

Residential Energy Storage: Are we ready?



Figure 1: Sealed Lead Acid Batteries in the GSES training centre.

The rise of residential batteries

In the past year we have seen the first significant uptake of Grid Connected Battery (GCB) systems in Australia. In years gone by, batteries were used for standalone systems that were far from any poles and wires, i.e. in areas with no access to the electricity grid. However, we now see new products continuously being released, battery prices are on the decline and, according to the AEMC report on 2015 Residential Electricity Price Trends, grid electricity prices are predicted to continue to rise.

The AEMC report predicts the yearly increase in electricity price, averaged over three years from July 2015, will range from zero change in VIC to 6.2% in WA. Figure 2 below shows the yearly growth for each year reported. This means that the payback period for GCB systems will continue to reduce, but as Renew Economy included in its article on the UBS Utilities Sector Report in September 2015, lithium-ion battery systems are not likely to achieve

economically viable payback periods, i.e. 5 to 6 years, until 2020. So for now, we assume that those people installing GCB systems are the ‘early adopters’ who want to avoid any sudden spike in electricity price or are strong supporters of renewable energy.

Trends in residential electricity prices according to AEMC

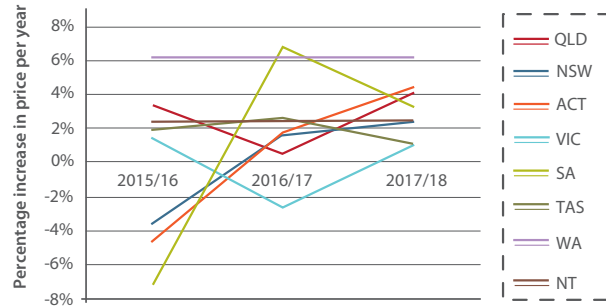


Figure 2: Trends in residential electricity prices according to AEMC 2015 report. <http://www.aemc.gov.au/getattachment/02490709-1a3d-445d-89cd-4d405b246860/2015-Residential-Electricity-Price-Trends-report.aspx>

Are we ready?

Training (available through GSES) and the new Clean Energy Council (CEC) guidelines are now available, but are installers and consumers ready? The advertising of new battery products has caused a great deal of interest and many installers have been inundated with requests for quotes. This seems like a good thing, but many consumers have unrealistic expectations regarding what can be achieved with batteries and for what price. Perhaps the greatest concern is that consumers may not understand the safety implications of having energy storage in their homes and businesses. Some advertising even gives the impression that battery systems are a friendly



addition that can be installed in your lounge room. Consumers need to be aware of the inherent chemical and electrical dangers of batteries and the safety precautions that must be put in place. See GSES' article, Hoverboards, fires and residential battery storage, for more information on batteries and safety. As is the case with all electrical work, installers need to make it clear to their customers what maintenance is necessary for the ongoing safety of the systems installed.

It is imperative that installers are ready for the responsibilities associated with GCB. During quality and compliance inspections conducted by GSES in the past year, instances have been recorded of inadequate safety precautions and installation methods that do not meet the manufacturer's instructions. GSES' article, Professional Development for the Energy Storage Industry: Who needs it?, outlines the importance of adequate training in order to achieve safe and reliable GCB systems. The article quoted also outlines the shortfalls of current Australian Standards in relation to GCB systems. However, a new Australia standard is currently being drafted. In the interim, in April 2016, the CEC released a set of guidelines for GCB systems.

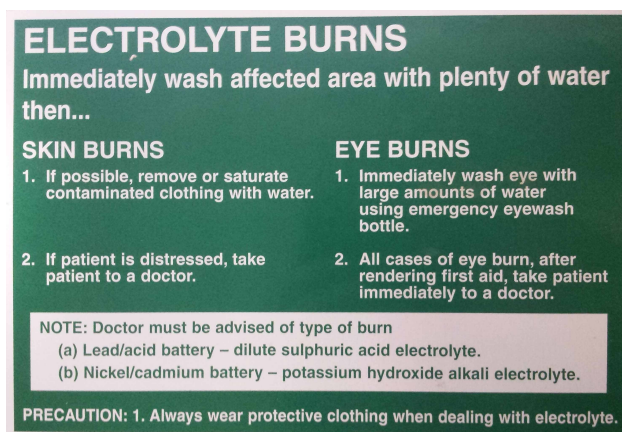
The way forward

A significant issue for installers of GCB systems is the lack of a definitive Australian standard specifically developed for grid connected energy storage or for new energy storage products, such as lithium-ion batteries. The current standards were developed predominantly for standalone systems with lead acid batteries. Industry representatives are currently drafting a new standard, which will fill this void.

The CEC accreditation for grid-connected PV system design and installation is now able to carry an endorsement for the design and installation of GCB. This endorsement is available through GSES, offering Grid Connected PV with Batteries courses in Sydney and in Brisbane.

Resources:

- [Future Energy Storage Trends](#)
- [UBS: Battery storage payback for solar households will be 5-6 years by 2020](#)
- [2015 Residential Electricity Price Trends](#)



GSES welcomes feedback on technical papers and other resources available on www.gses.com.au, please contact GSES by email at info@gses.com.au or by telephone on 1300 265 525.

Figure 3: An example of a sign required on battery installation for notifying users of the safety issues associated with the batteries installed.

