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Department of Climate Change, Energy, the Environment and Water  
NSW Government

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## **Submission on the Consumer Energy Strategy: households - consultation questions**

Nexa Advisory welcomes the opportunity to share our perspectives and insights on the NSW Consumer Energy Strategy. We commend the NSW government for taking a leading role in this important area of household energy performance. Specifically, we appreciate the thoughtful consultation questions by the Department of Climate Change, Energy, the Environment and Water which focus on the necessary steps to develop a Consumer Energy Strategy in NSW.

### Context

Nexa warmly welcomes the acknowledgement by the NSW government of households' significant role in the energy transition, specifically through energy performance, off-peak water heating, rooftop solar, batteries and electric vehicles, collectively referred to as 'consumer energy resources' (CER).

We commend the strategic approach to integrate CER into the supply framework by 2030, ensuring common technical standards and setting targets for the adoption of CER technologies. Coordination of CER is crucial to align demand with supply, and the risk of inaction may undermine consumer confidence.

Solar PV and distributed energy resources (DER) are pivotal in facilitating the transition. As we expand large-scale renewable energy infrastructure, these customer-owned distributed assets can aid governments in achieving their goals, offering an extra layer of security during the phasing out of coal and gas power stations.

Accelerating the take up of CER could help Australia meet its renewable energy and emissions reductions targets, by overcoming bottlenecks in large-scale renewable energy generation<sup>1</sup>. CER, offering fast and cost-effective decarbonisation, deserves equal attention and support alongside large-scale generation and storage.

Improving CER integration will provide significant savings on consumer bills, especially with the increasing adoption of solar, heat pumps, and electric vehicles. Nexa emphasises the urgency for policy and regulation to catch up and leverage these consumer investments for the collective benefit, particularly focussing on export management and tariffs, publicly available network data and network voltage standards.

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<sup>1</sup> <https://nexaadvisory.com.au/site/wp-content/uploads/2023/12/Cutting-off-solar-isnt-the-answer-18-Oct-2023-1.pdf>

NSW holds a unique position as the first state to experiment with the Neara platform in collaboration with Endeavour and Essential. Both Essential Energy and Endeavour Energy, being Distribution Network Service Providers (DNSPs) in NSW, have utilised this platform to create digital replicas of their electricity networks. Endeavour Energy successfully employed these models to effectively handle outages during flooding events<sup>2</sup>. Simultaneously, Essential Energy has identified untapped network capacity, paving the way for expanded deployment of rooftop solar PV<sup>3</sup>.

We appreciate that the NSW Consumer Energy Strategy will complement national efforts, identifying priority issues for reform and focusing on areas within NSW's policy and program responsibility. Proposing a state-wide CER target, backed by clear principles, policies, incentives, and authorised programs, is crucial for driving consumer engagement and certainty.

Understanding the pivotal role of a Consumer Energy Strategy in ensuring a successful energy transition, Nexa underscores the need for target setting and effective mechanisms, proactive consumer engagement, and measures to ensure inclusivity, leaving no one behind in this energy transition.

## Responses to consultation questions

In the subsequent section, Nexa has endeavored to respond to the consultation questions as they relate to our expertise.

### *The role of government in CER*

Nexa strongly advocates for the establishment of a commission by the NSW government, tasked with prioritising customer-centric approaches and ensuring universal access. This commission should take charge of managing and coordinating state policies for CER, concentrating on removing barriers and mitigating incumbency bias<sup>4</sup>. It is imperative that the government ensures policies and governance structures embody the evolving energy landscape for consumers, fostering trust and engagement, showcasing benefits, and facilitating the unlocking of innovative business models essential for achieving optimal energy performance<sup>5</sup>. The absence of enhanced government support and regulation for CER could necessitate more expensive measures to fulfill state climate goals<sup>6</sup>.

