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Leon Chanter / Tom Connell
Australian Renewable Energy Agency (ARENA)
Level 18, 20 Martin Place, Sydney, NSW 2000, Australia

Energy Consumers Australia's submission to
ARENA's Community Batteries for Household Solar Survey

Dear Leon and Tom,

Energy Consumers Australia appreciates the opportunity to provide comments on ARENA's Community Batteries for Household Solar Survey.

With expectations of a five-fold increase in distributed solar PV generation, the latest Integrated System Plan (ISP) indicates that a pressing need in this next decade is for dispatchable storage to balance the daily and seasonal variations in renewable generation. Australian households and small businesses can contribute immensely to a least-cost decarbonised and decentralised future energy system.

Energy Consumers Australia is the national voice for residential and small business energy consumers. According to our latest survey findings, most Australians lack confidence in the energy market. Only 35% of households surveyed believed the overall market is working in their long-term interests – this is the lowest level in the last three years. Rural consumers and those under financial pressure have even lower levels of confidence and trust in the energy sector. Despite this, nearly half of Australians (44%) believe the energy market can provide better outcomes for them in terms of technological advances to manage their energy supply and costs.

With this in mind, we welcome the Community Batteries for Household Solar Program (the Program, hereinafter) as a key opportunity for the government to boost market development for large-scale deployment and trial different community battery business models to lower bills, cut emissions and reduce pressure on the electricity grid by increasing network hosting capacity. As per our survey, 57% of Australian households (n=2,376) have interest in shared batteries, and therefore, we also consider this Program to be an important conduit towards consumer empowerment, as community battery programs shall engage local community members in energy solutions that can benefit the whole energy system. This Program can offer a unique opportunity for certain communities to have a hands-on experience of Australia's energy transition, and to help them make better-informed decisions about their energy consumption and behaviour at the individual and local level.

In response to ARENA's survey, we structure this submission around four key suggestions:

1. The Program should prioritise community battery configurations, services and sizes that maximise consumer benefits.
2. The Program should address the information asymmetry issue to the deployment of community batteries.
3. The Program should stage application rounds and cater for proportionate in-kind contributions to mitigate risks and increase knowledge sharing.
4. The Program should require robust evidence of direct consumer benefits and community engagement.

Energy Consumers Australia has also commissioned the Brattle Group to develop a report on the barriers to and opportunities for community batteries in Australia. The report will include comparative modelling of three battery types: large-scale, transmission connected; small, residential, connected at the consumers' premise; and community batteries located on the network side of the meter. The report will attempt to identify key avenues to develop sustainable business models for community batteries and is scheduled to be published in March or April 2023. We will be pleased to share findings with ARENA.

The Program should prioritise community battery configurations, services and sizes that maximise consumer benefits

This Program should focus on maximising consumer benefits – not only those who might directly benefit from storing their excess solar PV generation, but also those who will indirectly benefit from reduced network costs associated with augmentation and other network expenditure. Nevertheless, it should be noted that the battery location can have a massive impact on its value propositions and accrued benefits.

According to the RMI report on the economics of battery energy storage, there are thirteen potential services that batteries can provide either directly to end-use customers, to networks or to the market in general (as ancillary services). Table 1 below indicates the suite of ten services that can be adapted to the Australian context considering existing market arrangements.

Table 1 – Services that batteries can provide to customers, networks and the market.

Customer services	Network services	Market services
Time-of-use bill management	Deferral in distribution augmentation	Energy arbitrage
Demand charge reduction	Deferral in transmission augmentation	Frequency regulation
Increased PV self-consumption / solar soaking	Transmission congestion relief	Resource adequacy / capacity support (pending)
Backup power		
Increased consumer value ←		

The same report indicates that the further downstream battery storage systems are located on the electricity system, the more services they can offer to the system at large. Whilst batteries can add significant value to the grid when located upstream at transmission or distribution-level premises, which should in all likelihood result in broader system benefits that would flow through lower network costs to all consumers, behind-the-meter storage can potentially provide the largest number of services to the electricity grid (greater value stack overall) and directly benefit end-use energy customers by lowering their bills. Furthermore, when batteries increase communities' PV self-consumption or contribute to load shifting from peak to non-peak periods, they are ultimately flattening the load profile, reducing peak demand, placing downward pressure on wholesale energy prices, and lessening network constraint effects.

