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Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Dear Commissioners

Submission to the Power of choice, Directions Paper (REF: EPR0022)

The Consumer Action Law Centre (**Consumer Action**) welcomes the opportunity to comment on the Australian Energy Market Commission's (the **AEMC**), *Power of choice: giving consumers options in the way they use electricity, Directions Paper* (the **Directions Paper**).

About Consumer Action

Consumer Action is an independent, not-for-profit, campaign-focused casework and policy organisation. We provide free legal advice and representation to vulnerable and disadvantaged consumers across Victoria, and are the largest specialist consumer legal practice in Australia. Consumer Action is also a nationally-recognised and influential policy and research body, pursuing a law reform agenda across a range of important consumer issues at a governmental level, in the media, and in the community directly.

We also operate MoneyHelp, a not-for-profit financial counselling service funded by the Victorian Government to provide free, confidential and independent financial advice to Victorians experiencing financial difficulty.

Introduction

Consumer Action supports the development and introduction of Demand Side Participation (**DSP**) measures in principle but we are of the view that this Directions Paper overemphasises the role of pricing to achieve DSP outcomes. We do not believe there is a silver bullet, i.e. price signals, to increase DSP in the domestic energy sector and we encourage the AEMC to maintain an equal focus on other measures to curb or shift domestic electricity demand. This submission firstly provides comments on the evidence for drivers of demand and forecasting assumptions, followed by a discussion of how households use electricity. It recommends non-price based solutions (such as Direct Load Control (**DLC**) and education campaigns) and outlines why we believe Time of Use (**TOU**) pricing for domestic consumers is not necessary to achieve demand side response. Finally, it discusses a price-based option to TOU and comments on other issues such as incentives for the network businesses and challenges relating to supply chain interactions.

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Drivers of demand

Consumer Action finds the evidence presented for drivers of peak demand largely convincing. We do note however, that the data regarding recent growth seems to vary between different sources.

The AEMC states:

> "Since 2005, average demand has grown by around 0.5 per cent, while peak demand has grown by around 1.8 per cent".[1]

At the same time, it acknowledges that recent revised data from the Australian Energy Market Operator (**AEMO**) shows that the growth in demand is slower than anticipated in the 2011 Electricity Statement of Opportunities (**ESOO**).[2] The revised ESOO states that both total demand and peak demand growth have decreased:

> "The changing economic landscape, a more energy-conscious public, the impact of rooftop solar photovoltaic installations and milder weather have all contributed to lower than forecast annual energy across Eastern and South Eastern Australia.
>
> Both annual energy and the forecast maximum demand have decreased since the publication of the Electricity Statement of Opportunities (ESOO) in August 2011.
>
> The drivers behind this change vary from State to State. This ESOO update includes revised forecasts for maximum demand.
>
> Extreme hot or cold temperatures have a dramatic effect on maximum demand and the mild weather to date has meant maximum demand has not reached the same level as it did in the summer of 2008-2009. AEMO forecasts show maximum demand is growing, but at a slower rate than what was published in the 2011 ESOO."[3]

The revised ESOO states that annual energy demand has reduced by 5 per cent across the National Electricity Market (**NEM**) compared to 2011 forecasts.[4] The revised statement did not include new figures for reduced growth in peak demand (just stating a decrease) but this will be published in AEMO's 2012 National Electricity Forecasts Report and the 2012 ESOO (to be released in August 2012). The revised forecasts should be able to inform this AEMC review, as we understand the final report is scheduled for September 2012.

An article by Alan Pears in August 2011 (titled "Powering down: has Australian electricity consumption hit its peak?") observed:

> "A number of recent reports have documented an unprecedented decline in electricity

[1] AEMC, *Power of choice – giving consumers options in the way they use electricity*, Directions Paper, March 2012, p 8
[2] Ibid, footnote 17
[3] AEMO, *Electricity Statement of Opportunities 2011*, Update as at 2 March 2012, p 2
[4] Ibid, p 5

consumption. The Australian Bureau of Agricultural and Research Economics, in its 2011 Energy Update, shows a decline of 5.4% in 2008-09, followed by a 1.2% decline in 2009-10.

