

Victorian Climate Change Grants 2015 Final Report

FOR INFORMATION ONLY

Battery Storage Revolution

Indigo Shire Council



1. Introduction: Who are we and what did we plan to do?

1.1 Project description

When?	October 2016 – October 2018
How long?	2 years
Who?	<p>The project partners included; Indigo Shire Council – Lead Project partners;</p> <ul style="list-style-type: none"> • Alternative Technology Association (ATA) - Battery storage technical and financial analysis, development of educational material. Support for Beechworth workshop event • Moreland Energy Foundation Ltd. (MELF), development of educational material. • Yackandandah Community Centre – Development and distribution of educational material. • Totally Renewable Yackandandah (TRY) – Development and distribution of educational material. • Renewable Albury Wodonga (RAW) – Development and distribution of educational material. • Indigo Shire Environmental Advisory Committee (IEAC) • Sustainable Living in the Mallee - Development and distribution of educational material. (c/- Sam Steel – Swan Hill Rural City Council). • Totally Renewable Beechworth (TRB) – Event partner and distribution of material. • GBGA – distribution of materials. • The Borough of Queenscliff – Booklet development and design. • Towong Shire – Booklet development and design. • Sustainability Victoria – Beechworth workshop event • Prof. Kate Auty – Beechworth workshop event
What?	<p>Battery storage offers numerous benefits to vulnerable communities by supporting energy management and building resilience. Council and the community acknowledge energy storage as a logical next step to increase community capacity for energy management given a constrained local grid network, strong solar resource and demonstrated support for renewable energy.</p> <p>This project presented the introductory information on this rapidly evolving technology for residents contemplating domestic energy storage. Understanding and communication was enhanced through a demonstration site.</p> <p>The key outputs were</p> <ul style="list-style-type: none"> • Development of educational battery storage material – “Home Battery Storage Systems; Frequently Asked Questions” • Delivery of “Battery Storage Workshops/Community Engagement” events • Launch of a battery storage “demonstration/pilot” site – Beechworth Library Complex <p>The Project proposed to;</p>

	<ul style="list-style-type: none"> • Promote a deeper understanding of key battery storage attributes, specifications and functionality. • Generate highly transferable user friendly information on battery storage. • Facilitate widespread knowledge sharing, and mitigation action. • Demystify battery technology through demonstration at a high use community and Council asset. • Respond to community aspirations on renewable technology and build on previous local research. (CSU/TRY – Community attitudes towards renewables report (2015). Mapping and Brokering Local Energy Solutions in Indigo (2012).)
Where?	Indigo Shire & the Hume region
How much?	\$50K project (\$45K funded through the Victorian Climate Change Grant 2015, \$5K cash and in-kind Indigo Shire Council)
Background	<p>Indigo Shire has embraced renewable energy, having the highest domestic installation density of solar PV by LGA in Victoria (>30%). Battery storage may enhance these efforts and further modernise energy management for vulnerable rural communities exposed to numerous challenges (extreme weather events, variable energy supply and disrupted service provision) presented by climate change. Battery storage can also strengthen the renewable energy sector and help facilitate the transition towards a lower carbon future.</p> <p>A range of battery storage products are readily available on the sales floor, with customers seeking clarity on product specifics and functionality to build buyer confidence and encourage early adoptions. By improving understanding of battery basics and the key assessment criteria for comparing battery storage products; Indigo Shire’s engaged communities will be better placed to determine the viability of storage to meet their own unique needs. Information will also allow Council to better understand options to provide improved electrical service building assets.</p> <p>Project objectives are supported across a number of Council and regional strategic documents including:</p> <ul style="list-style-type: none"> • Indigo Shire Council Plan (2012-2016) – partner to implement programs to improve sustainability, environmental outcomes and efficiencies. (3.5, 4.11, 4.12) • Indigo Shire Council Environment Strategy – use resources efficiently and reduce emissions, and provide information on environmentally sustainable action in a number of easy to access formats. (1.1.1, 1.1.2, 4.1, 4.2.2.) • Indigo Shire Council Greenhouse Action Plan – support mitigation action and delivery of energy smart seminars. (1.3,3.12,3.4) • Hume Regional Plan 2010-2030 – harness renewable energy sources.