Hence, we suggest that ARENA develops a merit criteria assessment with a points-based analysis of the different combination of services the community battery can provide according to estimated community and end-use

consumer benefits. In this case, customer and network services in Table 1 would rank higher than market services, because those benefits both accrue to consumers – either those who are directly using the battery or network consumers who will experience downward pressure on rates. While market services would – on the margin – also provide downward pressure on the cost of market service, those benefits accrue more clearly to other market actors and in any event, are a well-understood and demonstrated aspect of building a battery value stack. A point threshold should encourage applicants to prioritise customer and network services, even if a combination of these and market services is required to maximise the battery's long-term sustainable value.

Distributed storage services and potential benefits are time, location and purpose dependent. As noted above, we support the assumption that a combination of primary and secondary services is preferrable to maximise the battery utilisation, as long as consumer benefits are also prioritised. As a Community Batteries Program, we expect direct consumer benefits to be realised through the battery operation and services in accordance with the NEO: improving quality, reliability and security of supply, lowering prices and keeping everyone safe.

Following the Program's objective of cutting emissions, it should be noted that when a battery pursues wholesale market opportunities, this may not necessarily reduce emissions. Preliminary findings from the research we recently commissioned indicate that, because the cost of emissions associated with electricity production is not fully internalised into the price of electricity, when a battery operation profile is optimised to charge and discharge to maximise wholesale market revenues, this won't result in the best possible outcome from an emissions reductions perspective.

We also stress the importance of considering resilience-related benefits—e.g., support to essential community services and emergency response—that arise from community batteries located in areas subject to extreme weather events. Noteworthy is that forthcoming market developments are likely to determine and segment which services may be covered by smaller batteries and how they differ from larger batteries.

Lastly, we appreciate different battery value propositions, locations, network configurations and constraints, population sizes, overall community load profile and rooftop PV penetration will result in different battery sizes, and the Program should accommodate for a wide range of sizes to be trialled and tested, with the purpose of gathering and sharing learnings for broader market development.

The Program should address the information asymmetry issue to the deployment of community batteries

Whilst we acknowledge the vast number of barriers to the emerging distributed storage market, we would like to focus on the fact that, currently, it is difficult, particularly for non-NSPs, to identify the best locations to install batteries, which then impacts on their ability to monetise the full potential value of batteries. Detailed network constraint information is typically not publicly available or accessible. On this matter, please see below an excerpt of our latest submission to the AER on battery waivers for network service providers.

> *"It is unclear which are the best places within the network – either transmission or distribution – for a storage device to be located. […] At present, it appears that only NSPs have an understanding of which*

parts of their network are most suitable and would most benefit from a battery – though, this is an assumption that has not been proven. Presumably, a NSP would only nominate a given location for a battery because it offers an ability to maximise the services and revenue from the technology relative to its costs. But networks have not clearly shown why a particular location is more preferred than others. If a given part of a network offers unique opportunity to storage to provide network services, shouldn't all potential market players have such information so that they too might be able to develop storage projects?

This information asymmetry hinders other market participants from competing fairly in the provision of storage services. The AER can correct this market failure by requiring this type of information to become publicly available through the battery waiver conditions and requiring mandatory disclosure about all parts of the network that would benefit from a battery."

Insofar as it further develops the market, it is sensible to provide a reasonable pathway for NSPs to own and operate batteries and access the full suite of potential market revenues. The AER is seeking to approve class waiver considerations for distribution network service providers (DNSPs) looking for funding from ARENA's Community Battery Program. While we supported the decision to provide a class waiver, we also recommended the adoption of the following condition in battery waiver considerations: the provision of accurate, consistent, timely and methodologically demonstrated evidence on adequate site locations for batteries throughout a NSP's service area (i.e., including, but not limited to the location of the proposed storage investment) in ways that add value for all consumers and potentially defer or avoid other network expenditure.

For the market to truly expand beyond NSPs, networks should be required to adopt transparent, deliberate, and proven processes to assess where batteries could be of significant value to the grid and be required to publicly disclose such information. As a contestable electricity service, there needs to be sufficient regulatory protection for other market participants to provide energy storage services through batteries in a level playing field.

In line with our recommendation to the AER, we strongly suggest that ARENA adopts similar processes of knowledge sharing and transparency for all potential applicants, but most especially for NSPs. In other words, if the AER fails to adopt our recommendation on information sharing as a condition of the waiver, we recommend that ARENA require, as part of its knowledge sharing component, that for any NSP to receive a grant under the Program, it must adopt transparent, deliberate, and proven processes to assess where batteries could be of significant value to the grid and be required to publicly disclose such information. It is essential that this Program enables other potential market actors to enter the market, contributes to removing existing barriers to broader uptake, and promotes innovation and competition in the sector. Cooperation, consistency, transparency and information sharing can enable a least-cost system that meets consumer needs, values and expectations.