### *Barriers to the adoption of CER*

Addressing barriers to the adoption of CER and coordinating support for CER technologies is a positive way to fill the gap left by large-scale generation and expedite progress towards the NSW government's 2030 emission reduction target of 50 percent. While state-based

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<sup>2</sup> <https://www.endeavourenergy.com.au/news/media-releases/endeavour-energy-wins-energy-networks-australia-2022-industry-award-for-australian-first-innovation>

<sup>3</sup> <https://neara.com/australian-financial-review-how-ai-unlocked-capacity-across-nsws-energy-grid/>

<sup>4</sup> <https://nexaadvisory.com.au/site/wp-content/uploads/2023/06/Nexa-Advisory-NEPS-Submission-03022023.pdf>

<sup>5</sup> <https://nexaadvisory.com.au/site/wp-content/uploads/2023/06/Nexa-Advisory-NEPS-Submission-03022023.pdf>

<sup>6</sup> <https://nexaadvisory.com.au/site/wp-content/uploads/2023/06/Nexa-Advisory-NEPS-Submission-03022023.pdf>

incentives drive CER deployment, there is a notable absence of a clear strategy on its contribution to overall emission reduction and clean energy targets, in contrast to the well-defined strategies for large-scale renewable generation and storage<sup>7</sup>. The absence of a strategy at the state level for incorporating CER into the clean energy transition poses a barrier that can be easily overcome.

A key part of the Consumer Energy Strategy should involve removing barriers to CER adoption by households. One significant obstacle is the lack of trust consumers have in monopolistic power providers who are not transparent with their customers. There remains an issue of incumbency bias and lack of consumer voice in discussions on energy.

CER has adverse effects on the business models of many incumbent participants in our existing energy markets. This influence is evident in the structure of the market, affecting the formulation and revision of regulations and standards, and contributing to a lack of market innovation. These factors collectively hinder advancements in the overall energy transition and specifically impede the growth of CER generation capacity.

In addition, the Australian Energy Market Operator (AEMO) is working on an 'emergency backstop mechanism' that could financially impact consumers<sup>8</sup>. This mechanism allows remote shutdown of systems, preventing customers not only from exporting excess power but also from utilising their generated power, forcing them to purchase electricity from their retailer.

While Victoria has consulted on the need for an emergency backstop, other states have focused only on the technical aspects, already deeming it essential without thorough consultation<sup>9</sup>. As the number of installations increases and climate change-related severe weather events become more frequent, the likelihood of system stress events requiring the use of the emergency backstop rises, resulting in more frequent disruptions for customers.

An often neglected aspect in consultations and policy discussions is the customer experience, a critical factor for the successful adoption of any new government initiatives. The support and perception of CER is paramount, necessitating a focus on enhancing consumer engagement.

While Australians display enthusiasm in investing in CER, they are hesitant to adopt models that could generate the maximum economic value for CER owners and the overall power system. For instance, there is resistance to third-party control and reluctance to expose themselves to sharper, more cost-reflective price signals that guide the optimal operation of CER. Customers make these choices to proactively shield themselves from perceived

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<sup>7</sup> <https://nexaadvisory.com.au/site/wp-content/uploads/2023/10/Nexa-Distributed-Energy-Resources-paper-and-recommendations-04102023.pdf>

<sup>8</sup> <https://aemo.com.au/en/initiatives/major-programs/nem-distributed-energy-resources-der-program/operations/der-integration-and-maintaining-power-supply>

<sup>9</sup> <https://nexaadvisory.com.au/site/wp-content/uploads/2023/12/Cutting-off-solar-isnt-the-answer-18-Oct-2023-1.pdf>

shortcomings in 'the system'<sup>10</sup>, aiming to take control of their electricity costs and diminish dependence on a market they believe does not align with their interests<sup>11</sup>.

It is crucial to develop delivery pathways through trusted partners. The Consumer Energy Strategy has an opportunity to provide a strategic framework for the NSW government to prioritise consumer consultation, building a positive reputation and social license for CER and clean energy.

### *Setting CER targets*

Nexa advocates for the establishment of household energy performance targets to provide clear direction and enhance accountability, recognising targets as an effective policy to unlock demand-side initiatives. Thus, Nexa supports the implementation of a CER target, emphasising its pivotal role in emission reduction and cost-effectiveness in the energy transition. It is imperative to set a minimum ambition level aligned with scientific advice, aiming to limit warming to less than two degrees, preferably 1.5 degrees.

