

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

Email Submission by: Intelligent Automation

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

Yes. Compliance makes an even playing field in the commercial world. It also sets a standard for all communication and operational protocols, and Guarantees more potential load under control which further enhances the “chance of success” for load control signals. Peace of mind for end users and greater chance of success.

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?

Incentivizing is more important than mandating. If a genuine opportunity is created (something similar to carbon trading or STC) which can provide financial gain for parties involved, this would encourage adoption more readily than a purely mandated solution.

There are an increasing amount of home devices designed to monitor and control home power. An alternative would be to offer incentives for these OEMS or service providers to create a landscape that encourages new markets for these players to attract more customers.

Part of the solution requires consumers to be educated about demand response. What steps would be taken to provide adequate education to build mindshare amongst the community, similar to how batteries and solar have for the last 10 years, and seen as accepted solutions in the market place?

- 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, demand response is not really an energy efficiency metric, it may confuse customers into thinking this if the labelling was included as part of this. A separate labelling scheme should be considered. The actual benefits to the consumer come from combining a DR device with tariffs that provide some sort of cost reduction (financial benefit) to the consumer.

3. Do you support:

- a. permitting compliance with either AS/NZS 4755.3 or (DR) AS 4755.2?

Yes, allowing for greater flexibility in DR capabilities will increase adoption. As long as this allows for HEMS type devices to make “normal” devices DR compatible.

b. requiring compliance with all Demand Response Modes (DRMs)?

NO this is unnecessary financial cost, just a subset is fine as all DR modes may not fall within the operational characteristics of a device. Should allow for On (DRM4) and Off (DRM1) as a minimum though.

4. Do you agree with the scope of the proposal:

a. air conditioners: up to 19 kW cooling capacity;

b. pool pump-unit controllers;

c. electric storage water heaters (excluding solar-electric and heat pump water heaters);

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?

There should be no limits to the type or size of the appliance proposed for demand response or 4755 compliance. Alternately it's the end user decision be it financial or beneficial.

Increase the scope to any devices, especially if 4755.2 compliant. This will open up the market for more and more smart devices and more opportunities for load control, enhancing even further the effects of making a DR call.

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? If 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).

We have completed a 12 month trial for Energex, that utilizes a HEMS device to propagate DRM calls to household appliances. The trial was successful in that we have received our peak smart compliance and are preparing to go to market on this premise. Our device receives the DRM control signal by the Energex "ripple" method, but is also able to receive signals by IP communications – which we have developed to be based on 4755.2.

For the results of our trial, See attachment Energex trial report and AEMO presentation.

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

While this would be a decision made by the end user for financial or beneficial reasons. Price driven load control being proprietary or not would still contribute to a lower peak demand.

We would ultimately achieve the same end-goal if there was adequate government incentives or an appropriate market that could be setup to ensure there is a benefit to customers and the DR service providers. This would encourage further adoption and provide competition, As long as they all use the same protocol (4755.2 based) which would ensure that the overall load shaping requirements of a region are being handled as a whole.

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?

Only to our knowledge Energex's peak smart devices. In which our product the Gswitch has now been certified as a smart control device and can be used in conjunction with tariff 7300.

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?

There needs to be a common protocol in order to extract the most gains for load control. Allowing OEMs and service providers to setup their own stand-alone implementations would reduce the overall effectiveness of DR but also create competing "load networks" that will become a nightmare for all parties to support.

4755 is crucial to this, as long as it only dictates the protocols and minimum requirements and allows ANY device to comply.

Success can only be achieved by allowing as many devices as possible to participate, the current standard is only valid for a select type of appliances which fails to address load control opportunities for future devices. The current process has the danger of becoming obsolete since each new class of device needs to have its associated standard (which can 12months or more), a common, protocol-based standard should be setup that applies to all types of products.

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?

While there is an underlying cost to add DR capabilities in the first place, it should become increasingly small as more and more devices are already offering network capabilities.

Complying with minimum (1 and maybe 4) should not be too much of a burden since its simply asking a device to either turn On or Off (effectively). However, implementing other DRM modes may take considerable more effort (and cost) if the operating profiles for the device does not readily fit into what each DRM requires.

7. Are the data and assumptions used in the cost-benefit estimates reasonable? Do you have information or data that can improve these estimates?

