



Victorian Neighbourhood Battery Initiative Consultation

City of Melbourne Submission to Department of
Environment, Land, Water and Planning

April 2021

23 March 2021

Department of Environment, Land, Water and Planning

PO Box 500 East Melbourne VIC 8002

neighbourhood.batteries@delwp.vic.gov.au



To DELWP

RE: VICTORIAN NEIGHBOURHOOD BATTERY INITIATIVE CONSULTATION

Introduction

This submission is provided on behalf of the management of the City of Melbourne and is based on endorsed Council policy. The City of Melbourne welcomes the opportunity to provide input into the Victorian Neighbourhood Battery Initiative (NBI) consultation.

The City of Melbourne would like to commend the DELWP for introducing the grant funding to facilitate trials and demonstrations of new energy storage models, and applauds the strategic approach of releasing this concurrent consultation paper to assist the development of evidence based policy.

Background

The City of Melbourne's [Climate Change Mitigation Strategy to 2050¹](#) and [Response to the Climate and Biodiversity Emergency 2020²](#) outlines the organisation's priorities for achieving zero emissions for Council operations, and for the municipality.

Through these strategies Council has committed to a goal of a zero emissions city powered by 100 per cent renewable energy. The City of Melbourne recognises the vital role that energy storage has to play in accelerating the transition to a renewable electricity grid and strongly supports the principles of placing the benefit to consumers at the centre of this transition.

System Benefits

Distributed energy technologies are transforming how electricity can be generated and supplied at a local level.

By stacking multiple end use cases and value streams, neighbourhood batteries can realise benefits for electricity networks, communities and help facilitate grid decarbonisation.

Benefits to the Network

The closer a battery is to a load source the more efficient use it makes of the electrical system and the greater the number of revenue streams available to a battery. However there is a loss in the efficiencies of scale with smaller capacities of batteries (e.g. household batteries). Neighbourhood-scale batteries are needed to fill the gap between large grid scale and household batteries where they can realise benefits and optimise investment

¹ <https://www.melbourne.vic.gov.au/sitecollectiondocuments/climate-change-mitigation-strategy-2050.pdf>

² <https://www.melbourne.vic.gov.au/about-council/committees-meetings/meeting-archive/MeetingAgendaItemAttachments/886/15806/FEB20%20FMC2%20AGENDA%20ITEM%206.5.pdf>

in local generation assets. In this way neighbourhood batteries present an opportunity to make more efficient use of the electricity grid, at least cost for networks and consumers.

Benefits to the Community

In contrast to larger grid scale batteries installed at the transmission level, neighbourhood batteries provide a tangible mechanism for communities who are locked out of installing renewables for structural and spatial reasons to take action in supporting the renewable transition themselves.

At the other end of the scale, household batteries, in addition to being unsuitable for many customers, have the potential introduce energy inequities. As households with solar and batteries consume less grid electricity the cost of maintaining the network is shifted to customers who do not have the resources to install solar & batteries themselves. It is important that these customers are not unduly impacted by the transition to a renewable power system and community batteries offer an opportunity to address this inequity through shared ownership and reduced upfront cost.

Benefits to the Climate

In order to support a transition to 100% renewable electricity grid there is a need for battery storage. Batteries can come online quickly when needed (security) such as when a coal plant fails or sun/wind drops off, thereby preventing blackouts (reliability). The key challenge for renewables now is to ensure the power system is capable of supporting a high renewables grid, and achieving this as quickly as possible in order to address the global imperative to reduce emissions.

Recommendations

There are many benefits that could emerge from the at-scale adoption of community-scale batteries. Government could play an effective role in balancing these advantages and the potential for community concerns. Policy and regulatory changes are required to support introduction of storage assets into the system. Supporting showcase projects will allow business models to be defined and battery proponents to demonstrate the benefits that neighbourhood-scale batteries can provide for communities, energy users and electricity networks.

The City of Melbourne recognises that the grant funding available through NBI will build the capacity of the industry and reduce the uncertainty of investment to deliver these different neighbourhood battery models. By responding to this consultation the City of Melbourne hopes to inform future policies to ensure batteries are implemented effectively in a way that benefits the grid, the community and the climate.

City of Melbourne is submitting an application through the NBI to investigate the feasibility of neighbourhood scale batteries within the municipality to support greater community uptake of renewable energy.

The City of Melbourne has prepared responses to a number of the consultation questions in appendix 1 and makes the following general recommendations for consideration in the Victorian Neighbourhood Battery Initiative Consultation.