1.2 Acknowledgements

As the project lead, Indigo Shire Council would thank the many people who helped make this project and its deliverables a success.

The project was primarily a community awareness and education project, supported by the delivery of a demonstration site to test battery operation, monitor impacts and inform the wider community. The development, communication and distribution of educational material produced through this project would not have been possible without the support of the many community and NFP partner organisations and regional local and State government sustainability officers. In addition, the successful promotion and delivery of workshops was due to the energy and passion of community organisations, local and regional residents and State agencies. Together we have produced a worthwhile project that informs an area of immense interest with respect to energy management. Our ambition to expand community knowledge and exposure for the capacity of domestic battery storage has been realised and ongoing efforts planned by Council will further boost these achievements. Thank you all for your time, contribution, enthusiasm and energy.

2 Methods & activities: what did we do?

2.1 Key project activities

The key project activities were development of educational battery storage material; delivery of workshops and installation of a demonstration site. The methods and outputs for each

1) Develop educational battery storage material – Home Battery Storage Systems; Frequently Asked Questions

- Project partners the ATA outlined there was a gap in the Victorian government space for a basic introductory battery storage booklet. Project partners were asked to supply key battery storage questions to develop education material around. These responses were used to shape the content of the FAQ booklet and workshop delivery
Question included:
 - What types of battery are available?
 - How much will it cost?
 - What is my payback for the battery?
 - Will my system work in a black out?
 - How do I compare different products?
 - Can I put a battery on my existing PV system?
- During the early stages of development of this material, stakeholders identified a linked project. The Borough of Queenscliff was also looking at producing a similar guide on this topic. Together the ATA, Queenscliff and Indigo progressed the development of an easy to understand, introductory information on the topic of battery storage. During development Towong Shire Council also expressed interest in the product and were invited to join the project team for the booklet. This was a positive change in scope that achieved efficiencies for all three involved councils.
- In April 2018, the Home Battery Storage Systems FAQ book was completed. Where available the document included local photos provided by community partner groups. Copies have been distributed at the Battery Storage workshops and regional community energy events, as well as the Victorian Greenhouse Alliance Conference 2018. Copies have also been supplied to all project partners and the Goulburn Broken Greenhouse Alliance Council members for wider regional distribution. It is available electronically for all project partners, and on Indigo Shire Council website. (Hard and electronic copies have been supplied to DELWP)
- The booklet proved so popular it has had a second reprint (an additional 800 copies). As an informative, stand-alone basic technology and installation document, the decision was

made to not merge information into the existing ISC “Guide to installing solar electricity” but rather keep as a separate document. This assessment was also due in part to the expected changes to the current Battery Storage Building Code of Australia (BCA) regulations for battery storage due in early 2019 which may impact more specific battery installation information.

<https://www.indigoshire.vic.gov.au/Living-in-Indigo/Environment/Environment-and-Sustainability>

2) Deliver Battery Storage Workshops

A Battery storage and renewable energy event was delivered in partnership with Totally Renewable Beechworth at the Beechworth Memorial Hall on Saturday 21st April, 2018.

The event comprised;

- Workshop comprised guest speakers Guest Speaker – Prof. Kate Auty, Storage Basics presentation from Damien Moyse from the ATA, regional “Off grid” community case studies presentations, TRY Mini Grid Pilot discussion, as well as Tom Brown from Sustainability Victoria talking about Community Energy Hubs
- An energy marketplace was open at the event featuring community energy groups, renewable energy installers and products, and electric vehicles
- The event was enhanced by showcasing battery information in displays; including case studies, battery basics, battery comparison tables and having multiple versions of various take away and download material for attendees. A key theme was to have multiple forms of engagement on offer at the event. This approach proved highly successful and was well received.
- The event also launched the Home Battery Storage Systems; Frequently Asked Questions booklet and announced that the adjoining venue, Beechworth library was to be the host of the projects pilot battery storage demonstration site.
- The event was promoted across various networks, radio and print media, social media with over 130 people attending the day.
- Fantastic (positive) feedback was received from attendees and stories of the event feature in the Border Mail and O & M advertiser.
- Photos from the event can see at the following link
<https://imgur.com/a/k67dyN3/layout/grid>





Additional battery storage presentations were undertaken by Project partner RAW in conjunction with their community energy program. The RAW community energy and battery basics night was held on 31st August 2018, with 120 people attended the evening at Huon Hill, Wodonga. People heard from an amazing array of speakers - Nicky Ison, Kate Auty, Allison Rowe, Bobbi McKibbin & Ben McGowan on topics such as:

- What community energy is all about?
- How and what are others are doing in the community energy space?
- Introduction on battery basics (Battery Basic were presented by Bobbi McKibbin and the Home Battery FAQ was distributed to interested people), and,
- Introduction to the community energy retailer.



