

# Submission to the NSW Emergency Backstop Mechanism

---

Submission to the NSW Department of  
Climate Change, Energy, the Environment  
and Water

**DATE:** 7/03/2025



## Summary

Energy Consumers Australia (ECA) welcomes the opportunity to provide feedback on the NSW Emergency Backstop Mechanism. We strongly encourage the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) to look to longer-term solutions for system constraints that will deliver an overall more reliable, affordable, and clean energy system by considering that:

1. The emergency backstop mechanism should only be a last-resort solution, and greater emphasis should be placed on complementary measures such as energy storage and demand-side programs, including flexible exports.
2. Hot water load shifting should become standard practice, and smart electric vehicle (EV) charging should be included in the hierarchy of measures.
3. Consumers should have access to clear and intelligible information to help build trust and confidence in the mechanism.

## Introduction

ECA welcomes the opportunity to provide comment on the NSW Emergency Backstop Mechanism. As the national voice for residential and small business energy users, ECA advocates for a future Australian energy system that works for, and benefits, the households and small businesses that rely on it.

We appreciate the efforts made by NSW DCCEEW to support consumer energy resources (CER) uptake while maintaining the security and reliability of the power system.

Consumer energy has become a major source of generation which will continue to grow. It offers a wide range of benefits, the main one being the ability to reduce consumer energy costs significantly. Closer to load and thus more efficient, less risky to build than large-scale infrastructure resources, CER often avoid large capital costs by leveraging existing flexibility.

Their unique benefits have driven massive adoption, allowing consumers to play an essential role in the energy transition, so much so that the 2024 ISP Step Change scenario projects that there will be 18 times more EVs on the road in 2030 than there are today, more than a 50% increase in rooftop solar PV, and more than a 600% increase in small-scale energy storage.<sup>1</sup>

Rooftop solar, in particular, has seen unprecedented growth, with 4 million installations across the country.<sup>2</sup> While the average rooftop system is estimated to save a household more than 1500\$ a year in energy bills,<sup>3</sup> this rapid uptake is now raising concerns about the security and reliability of our grid.

The high solar PV uptake in Australia, combined with low demand during peak generation has put the power system at an “increased risk of instability and blackout”.<sup>4</sup> Power outages have crucial implications on all areas of life, including but not limited to health.<sup>5</sup> This means that we must acknowledge that much more electricity will be generated by assets that consumers have paid for directly and plan accordingly. Consumers expect the power system to be ready to handle and integrate these new assets, including their new rooftop solar.

<sup>1</sup> AEMO, 2024 – [2024 Integrated System Plan](#)

<sup>2</sup> Energy.gov.au, 2024 – [Australia hits rooftop solar milestone](#)

<sup>3</sup> Energy.gov.au, 2024 – [Australia hits rooftop solar milestone](#)

<sup>4</sup> NSW Climate and Energy Action, 2025 – [New measures to manage rooftop solar exports during grid emergencies](#)

<sup>5</sup> CSIRO, 2024 – [Exploring heat vulnerability of the Australian population during the loss of electricity supply](#)





Additionally, the updated values of customer reliability (VCR) indicate that the 2024 Residential VCR for New South Wales is 38.53\$/kWh, compared to 31.16\$/kWh in 2019 (adjusted in real terms).<sup>6</sup> These figures suggest that customers place increasingly greater value on reliable electricity.

ECA understands the need for an emergency backstop mechanism to manage solar exports to the grid and reduce disruptions and blackouts. However, the implementation of an emergency backstop mechanism – or any such measure – must be done in a way that minimises downsides to consumers. Rooftop solar, along with other appliances, can provide unique, long-term benefits to consumers and the power system, but this can only be achieved by having the right measures in place to maximise opportunities while minimising risks to the grid.

## Recommendations

- 1. The emergency backstop mechanism should only be a last-resort solution, and greater emphasis should be placed on complementary measures such as energy storage and demand-side programs, including flexible exports.**

While we understand the need for an emergency backstop mechanism as a safeguard for emergency contingency events, we emphasise that this mechanism be used as a last-resort option only. We believe that the implementation of an emergency backstop mechanism should be complemented with other measures, such as investment in energy storage.

