

## **SUBMISSION ON SMART DEMAND RESPONSE CAPABILITIES FOR SELECTED APPLIANCES**

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- We support making it a requirement that Smart Demand Response Capabilities are included on energy-intensive appliances. We fully agree that the integration of electricity supply, demand, and distributed energy resources are major concerns for managing the electricity network, and that building demand response capabilities into some energy intensive, but not time sensitive, appliances presents a sensible way forward.
- We agree that there should be a common standard for demand response capability in appliances, rather than a proprietary one that might both fragment the demand response (DR) market, and lock appliance users into contracts with specific companies. However we do not have sufficient expertise to judge the appropriateness of AS/NZS 4755 as the framework.
- We have the following technical concerns with the proposed standards from the consultation materials:
  - We note a special concern with electric water heaters in DR mode 4 (switching on during peak production events, and heating water above the standard set point). Scalding is a serious danger for both young children and elderly people, and even at the current settings many New Zealand households have tap water capable of severe burns in 30 seconds or less (Thompson, 2010). DR-capable hot water tanks should have an additional safeguard of an activation switch for DRM4 which can only be turned on by a plumber. Plumbers should be instructed to only allow the DRM4 mode when the specific system/tempering valves are set in such a way that extra hot tank water will not result in tap temperatures likely to cause scald injuries to vulnerable people.
  - We believe that households should be able to choose which DR-capable appliances in their dwelling are DR-activated (for instance a household with young children or elderly members might be willing for their EV charger to be DR controlled, but not accept the reduced environmental conditioning services on very hot or cold days due to having their heat pump DR controlled).

We are also concerned with the social aspects of the rollout of demand response technology, specifically:

- We support all enrolments in a DR control programme being voluntary.
- Many households in New Zealand are mobile – in the 2013 census, 22% of people reported having lived at their usual address for less than a year (Statistics New Zealand, 2019b). A household moving into a dwelling should retain the ability to easily opt into or out of both overall DR activation and specific appliance activation in a similar way to the household that originally installed the appliance.

- Many households in New Zealand now rent for a substantial part of their lives. In the 2013 census, 35% of households were living in a dwelling not owned by them or their family trust (Statistics New Zealand, 2019a). The tenants, not the landlords, should choose whether or not the DR-capable appliances in the household have DR activated.
- The rebate/payback programmes that DR schemes implicitly rely on to reward households with activated appliances should run on an incremental rather than annual basis to ensure that households who have accepted the chance of reduced energy services in exchange for the rebate receive the benefit, whether or not they move dwellings before a specific date.
- We note that the timeframe for the rollout the DR capabilities on heat pumps, with the suggested compliance date mid-2022, is potentially a lost opportunity. The compliance timeframe for the Healthy Homes Heating Standard for rental properties requires new tenancies to comply by mid-2021, and all tenancies by mid-2024 ("Residential Tenancies (Healthy Homes Standards) Regulations," 2019). Therefore, many rental properties may have a heat pump installed by the landlord within the next 2 years which will not necessarily have DR capability. There would be considerable benefit if the timeframe for compliance with Smart Demand Response Capabilities were accelerated.

Residential Tenancies (Healthy Homes Standards) Regulations. (2019). New Zealand Statistics New Zealand. (2019a). Tenure of household by number of bedrooms, for households in occupied private dwellings, 2001, 2006, and 2013 Censuses (RC, TA, AU) <http://nzdotstat.stats.govt.nz/> 3/9/2019

Statistics New Zealand. (2019b). Years at usual residence by age group and sex, for the census usually resident population count, 2001, 2006, and 2013 Censuses (RC, TA, AU) <http://nzdotstat.stats.govt.nz/> 3/9/2019

Thompson, I. (2010). The public health risks of hot tap water in New Zealand homes. Department of Public Health: University of Otago.