The initiative should:

1. Seek to support a range of proponents through grant funding with value placed on applications that bring together multiple stakeholder groups and deliver a broad spread of social outcomes.
2. Work with distribution businesses to establish local network performance data standards. Distribution data should be made more accessible and transparent and should be made available to battery proponents for the purposes of assessing constraints and identifying appropriate locations for neighbourhood batteries.

3. Work with distribution businesses to develop a performance based set of standard terms and conditions for connecting batteries to the distribution system and provide neighbourhood battery operators with rights to connect to the distribution system, subject to meeting these terms and conditions.
4. Leverage existing knowledge sharing groups and platforms (e.g. BZE zero carbon communities, Community Power Hubs) to share the learnings and results from this initiative.

Yours sincerely,

Krista Milne

Co-Director, Climate Change and City Resilience

Appendix 1

Consultation Questions	CoM Responses
<p>1. How can the Neighbourhood Battery Initiative help to ensure a level playing field across different types of proponents and operational models?</p>	<p>The City of Melbourne expects that applicants for this fund will fall into four broad categories of organisations:</p> <ul style="list-style-type: none"> • Distribution Network Service Providers (DNSPs) • Local Councils • Energy retailers / technology providers • Community groups <p>Each of these proponent groups offer different advantages in terms of community focus, capability, access to data, social licence and openness to sharing learnings.</p> <p>DELWP should seek to support a range of proponents to best capitalise on the relative benefits of each group. Value should be placed on proponents who have entered into, and intend to enter into, partnerships which bring together a multiple proponent groups to best leverage their range of skills and expertise and deliver a broader spread of social outcomes. Proponents that are well placed to convene multi party groups should be looked on favourably as these will likely deliver greater benefits to the community.</p>
<p>2. What support do proponents need to be able to deploy neighbourhood scale batteries and access key value streams?</p>	<p>In order to deploy neighbourhood scale batteries proponents need:</p> <ul style="list-style-type: none"> • Access to distribution network data to identify constraints and best identify locations for batteries • Land or permissions to locate and install battery units • Access to additional market revenue (FCAS, demand response) through a Market participant (e.g. Licenced retailer or Market Ancillary Service Provider) • An understanding of battery energy storage systems and the ability to control and orchestrate the battery to charge and discharge at the appropriate time to provide services and capitalise on the various value streams. • Access and trust of the community to enable engagement with the local community. <p>The following supports would help enable neighbourhood battery projects:</p> <ul style="list-style-type: none"> • Publically assessable data on constraints in the low voltage network across all distribution networks.

Consultation Questions	CoM Responses
	<ul style="list-style-type: none"> • Lists of Victorian Government owned or controlled land mapped to network constraints and pathways for battery proponents to engage with Government regarding land access for storage initiatives. • Victoria specific data about battery operation to support development of use cases and assessment of value stream (e.g. see outputs from University of Queensland battery initiative) • Support for community energy groups and proponents of shared battery models, including funding support, insights from exemplar projects, and guidance for the development of governance structures.
<p>3. What can the initiative do to build capacity for parties interested in establishing a neighbourhood scale battery, particularly community energy groups?</p>	<p>Learnings of the initiative could be shared through to local governments or via the Greenhouse Alliances³. Local Governments will likely know the community energy groups within their municipality and could deliver Capacity building activities which could include:</p> <ul style="list-style-type: none"> • Webinars • Workshops • Guides and resources, governance models <p>Existing networks and channels with a focus on community energy should be targets for the initiative to share learnings. Programs include:</p> <ul style="list-style-type: none"> • Zero Carbon Communities⁴ program run by Beyond Zero Emissions (BZE). • Sustainability Victoria's Community Power Hubs program • Centre for New Energy Technologies (C4NET) <p>These initiatives currently support local communities to reduce their emissions. Active community energy groups that would be benefit from the insights from this initiative are likely participants and engaging through either or both of these networks to learn and share resources. Supporting BZE and or SV to prepare and provide information such as guides and tools will direct the appropriate information into the hands of these groups and build their understanding and capacity for establishing their own neighbourhood scale batteries.</p>

