

BATTERY TRACKING



CLEAN ENERGY COUNCIL
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OBJECTIVES

The continued growth in the uptake of battery storage systems requires better monitoring of the technologies involved and their deployment. Battery storage represents possible electrical, chemical and environmental hazards and there are many perceived advantages in understanding the chemistry, capacity and location of installed batteries.

A battery tracking system would be beneficial to a number of organizations such as:

- **State Electrical Regulators:** *A tracking system could aid in identifying issues of electrical safety with equipment or installation practices, recalls etc.*
- **State Emergency Services:** *Understanding of site specific risks associated with the location of battery storage technologies and capacities. Also through the creation of the tracking database, further data could be accessed in the event of a fire, such as the battery MSDS and fire-fighting guidelines specific to the battery type.*
- **Electrical Distribution Companies:** *Identifying grid infrastructure requirements and gauge the effects on networks due to growing storage solutions.*
- **Recycling / Recovery industry:** *Cradle to grave tracking of batteries, tailored solutions to various technology types and better geographical based solutions.*
- **Relevant Industry Bodies:** *Gathering of battery deployment information for use in reports, information documents, renewable energy businesses etc.*
- **Battery Manufacturers / Distributors :** *Tracking would provide valuable sales/marketing information, trends, capacities, etc.*
- **Installation companies/ Owners:** *Tracking of batteries and the subsequent database could be used to create a “maintenance register” and “maintenance alert” where according to the battery technology and date of installation, maintenance dates can be set automatically and reminders or alarms can be send to the owner and installation company.*
- **Insurance Companies:** *Assessment could be made as to levels of risks to property from various battery types etc.*

OUTCOMES

It is envisaged that any battery tracking systems would take the form of a live database containing site specific data on the battery technology, battery capacity, model numbers, circuit arrangement, installer details, installation date, etc.

The database would ideally be populated from data logged by the accredited CEC installer. The specific data would be uploaded via an on-line portal and/ or smartphone app and this e-record would form the backbone of the database.

Additionally, a nominal fee would be associated with lodging a battery system registration which would fund an inspection scheme for the technical and safety compliance of such systems.

DRAFT PROCEDURE

Assigning a tracking number: To commence the tracking process the CEC installer would complete a “Battery Deployment Log,” and upload it via the CEC on-line web portal/ smartphone app. This log would be completed immediately after installation & commissioning of the battery system. The installer would only be able to choose a battery model number as listed on the “**Approved Batteries**” CEC product list (development pending). On completion of the on-line registration the installer would be assigned a unique “Installation Identifying Number” that would be affixed to the battery enclosure. This “Tracking Number” would be a unique identifier for the site information.

Making alterations to a tracked battery system: In the event of a product replacement, and/ or system modification during the lifetime of the batteries operations, the installer and/ or other representative would notify the CEC of equipment changes so that the database could be updated. The installer would be required to lodge a “Battery Storage Modification” application via the CEC portal.

Currently it’s the expectation that the responsibility for ensuring that the system details are up to date in the database would lie with the end consumer. Given that during the lifetime of the system the original installer may no longer be active in the industry, the owner of the system should be made aware of the database and the responsibility for keeping it up-to-date. Making the adjustments on the database should always be undertaken by a certified person. An example of a similar system includes car logbooks. The owner of a vehicle is responsible for the roadworthiness, but certified car mechanics are responsible for the correct maintenance, repairs and logbook entries.

End of life/ removal of battery storage: At battery end of life or in the event of removal of batteries from the original installation location, the installer would use the Tracking number to log an “End of Life/ system removal” application via the CEC portal. The CEC portal will direct installers to the best “Australian Battery Recycling Initiative” (ABRI) location for disposal of the spent batteries. Approved battery collection points would record and verify the tracking number against the CEC database.



DEPLOYMENT

Installer lodges “Battery Deployment Form” via CEC portal and receives “Tracking Number” which is affixed to the site



MODIFICATION

Installer modifies installation, replaces failed cell and logs modification form against tracking number in CEC portal



DECOMMISSIONING

Installer completes “End Of Life/ de-commissioning” log, de-energises bank.
Recycling / recovery company log
Battery Receipt logged against tracking number (ABRI)

KEY DATA REQUIRED

The Battery Deployment log could only be accessed by CEC accredited installers using unique login and password credentials. Once the installer has completed the deployment log an automatic e-mail would be e-mailed to them with a unique tracking number. The installer would be required to affix the tracking number to the battery enclosure and “reply” to a tracking number e-mail which would verify that the number has been attached to the site.

