating to non-compliant conduct. The second half of 2023 saw 122 NETCC cases received. Of these cases, 81 (66.4 per cent) were closed. It is worth noting that the total number of cases is significantly lower when compared to the total number of systems installed for all of 2023.

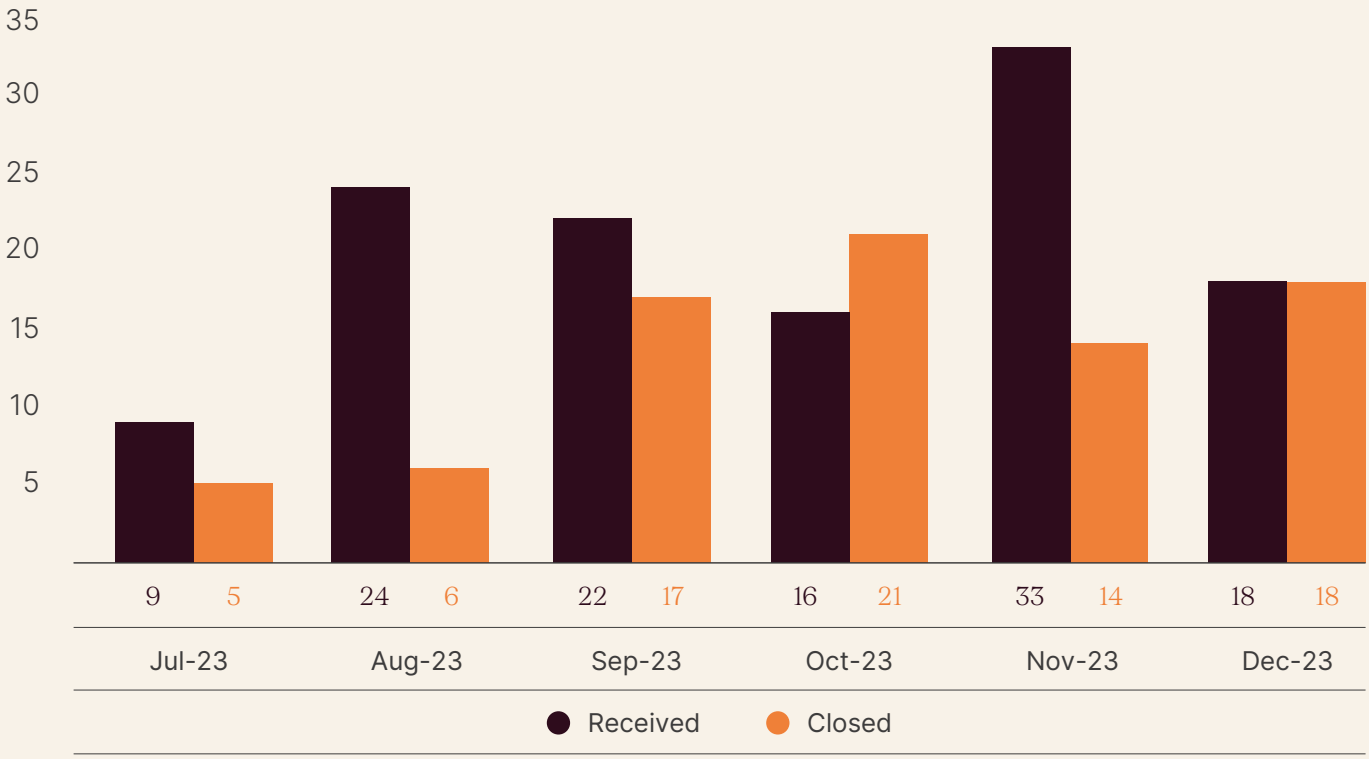

Figure 8: Monthly NETCC cases received and closed.

Of the received cases in the second half of 2023, exactly half were from Victoria at 61. Next were New South Wales and Queensland with 31 and 13 respectively. Of the closed cases over the same period, Victoria again led the way with 38 closed, while New South Wales and Queensland each had 24 and eight respectively. The overwhelming majority of cases lodged in Victoria can be attributed to the fact it has the largest share of Approved Sellers (970) out of any of the states.