³ <http://www.victoriangreenhousealliances.org/>

⁴ <https://bze.org.au/get-involved/zero-carbon-communities/>

Consultation Questions	CoM Responses
<p>4. What is the best way to share learnings from this initiative?</p>	<p>Learnings should be shared through a range of formats including publishing project reports, webinars, and publishing of open data. Unsuccessful applicants for NBI should be included in knowledge sharing activities to ensure greater dissemination of learnings and build capacity across the industry.</p> <p>The initiative could follow a similar format of publishing information as that of the ARENA website⁵ through providing a project overview for each project that receives funding and publishing the resources/reports that are developed through the initiative.</p> <p>A good example of knowledge sharing of batteries is the University of Queensland's Tesla Battery Dashboard⁶. This dashboard shows the behaviour of the battery and the revenue which it is accessing. This data has been used to assist battery proponents to develop their own financial models. The initiative could prioritise projects that are willing to make their data available to support future projects.</p> <p>Learnings should also be shared through Industry partnerships with universities. This will improve learning outcomes by using demonstration projects as tangible examples for teaching tools. This will build the capacity of the future workforce.</p>
<p>5. How can the Neighbourhood Battery Initiative ensure that all projects are developed with meaningful engagement with the local community?</p>	<p>All projects should consider using local councils as means of engaging the community. Local government is the level of government that is closest to the community and have experts in community engagement, resources and platforms for engaging with their community members. The ANU's Battery Storage Grid integration program⁷ suggests that a potential future policy change that could allow for the meaningful engagement with the local community is to allow communities to request a battery. In this instance the distribution networks would be required to assess the feasibility of installing a community battery requested by a community or local council and, if a proposal were found to be feasible, proceed with it.</p> <p>This would create a simple option for community members who want to take advantage of sharing in a community battery rather than each investing in their own. It would allow communities to request a shared community battery and access the low cost of capital of doing so through their local distribution network operator. Where community batteries alleviate network constraints or are leveraged to support the wider system, all customers would benefit.</p>

⁵ <https://arena.gov.au/knowledge-bank/implementing-community-scale-batteries/>

⁶ <http://dashboards.sustainability.uq.edu.au/engineering-precinct-battery/interactive/#/>

⁷ <https://arena.gov.au/assets/2020/12/bsgip-regulatory-technical-and-logistical-considerations.pdf>

Consultation Questions	CoM Responses
<p>6. What are the key consumer protection issues associated with virtual storage models? How can consumers be supported to make informed decisions about their participation in such models? What are the consumer data requirements for participation?</p>	<p>Key consumer protection issues:</p> <ul style="list-style-type: none"> <p>• Privacy</p> <p>Fine-grained electricity usage data can include of personally-identifiable information and behavioural information. There are privacy concerns associated with sharing and disclosure of such data. Appropriate protections need to be put in place and customers would need to opt-in to make segments of their data available.</p> <p>• Flexibility</p> <p>Community members would prefer a no-commitment, direct-access model. However, they do not want to give up the flexibility of choosing an energy provider independently of their community energy membership. Virtual storage models should ensure they don't contravene power of choice legislation and that they do not end up in a similar regulatory category as that of embedded networks where exemptions are required.</p> <p>• Tariff structures</p> <p>The ANU's Grid vs Garage report⁸ identifies that tariff structures need to be made more reflective of the actual cost drivers for networks and ensure fairness of pricing for consumers. Currently, consumers that utilise behind the meter batteries to reduce their tariffs will reduce overall revenues for networks. To recover these costs network providers will be forced to subsequently increase their tariff prices. This cost will disproportionately affect consumers who do not have batteries. Consumers that can afford to install battery energy storage system (as with solar PV) are more likely to have above average incomes and household wealth, further increasing the inequality observed across consumer groups.</p> <p>• Investment models</p> <p>Where battery proponents are proposing investment models where customers are investing equity in the asset for part ownership and a share of the rewards the proponent must ensure they have the necessary licencing (Australian Financial Service Licence) to ensure they comply with the regulations surrounding the sale of financial products. The initiative could assist community groups in getting exemptions or facilitating appropriate partnerships to reduce this regulatory burden.</p>