Ausgrid has reported ongoing declines in NSW electricity consumption".[5]

The article raised questions about this being a "blip or a trend" and speculated about reasons for the decrease, including the rating scheme for the commercial building sector, online shopping, domestic energy efficiency, more efficient appliances, the upcoming ban on off-peak electric hot water in new homes, reduced hot water consumption, smaller homes, solar power, more efficient street lights, the Global Financial Crisis as well as an increase in electricity prices. The article warns:

> "[T]he traditional electricity industry will face increasing uncertainty and risk of building assets that may no longer be needed in a few years. Costly decisions could be made, as large power stations and powerlines take years to plan and build, and a long time to recover their costs".[6]

We agree that an expansion in power stations and powerlines could prove to be a costly and avoidable policy. However, we also note that drastic DSP solutions may produce similar outcomes, albeit clearly on a smaller scale. Consumer Action caution against rushed and costly responses and believe low-cost options (i.e. education campaigns), as well proven technology (i.e. DLC) should be prioritised due to data uncertainty.

Although we recognise that demand changes with the broader economic climate and that a dip in demand might not justify inaction, we do believe a thorough and critical examination of the data is required, especially in relation to peak demand, to ensure that we do not end up responding to yesterday's problems—at a further cost for end users.

In particular, we caution against sweeping statements where consumers are considered to be one homogenous group that will collectively benefit. Ernst and Young was commissioned by the AEMC to produce an analysis of the rationale and drivers for DSP in the electricity market for this review and it states:

> "In terms of benefits to customers, DSP initiatives can potentially:
> - Result in smaller electricity price increases as a result of deferring or avoiding additional investment in electricity supply infrastructure.
> - Reduce average prices over time by increasing asset utilisation.
> - Offer customers greater control over their energy use and ultimately their energy costs".[7]

[5] Pears, Alan: *Powering down – has Australian electricity consumption hit its peak?* 30 August 2011 at http://theconversation.edu.au/powering-down-has-australian-electricity-consumption-hit-its-peak-3044
[6] Ibid
[7] Ernst and Young, AEMC Power of Choice, rationale and drivers for DSP in the electricity market – demand and supply of electricity, 20 December 2011, p 6

Consumer Action notes that "customers" comprise of a heterogeneous group of end users with very different drivers, needs and consumption levels as well as patterns, and these differences transpire within the various classes of customers (i.e. residential consumers). Specifically, we would not support any *price based* DSP initiatives aimed at the domestic sector without a detailed consumer impact analysis. It must be recognised that price based initiatives do create winners and losers and we believe there are too many general "win-win" statements made in relation to these issues.

Evidence relating to drivers of peak demand

As the introduction of TOU pricing for domestic consumers is largely justified by data showing growth in peak demand, and especially due to the increase in number of air conditioners, these data sets must be carefully considered. We are concerned that the data required to provide reliable evidence and forecasting of peak demand growth has not been obtained. As stated in the Directions Paper:

> "Our consultants were unable to provide data on the relative share of peak demand across the different sectors. We note that anecdotal evidence from distribution network businesses appear to support the hypothesis that peak demand is largely driven by the residential sector. Ausgrid estimate that their small customers contribute 64 per cent of the winter peak demand and cite residential customers' activity as a key contributor to overall peak demand, including their use of air conditioning and behaviours such as returning home from work to cook dinner. DNSP regulatory proposals to the AER also indicate that residential use of appliances and air conditioning is significantly contributing to peak demand".[8]

Furthermore, the Ernst and Young paper states:

> "In summary, the experience of DNSPs appears to support a hypothesis that the network peak is driven by residential peak demand factors… The rapid uptake of air conditioners in residential dwellings is noted as a principle driver of peak demand growth across networks in the NEM and a major driver of capital expenditure. Penetration of air conditioners in new dwellings in Australia currently stands at 60%, however this figure is well below some regions, such as in Queensland and South Australia where approximately 76% and 90% respectively of houses are air conditioned (in many cases with multiple units installed)".[9]

While Consumer Action understands that the network businesses will be the entities with the most data and information on peak demand, we note that they also act as an information source and are of course able to filter the information to their advantage. We are not accusing any of the distribution businesses of actually providing misleading data, but we do recommend that the AEMC sufficiently scrutinise the data and information provided.