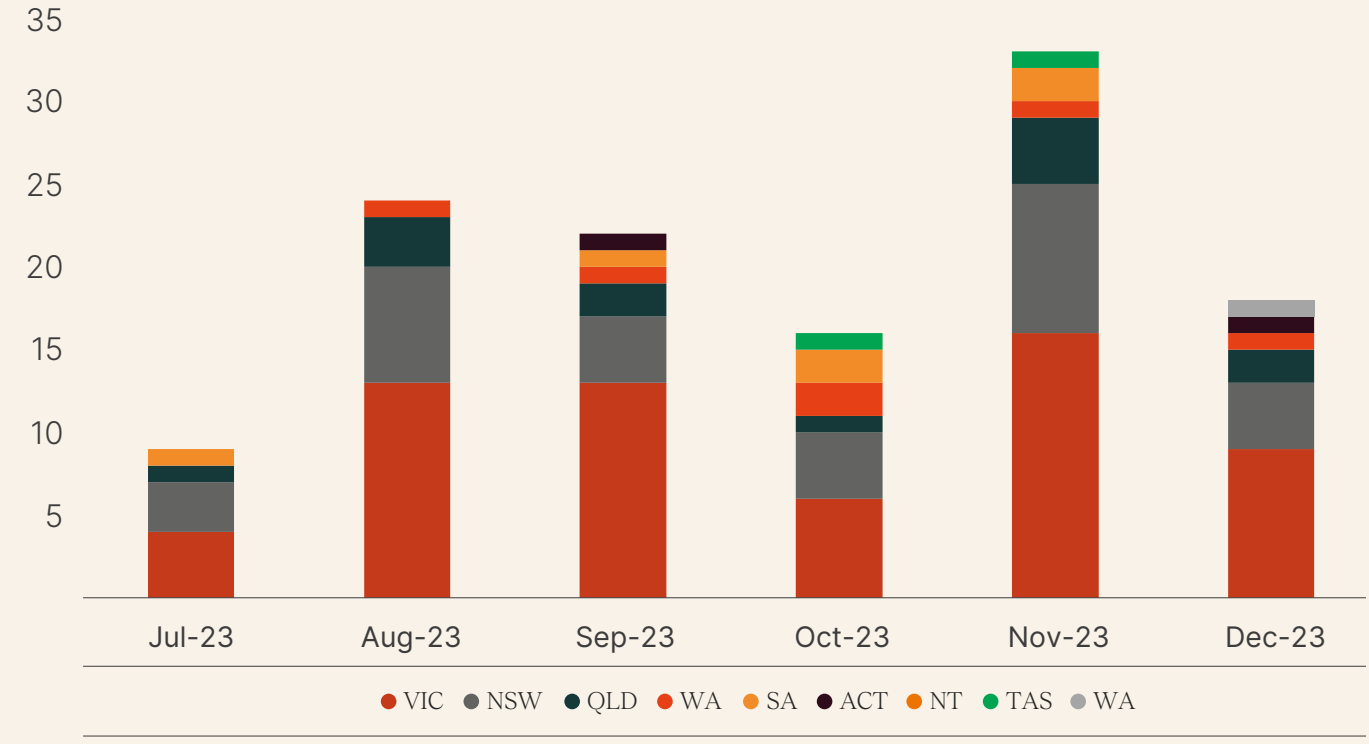

Figure 9: Monthly NETCC cases received by state/territory

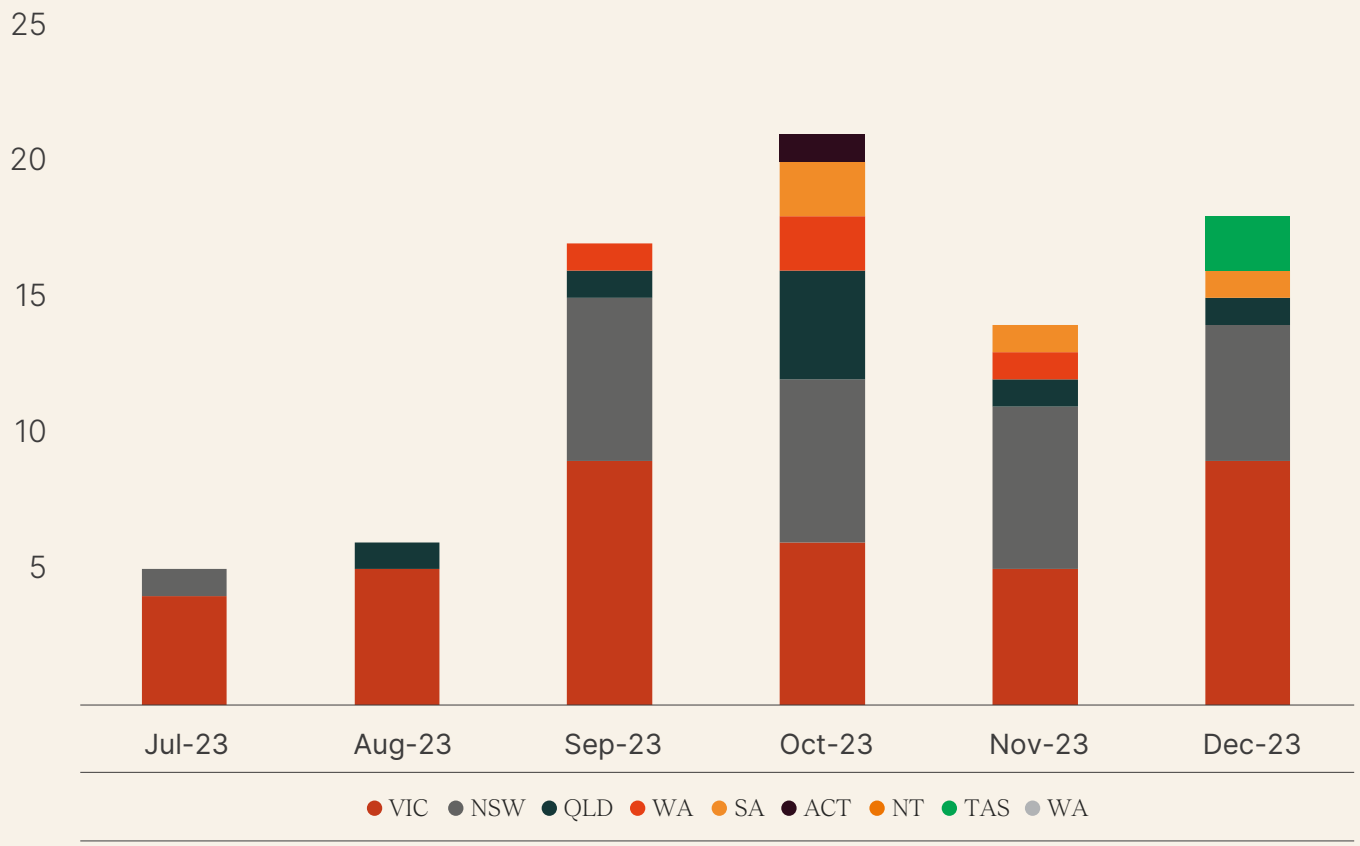

Figure 10: Monthly NETCC cases closed by state/territory

In 2023, there were a total of 71 referral notices provided to complainants following reviews of NETCC cases. Of the 71 notices, 40 were to dispute resolution bodies and 23 to consumer protection bodies. The