⁸ <https://arena.gov.au/assets/2020/04/arena-grid-vs-garage.pdf>

Consultation Questions	CoM Responses
<p>7. What are the most effective strategies to communicate with consumers to support effective engagement with the battery?</p>	<p>The City of Melbourne has undertaken community attitudes assessment⁹ to engage community participants and uncover the motivations and the barriers that exist for people when considering renewable energy projects. Two of the key insights gained from this engagement which will make a project most appealing for community participation include.</p> <ul style="list-style-type: none"> • Bridge the knowledge gap Community members feel they do not know enough about renewable energy to have a strong preference about where, or how big, an energy project should be. Any renewable energy project or product will need to address this knowledge gap and build confidence in the model. • Make it tangible People want renewable energy to feel tangible, and prefer it to make use of underutilised space. Residents don't necessarily care if all the energy is generated in the City of Melbourne - just knowing where it is, is enough to feel connected to the project. <p>A Battery projects would provide a focal point for community engagement. This would engender greater understanding of the changes needed to support a fully renewable grid.</p> <p>Another significant barrier to communities participating in renewable energy or Battery projects is the complex governance and ownership required within community owned and investment models. Community have shown resistance for investment models for renewable energy which they do not have full control over. Community members are also anchoring energy savings to their retail bill so investment options which provide returns through dividends are less desired.</p> <p>Models which utilise a retailer and can demonstrate energy savings within the context of the bill are much preferred and there is a much lower barrier for entry as from the customer's perspective they only have to change to the appropriate retailer.</p>
<p>8. How can the initiative support customer recruitment into neighbourhood scale battery trials?</p>	<p>N/A</p>
<p>9. What do you as a consumer expect from interaction with a neighbourhood scale battery?</p>	<p>N/A</p>
<p>10. How can the Neighbourhood Battery Initiative facilitate partnerships between third parties and</p>	<p>Battery proponents have experienced considerable difficulty obtaining appropriate data as well as connection agreements from their distribution network service providers.</p>

⁹ <https://www.melbourne.vic.gov.au/SiteCollectionDocuments/community-energy-models.pdf>

Consultation Questions	CoM Responses
<p>distribution businesses to trial network support arrangements, and identify network locations where neighbourhood scale batteries can deliver value?</p>	<p>Reported problems include:</p> <ul style="list-style-type: none"> • Refusal to provide data on local network performance to assist in planning; • Absence of a basic or standard terms and conditions for connecting batteries; • Refusal to allow exports - despite there being no network constraints; • Proponents having to bear the cost of DNSP's learning how their network will interface with new Battery technologies; • Inflexibility in negotiating terms of connection agreements; • Substantial time delays in connection approval; <p>Without network maps detailing areas of constraints, it becomes difficult for a battery owner to know where a battery investment may yield good returns. Currently only DNSPs have access this information. Moving forward, the initiative could support greater transparency through supporting the DNSPs to provide visibility on where network services are needed.</p> <p>This data needs could be provided through the existing mechanism of the Distribution Annual Planning Reports (DAPR) such as this example for Powercor¹⁰. However these reports and the published data is not standardised across Distribution Businesses and more work is needed to make these reports more accessible to Battery proponents and the general public.</p>
<p>11. How can the initiative best support proponents to address these challenges? What interim arrangements are available where solutions require longer-term or regulatory change?</p>	<p>The initiative could support distribution businesses to provide this data upon request to successful applicants to the scheme and support them to provide resources to interpret this data. The Centre for New Energy Technologies (C4NET¹¹) are well set up with the appropriate contacts and relationships to lead this work and develop standards across distribution businesses.</p> <p>Longer term greater transparency is required from the network companies and there is a need to establish local network performance data standards.</p>
<p>12. What network tariff models could be trialled through the initiative? What are the key considerations associated with trialling innovative tariffs?</p>	<p>Network charges are a major barrier to the deployment of community/neighbourhood scale batteries. Energy flows between customers and the battery are levied network charges twice: once when the battery imports energy and then again when customers import energy from the battery. Given the</p>

¹⁰ <https://spaces.hightail.com/space/UaPnYI6yeV>

¹¹ <https://c4net.com.au/>

Consultation Questions	CoM Responses
	<p>substantial price of these charges, this double charging is prohibitively expensive and exemptions are required for trials under this initiative and regulatory change required long-term.</p> <p>Network tariffs also need to be modified to set appropriate prices for transporting energy within a small length of the distribution network. The ANU's Battery Storage Grid integration program¹² presents an example of a Tariff model which could be trailed is the creation of a local use of service (LUOS) tariff. This tariff applies to energy flows that originates and terminates within a local sub-region of the distribution network. The introduction of a LUOS tariff would reflect the fact that transporting electricity a shorter distance is much more efficient and therefore should result in reduced costs for consumers. Outside of the local sub-region, the currently-used distribution use of service (DUOS) tariff would continue to apply.</p>
<p>13. What are the key technical and operational considerations for neighbourhood scale battery proposals?</p>	<p>The key considerations for any neighbourhood scale battery proposals include:</p> <ul style="list-style-type: none"> • Governance / ownership models • Value stacking / calculate value streams • Data collection from the network & battery assets • Process for settlement for value on shared battery in multiparty <p>Commercial outcomes are heavily dependent upon market conditions including spread, volatility and ancillary markets which currently are very uncertain.</p>
<p>14. What role can the Victorian Government play in addressing challenges or barriers faced by neighbourhood scale battery projects?</p>	<p>Current regulations limit consumer choice in how to access the value of local generation. Choice is further limited by the current regulation of local distribution connections and charges.</p> <p>The current regulatory framework does not facilitate transparent participation of neighbourhood batteries in the ability to supply network services. This limitations include:</p> <ul style="list-style-type: none"> • Lack of access to data on local network performance; • The absence of a market for local voltage control; • Connection terms and conditions; and • Lack of access to simple independent dispute resolution.