No comment

8. Do you think the estimates of activation rates and costs are reasonable? Do you have information or data that can improve these estimates?

Activation cost will be relevant to the amount of data and cloud space needed to secure access to the end users appliances.

Contract with the customer to secure access to their internet.

Demand response aggregators or RA must get access to the wholesale market.

Volume is needed to reduce cost

“These are estimated at \$20 per activated appliance per year”. This is a reasonable amount.

9. Do you think the estimates of annual participant costs are reasonable? Do you have information or data that can improve these estimates?

No comment

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?

The problem is a lack education. The need to control load for the purpose of local energy consumption can result in a ROI eg (solar soak) and in turn, external load control can be enabled. There is no need to mandate demand response but to educate and give a ROI either on DR events, or wholesale price enabled systems.

Education is the key – but more incentives are required. Consumers are ALWAYS seeking a way to reduce costs or to “earn” money. There needs to be more variety of products, where even for small loads – as a household combined, could add to the % of load control available.

The standard needs to apply to ANY products, and encourage competition between RAs. A consumer should also NOT be restricted to a single RA, allow them to form agreements with as many as they desire – but this requires a “determination” and priority framework to be established.

Are you aware of HEMS devices that enable DR capabilities for devices currently without DR functions. This would open up many more opportunities to enable DR for many product types (including retrofit options)

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?

It can be low if existing infrastructure is utilized. However – the costs are dependent on whether the device is taking advantage of the customer’s infrastructure or if the service provider has to provide their own.

If the service provider has to provide their own, then the costs can significantly increase as the cost per megabyte for mobile data is still relatively expensive in Australia. While OK for simply passing along DR commands, anything more “advanced” such as remote data logging or reporting may become cost prohibitive. Thus, the cost will need to be passed to the consumer within some sort of subscription model.

Also, if the customer’s infrastructure is used (low cost) then it should also be understood that this may reduce reliability. Customer specific issues such as firewalls, load usage (streaming movies etc), router incompatibilities and even the quality of some customer grade internet connections can affect the overall reliability of comms to the DR device.

Due to the inherent requirements for constant communications, there is an overhead to offer a continuous, quality service for DR requests. Will DR calls that protect the network integrity, offer rebates that also cover the overhead of 3G (or other) communications on the device.

12. What implications (positive or negative) would the proposals have for your industry, in terms of activity, profitability and employment?

It would be positive as it would increase the requirements to have a 4755.x enabling device if this becomes mandated.

Positive, employment not only of internal staff but contractors to do installation work.

13. What can appliance suppliers, installers and energy utilities do to facilitate customer enrolment in direct load control or demand response programs?

Offer more incentives and be more creative in tariff options. Or no tariffs at all and provide access to the wholesale market to increase the value proposition to the customer.

All DR devices must provide some sort of financial gain to the consumer, simply providing benefits for network stability will not be enough to convert the masses.

Solar was incentivized by FIT, something similar should be done to create a market for consumers to want load control devices.

Permit installation of customer DRED controlled network load devices on meter panels, this would reduce installation time and cost.

Work in conjunction with metering providers for direct access to real time metering data and their 3g network.

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)?

It would lead to an (initial) increase in costs, but should be absorbed easily down the line if applied to all their products. The key is to ensure that a common protocol is being used by everyone so the devices can fit into any DR "system" and ensures future-proofing so there is a constant on-going cost to keep up to date with the standard.

DR is not differentiating enough to affect the already (inherent by nature) competitive stakes present between manufacturers. Creating a standard simply puts everyone on a level playing field (should they wish to take advantage of it) and even allow smaller manufacturers to differentiate themselves.

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?

2 years should be sufficient, especially for 4755.2 since networking hardware and software stacks are readily available.

16. Do you consider that there are any major technical or functional issues related to the proposal? If so, how should these be addressed?

No foreseeable technical hurdles seen as long as the full range of DRM modes are not expected to be handled. It should be a minimum of ON and OFF calls.

17. How should the changes in demand or energy during DR events involving AS/NZS 4755- compliant products be measured? What would be the notional “baselines?” Is the estimation of baselines more or less reliable than for other DR approaches?

The best outcome would be to have a device that can also measure GIP, a point where overall household consumption is measured. This allows the measurement of the overall effects of the DR event, combining the affects of all the different load controlled devices on the household.

If “real-time” measurement is not required, then access to metering data would be the best option.

