SUBMISSION ON SMART DEMAND RESPONSE CAPABILITIES FOR SELECTED APPLIANCES

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About myself – I have been active as a sustainability and consumer advocate in NZ since the late 1970s. In the first decade and a half of electricity reform, I was often chosen as a consumer representative; even went overseas to inspect Norway's nascent electricity market. Until about 2012 I was a member of several working parties each of which closed down as regulation became narrower and more "industry self-regulated". A few years ago there was an A/NZ electricity conference where your consumer regulatory advocate spoke; we have none. What was a Consumer Advisory Group is now an "Innovation and Participation Advisory Group" with no consumer representatives at all.

Questions for Stakeholders

Written submissions are invited on any of the material in this Consultation Paper, but particularly on the following questions.

1. Do you support the proposal to mandate compliance with AS/NZS 4755 for the nominated priority appliances? Please give reasons.

Yes. The cost increase of appliances will be very small in comparison to the full cost, whereas the potential of the new "chips" to improve what I call "technical efficiency" (contrasted with our regulators' preference for what they call "economic efficiency") should reduce costs to consumers and the environment.

2. a. Is there any viable alternative options for meeting the objectives of the proposal, apart from the BAU case or mandating compliance with AS/NZS 4755? - -
   b. Do you agree that including demand response capabilities on energy efficiency labelling and voluntary compliance with AS/NZS 4755 is not a viable alternative option?

Yes (b). Labelling and voluntary compliance simply won't affect consumers' choice – ANY price increase is likely to be rejectedby consumers in ignorance of the potential benefit to them and the environment. In general, the electricity industry gets a lot of benefit from passive consumer behaviour; they are may promote "smart appliances" in name, but not in action.

3. Do you support:
   a. permitting compliance with *either* AS/NZS 4755.3 *or* (DR) AS 4755.2? b. requiring compliance with all Demand Response Modes (DRMs)?

I don't know that detail. Many of the questions below are about industry knowledge – This submission is from a residential consumer.

4. Do you agree with the scope of the proposal:
   a. air conditioners: up to 19 kW cooling capacity;[70]
   b. pool pump-unit controllers;
   c. electric storage water heaters (excluding solar-electric and heat pump water heaters);[71]
   and d. charge/discharge controllers for electric vehicles (SAE Level 2 or IEC Mode 3).

e. If not, what products (or capacity limits) would you propose be included or excluded, and why?

I strongly support including PV controllers and battery controllers – these will be game changers in NZ. In future, possibly fridges and/ or freezers, but public concern about health from excessive defrosting would rule that out in the first instance. More important to get the proposed less health-sensitive appliances controlled early.

5. a. Do you have information that demonstrates the ability of so-called "smart home" devices and systems to achieve automated demand response for the appliances within the scope of this proposal? Is so, please provide this information and specify which particular "smart" devices? (Please be specific with regard to the capabilities you envisage for such devices or systems, and whether you would expect them to conform to any particular standards).

   b. Would adoption of proprietary "smart home" systems undermine the benefits of peak demand reduction into the future?

   You may not be aware that our Electricity Authority has a new and remarkable policy on peaks: they want to remove the peak pricing signal (after a transition period) on transmission prices, and expect distribution companies to more or less follow suit.

   Their argument [https://www.ea.govt.nz/dmsdocument/25465-executive-summary], page vii] is:

   > *"the current [peak] charge creates a very strong price signal that inefficiently discourages consumers to reduce electricity use at peak times, even though the grid has capacity for this demand, and encourages them to unnecessarily invest in technologies like solar panels and, in future, increasingly in batteries."*

   c. How many products currently on the market have the ability to connect to demand response programs? If so, which or what type of programs?
   d. Is there a risk that a mandatory AS/NZS 4755 standard may become obsolete as new technologies/innovative products achieve the same objectives without using AS/NZS 4755?

6. What is your estimate of how much complying with the requirement will increase the price of each product? If a product complies with DRM 1, are there any additional costs incurred for a product to comply with the other DRM modes? - -
7. Are the data and assumptions used in the cost-benefit estimates reasonable? Do you have information or data that can improve these estimates? - -
8. Do you think the estimates of activation rates and costs are reasonable? Do you have information or data that can improve these estimates? - -
9. Do you think the estimates of annual participant costs are reasonable? Do you have information or data that can improve these estimates? - -
10. Is lack of demand response capable products a barrier to the introduction of demand response programs for small consumers? Do you think that mandating demand response capability for these products will lead to their activation and to consumer enrolment in DR programs?

    I believe so, though concerns about privacy will be a very important barrier.

A strange and important report by Richard Meade to the Electricity Retailers Association gives his vision of automated DR. He just mentions privacy at the end, but during his presentation he discussed at some length the way that some companies will be happy to offer consumers big benefits- at the price of offering their data to other companies:

https://treasury.govt.nz/news-and-events/our-events/preparing-electricity-regulation-disruptive-technologies

11. It is assumed that the cost of communications platforms to support demand response and direct load control services will be low (e.g. through the use of existing electricity supply infrastructure such as ripple controls or smart meters, or general infrastructure such as WiFi or 3G/4G/5G). Do you agree? If not, can you provide estimates of the platform set-up costs?
12. What implications (positive or negative) would the proposals have for your industry, in terms of activity, profitability and employment?
13. What can appliance suppliers, installers and energy utilities do to facilitate customer enrolment in direct load control or demand response programs?