[8] AEMC, *Power of choice – giving consumers options in the way they use electricity*, Directions Paper, March 2012, p 12

[9] Ernst and Young, AEMC Power of Choice, rationale and drivers for DSP in the electricity market – demand and supply of electricity, 20 December 2011, p 41

Finally, on the issue of reasons for peak demand growth and increase in air conditioners, Consumer Action notes the possibility of this growth flattening out. Clearly, electricity load analysis is not our area of expertise, but it would seem logical that if the uptake of an appliance has been dramatic over a long period (as per the Ernst and Young paper above, stating that approximately 90 per cent of households in South Australia already have air conditioners), then the uptake rate will not continue at the same level. That said, we do of course understand that many of these air conditioners will be replaced in the future, and that many households will opt for a larger unit (similar to the television trend), however we think it is also reasonable to assume that new appliances will be more energy efficient.[10]

The Ernst and Young report shows that the increase in electricity consumption due to air conditioners has been 158 per cent from 2000-2010 and the forecast growth from 2010-2020 is 31 per cent.[11] This supports our point that peak load, due to domestic cooling, will potentially flatten out in the future. While 31 per cent is still quite high growth rate, the Ernst and Young report also states that air conditioning will make up just 2 per cent of total forecast electricity consumption in 2020.[12]

Domestic energy consumption and load shifting

Consumer Action is supportive of DSP but we strongly caution against relying on pricing mechanisms to change consumption patterns amongst domestic consumers. Flexible pricing options such as TOU tariffs are very blunt tools capable of causing significant social harm. In addition, the capacity of TOU pricing to capture DSP benefits remain highly questionable (for reasons discussed below).

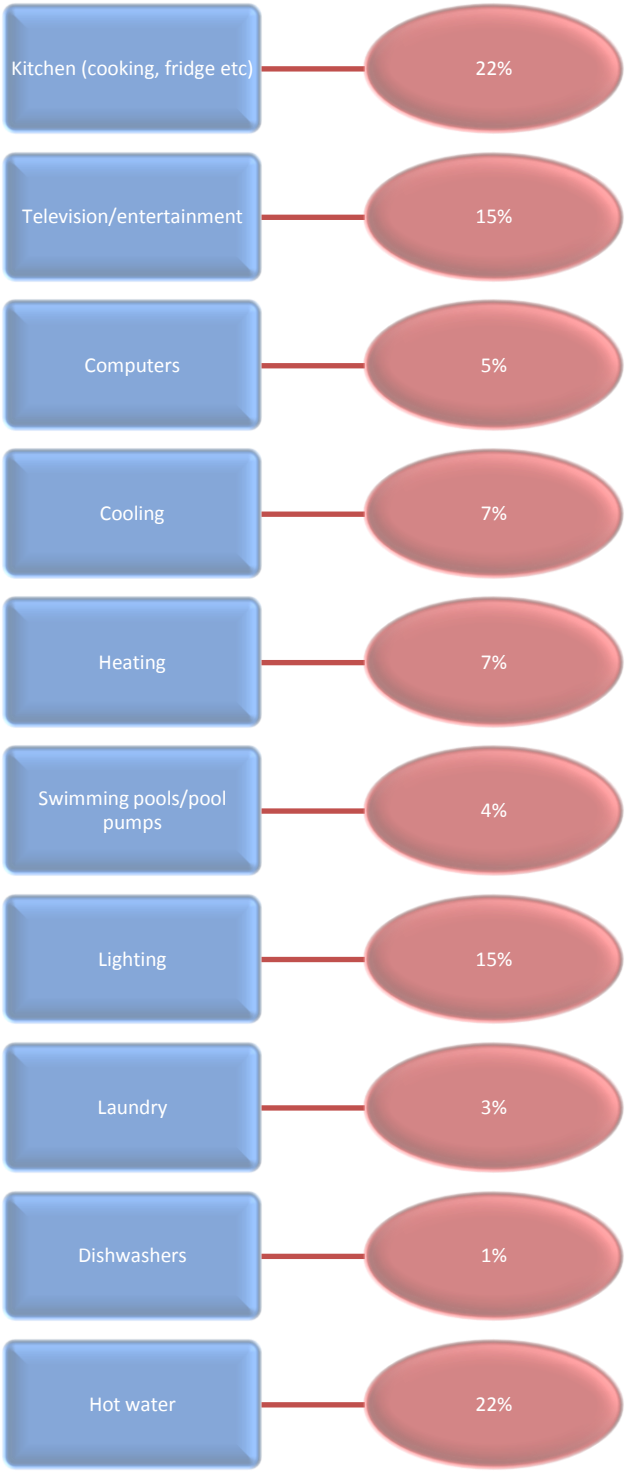
In general, Consumer Action supports the introduction of TOU pricing for business users (including SME) but for the 25-26 per cent of total load generated by the residential sector we believe there are other more suitable DSP mechanisms that can achieve the desired outcomes.