Energy storage, including but not limited to batteries, is a relevant option to support the overall reliability of systems with high renewable energy integration.<sup>7</sup> It also represents a cost-effective solution, as it reduces the need for expensive generation and transmission upgrades<sup>8</sup> and provides faster, cheaper peaking services compared to gas peaker plants.<sup>9</sup>

While batteries could be used to soak the excess solar generation during the day, some projects have also showed promising results in providing inertia services. The Hornsdale Battery Power Reserve in South Australia, which operates in a grid with very high renewable integration, has successfully provided “an inertial response to real system events in the NEM”.<sup>10</sup> In the future, this type of infrastructure could potentially help maintaining minimum levels of system strength and inertia.

Therefore, we recommend that such infrastructure be further explored to address the specific challenges that high CER uptake and variable renewable energy (VRE) integration pose to grid security and reliability.

Additionally, we insist that demand-side support programs be considered, to support consumers who are able to shift their energy consumption and take advantage of periods of abundant energy supply.<sup>11</sup> Lessons should be learned from our American counterparts, where demand response programs have reduced peak demand by 10%.<sup>12</sup> It should be noted that the Australian Energy Market Commission (AEMC) has initiated a review of the Wholesale Demand Response Mechanism (WDRM), which aims to

<sup>6</sup> AER, 2024 – [Values of customer reliability](#)

<sup>7</sup> Clean Energy Council, 2024 – [The future of long duration energy storage](#)

<sup>8</sup> Clean Energy Council, 2024 – [The future of long duration energy storage](#)

<sup>9</sup> Clean Energy Council, 2021 – [Battery storage, the new, clean peaker](#) p. 6

<sup>10</sup> NEOEN, 2023 – [Project Summary Report – Full Inertia Trial](#) p. 17

<sup>11</sup> ECA, 2023 – [Submission on the Consultation Paper for Victoria's Emergency Backstop Mechanism](#) p. 2

<sup>12</sup> ACEEE, 2017 – [Demand response programs can reduce utilities' peak demand an average of 10%, complementing saving from energy efficiency programs](#)





enhance the flexibility and reliability of the National Electricity Market (NEM) by allowing demand response to bid directly into the wholesale market.<sup>13</sup>

Specifically, ECA recommends not to disable inverters if/when generating for self-consumption, and that flexible solar exports become a standard connection option. Although the latter would only apply to new consumers, flexible export arrangements would automatically restrict solar output, thus reducing the likelihood of a backstop mechanism being triggered. Previous research suggests that while a backstop mechanism will “provide some capacity for curtailment, [...] it will not be sufficient to address the required capacity for generation curtailment, or load increase, for several years”.<sup>14</sup> In this regard, SA Power Networks (SAPN) and others such as AusNet, have been paving the way through the ARENA-funded Flexible Exports for Solar PV project.<sup>15 16</sup> This offers consumers “connecting solar PV in areas of the network that are already at capacity, who are currently required by DNSPs to limit their systems with a permanent zero or near-zero export limit” the opportunity to export energy most of the time, and reduce exports when the network is constrained.<sup>17</sup> In NSW, Endeavour Energy has recently launched a flexible exports trial, allowing eligible customers to export up to 10kW of solar energy – double the current fixed limit – to accommodate the growing size and efficiency of modern solar installations.<sup>18 19</sup> This trial is expected to become a standard offer by Spring 2025,<sup>20</sup> and to generate more than 100 million dollars in additional savings for solar customers by 2035.<sup>21</sup> Overall, flexible export curtailment should happen “when and where it is necessary to maintain network security”<sup>22</sup> only, while reducing electricity costs for all consumers.<sup>23</sup>

## **2. Hot water load shifting should become standard practice, and smart EV charging should be included in the hierarchy of measures.**

ECA supports hot water load shifting as the first measure to be implemented to increase operational load in the grid during a Minimum System Load (MSL) event. Water heating is one of the household items that consumes the most energy, accounting for almost one-fifth of residential electricity use.<sup>24</sup> At the NEM level, the total energy demand for electric domestic hot water (DHW) is 25 GWh per day, accounting for approximately 5% of total daily electricity consumption.<sup>25</sup>

Meanwhile, solar generation typically peaks in the middle of the day, while hot water heating typically happens in the evening or overnight via ripple control. Shifting hot water heating to align with solar generation appears as a relevant, and highly cost-saving solution to this mismatch.<sup>26</sup>

<sup>13</sup> AEMC, 2024 – [AEMC's review of the Wholesale Demand Response Mechanism](#)

<sup>14</sup> SA Power Networks, 2023 – [Flexible Exports for Solar PV, Final trial report](#) p. 71