The barrier to smart DR, I believe, is fact that the regulator, the Electricity Authority is directly controlled by Market Participants, which include Major Electricity Users but exclude residential consumers. The Authority's remarkable position on peak load pricing quoted above indicates they support the industry's desire to grow their businesses at the expense of energy efficiency or competition from solar and batteries.

The Electricity Networks Association says solar and batteries are bad investments that are used by the rich to cut their power demand, leaving the poor to face higher and higher power bills. They and Transpower have run consumer focus groups putting the above position to consumers, and often reporting publicly that consumers support repeal of the Low Fixed Charge regulations. They don't.

14. Do you think the proposal would reduce competition among product suppliers, reduce consumer choice or lead to an increase in product prices (beyond what is expected to occur)?

I believe it would improve consumer choice (through rewarding DR). Unsure of the other issues,

15. If the measure is implemented, what is the earliest feasible date by which products could comply? How much lead time should there be after publication of the final requirements?
16. Do you consider that there are any major technical or functional issues related to the proposal? If so, how should these be addressed?
17. How should the changes in demand or energy during DR events involving AS/NZS 4755-compliant products be measured? What would should be the notional "baselines?" Is the estimation of baselines more or less reliable than for other DR approaches?
18. How will the proposal impact on electricity prices and energy network costs and investment requirements?

By enabling direct consumer participation (generally but perhaps not necessarily through an aggregator), I think active DR will give consumers the power to reduce their power bills. It has the potential to reduce both network costs and generation investment costs – but the corporates' desire to grow their assets will need to be addressed by the regulators.

19. Do you think that the effectiveness of the proposal depends on the implementation of more cost-reflective pricing, e.g. time-of-use (TOU) tariffs?

    The NZ industry's view of "cost-reflective pricing" is strange, all their policies are driven by what they call "economic efficiency", often at the expense of technical efficiency.

20. In regard to the regional aspects of the proposal do you consider that it would provide significantly more benefits in certain regions? If so which ones? Will any regions be largely unaffected? If so which ones? What causes these differences in impacts between regions?
21. (To electricity network service providers, electricity retail companies and DR aggregators specifically).

    a. Is it your company's intention to offer tariff or other incentives for customers to have demand response capabilities on the appliances in question activated and to participate in demand response programs? Are there any specific barriers (or lack of incentives) that would prevent your company from offering and promoting such programs?

    b. Would you offer tariff or other incentives to customers to participate in demand response programs using "smart home" device functionality? (if so, please specify the type of functionality/ies). Are there any specific barriers (or lack of incentives) that would prevent your company from offering and promoting such programs?

    c. In your opinion, what proportion of householders with appliances with the above type of "smart home" device functionality/ies will participate in demand response programs? Do you have survey or other evidence to support your view?
    d. What would be the total MW of appliance demand response capability (or number of participating appliances) required to defer the need for network investment to manage peak demand in your area/s of operation?

22. In your opinion, what proportion of householders with AS/NZS 4755-compliant appliances will have the demand response capabilities activated and will participate in demand response programs? Do you have survey or other evidence to support your view?
23. (To consumer and welfare organisations). In your opinion, what measures should be taken to ensure that consumers are adequately informed of the potential costs, as well as the benefits, of entering contracts that enable the demand response capabilities on their appliances to be activated?

    Our Electricity Price Review (not yet reported on by Government) proposes a Consumer Advisory Council. This task should be taken up by that Council.

24. (To electricity market regulators). Do you consider that the regulatory arrangements provide utilities and potential DR aggregators with sufficient incentive to offer (or commission) small- consumer demand response as a means of reducing investment in supply-side infrastructure?
25. How do existing electricity market rules which enable and encourage DNSPs and TNSPs to invest in demand response programs impact on, or interact with the proposal?

    Transpower contracts with a small number of large electricity users, for demand response; this has proved very effective. I believe this is sometimes through a demand aggregator, and sometimes a direct contract with the relevant company. A small number of distribution companies also have very small DR trials. Of course ripple control was the original "DR"

system run by distributors; it is still maintained at least in the upper South Island and the central North Island, but has fallen off as the required equipment is not generally being maintained.

26. a. How would changes to electricity market rules (the Retailer Reliability Obligation and the wholesale market demand response mechanism draft determination announced by the AEMC) impact on or interact with the proposal?
    b. Would a new class of DR aggregators make use of AS/NZS 4755 DR platform? If so, why. If not, why not?

I believe they would, or should, use that platform as their primary means of contracting for DR.

c. Would the potential AEMC wholesale demand response mechanism be material to the benefits of mandating AS/NZS 4755 for the four selected appliances? Why or why not?

I think so,

d. Would the benefits of deferring investment in network capacity from the wholesale demand response mechanism changes announced by AEMC also reduce the network investment benefits attributable to mandating AS/NZS 4755?

27. Could an option for Government to require utilities or independent DR service providers to offer incentives, or have the Government fund these incentives, achieve the same benefits as the mandatory standard but at a lower overall cost to the community?

    Good question! New Zealand's tradition of "industry self-regulation" would preclude any such initiative. We would need to provide for a REAL regulator, for that to happen.

28. (To manufacturers and distributors of the products in the scope of this proposal). What percentage of the products you sold in Australia and in New Zealand in the last year:
    a. Meet the minimum requirements of the relevant part of AS/NZS 4755;
    b. Meet additional requirements (e.g. additional DRMs); and

    c. Comply with other published DR standards (please state which)?