Policy Proposal: Open-access battery control for systems supported by the Cheaper Home Batteries Program

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Background: Simon Hackett is a successful entrepreneur operating in the Broadband Internet and Renewable Energy sectors. The policy proposed here is a consequence of issues discovered following his founding of a new company, Energy Autopilot Pty Ltd (energyautopilot.com. The company is developing a new Home Energy Management System ("HEMS") to enable intelligent home energy optimisation in a manner that is analogous to a conventional VPP, with the potential to yield better financial and operational outcomes for consumers.

The Cheaper Home Batteries Program currently requires that subsidised battery systems are 'VPP Capable'.

However, this requirement (as currently framed) is ambiguous. It allows vendors to certify 'VPP Compatibility' when the battery product concerned can only work with a single VPP. That single VPP is typically one designed by, and commercially advantageous to, the specific manufacturer concerned.

This ambiguity allows vendors to satisfy this 'VPP' requirement, and yet be able to lock customers in to a closed, manufacturer-designed ecosystem that advantages the manufacturer, not the consumer.

We propose that the Program requirement should to be improved in a manner that will allow consumers to have the widest possible choice of VPP (and 'VPP-adjacent') technical solutions to optimise the operation of their battery. By extension, this improved choice of control solutions will provide consumers with the best possible opportunity to sustainably minimise their home energy bills.

There are two ways that a battery system can be controlled (e.g. commanded to charge or discharge a battery) by a software control system (be that a "VPP", or any other home energy management system that can control battery operation):

1) Via a vendor-operated 'cloud portal'; *and/or*
2) Via control commands issued directly to the battery from software running on a device that is physically present on the same Local Area Network (LAN).

The latter approach (local control) is independent of Internet access issues (it does not send commands across the Internet). It is independent of potential vendor cloud software issues/faults/reliability. it also protects consumers from any potential vendor cost impositions for 'cloud access' in the future.

At present, consumers who buy 'VPP compatible' battery system will often discover (after installation) that they have a choice of just one VPP, that being a VPP nominated by and controlled by the battery system vendor, or commercially aligned with their interests.

To maximise consumer freedom of choice and to avoid some specific existential risks to home battery systems (as noted later), the Cheaper Home Batteries Program should, in our view, require the following commitments from vendors, in addition to the existing 'VPP Compatibility' requirement:

1) That the vendor shall allow the customer to choose *any* available and compatible VPP *or* Home Energy Management System (HEMS) to use with their battery system – that they are not locked in to just the vendor-specified choices of VPP; and
2) To guarantee this freedom of choice, the subsidised battery system must provide a documented, non-cloud-based, open access, zero cost mechanism through which any energy management software system can operate the customers' battery in accordance with their requirements.

Importantly, nothing here implies or requires *any* reduction in the existing capacity for vendors to offer and operate their existing proprietary VPP offerings. We are merely seeking to bring consumers the widest possible solution choice, extending beyond each battery manufacturer's specific (and often proprietary) commercial preferences.

This situation – and its resolution path - is analogous to prior 'consumer choice challenges', such as:

- The development of 'Right to Repair' mandates for consumer electronic, so that repair organisations other than the original equipment maker are allowed to repair equipment); and
- The mandate that allows consumers to choose any suitable servicing company to perform regular service on motor vehicles, rather than being forced to use the manufacturer's defined dealer network to do so.

This challenge – and the opportunity for improvement – is not new – as per this 2024 media article:

https://www.theguardian.com/technology/article/2024/jul/07/tesla-wont-free-up-use-of-its-batteries-in-australia-leaving-owners-unable-to-reap-full-benefits

The key take-away from that article is this:

> *"Batteries that do not offer their full performance via an open standards-based, non-cloud control port are too easily locked into a particular business model to the detriment of their owners," said Dean Spaccavento, the chief executive of Reposit Power.*

The fundamental principle here is clear:

If a consumer purchases a home battery, they should have the right to use any software or service that best suits their needs, for the active and ongoing operational control over the asset they paid for, rather than being locked into a limited range of operational choices that best suit the vendor of the battery system.