Booklets were also distributed at the Rutherglen Community Energy event 25th September 2018.



3) Launch a battery storage demonstration pilot site and implement a monitoring system for demonstration site beyond end of project life – Beechworth Memorial Hall

A number of Council owned community facilities were explored when determining the battery demonstration site.

Various challenges were encountered when evaluating an appropriate high community use Council owned site that was also solar/battery storage ready and compatible.

Considerations included determining if the site's;

- Existing renewable energy equipment was compatible with the addition of battery storage.
- Existing roof had adequate structural integrity for the addition of solar PV if applicable.
- Required heritage approval for the installation of additional equipment.
- Required additional BCA treatment to meet code.
- Building operation and ownership aligned with project criteria.

At the time of project delivery, the existing BCA regulations made it challenging to isolate a community building with significant use, multiple community benefits, council owned, with solar capacity and options for fireproofing an onsite battery installation. For example, it was discovered that depending on the classification of the community facility the battery installation was likely to need some form of fireproofing treatment applied to comply with building regulations.

Ultimately, the Beechworth Library complex was selected, with the support of the committee of management, and all appropriate network and building approvals and construction completed (to meet fireproofing requirements) a demonstration battery storage system was installed at the site.

- In total 16kW of Sonnen battery storage was installed at the Beechworth Library. The installation will service Beechworth's library, Council's customer service, and maternal and child health service. The storage capacity will allow Indigo Shire Council to install an additional 11.5kW of panels to the existing 4.5kW solar system before the end of 2018. This will increase solar generation at the site, while reducing consumption of grid connected electricity, greenhouse gas emissions, and operating costs.
- A Sonnen monitoring system is on display at the library that outlines the battery charge, discharge, electricity generation, consumption on site. The system downloads and displays information in a user friendly manner



The location of the monitoring display was moved from a wall in the library to the Council customer service counter. This allowed for the staff to better engage with interested community members and ensure that display was operational.

2.2 Key project evaluation activities

1. How has the project allow your community (and Council) to increase batter storage knowledge and understanding?
2. Has battery storage improved energy management at the pilot demonstration site?
3. Has the project led to improved provision of electrical service at the demonstration site?

Battery Basics Workshop & Energy Marketplace

Evaluation forms were available at the Beechworth Battery Storage and energy event. People were invited to make comments on the event on posters around the room and at the entry. While only a small amount of the feedback was formally recorded via this method, a much larger volume of encouraging “verbal” feedback was offered by participants on the day. This was overwhelming positive and included recognition of having assorted methods of information delivery and interesting topics. Other constructive comments on how Council could support the further provision of information was welcomed.

The following comments were recorded on the feedback posters displayed during the workshop.

Tell us, On a scale of 1 to 5, how useful was today’s event?

	1	2	3	4	5
	Not useful at all			Highly useful	
Responses				2	3

Are there any comments you’d like to make?

- Thanks. Good leadership – should be more of it
- Thanks for organising it
- Very good! Thanks, Jiles
- Thank you for a very interesting and informative workshop!

Tell us, What could we improve?

- Where to from here? Contacts. Don’t necessarily want to bother guest speakers, so who to discuss with?

- Slide, flyer, links on council website to various websites mentioned such as solar quotes

Tell us, What worked well?

- Different viewpoints – off grid advocates vs community grid advocates = lots to consider – thanks
- Thank you – really informative – looking forward to the next lot of info – Beechworth resident looking to install solar!
- Fantastic, broad spectrum of ideas, well presented. Thank you
- Thank you – fantastic diversity of speakers, very informative afternoon!

In addition, other forms of feedback were collective from social media and submitted via email.