As a more proactive approach, Nexa recommends the introduction of a CER access target for all NSW residents, accompanied by supportive policies. As CER becomes a substantial component of the energy generation mix, it offers a significant opportunity to directly reduce consumer energy bills. Unlike the delayed results associated with standards targeting energy performance, setting a target and a corresponding policy for CER access, particularly focusing on rooftop solar PV, can yield direct, short to medium-term outcomes. This policy should specifically address hardship customers and renters, as they often reside in the most energy-inefficient homes<sup>12</sup>.

Furthermore, Nexa proposes the implementation of a battery target in NSW, coupled with an incentive program based on income. This initiative would set NSW apart and effectively address energy bill concerns within the state.

### *CER uptake incentives*

A widely recognised barrier to the adoption of energy performance measures is financial constraints. Despite the potential for reduced financial burden on consumers and decreased reliance on energy imports, the significant upfront costs act as a major hurdle. The success of any newly introduced government initiative depends on consumer participation, underscoring the need to prioritise both the perception of and funding for household energy performance enhancements.

To address this challenge, households should be supported by programs facilitating the retrofitting of existing household energy technologies, accompanied by real-time energy consumption monitoring through data-sharing initiatives. An innovative funding option that

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<sup>10</sup> <https://ecss.energyconsumersaustralia.com.au/behaviour-survey-oct-2022/>

<sup>11</sup> <https://ecss.energyconsumersaustralia.com.au/sentiment-survey-june-2023/key-indicators-national-sentiment-june-2023/>

<sup>12</sup> <https://www.frontiersin.org/articles/10.3389/fpubh.2019.00357/full>

the government could consider, particularly for low-income households, is the provision of a loan package for homeowners falling below a defined income threshold. This loan could facilitate technology upgrades, allowing homeowners to gradually repay the investment through their rates over time.

### *Enhancing CER data and transparency*

Solving the complex issue of energy performance in Australian homes requires active consumer involvement, yet the current governance framework and work programs lack consumer-centric approaches<sup>13</sup>. Existing regulatory approaches have not garnered consumer trust. To enable meaningful consumer participation in the energy market, access to real-time energy data and transparent network information is crucial. While the Consumer Data Right<sup>14</sup> addresses historic data access, issues regarding customer data access by authorised agents for innovation and customer-led services remain unexplored. Real-time energy consumption data, collected by smart meters, is not readily accessible to customers, hindering their ability to manage usage effectively<sup>15</sup>.

Immediate access to real-time energy use data empowers customers to make on-the-spot decisions to reduce energy consumption, providing insights into individual technologies. Without this insight, customers rely on post-usage bills, limiting their capacity to manage usage effectively. It is essential to consider that certain entities, like traditional utility networks and energy retailers, may not benefit from reduced customer demand. Careful provider selection for energy performance programs and empowering customers with data access is crucial.

Community engagement in the grid and CER is vital for realising energy performance benefits. Improving consumer acceptance of CER integration policies relies on obtaining social licence through engagement. The NSW government and the energy industry must build support and trust by demonstrating the benefits of privately owned CER control beyond imposed costs. Establishing trust with customers requires fair distribution of benefits, ensuring customers perceive the advantages of CER effectively<sup>16</sup>.

Making electricity distribution network data publicly accessible is crucial in determining the need for investment in poles and wires to support increased capacity. This transparency aids in evaluating whether a more cost-effective alternative, such as a flexibility service from the customer side, could suffice<sup>17</sup>. The deployment of DER can be streamlined by ensuring that network data is freely available to the public. Nexa urges the necessity for DNSPs to publicly share network operations data, promoting transparency in non-wired solutions and the hosting capacity of solar PV. It is imperative for NSW to mandate DNSPs to grant full and

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<sup>13</sup> <https://www.iea.org/commentaries/accelerating-energy-efficiency-what-governments-can-do-now-to-deliver-energy-savings>

<sup>14</sup> <https://www.cdr.gov.au/>

<sup>15</sup> <https://www.iea.org/commentaries/distributed-energy-resources-for-net-zero-an-asset-or-a-hassle-to-the-electricity-grid>

<sup>16</sup> <https://energyconsumersaustralia.com.au/publications/social-licence-for-control-of-distributed-energy-resources>

<sup>17</sup> <https://nexaadvisory.com.au/site/wp-content/uploads/2023/10/Nexa-Distributed-Energy-Resources-paper-and-recommendations-04102023.pdf>

open access to network operations data, ensuring that the provision of such data becomes a regulated requirement for all Network Service Providers.