It is envisaged that the following data would be collected for the database:

- **CUSTOMER DETAILS**
 - Customer Name
 - Site Address
 - Customer Phone Number
 - Customer Email

- **CEC INSTALLERS DETAILS**
 - Accreditation Number
 - Installation Date
 - Battery System Location (Eg. Shed, etc)

- **BATTERY DETAILS**
 - Manufacturer Name
 - Model Number
 - Cell Serial Numbers
 - Battery type (SLA, gel, li-ion, etc)
 - Total Battery Capacity (C10 rating)
 - Cell Voltage
 - Module Voltage (for li-on)
 - Number of cells on site
 - Battery Bank Voltage

- **ENCLOSURE / ROOM**
 - Batteries are enclosed in enclosure or room
 - Building Classification/ Type under NCC
 - Enclosure/ room meets Australian requirements for housing of batteries
 - Ventilation has been installed to manufacturer’s instructions & relevant standards
 - Main Battery Isolator is installed
 - Emergency Shutdown Procedure signage is present

- **OTHER**
 - Owner has been instructed on Emergency Shutdown Procedure
 - “Batteries On site” signage has been secured to prominent exterior location
 - Maintenance Interval (auto send reminder to customer e-mail)

CLEAN ENERGY COUNCIL APPROVED BATTERY LIST

It is envisaged that the CEC would produce a list of approved batteries for industry use. The list would display batteries that meet the minimum agreed safety standards.

Proposed requirements to List on CEC Approved Battery List:

1. Manufacturer/ importer must register as “Responsible Supplier” with ERAC. CEC portal will require ERAC ID number and cross check with ERAC database.
2. Listing company must be a member of ABRI and provide evidence of membership to CEC (ABRI number, etc) CEC would cross check details.
3. Certificates of approval/ suitability will be required from only JAS-ANZ accredited entity or state electrical regulator. A list of these entities is as follows:
 - [Australian Safety Approvals \(ASA\) \(JAS-ANZ\)](#)
 - [Conformity Certification Services Pty Ltd \(CCS\) \(JAS-ANZ\)](#)
 - [Electrical Safety Office \(Qld\)](#)
 - [Energy Safe Victoria \(ESV\)](#)
 - [ITACS \(JAS-ANZ\)](#)
 - [Office of Fair Trading \(NSW\)](#)
 - [SAA Approvals \(JAS-ANZ\)](#)
 - [SGS Systems \(JAS-ANZ\)](#)
 - [TUV Rheinland Australia \(JAS-ANZ\)](#)

Certificates must state the battery manufacturer, model number, technology and also reference what Standard/s are applied. Certificates have an approval date and expiry date.

NOTE: The appropriate standard must be within the scope of the certifier.

4. Listing Company must provide technical details of the battery to be listed: Brand Name, Model Number, Cell Technology, Cell Voltage, Cell capacity, Charge Technology, maximum charge rate, maximum discharge rate, maximum ambient temperature, ventilation requirements, maintenance interval, etc.
5. Listing company must upload :
 - Battery Specification Sheet
 - Material Safety Data Sheet
 - Installation Manual
 - Warranty Information
 - Relevant system photos

REVIEW OF CURRENT INDUSTRY PRACTICES AND STAKEHOLDERS

From the review undertaken we found that there are not extensive and detailed information on specified tracking methods of Lithium Ion batteries around the world. Our main source was the “BattG_Batteries-Act” from Germany. However, the setup for tracking described is focused more about total quantities sold in to the market by manufacturers without further tracking after the first point of sale. Also recycling and waste data are required to be submitted.

See below main points on tracking from the “BattG_Batteries-Act_Germany”

Current Industry Practices

→ BattG_Batteries-Act_Germany: Part 2 Paragraph 15: Reporting

The Joint Collection Scheme shall submit to the Federal Environment Agency each year by the 30 April records providing information on:

1. The mass of portable batteries placed on the market within the jurisdiction of this Act and remaining within the jurisdiction of this Act in the preceding year, subdivided by chemical system and classification;
2. The mass of waste portable batteries collected by the Joint Collection Scheme in the preceding year, subdivided by chemical system and classification;
3. The mass of waste portable batteries recycled by the Joint Collection Scheme in the preceding year, subdivided by chemical system and classification, separately showing waste portable batteries exported and recycled outside the jurisdiction of this Act;
4. The qualitative and quantitative recycling and disposal results;

Comment:

The Joint Collection Scheme in Germany is a non-for profit collaboration of battery manufacturers. ABRI can take up this role in Australia with manufacturers and distributors of batteries being obliged to record and report the importation and distribution of batteries around Australia. As mentioned above, such a tracking setup is more about total quantities sold in to the market by manufacturers. Therefore the involvement of the installer or installation company through a tracking procedure described before is critical as to further extending tracking to the place of installation.

ONLINE TRACKING SYSTEM – PROJECT COSTING SCOPE

An initial informal project costing scope has been conducted. The general project scope includes:

- Development of:
 - An online desktop portal for the registration of battery systems
 - A smartphone app for the registration of battery systems
 - Customization of a database, compatible with existing and forthcoming CEC installer and product databases, for the warehousing and receipt of battery system detail

Note that registration of a battery system via the online options would incur a nominal cost. This cost is expected to form the basis of an inspection regime for technical and safety compliance.

The total cost to implement an online registration system, as above, is estimated at \$300,000. The duration to implement such a system is 9 months.