<sup>15</sup> SA Power Networks, 2022 – [Flexible Exports for Solar PV, Lessons learnt report 4](#)

<sup>16</sup> AusNet – [Flexible Exports – Trial](#)

<sup>17</sup> SA Power Networks, 2022 – [Flexible Exports for Solar PV, Lessons learnt report 4](#) p.3

<sup>18</sup> Endeavour Energy – [Flexible Exports Factsheet](#)

<sup>19</sup> Institute for Energy Economics and Financial Analysis, 2024 – [How rapid implementation of flexible exports could maximise rooftop solar](#) p. 1

<sup>20</sup> Endeavour Energy – [Flexible Exports](#)

<sup>21</sup> Endeavour Energy – [Flexible Exports Factsheet](#)

<sup>22</sup> Institute for Energy Economics and Financial Analysis, 2024 – [How rapid implementation of flexible exports could maximise rooftop solar](#) p. 1

<sup>23</sup> Institute for Energy Economics and Financial Analysis, 2024 – [How rapid implementation of flexible exports could maximise rooftop solar](#) p. 2

<sup>24</sup> Institute for Sustainable Futures, 2023 – [Domestic Hot Water and Flexibility](#) p. 17

<sup>25</sup> Institute for Sustainable Futures, 2023 – [Domestic Hot Water and Flexibility](#) p. 17

<sup>26</sup> Institute for Energy Economics and Financial Analysis, 2024 – [The Big Shift: How smart hot water can lighten the load for consumers and grid](#)





Although beyond the scope of the NSW Emergency Backstop Mechanism, we suggest that hot water load shifting becomes standard practice, noting that this will become increasingly relevant as electrification increases. As more households electrify their vehicles, they will also be able to shift part of their energy demand and increase network utilisation by charging their electric vehicles. Therefore, we recommend that smart EV charging be included in this hierarchy of measures, to enable EV charging during most adequate times, such as periods of abundant solar generation.

Additionally, electrification and ever-increasing CER uptake call for better visibility over the low-voltage network. To this effect, ECA's recent rule change request to the National Electricity Rules (NER) aims to improve the existing distribution system planning processes.<sup>27</sup> The proposed changes recommend replacing the Distribution Annual Planning Reports (DAPRs) with biennial Integrated Distribution System Plans (IDSP), which will include more granular data to better inform decision-making. Additionally, research conducted by UTS – funded by an ECA grant – suggests that new metrics be adopted to better measure network utilisation in the context of increasing electrification and CER uptake – Total Energy Throughput Utilisation (TETU)<sup>28</sup> and Two-way Power Flow Utilisation (TPFU).<sup>29</sup> These metrics would be of particular relevance in the context of the Emergency Backstop Mechanism, as they would provide a more granular understanding of network utilisation, including at the low-voltage transformer level, at different times and locations. Reducing peak demand can provide more total system benefits in some parts of the network than in others, and greater visibility can help pinpoint these opportunities to save all consumers money through a lower overall energy system.

ECA believes that these suggested planning improvements could ultimately enhance the implementation of a backstop mechanism as well as CER management by offering greater visibility over the low-voltage network.

### **3. Consumers should have access to clear and intelligible information to help build trust and confidence in the mechanism.**

Many consumers are unsure or concerned about whether the energy market is working in their long-term interests. Our recent Consumer Energy Report Card<sup>30</sup> revealed that household and small business confidence in the energy market has declined, with only 33% of households feeling confident. This figure drops to 20% for those who identified as being under financial pressure.

Meanwhile, many consumers declared they would want a free, more general service to help them with their energy needs,<sup>31</sup> suggesting that consumers already struggle to navigate an increasingly complex environment. This impacts their ability to access the potential offered by CER and benefit from the energy transition.

<sup>27</sup> ECA, 2024 – [Integrated Distribution System Planning \(electricity\) rule change request](#)

<sup>28</sup> "An energy metric focussed on maximising the customer value that is facilitated by a grid connection, in the form of energy imported from the grid, exported to the grid and self-consumed." UTS, 2024 – [Reimagining Network Utilisation in the Era of Consumer Energy Resources](#) p 4.

<sup>29</sup> "A power metric focussed on understanding and balancing the level of capacity risk accrued to deliver the network productivity represented in the TETU. This provides visibility of the critical time-of-day and seasonal variations in two-way grid usage that inform how TETU can be maximised." UTS, 2024 – [Reimagining Network Utilisation in the Era of Consumer Energy Resources](#) p 4.

