9 April 2021

Submission by email to:
dem.smartappliances.@sa.gov.au

Subject: Proposed Demand Response Capabilities for Selected Appliances in South Australia and Proposed Amendments to Local Energy Performance Requirements for Water Heaters

We congratulate the South Australian (SA) Government on taking the lead in addressing emerging key issues as we continue the transition to a low carbon, distributed energy future.

We strongly support the intent and broad framing of these proposed reforms. Tighter and more sophisticated requirements that ensure appliances are Demand Response (DR) capable will ultimately benefit all customers by unlocking commercial financial incentives through emerging new markets and also assisting in emergency circumstances. This then helps to maximise the amount of DER which can be connected to the network.

We also recognise and support the pro-active approach being taken by the SA Government in pushing ahead with the early implementation in South Australia of the National Energy Ministers' decision to introduce DR capability requirements for air conditioners, electric vehicle chargers, pool pump controllers and electric resistive storage water heaters. This re-asserts South Australia's national leadership in this space and also sends a very strong signal to other jurisdictions around the country.

In particular we are very supportive of the proposal to remove the existing requirements and allow electric resistive water heaters with DR capabilities to be installed in South Australia in recognition of the energy market benefits that this will unlock.

However, while supporting the intent of the reforms, we think it is important that the reforms do not move at a pace at which the industry cannot keep up. The key concerns that we would like to highlight are:

- the need to ensure that we are not being too prescriptive and therefore locking out other opportunities to grow the DR capability in South Australia.
- the risk of having the solutions anchored to only AS4755 compliant devices, this effectively locks out other standards and could restrict the amount of DR that is able to be activated and also increase the lead time for it to become available.
- the requirement to support the AS4755.2 standard (wireless) for Air Conditioners and pool pumps, rather than allowing compliance via AS4755.3 (DRED), because it narrows the pathway to achieve the desired outcomes, as the appliance must natively support the functionality.

We also consider that there are some risks in having reforms such as this implemented through the legislative framework given the rapid pace of change in both appliance and Demand Response technology, and more broadly changes in the operation of energy markets in Australia. It would be good to have a mechanism in place that provides a more flexible, outcomes-based pathway to ensure that the requirements keep pace with changes in technology, standards, and energy markets.

SA Power Networks is supportive of smart loads and appropriate technical standards to enable flexibility of demand and generation that will be required in a future energy system dominated by variable renewable energy generation.

It is also important to recognise that there is no silver bullet solution to the current minimum demand issues being faced in the South Australian region of the National Electricity Market (NEM). The ability to successfully tackle these challenges relies on a suite of measures being implemented. Some examples of recent initiatives are:

- the **Enhanced Voltage Management program** recently completed by SA Power Networks that improves voltage performance for solar users across the network on a daily basis whilst also providing the capability to curtail approximately **300MW** of solar generation in emergency circumstances.

- the **Smarter Homes Regulatory changes** that ensured remote disconnect/reconnect capability for all new solar installed after September 28, 2020. This will see **150-200MW** of solar under control by Spring 2021.

The proposed reforms outlined in the consultation paper currently suggest that they will deliver **100MW** of additional load with DR capacity by 2030 which whilst significant will still only be a portion of the emergency response capability required. Given the size of the challenge outline by AEMO in its Minimum Demand report released in May 2020 it is important to ensure we are putting in place a framework that enables all of the options available to increase DR capability.

We believe it will be essential to consider the activation methods and parameters required to ensure the maximum amount of newly connected devices are capable of being utilised. To achieve this, we believe there will need to be facilitated discussions between regulators and key industry stakeholders.

With this in mind we consider that amending some aspects of the proposed approach would assist to simplify, smooth and de-risk the implementation thereby maximising the likelihood of achieving outcomes in the best interests of South Australian electricity consumers. We consider there are some strategic options that could be further considered as part of the implementation of the changes as proposed in the Consultation Paper that could provide a more timely and broader benefit to consumers. In summary, we propose:

- An outcomes-based approach that enables some flexibility in the means in which the response modes are achieved. For example:
    - For **certain solutions to be deemed** to be compliant even if they do not meet the proposed appliance registration framework on the basis that they achieve the outcome of delivering more demand response capable load.
    - **Reconsidering the mandatory requirement to support the AS4755.2 Standard (wireless) for Air Conditioners and Pool Pumps** because it narrows the pathway to achieve the desired outcomes as the appliance must have the functionality in-built i.e. functionality delivered via DRED will not meet the requirements.
    - **More closely aligning the framework with the IEE2030.5 communication protocol** that will play an increasingly critical role in how inverters but also DR capability is controlled and remotely activated.
- **Clarifying roles and responsibilities:** There needs to be more clarity about how the increased DR capacity will be activated and managed within the network.
- Entering into a more in depth **ongoing structured conversation with industry** about what is realistic and achievable, and the reforms that would lead to the greatest activation and optimisation of the DR capability from new and existing appliances.

Below we have provided some additional information about each of the suggestions outlined above

Deeming some additional solutions

We think there is merit in having a process in place for deeming certain solutions that can provide a meaningful increase in the DR capability immediately.

The most relevant example would be for Hot Water wired through a smart meter with a remote connection through the contractor with a DRM0 setting. Deeming this as a solution would allow for immediate utilisation of newly installed Hot Water. Given the right incentives this could even apply to existing Hot Water which represents hundreds of MW of existing resource.

Use of AS4755.2 Standard only for Air Conditioners and Pool Pump controllers

We suggest reconsidering the mandatory requirement to support the AS4755.2 standard (wireless) for air conditioners and pool pump controllers because this requires the devices to natively support the suite of capabilities, which narrows the potential pathways to achieve the desired outcomes and presents a barrier to innovation in DR capability activation. A more flexible, outcomes-based approach will enable the take up of other effective solutions such as **cloud platform providers and DRED providers**. These could deliver more DR capability in a much quicker timeframe.

The following wording is included in the Electric Vehicle charging section:

> *"or an equivalent international standard, if an Equipment Energy Efficiency Committee (E3) technical working group determines by mid-2022 that there is one that provides equivalent capabilities to AS 4755."*

We suggest as a minimum including similar wording in relation to Air Conditioners and Pool Pump controllers.

The work we have recently done with technology providers through the implementation of the Smarter Homes program and we are currently undertaking on the ARENA Flexible Exports Trial has reinforced that there is still a wide range of technology development underway. It is not yet clear to us what form this technology will take and moving forward it could be that this will involve in built Wi-Fi activation in appliances but there may also be a significant role for cloud platform providers and DRED providers. If this is the case it would seem that keeping some flexibility for these solutions to be a part of the DR framework would make sense as it could be that these sort of solutions become the gateway device for managing a range of appliances within a household.

We also think it is important that these reforms ensure that appliances can be integrated with **Home Energy Management Systems** that are increasingly likely to be the mechanism that is used to communicate with utilities using the IEE2030.5 communications protocol.

Roles & responsibilities

The control of additional MW of Demand Response capability on the distribution network requires significant consideration so as to manage the risk of unintended consequences on the distribution network or broader system security.

We believe that as the Distribution Network Service Provider (DNSP) this role and the associated accountability should sit with SA Power Networks, given our need to ensure the continued integrity of the distribution network whilst also meeting AEMO's requirements to maintain system security. We think this would be consistent with the approach taken to both underfrequency and rotational load shedding and with the role that SA Power Networks has in coordinating the activation of all the Relevant Agents in the Smarter Homes program, effectively all emergency activation best sits with the DNSP. We consider this should be clearly dealt with in the reforms.

It will also be important to consider the system security benefits – and risks – of much greater activation of responsive load on the system, and how the activation of appliances for system security would interact with other measures such as the Smarter Homes regulations. We'd welcome the opportunity to engage with the government on this in due course.

Ongoing engagement with Industry

Announcing and implementing a more in depth ongoing structured conversation with industry about what is realistic and achievable, and the reforms that would lead to the greatest activation and optimisation of the DR capability from new and existing appliances. Using an outcomes based approach, it would be good to establish a dialogue with industry regarding what would best enable/incentivise the latent DR capability to be actively enrolled in a scheme. Otherwise, we may end up with reforms that lead to lots of latent DR capability that is technically available but not functionally implemented

We would welcome further discussions with the SA Government in relation to our submission. In the first instance, please contact Bryn Williams at bryn.williams@sapowernetworks.com.au or on 0416 152 553

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