The NSW Government can ensure that digital transformation becomes a mandatory licensing obligation, facilitating the accessibility of data for non-wired solutions and enabling the widespread adoption of CER. Additionally, jurisdictional licensing bodies should mandate open and free public access to network data, encompassing voltage information, as a requisite condition for regulated electricity networks.

### *Improving equitable access*

Nexa appreciates the government's consideration of equitable access in the draft Consumer Energy Strategy. Despite Australia's leadership in solar PV adoption, barriers persist for certain demographics, including low-income households, apartment dwellers, and renters. These groups, often residing in poor-quality housing, face structural deficiencies and subsequently receive the largest energy bills<sup>18</sup>.

The energy transition is widening the gap between high and low-income households, with financing accessibility favouring high-income groups for renewable energy adoption<sup>19</sup>. Low-income households are hindered by cost, complexity, and access barriers. While solar PV installations and subsidies predominantly benefit owner-occupier homes<sup>20</sup>, 'hardship customers'—who use 61 per cent more electricity on average<sup>21</sup>—lag behind in solar PV deployment. Exacerbating the income gap will intensify energy insecurity and hinder low-income households' ability to afford sufficient energy, let alone clean energy. NSW needs a solution directly impacting electricity bills, with solar PV installation offering immediate cost reduction.

Nexa recognises the importance of addressing energy efficiency, though while it is crucial, it should not be a prerequisite for installing rooftop solar PV. Solar PV offers a rapid approach to reducing energy bills, and energy efficiency measures can be incorporated over time to lower bills even further.

According to the Australian Energy Regulator (AER) wholesale markets quarterly price report<sup>22</sup>, NSW electricity prices did not experience the same level of reduction as observed in other states like Victoria and South Australia. The AER highlights that solar rooftop and commercial solar have played a significant role in reducing wholesale prices, leading to benefits for consumers through lower costs. Therefore, NSW wholesale prices necessitate specific policy interventions, especially considering the forthcoming impact on electricity bills from the recovery of costs under the NSW Electricity Infrastructure Roadmap.

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<sup>18</sup> <https://www.frontiersin.org/articles/10.3389/fpubh.2019.00357/full>

<sup>19</sup> <https://www.frontiersin.org/articles/10.3389/fpubh.2019.00357/full>

<sup>20</sup> <https://australianinstitute.org.au/post/sa-government-key-to-unlocking-solar-on-rental-properties-new-report/#:~:text=Australia%20wide%2C%2029%25%20of%20owner,just%204%25%20of%20rental%20dwellings>

<sup>21</sup> <https://www.accc.gov.au/system/files/Inquiry%20into%20the%20National%20Electricity%20Market%20-%20May%202022%20>

<sup>22</sup> <https://www.aer.gov.au/system/files/2024-01/Q4%202023%20Wholesale%20markets%20quarterly%20report.pdf>

The Australia Institute's survey in South Australia highlights interest among renters and landlords to co-invest in solar PV installation, suggesting interest-free loans, remuneration for solar installers, and legislative rights for renters in solar requests<sup>23</sup>.

To increase CER adoption, the focus must shift to those excluded from existing programs. Policies and incentives supporting landlords in rooftop solar investments, such as solar sharing and peer-to-peer networks, are critical. The NSW government, through the Consumer Energy Strategy, has an opportunity to review existing CER policies, identify overlooked groups, and set targets for CER accessibility.