Stall holder Mal Oldis – email received 26th April 2018

Hi Helen,

Both Jill and I would like to express our appreciation at being able to attend your workshop last Saturday, and to demonstrate our Solar Sky light. We were delighted at the response that we had.

It is a testimony to your passion and organisational ability to create this event. The attendance and speakers

was a really positive confirmation of your direction for renewable energy systems.

The brief snippets of time that I allowed myself into the auditorium was well rewarded. I was impressed with the information that I was exposed to.

Well done, many thanks, and ... that foyer is very dark!!

We would love to be involved in any future similar events.

Mal & Jill

Phil Day – email received 22 April 2018

Helen,

This was a great event. I enjoyed all of the speakers. It is great to see Indigo Shire is at the cutting edge.





Local print media the Border Mail also featured a story on the event



At Council, the link for the booklet was circulated and booklets left in staff rooms and break out areas. There was interest both personally and professionally in the application of storage. The project has increased the discussion on the feasibility of using battery storage at certain assets. It is also recognised that the introduction of battery storage has the capacity to modify the financial viability of solar installations at some facilities that currently display intermittent or high evening consumption.

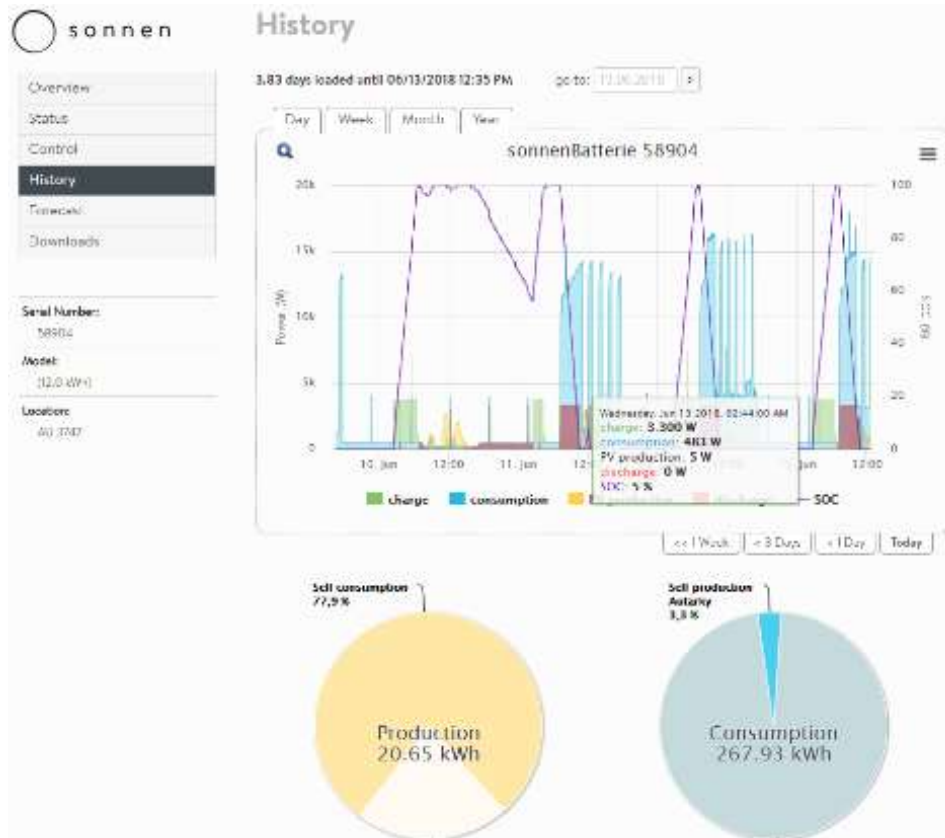
Council has promoted the booklet and battery storage information at multiple events and across multiple forums across the region, including battery storage workshops, Community Energy Retailer events, Project partner events, Goulbourn Broken Greenhouse Alliance meetings, Greenhouse Alliance conference, and via the production partners Towong and the Borough of Queenscliff. The interest has been so strong that a second reprint (800) was ordered to accommodate continued distribution. The ATA also requested copies to showcase the work. The work was considered a solid foundation for continuing to build knowledge from. Electronic copies were also made available for project partners to use as they see fit.