If on-device measurement is enough (it may have to be), then a baseline needs to be established, being the “idle” operating profile of the device. This should be manufacturer/model specific and should not be an estimation – it should be very specific as power usage is already a metric on many household devices now. The effectiveness of the DR event needs to be measured as the deviation from this baseline to the required level (according to the DR event)

In order to lower costs, access to reading data from the meter would greatly simplify the setup of a product. Have you considered allowing for a standard method of data collection from the meter? To allow such devices to directly measure their effects on power usage throughout a DR event.

18. How will the proposal impact on electricity prices and energy network costs and investment requirements?

It should effectively reduce all of the above. While electricity prices may not change per kWh, by providing incentives to pay the customer for DR events should effectively reduce the customers electricity bill.

Network charges should decrease, as more and more DR devices come online – power can be “shared” in localized groups and better utilized. Using DR to protect network integrity should also decrease maintenance costs.

For all of this to be effective, a large, distribution method to issue DR events needs to be established. Using ripple is reliable but limited, both in granularity and types of DRs that can be called. This would require investment for service providers to create this “DR messaging network” – if such costs are to be invested to create the network, then it is essential that a common standard be mandated (4755.2) and applies to ALL types of devices.

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?

Yes, there must be a way to incentivize the customer (maybe lower network charges) or a move to wholesale pricing.

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?

Places where solar is abundant can take advantage of certain types of DR events. Hot places also may fare better as turning off (or reducing) air-conditioning does not usually result in life threatening scenarios.

However, colder climates – where events such as turning off heating may cause severe distress for users. In this case, certain load restriction events may not be welcome.

Have you considered different levels of incentives for regions where DR events have different levels of impact? Eg: extreme cold climates where DR events to turn off heating (for example) could create distress for occupants.

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?

Yes, but tariffs are the biggest barrier since there needs to be a customer incentive to accept this change

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?

Yes, value-sharing from DR event "payments". The barrier to offer such a scheme would require tariffs to be aligned or opened up to the wholesale market. There also needs to be a national "market" where trading "DR" based load potential becomes a commodity that can be traded.

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?

Customers will participate if given an incentive. The Energex peaksmart program demonstrates this, a once-off rebate was enough to encourage 70k users! If further incentives (such as a type of "controlled load" payment) as an on-going payment or cost reduction to the customer is setup, this would definitely increase market participation.

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?

Demand response costs and incentives should be kept as a separate component of any contract. I.e. The numbers should not be hidden or combined with other charges. This allows the consumer to know what their current (normal) charges/rates will be, and then in addition – what the DR related costs/benefits are. This would also help to sell DR, as it becomes transparent on any bill or contract what DR is doing for the customer (in a financial context)

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) smallconsumer demand response as a means of reducing investment in supply-side infrastructure?

No comment

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?

No comment

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?

This should encourage adoption. By requiring retailers to have a mechanism ensures that they must explore avenues for this mechanism. The key is, how does the retailer trigger the DR event?

b. Would a new class of DR aggregators make use of AS/NZS 4755 DR platform? If so, why. If not, why not?

Yes, but the platform must follow a common standard that all service providers can follow and utilize. It must also apply to ALL devices, not just the scope of the proposal. DR aggregators must also have a compensation model that is not extracted from the consumer only. There should be an (additional) opportunity to obtain monies from a government organization for load control services.

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?

No comment.

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?

No comment

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?

Incentives will always be more effective than a mandatory requirement. Incentives encourage more innovation and creative solutions and will drive up-take by consumers – creating new markets that take advantage of DR devices.

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)?

The Gswitch meets the full requirements for the 4755.3.5 standard. We are also part of the 4755.2 process and have thus designed our communication protocols to meet the requirements of 4755.2

Will devices that conform to more DR modes for the standard be considered to provide more value? And will that be reflected in the value of incentives offered?

We believe that at this moment there are no cost effective tariffs that will have a take up of demand response products. The net worth of demand response smart appliances for the network should reflect in distribution network charges.

We see that secondary tariffs with ripple control will inhibit and obstruct the triggering of signals for effective control of the DRA.

Currently we are trialing a new retail product where the end user has access to wholesale, paying in 30 min interval spot pricing, and using the HEMS to automate on price signals. This gives greater value to the network as not only the automated appliance controlled but it also changing behavior.