



23 September 2019

Department of the Environment and Energy
Commonwealth Government
PO Box 7876
Canberra
ACT 2061

Lodged by email: smartappliances2019@sa.gov.au.

Dear Secretariat

Consultation Paper: 'Smart' Demand Response Capabilities for Selected Appliances

Origin Energy (Origin) welcomes this opportunity to respond to the Commonwealth Government's consultation paper on 'Smart Demand Response Capabilities for Selected Appliances', August 2019.

The consultation paper proposes that all air conditioners, electric storage water heaters, pool pump controllers and electric vehicle chargers that are supplied or offered for supply would have to comply with the full range of demand response modes (DRMs) in either the relevant part of AS/NZS 4755 Part 3 or AS 4755.2.

While Origin recognises the benefits that can be achieved through an industry standard, we do not consider that the market is sufficiently well developed to select a standard at this stage. We are also concerned that the current Australian standard has several limitations that if mandated may hinder the uptake and use of demand response capable devices.

Context

Origin is actively developing demand response (DR) solutions ranging from the dispatch of large generators 'behind the meter' by industrial customers to trialling and scaling the co-ordination of small-scale devices, including batteries and air conditioners, in residential homes.

Origin acknowledges the benefits that can flow from adopting common industry standards, allowing for greater co-ordination and easier integration of a wide range of devices. In considering the need to move from proprietary to mandated standards it is important that the Government carefully assess:

- The different stages of development and characteristics of each the appliances being considered.
- The extent to which Australia is a "technology-taker" for many of the products being considered; standards must align and evolve with international conventions if Australia is to keep pace with technology developments.
- The limited functionality delivered under the current Australian/NZ standards and the impact this has on customer utility.
- The impact that the growth of battery uptake may have on the case for mandating DR standards.

These issues are considered below in relation to the key products flagged in the consultation paper for a mandated standard.

Electric Vehicles

Origin strongly supports the intent that electric vehicle (EV) chargers should be mandated as smart, connected and capable of demand response; and that common industry standards should be applied. A failure to establish a standard is likely to lead to the continued installation of 'dumb chargers' with an avoidable cost impact on network development and the wholesale energy market. However, the electric vehicle charging market has not matured sufficiently to determine and commit to a single standard for EVs.

Australia is a small market for vehicles and chargers supplied by international providers. It is therefore critical that any standard adopted in Australia is consistent with international standards.

To properly manage the impact of EV charging on the wholesale energy market, network investment/operation, and customer preferences requires a much greater level of sophistication than the five Demand Response Modes proposed. For example, optimising vehicle charging needs to consider the loads across multiple chargers in a locality as well as the state of charge of a customer's vehicle and how soon they need to use it again.

We are broadly supportive of the comments provided by the Electric Vehicle Council in its submission and encourage the Department to work closely with the Council and industry more broadly to develop the right solution for EVs over time.

Hot Water Storage

We see limited benefit in mandating a standard for hot water storage (HWS) and note that most large, electric HWS appliances already operate in the off-peak period. The devices are usually controlled by electricity networks. We also note that smart meter relays can be used to adjust the timing of hot water heating. The application of AS/NZS 4755 is unlikely to provide additional benefit but will add to the cost of units.

Pool Pumps

We observe that most Pool pumps are already set up with timers to take advantage of lower off-peak electricity tariffs. We have observed that customers with a solar export load are already adjusting the timers on their pool pump controllers to run the pump during daylight hours to minimise solar exports and reduce their electricity bill. We consider that the practical value of a mandated DR standard will therefore fall well short of a theoretical estimate of potential.

Air Conditioners

The Demand Response Modes under AS/NZS 4755 are simple and limited (on, off, run at 50% or 75% capacity and 'turn on, store energy'). In our experience using the AS/NZS 4755 approach for air conditioning extracts the greatest demand response from those customers whose comfort will be negatively impacted most.

For example, a customer who has just arrived home will turn on their air conditioner (at full output) and their unit will respond to a 50% load command, even though their house is still hot. By contrast, another customer whose air conditioner has been running for some time, and whose house has already cooled, may have already dropped back to 50% load, limiting the opportunity for further demand response.

In terms of customer uptake and participation, the AS/NZS 4755 controlled device compares unfavourably to an 'Internet of Things' device that gives customers much greater control, including the ability to override external triggers. Our customer testing indicates that customers will prioritise comfort over cost and are reluctant to join a demand response program if they do not retain an 'override' capability.

Impact of Batteries on DR.

If there is widespread uptake of battery storage, then mandating demand response standards is likely to become less valuable. The battery in conjunction with solar will be controlled to reduce a customer's ongoing energy costs and provide network and wholesale support services. With the battery optimising the import/export ('time shifting') of energy, customers will be more likely to use their appliances as they wish to maximise comfort and utility.

Cost/Benefit Analysis

We welcome the inclusion of cost/benefit analysis in the consultation paper and have the following observations:

- In our experience the assessment significantly underestimates the cost and complexity of activating the DR capabilities.
- The consultation paper under-estimates the likely ongoing costs of operating and maintaining a fleet of DRED controllers.
- It is possible to use a customer's Wi-Fi network for DR applications. However, given the risks of interruption (eg customers changing passwords, unplugging their router, poor penetration through walls, etc) a more reasonable assumption would be to base costs on 4G communications.

We would be pleased to discuss our view of the costs of these services on a confidential basis.

Closing

I would be pleased to discuss our submission further and can be contacted by email (keith.robertson@originenergy.com.au) or on (02) 9398 1474.

Yours sincerely



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