Questions 2 & 3

- 2. Has battery storage improved energy management at the pilot demonstration site?
- 3. Has the project led to improved provision of electrical service at the demonstration site?

Energy consumption and energy management transparency has improved at the demonstration site. The demonstration systems monitoring display can be accessed remotely and is on display at the Beechworth Library. Almost immediately staff gained valuable insight into the electricity consumption at the facility and were able to modify operation to reduce electricity consumption and costs. Further trends and improvements are expected and shall be collated over time.

The battery operation and site electricity consumption profile displayed via the Sonnen battery portal (below).



The status and history pages provide information which improve Councils electricity literacy for the site.

What has Indigo Shire been able to learn from this information:

- With this type of battery technology Council was able to set up a battery top up in “off peaks rates” overnight. The Sonnen support team based in Sydney were able to remotely configure a nightly battery charge between 3am-7am each night. This will help save money as Council will pay 18.16c/kwh instead of 34.5c/kwh for the electricity entering the battery overnight, which is then consumed during peak times later in the next day. This feature can be deactivated once the additional solar generation is installed which will supply extra renewable electricity to the battery.
- Sonnen can also monitor the network voltage at the site to determine when the unit is exposed to levels (from the grid) outside the industry standard.
- Council can also better understand and, potentially modify the patterns of use at the site. For example, the first week the monitoring system was operational it was identified the HVAC system was cycling Saturday afternoons until approximately 5.30pm, when the site closes for the day at 12noon. The information provided through this portal informed having the HVAC programmed which reduced electricity consumption and saved on operating cost for the site.

2.3 Outputs

- 1) Develop educational battery storage material – Home Battery Storage Systems; Frequently Asked Questions (Quantity distributed to date is approximately 1350. Hardcopies still available approximately 250)
- 2) Workshop events where delivered as described;
 - Beechworth 21st April 2018

Additional smaller presentations and formal communication of the booklet including;

- RAW Community Energy Event and presentations Wodonga 31st August, 2018.
- Rutherglen 25th September, 2018

- 3) Ongoing monitoring of the Battery Storage Demonstration site – web portal available for viewing at Beechworth Library complex with ongoing improvements to the scale of the renewable generation planned to maximise the storage capacity and energy management on site.

2.4 Final budget breakdown

2. Budget

Income												
	Victorian Climate Change Grants 2015 Funds	Funds from Lead Council	Funds from 1st Partner Council	Funds from 2nd Partner Council	Funds from 3rd Partner Council	Funds from other sources	In kind support- Lead council	In kind funds - 1st Partner Council	In kind Funds - 2nd Partner Council	In kind Funds - 3rd Partner Council	In kind from other sources	Total
Grant Funding	\$ 45,000.00					\$ 1,923.00						\$46,923
Expenditure												
	Victorian Climate Change Grants 2015 Funds	Funds from Lead Council	Funds from 1st Partner Council	Funds from 2nd Partner Council	Funds from 3rd Partner Council	Funds from other sources	In kind support- Lead council	In kind funds - 1st Partner Council	In kind Funds - 2nd Partner Council	In kind Funds - 3rd Partner Council	In kind from other sources	Total
Personnel												
Salaries, wages	13,468						2,025					\$15,493
Consultancy / contract costs												\$0
Project Administrative costs	1,290											\$1,290
Personnel Total	\$14,758	\$0	\$0	\$0	\$0	\$0	\$2,025	\$0	\$0	\$0	\$0	\$16,783
Capital Expenditure												
Plant / Equipment Costs	16,399	3,000										\$19,399
Fire proofing and fit out battery	3,077	2,423										\$5,500
Infrastructure Total	\$19,476	\$5,423	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$24,899
Project Management												
Postage	279											\$279
Advertising	435											\$435
Printing	3,439											\$3,439
Material and FAQ booklet project delivery)	588											\$588
	5,327											\$5,327
Project Management Total	\$10,068	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$10,068
Minor equipment purchases	698											\$698
Recovered income from FAQ						-1,923						\$0
Other Total	\$698	\$0	\$0	\$0	\$0	-\$1,923	\$0	\$0	\$0	\$0	\$0	-\$1,225
Total Project Budget	\$45,000	\$5,423	\$0	\$0	\$0	-\$1,923	\$2,025	\$0	\$0	\$0	\$0	\$50,525