<sup>30</sup> ECA, 2024 – [Energy Consumer Sentiment Survey](#) p.6

<sup>31</sup> ECA, 2024 – [Energy Consumer Sentiment Survey](#) p.14





Our submission on Victoria's Emergency Backstop Mechanism Consultation Paper<sup>32</sup> advocated for clear, accessible information to be communicated to consumers to build trust. We reiterate this claim and believe that any backstop mechanism will have to be clearly explained to consumers for them to comprehend how such a measure would benefit them.

A recent study of consumer perceptions of policies targeting CER and centred around third-party control and import/export management showed that while many consumers are willing to maintain control over their CER, few have a clear understanding of the actual level of control they actually want. The study also emphasises how consumer behaviour changes before and after being presented with information about the energy bill implications associated with their desired level of control.<sup>33</sup>

As more households invest in CER, unique technical challenges will emerge that may threaten an electricity network that was not designed for two-way flows. C4NET clearly identifies how consumer perception of potential policy solutions to these challenges has a direct impact on their support and adoption of CER. As a matter of fact, it should be noted that after being presented with the economic benefits associated with delegating part of their control over their CER, partial control was the most popular preference. Finally, the study also showed that market-based mechanisms are more likely to gain greater support than mandated mechanisms.<sup>34</sup> The Clean Energy Council submission to the Queensland Emergency Backstop Mechanism made a similar recommendation at the time, demanding that market responses be implemented prior to regulated responses.<sup>35</sup>

Regardless of the outcome of this consultation, it is essential that consumers are being presented with clear and intelligible information. This is absolutely necessary in order to gain any social licence for a backstop mechanism.

ECA recommends that information about the mechanism be clearly communicated to all, including Culturally and Linguistically Diverse Communities (CALD).

Similarly, we recommend that consumers be notified when their inverter is being shut down during an emergency event, allowing them to shift their energy usage accordingly. This could either be in the form of a text message or signalled by the device. We also recommend that potential rooftop PV owners be presented with relevant information around the backstop mechanism prior to investing in solar panels.

We hope that this will alleviate some of the stress associated with energy consumption for many households, especially the most vulnerable. The benefits of early and appropriate communication should not be underestimated, as it can significantly improve social acceptance.

Finally, ECA notes that the National CER Roadmap has a "target for national adoption of a harmonised approach to CSIP-AUS in 2027"<sup>36</sup>, which could potentially be supported by the CER Installer Portal along with other compliance requirements. As highlighted in the consultation paper, the low compliance rates of CER devices are not the consumer's responsibility. ECA welcomes the Department's decision to liaise with relevant stakeholders in order to remedy.

<sup>32</sup> ECA, 2023 – [Submission on the Consultation Paper for Victoria's Emergency Backstop Mechanism](#)

<sup>33</sup> C4NET, 2024 – [Consumer perceptions of policies targeting consumer energy resources \(CERs\): Third-party control and managing imports/exports](#)

<sup>34</sup> C4NET, 2024 – [Consumer perceptions of policies targeting consumer energy resources \(CERs\): Third-party control and managing imports/exports](#) p. 41

<sup>35</sup> Clean Energy Council, 2022 - [Submission to the Energy Queensland Consultation Paper: Enabling an Emergency Backstop Mechanism](#)

<sup>36</sup> Department of Climate Change, Energy, the Environment and Water, 2025 – [NSW Emergency Backstop Mechanism and Consumer Energy Resources Installer Portal](#) p. 13





We believe that ensuring compliance is another opportunity to increase consumer trust and confidence in the CER they invest in and the ways in which they operate it.

## Conclusion

The NSW Emergency Backstop Mechanism represents a significant opportunity to assess how CER contribute to our power system, while maintaining its security and reliability.

ECA advocates for three considerations to be taken into account:

1. The emergency backstop mechanism should only be a last-resort solution, and greater emphasis should be placed on complementary measures such as energy storage and demand-side programs, including flexible exports.
2. Hot water load shifting should become standard practice, and smart EV charging should be included in the hierarchy of measures.
3. Consumers should have access to clear and intelligible information to help build trust and confidence in the mechanism.

We thank NSW DCCEEW for the opportunity to provide feedback and make ourselves available for further discussion and collaboration throughout the consultation process.

For any questions or comments about our submission, please contact [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**The national voice for residential and  
small business energy consumers**