¹² <https://arena.gov.au/assets/2020/12/bsgip-regulatory-technical-and-logistical-considerations.pdf>

Consultation Questions	CoM Responses
	<p>The Victorian government can begin to address these challenges by advocating to the Australian Energy Market Commission (AEMC) to implement appropriate regulatory changes to create a complimentary regulatory environment for neighbourhood batteries and ensure.</p> <p>The Victorian government can also ensure that their Land / planning scheme powers appropriately accommodate neighbourhood batteries and ensure that there is significant public consultation to build the social licence for their widespread adoption.</p>
<p>15. What are the key research and evaluation questions the Neighbourhood Battery Initiative should be seeking to answer through the trial program?</p>	<p>Value stacking A Community Battery is an example of a Multi-Use Application (MUA) in the energy market. MUAs are those where a single energy resource or facility provides multiple services to several entities with compensation received through different revenue streams. A particular challenge for optimising the extent to which batteries can provide innovative and cost effective system support services concerns the bankability of relevant ancillary service revenues. That is, how can the network security benefits of batteries be commercialised so there are suitable incentives to invest and innovate. How to stack the value of these different revenue streams most effectively is a key research questions that would reducing the uncertainty of investment and unlock the capacity of community Batteries.</p> <p>Reducing the uncertainty of investment Addressing constraints on the ability of Battery projects to access finance would encourage greater deployment of grid scale batteries. Obstacles preventing batteries from accessing commercial returns for providing market and network benefits are a major impediment for grid-scale systems. To moving beyond a situation of governments underwrites projects (needed for most of these projects to date in some form) will require greater visibility and surety on long term revenue streams.</p> <p>Relevant network services and their revenue streams are subject to high levels of policy risk. Technical rule changes, now or in the future, can significantly impact the capacity of battery projects to secure revenues. This risk is reducing the confidence of lenders to finance battery storage projects. Promoting greater policy stability in the energy security space, especially in terms of principles and future directions, would help address this constraint.</p> <p>Consultation with finance providers and industry could help identify the greatest uncertainties or information gaps, and what measures could provide greater confidence on the bankability of system support revenues. Grid vs Garage¹³.</p>

¹³ <https://arena.gov.au/assets/2020/04/arena-grid-vs-garage.pdf>

Consultation Questions	CoM Responses
	<p>What is the role of batteries in supporting urban renewal?</p> <p>Significant load centres and urban renewal areas would benefit strongly from battery storage and allow them to support future all-electric buildings as well as significant uptake of Electric Vehicles.</p> <p>Planning scheme amendments (C376) proposed by the City of Melbourne currently under consideration with the Victorian government will aim to deliver gas-free, all-electric buildings and precincts. Major precinct renewal programs such as at Fisherman’s Bend and Arden-Macaulay, being delivered by the Victorian Planning Authority (VPA), Victorian Government, and the City of Melbourne, also have ambitious zero emissions commitments and objectives to be all-electric precincts. The electrical needs of these precincts will increase demands on the electrical network a challenge that is expected to increase dramatically as electric vehicles become mainstream. Batteries provide an opportunity to build flexibility and redundancy into the network to support these future challenges.</p> <p>However the density of the built environment in these areas limit’s the space available for Battery storage. Where and how to best site Batteries in these environments is an outstanding question which needs to be answered to ensure that planning schemes can adequately accommodate Battery storage and does not act to impede their uptake. Ensuring that Batteries are not considered an additional nuisance or danger if located in the public realm will reduce the potential for community opposition to Battery storage and build the social licence for these technologies.</p>
<p>16. How can the initiative best support the deployment of neighbourhood scale battery projects at all stages of project development?</p>	<p>The initiative is well placed to support feasibilities and demonstration projects through grant funding. Supporting a significant number of pilot projects will allow multiple models to be tested to determine which are the most effective. To support these technologies to be further commercialised and reach scale and widespread adoption the initiative should focus on developing an enabling regulatory environment which facilitates neighbourhood projects and reduces/streamlines the regulatory burden for proponents. The Initiative should also seek to build industry capacity to deliver these projects by supporting research and teaching and sharing the knowledge of pilot projects through open data and demonstrations.</p>