3 Final outcomes & evaluation findings: what impact did we have, and what did we learn?

3.1 *What impact has the project had?*

Immediate outcomes:

- Development and distribution of an easy to read battery storage basics booklet.
- Wide spread opportunity to access this material.
- Increased exposure to the potential of battery storage and renewable energy.
- Increased knowledge on the operation and impacts of battery storage.
- Increased capacity to install additional solar PV at the demonstration site with an attractive return on investment.
- Increased promotion of the ARENA funded battery test centre in Canberra and battery storage comparison material and websites.
- Increased understanding and confidence for the role battery storage can play in the provision of energy, energy independence, the energy market, and energy network
- Appreciation for the widespread interest in battery storage basics

Longer term outcomes:

- Ongoing exposure to the potential of battery storage through print and digital material produced during the project.
- Reduced energy costs for the operation of the demonstration site.
- Reduced greenhouse gas emissions generated to operate the demonstration site
- Increased visibility of the energy profile at the demonstration site.
- Installation of additional solar electricity generation at the demonstration site.

Unintended outcomes:

- Increased profile of emerging community energy groups and their overarching aspirations in the area of renewable energy
- Improved relationships with project partners, energy community groups, facility operators and other LG.
- Greater awareness for the current building regulatory requirements for the installation of battery storage at community facilities.
- Discussion on electric vehicles, including the expected transition of automotive transport and mobile storage capacity.
- Increased understanding for alternatives to battery storage technology; such as solar hot water, and super capacitors.
- Awareness for aspects that can impact the operation of battery storage post installation. Such as software updates, grid voltage supply.
- Promotion of the ATA/Renew simulator and battery storage evaluation tool
- Improved understanding of the Building Codes of Australia and building and network approval process.
- Increased knowledge on the delivery of events.

What has changed as a result of this project?

- Increased awareness for battery storage,
- Improved battery storage understanding and literacy within Council and across the community,
- Communication of costs and return on investment for battery storage,
- Exposure to real life grid and off grid examples,
- Installation, monitoring and display of battery storage, and
- Wider understanding and support for the current and future battery programs.

3.2 Funding outcomes

<p>How has working in partnership/collaboration benefitted this project?</p>	<p>Working in partnership/collaboration has benefited this project by;</p> <ul style="list-style-type: none"> • Defining questions for consideration in the Battery Storage FAQ Booklet • Distributing the booklet and appreciation for the widespread interest in this emerging technology • Improved economies of scale with the production of the FAQ booklet – Towong and the Borough of Queenscliff • Widespread promotion and delivery of the Battery storage events and presentations. • Consideration and evaluation of a variety of community facilities to install the battery storage demonstration project - community groups and committees of management • Delivery of the design and collation of evaluation processes – workshop and monitoring • Event partnership with TRB on the main battery storage event and partnership with CER and RAW for the supplementary battery basics presentations and promotion. • Evolving project partnerships through the development of the FAQ document – Borough of Queenscliff and Towong Shire.
<p>Has the funding led to increased capacity?</p>	<p>This project has increased capacity of Council staff and our community. Through involvement in this project our knowledge has substantially increased in regards to:</p> <ul style="list-style-type: none"> • Battery storage technology • Event management • Community engagement <p>The departmental support throughout the project helped with:</p>

	<ul style="list-style-type: none"> • Clarifying and defining the delivery of the project components • Sounding board for ideas • Financial capacity to deliver the project components • Linking to opportunities for project partnership
	<p>The funding has contributed to building capacity and awareness within Council in relation to climate change adaptation and/or mitigation through;</p> <ul style="list-style-type: none"> • Strong internal interest in the booklet and increased understanding for the capacity for battery storage from both a personal (staff) and professional Council perspectives. • Improved understanding of the benefits and opportunities for solar and/or batteries through the demonstration site monitoring portal. This platform has increased consumption visibility and improved energy management practices on site. • Supported the funding of additional solar PV at one of Councils high use sites. • Reduced cooperate greenhouse gas emissions.
	<p>Internal budget would not have been available to deliver any of the 3 main components of this project. The funding has provided the foundation for the delivery of each very well received project components (material, workshops, and demonstration site) and helped address a gap in understanding and access for the potential next steps for council and its communities on their energy transition.</p>