state with the most referral notices issued to complainants was Victoria with 29.

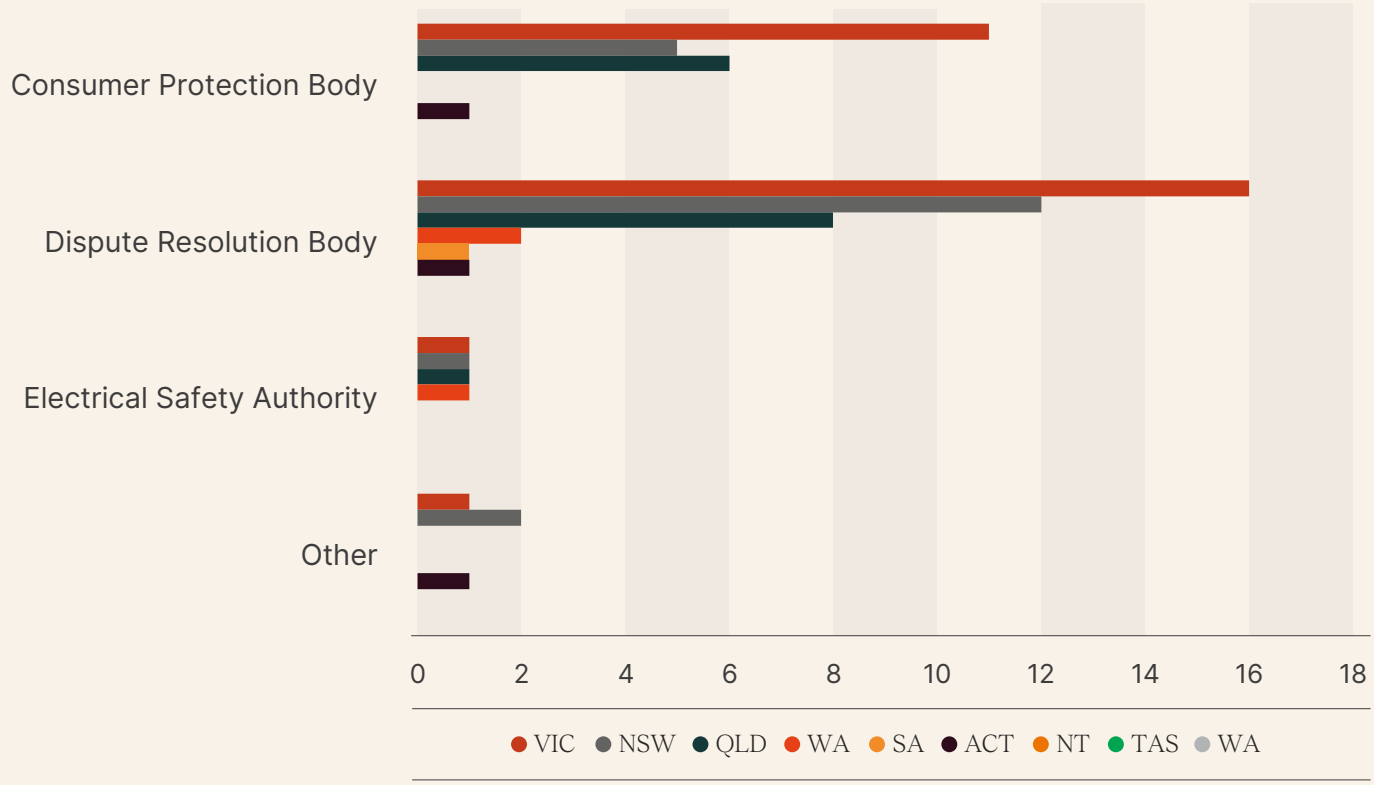

Figure 11: 2023 referrals by region and regulatory bodies

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 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).
Referall 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

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