The Program should stage application rounds and cater for proportionate in-kind contributions to mitigate risks and increase knowledge sharing

As a nascent market of emerging technology development, it is unclear how ready potential proponents are to apply for the funding. Given the barriers outlined above, and to reduce the risk of "half-baked" funding requests,

ARENA should consider staging the application process in two or three rounds. This will enable learnings and insights from the first round to be applied subsequently.

Firstly, applicants' organisational, commercial, professional and technical capabilities, expertise and capacity to deliver projects are likely to improve with time and knowledge sharing, which will result in better projects being submitted. As mentioned above, it is possible that NSPs are the ones better prepared and positioned to apply for funding in the first round due not only to the information asymmetry issue, but also due to network businesses having more full-time paid staff focused on this opportunity. If the requirements on network information (e.g., constraints and hosting capacity) sharing are put in place, this will actually enable other market participants to use the evidence shared to better prepare their own projects for upcoming rounds. Secondly, staging the application process is more likely to result in continuous improvement for ARENA, which will contribute to the Program delivering its best outcomes for all Australians.

On another note, to avoid the potential risk of NSPs being disproportionately funded through the Program due to their current market advantages, we also recommend that ARENA adopts a cap on the number of DNSPs potential projects. Out of the 342 batteries to be deployed through this Program, we suggest the DNSPs proportion to reach a maximum of 114 batteries. From a budget perspective, we propose that the bigger the battery project, and hence total project costs, the greater the in-kind contribution from the lead applicant. Moreover, applications from network service providers (NSPs) should aim to **at least** match the funding being sought from ARENA, and NSPs should receive no more than 1/3 of the total Program funding. By capping NSPs' participation in the program along these two metrics, ARENA can help ensure sufficient opportunity for other market actors to build the capability to provide community batteries. Lastly, expected in-kind contributions from NGOs and/or community-led organisations should be proportionate to the parties' size and budget -- leading to considerably lower in-kind expectations when compared to larger businesses'. This will enable more community-led businesses models to be tested and proven.

The Program should require robust evidence of direct consumer benefits and community engagement

As mentioned previously, where a battery is located has a massive impact on its value proposition, service offerings, and accrued benefits. As the Community Batteries Program has a distinct focus on community benefits, applications should be required to estimate the direct and indirect benefits to consumers from the funding requested. Batteries located at transmission or distribution-level premises (front of meter) may not be able to offer direct services to communities, and the Program guidelines should be attentive to that, if two of the objectives are related to direct consumer benefits.

Applications for this funding should prioritise batteries' potential to safely integrate greater PV penetration in the community and accelerate the adoption of other consumer energy resources to lower bills and enable consumer empowerment. Moreover, our survey findings indicate that most Australians (57%) agree that the government should prioritise, from an equity perspective, helping those typically left behind in the energy transition due to lack of agency or resources—particularly renters and low-income households—get the benefits of rooftop solar

and battery storage. It is worth noting that batteries deployed to provide highly valuable network services will provide downward pressure on network costs for all electricity consumers.

Additionally, there should be clear evidence from applicants of community consultation and deep engagement processes. Engaging with the community is crucial not only to realise the local expectations about the project, but also to manage public concerns such as noise, public safety, local amenity impacts, and security associated with a storage project. Local issues and concerns must be discussed on an ongoing basis to maintain community support. We'd recommend community organisations to be as least secondary partners in all project applications to ensure strong consumer participation and perspectives on what communities want to achieve from any given project. This could be managed through applications from a consortium of multiple partners with a lead applicant submitting the project to ARENA funding.

Final considerations

Thank you again for the opportunity to provide feedback on ARENA's Community Batteries for Household Solar Survey. As an essential resource to balance the daily and seasonal variations in renewable generation and enable greater penetration of distributed generation from Australians' homes and businesses, we need a strong and coordinated effort to encourage the market development of distributed storage. We believe this Program can do that and help deliver an affordable, efficient and flexible system for all Australians.

The four suggestions in this submission aim to guide the design of the Program in ways that maximise consumer benefits, address key barriers to further deployment of distributed storage, mitigate potential risks, increase knowledge sharing and advancement, and ensure community engagement is at the heart of project applications. All of these can enable a least-cost system that meets consumer needs, values and expectations.

Should you have any questions or require clarification about anything in this submission, please contact me at caroline.valente@energyconsumersaustralia.com.au.

Yours sincerely,

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