3.3. *Lessons learnt*

There were multiple lessons learnt across the delivery of this project. They include;

- Understanding the criteria for assessing the suitability of community facilities for the installation of battery storage. For example, there are differing BCA requirement for the installation of battery storage for various building classifications. These can be very different from those required for a domestic installation and can significantly impact the positioning and cost, and time frames for delivery associated with battery storage. Depending on the building classification, differing types of BCA treatment may need to administer to install battery storage. I.e. fire proof room, minimum 3m installation from

the building, engineered fireproofing solution, this will impact overall installation design, cost, and project delivery. Similar future projects should seek to understand these requirements very early in the project scoping as they can significantly limit the options and affect cost and time of project delivery.

- Time frames for approvals, structural, planning and heritage permits, electrical network authorisations (AusNet Services), as well as purchase of equipment, manufacture of custom fit for purpose doors, should be well understood to accurately manage project delivery. For example, there was also delays encountered with the in stallion due to the Distribution Services Network provider (**DSNP**), AusNet Services, network modification approval process (approximately 2 months).
- Companies that build fire proof cabinets for various reasons, document storage, electrical meters etc, are have started designing products for the battery storage market. Although, to date, our enquires were not able to source a suitable off the shelf product with appropriate approvals to act as a housing for the proposed installation.
- There is a strong desire in our rural area to understand the viability, cost and impacts of going off grid.
- There is a large suite of battery storage products entering the market. Improved product standards anticipated in the new year will help reinforce consumer confidence when purchasing products. In addition, site such as the ARENA-funded Lithium Ion “Battery Test Centre” located in Canberra (<https://batterytestcentre.com.au/>), compares various lithium-ion battery chemistries and products available in the Australian market against claims made by manufacturers. Tested under Australian conditions, the unbiased results of the centre will provide consumers with independent information on battery performance.
- Agencies such as the ATA have supplied battery storage comparison tables for consumer consideration. The ATA advised that commercial enterprise Solar Quotes provides one of the most up-to-date tables for common battery product available on the Australia market. The table offers product specifications for consideration and contrast to help inform decision making.
<https://www.solarquotes.com.au/battery-storage/comparison-table/>
- There is significant value in harnessing the enthusiasm and knowledge of community members and community groups to increase the impact of a project. This can be in the form of graphic design, technical knowledge, facilitation, event management, case studies, and presenters. They can also help ground truth some of your assumptions.
- Speak early with site operators to understand the renewable and installation opportunities at each facility. In general, they know the site inside and out and how it is used.
- Talk about your projects with others. Promote the objectives and align with partners interested in delivering similar objectives. It can prove beneficial for sharing of resources and costs.

4 Suggested future actions and recommendations: what should be done now?

Issue	Recommendation	Who you think should act on this recommendations
Future-proofing building developments	Developers and Council should future proof designs and ensure that new buildings and retrofits works easily adopt renewable and storage technology. This should include structure capacity of buildings,	Project engineers, Assets managers, design and construction related contractors and consultants.

	orientation and provision for locations of equipment as well as electrical capacity.	
Balance in the regulatory requirements for the installation of battery storage	Rather than the focus of minimising any potential risk associated with the technology being overwhelming reflected in the installation requirements, greater consideration for improved manufacturing product standards to balance the performance and safety of the technology and instil consumer confidence for products.	Applicable regulatory bodies
Identification of suitable community sites for potential battery storage installations should funding arise	Understanding and mapping of the consumption patterns and opportunities for battery storage when and where funds allow, and where attractive return on investment can be identified. (Note; Particular focus on Beechworth's Memorial Hall to contrast the impact of battery storage on buildings with very different patterns of use in the precinct.	Facilities and assets managers, Environment and Sustainability staff.
Rapidly evolving energy network	The rapidly changing nature of energy management and delivery implies future changes to the operational and regulatory electricity framework. Moving forward we should try and keep well-informed of this evolving space to best understand opportunities to build sustainability and community resilience.	Council and the community

www.delwp.vic.gov.au