Consumers only truly own the product they have paid for, if they have full operational control over it, at no extra cost, and if that control is available for the full expected lifetime of the product.

[Our proposed wording for this new Cheaper Home Battery Program requirement is provided in Appendix 1]

The risks of *not* mandating open access control via the LAN for battery systems

There are existential consumer risks in the absence of implementing this proposed new Program requirement, as follows:

- Future proofing the continued function of battery systems

Dependency on vendor 'cloud' services to operate a device means that if the vendor cloud stops operating, the product stops operating, and literally becomes a 'boat anchor'.

This *has* happened before, and it *will* happen again. Please consult the real world examples in appendix 2

- The potential to impose substantial additional costs on the consumer to access and control the device they already own

Tesla, for instance, have introduced charges for the use of their 'consumer' cloud API (their 'Fleet API') by third party software.

- The potential to shut off 'control' by imposing new technical limitations, imposing cloud access punitive costs, and/or by constructive refusal to provide cloud access to companies seeking to innovate in ways that suit the consumer – but that do not suit the manufacturer.

The author has been refused access to the commercial (paid) Tesla battery dispatch control cloud service that exists to allow control of Tesla 'Powerwall' home batteries. This constructive refusal was not based on financial considerations: We offered to pay the fees they impose. Tesla politely refused our money, due to their clear commercial preference to exclude new market entrants from being able to control Tesla products.

Appendix 1: Proposed new conditions for the Cheaper Home Batteries Program

To ensure enduring consumer benefit from battery systems, vendors must commit to providing an Application Programming Interface (API) for the control of subsidised products with the following characteristics:

Provided free of charge for the use of system monitoring and battery dispatch control applications

Accessible via the customer Local Area Network (LAN) at the customer premises

Operates without cloud dependency: The API must function with no internet connection or vendor login needed

Documentation for the API must be publicly downloadable without Non-Disclosure Agreements or restrictive licensing conditions limiting its use

Supports full control of battery charge/discharge power at any level from zero to the maximum power capability of the battery system

Applies control commands promptly, with a defined maximum latency (e.g., ≤2 seconds)

Uses a defined communication standard, such as Modbus, MQTT, RESTful API over http, CSIP-AUS, or a documented 'plain text' serial control protocol

Provides real-time telemetry (≤1s update time) without cloud reliance

Provided in the defined timeframe to *all* Australian users of products that receive financial support under the Program

Maintains backwards compatibility for the design lifetime of the product, or supplies clear migration guidance with adequate advance notice if incompatible API changes occur

Made available via a free firmware update, available to all Australian customers using products that are recipients of Program support

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The '**defined timeframe**' we propose is 'no longer than six months'. Local control APIs are not hard to create and their presence does not conflict with existing 'cloud based' control mechanisms to operate the same equipment.

Appendix 2: Examples of product failures due to vendor failure or vendor decisions to end support

Redflow Limited, an Australian zinc-bromine flow battery manufacturer, appointed Voluntary Administrators

https://renewablesnow.com/news/aussie-battery-maker-redflow-goes-into-administration-866970/

The Administrators shut down the Redflow cloud based remote control and monitoring service almost immediately, and it remains shut down to this day. It is noteworthy that a local operating interface exists for this product, and that local control interface remains fully operational for customers, so that 'on site' management of these batteries remains fully operative.

Enel X abandoned the entire north American market for residential Electric Vehicle chargers

As described in this article:

https://goelectricave.com/en-us/blogs/news/orphaned-chargers-the-case-for-open-source-ev-charging-infrastructure

This decision by Enel X effectively 'bricked' all Enel X chargers across North America, resulting in consumers needing to buy new electric vehicle chargers.

Belkin, a major manufacturer of consumer electronics, decided to end support for their "Wemo" home smart energy control device product line:

https://www.theverge.com/news/705136/belkin-wemo-smart-home-support-ending-homekit-thread

Insteaon closed down their IoT product line, rendering customer devices inoperative:

https://www.wired.com/story/insteon-shutdown/