### *Coordinating supply and demand*

Several technical challenges, including the 'minimum demand problem' and voltage standard discrepancies, affect the volume and speed of rooftop solar installation in Australia. The 'emergency back stop' option to control customer power generation is one solution proposed by market operators, but studies suggest the primary issue is networks maintaining the legacy voltage standard of 240 V instead of adopting the general standard of 230 V (AS61000)<sup>24</sup>. Regulating the distribution electricity network at the legacy threshold means that even a slight increase in electricity generation can quickly approach the upper limits of the current standard. By operating networks at 230 V, there would be significantly more 'headroom,' allowing for greater potential in solar PV generation and increased network capacity to accommodate a higher volume of rooftop solar PV installations.

Regulating network voltage standards fall under state electricity regulators, thus Nexa urges the NSW Government to establish a body to set CER technical standards. Collaboration between the market operator and regulator is essential to leverage demand response and reward consumers for flexible electricity use, a potential largely unexplored<sup>25</sup>.

Flexibility from customers, particularly in using batteries, electric vehicles, or demand-side response, is crucial for a high-renewable power system. Trust in the power system is already low, and distribution network export tariffs hinder DERs' responsiveness.

The primary value of DER stems from self-generated electricity consumption and the avoidance of purchasing electricity from the market. Nevertheless, the pricing arrangement for exporting electricity back to the grid is also important. Current network tariffs, which represent payments made by DER owners to the network for exported power, essentially penalise rooftop solar PV exports. This practice reduces the downward pressure on wholesale prices and impedes emission reduction efforts.

Therefore, it is crucial to give urgent consideration to the tariffs associated with utilising the distribution network. The distribution network tariffs for both importing and exporting must undergo updates to align with the evolving dynamics of the power system, especially considering the rapid expansion of electricity generation at the consumer level. To ensure

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<sup>23</sup> <https://australiainstitute.org.au/post/sa-government-key-to-unlocking-solar-on-rental-properties-new-report/#:~:text=Australia%20wide%2C%2029%25%20of%20owner,just%204%25%20of%20rental%20dwellings>

<sup>24</sup> [https://www.ceem.unsw.edu.au/sites/default/files/documents/ESB%20Report%20Voltage\\_Master\\_040520\\_Final\\_0.pdf](https://www.ceem.unsw.edu.au/sites/default/files/documents/ESB%20Report%20Voltage_Master_040520_Final_0.pdf)

<sup>25</sup> <https://nexaadvisory.com.au/site/wp-content/uploads/2023/12/Cutting-off-solar-isnt-the-answer-18-Oct-2023-1.pdf>

fair treatment of CER and DER, network tariffs should incentivise the efficient operation of these resources.

The focus on actively controlling rooftop solar PV deviates from the approach adopted in other locations. Drawing insights from approaches in California and Hawaii, where large-scale and small-scale renewables coexist, incentivising demand response, tariff reform, system operation reviews, battery incentives, EV incentives, and market-driven solar purchases have been successful<sup>26</sup>. Unlike Australia, both states focus on encouraging rooftop solar PV without flexible control or emergency backstops. System planning in these locations actively promotes rooftop solar PV to achieve climate goals.

Please feel free to contact me should you wish to discuss the details of our submission further.

Yours Sincerely

Stephanie Bashir

CEO and Principal  
Nexa Advisory

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<sup>26</sup> <https://nexaadvisory.com.au/site/wp-content/uploads/2023/12/Cutting-off-solar-isnt-the-answer-18-Oct-2023-1.pdf>



## About Nexa Advisory

Nexa is a full-service advisory firm. We work with public and private clients including renewable energy developers, investors and climate impact philanthropists to help accelerate efforts towards a clean energy transition. We've been shaping the energy industry for over 20 years. With a proven track record across policy creation, advocacy, political risk assessment and project delivery, we're holistic in our approach and deliver solutions with commercial intent.

The Nexa Advisory team is a collaboration of passionate energy specialists, all committed to the successful transformation of Australia's energy markets. The team is focused on helping clients grasp the unpredicted opportunities the energy transformation will bring. The decentralisation of energy promises, for the first time, to enable a truly democratised ecosystem with people and communities at the centre. We believe in an energy industry where people are at the centre of every recommendation we make. This belief guides our approach to the challenges we solve, and the outcomes we create.