

Appliance and Building Energy Efficiency Branch

Department of the Environment and Energy

GPO Box 787

CANBERRA ACT 2601

By email [smartappliances2019@sa.gov.au](mailto:smartappliances2019@sa.gov.au)

23 September 2019

**Subject: Consultation Paper, 'Smart' Demand Response Capabilities for Selected Appliances**

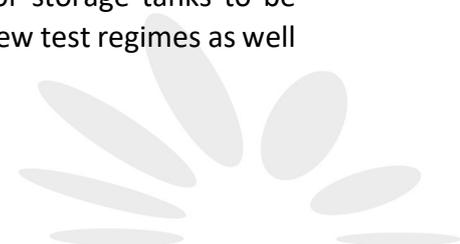
Thank you for the opportunity to comment on the consultation paper issued in August 2019.

Chromagen Australia is a major national supplier of Hot Water Systems (specialising in solar and heat-pump systems), Photovoltaic (Solar Power) systems and Airconditioning systems. We supply systems direct to new home builders and within the retail market as energy efficient replacement units.

When considering the Consultation Paper as outlined we have concerns over mandatory product suggestions, the take up rate of existing trial schemes and the customer's ability to select involvement. While the premise is to provide DNSP's with increased network stability and reduce infrastructure costs, these cost burdens, in what is outlined to be a voluntary scheme, would be pushed onto manufacturers and consumers whether they choose to participate or not. Although this is only a Consultation Paper, we would like to be continually involved in the process as there is a long way to go.

Chromagen has the following comments regarding specific points detailed within the Consultation Paper

- Mandatory controls and smart logic for Electric Storage water heaters will have little impact during peak periods as the majority of larger systems are connected to off peak power and operate outside of the normal peak. The only advantage is in the case of DRM4 to store energy, but further studies would need to be undertaken to assess the effectiveness of this as the energy required to top up many systems may be negligible during Summer, when most of the peak demand issues occur.
  - Existing test methodology may not be appropriate for storage tanks to be heated past the current levels and this may introduce new test regimes as well as other unforeseen market costs not yet considered.



- Ripple control technology could be used without major costs or infrastructure changes to turn on these off-peak supplies at times of network over-capacity without exceeding the current test limits. The thermostat will turn off the element once temperature is reached and will not put undue stress on any components or tank linings.
- Chromagen believe that in the case of electric storage hot water systems any additional costs would be better spent on higher efficiency products and eliminating many of the current products on the market via mandated minimum performance levels. Heat pump hot water systems for example are a much better option with similar installation costs to traditional electric storage cylinders. The addition of logic control to what is essentially a “dumb” device will add substantially to the cost of manufacture, early estimates are well over \$200-250 per unit just in manufacturing costs. This Brings the electric storage tanks into a price range where mass produced heat pumps (which are logic controlled, smart appliances) could be produced for not much more and the gradual introduction by 2025 of DRM can be implemented into existing smart appliances. Electric storage tanks in excess of 50 litres should be restricted to individual site approvals and defective or aged units can already be replaced for similar costs with existing products of higher efficiency. Mandating efficient appliances would potentially be more beneficial and removes the optional participation issues.
- High power draw electric instantaneous units (often 28kW) are readily installed to meet the demands of unit developments. A block of 30 units all running water at 7am for showers would be  $28 \times 30 = 840\text{kW}$  of instantaneous draw or the equivalent of over 400 2kW solar backup elements, just to keep building costs down. These should also be minimised in domestic dwellings to reduce instantaneous demand.
- The low up take in existing schemes (forecast to be between 15-35% by 2035) and the option for consumers to leave the schemes may result in increased up-front costs for 65-85% of the remaining market for the same products marketed today with the additional costs of a smart interface. Unless the consumer chooses to connect this interface and first participate, then remain in the scheme there would be no benefit.
- Replacement of existing systems in the future may result in disconnection and failure to reconnect any fitted DRED device which could then incur an additional call out of \$120-140 for reconnection.
- Change of property ownership may create an issue as the new owner would need to enter into a contract with the DRSP. The DRSP operating devices on their behalf without a valid contract may result in action against DRSP.
- As costs for the increased price of systems would rise, any costs for supply, installation and connection of DRED devices would need to be borne by the DRSP and factored into market costings to make the scheme attractive. It is unlikely that consumers will pay additional for the smarter product and then pay for a DRED, which may be perceived as a lower level of service, without a fast payback of these additional costs

and future saving potentials would need to be well presented to outline this in any DRSP contract offers to consumers.

- Implementation costs for manufacturers are unlikely to be within the outlined costs in the paper and in some cases substantial certification costs for testing would be incurred to bring the required new products to market. These costs are upwards of \$20,000-\$50,000 per product family depending on specific requirements and do not include R & D for product development. Costs which undoubtedly will be passed onto consumers in the purchase price of new compliant smart products.
- We question if AS4755 is the correct pathway to get to the desired outcome. Further case studies should be undertaken to determine whether hot water system DRM will help reach the desired outcome as all of the modelling is based on air conditioning units. The use of HVAC equipment for comfort is very different to affecting peoples hot water supply.

Smart home technologies and efficient, integrated appliances should be considered as a first line defence. With our increasing population, the rising numbers of Electric Vehicles, the uptake of PV etc grid events will only increase and the creation of a new DRSP market will only add another level of control and complexity that the market cannot afford.

The recent implementation of hybrid type power generators (with integrated batteries) may be part of the solution, allowing the batteries to charge fully when excess power is available and allowing rapid response when demand is high, but this is still an expensive option.

Should you require any further clarification of these points please contact me directly at [tim.ralston@chromagen.com.au](mailto:tim.ralston@chromagen.com.au)

Yours sincerely



Tim Ralston