Consumer Action wishes to reiterate our concerns that the understanding of how domestic consumers actually use electricity is often forgotten in these energy debates. Rather than simply focus on price elasticity of demand we must also understand the reasons why households use various appliances at different times of the day and recognise that while some load might respond to price signals other load will not.

Figure 1 below illustrates what we believe could reasonably reflect households' ability or willingness to shift demand to a different time for key appliances: starting with the area we believe there is very low ability or willingness (kitchen activities relating to food preparation) and ending with an area where we believe most people would be able or willing to shift demand to off peak times (hot water). The percentages attached to each of the consumption areas show an approximate percentage these appliances make up of total domestic load.[13]

[10] We note that population growth will increase demand but not necessarily the ratio between overall load and peak demand.
[11] Ernst and Young, AEMC Power of Choice, rationale and drivers for DSP in the electricity market – demand and supply of electricity, 20 December 2011, Table 10, p 43
[12] Ibid p, 82
[13] The intention of Figure 1 is not to present a scientific calculation of demand elasticity or load. Rather it is a conversation starter to think about how households use electricity and what load they are likely to

Figure 1



shift in response to price signals. The percentage of total load for each consumption area has been calculated based on Table 17 in Appendix 2 of the Ernst and Young report. The kitchen category including 2010 GWh figures for fridges, cooling, kettles, freezers, microwaves, the television/entertainment category including 2010 GWh figures for televisions, home entertainment, set top boxes, game consoles, DVD/VCR and etc.

This does not purport to be scientific modelling but we believe it is an exercise that allows us to highlight some of the domestic behavioural challenges that must always be recognised when discussing DSP solutions.

Starting with food related activities in the kitchen (cooking appliances and food storage such as refrigerators): Consumer Action does not believe households will change the time of food preparation in response to electricity price signals. To put it bluntly, when you're hungry, you're hungry.

We regard it as unlikely that most households would change television viewing times, electronic game playing, work or homework using computers etc. in accordance with the price of electricity. Indeed, we would be concerned about any household that had to tell children or teenagers that they have to wait with homework until later because the electricity prices are too high.

In regards to cooling and heating we do believe some households would shift demand, or use less, in response to higher electricity prices. However, we are concerned about the harm under-consumption can create for some consumers, particularly the elderly and households with children. In relation to air conditioning we believe a much more sensible approach is to introduce direct load control (DLC) in order to cycle the consumption to reduce peak load (without households losing amenity).

Clearly pool related appliances are of less concern when it comes to the potential for social harm. Households with pool pumps may also shift demand according to electricity prices. However, this is one of the key problems in relation to TOU pricing—the tariffs do not discriminate between the reasons for consumption: for example, while household A may keep its pool-pump turned off, household B might be dangerously overheated because they turned their air conditioner off. We note that the total load from running swimming pools and spas is quite low but if this consumption is regarded as problematic to peak load, we would again recommend the use of DLC.

Lighting contributes to a significant proportion of the domestic electricity load and while some households may be more cautious about switching on lamps unnecessarily in response to higher electricity prices, we do not believe that lighting has much potential when it comes to shifting demand. Again, to put it bluntly, when it gets dark, it gets dark.

In relation to consumption from laundry and dishwashing machines, we believe TOU pricing could make consumers shift the time of their consumption. The use of timers on washing machines and dryers would make this quite easy. Also, households are likely to quickly adapt to a pattern where the dishwasher is turned on last thing in the evening. That said, the total load caused by these appliances is rather low and we do not believe a positive response to price signals would even come near justifying the cost of TOU enabling technology.[14]

[14] We note that an increasing number of households are being connected to TOU enabling technology (through the Victorian smart meter roll out as well as new and replacement programs). At some point in the future the cost of TOU enabling technology would thus become relatively low. However, as this review is about developing DSP solutions for the near future, and the focus is on achieving benefits from deferred peak consumption, TOU pricing would currently require investment in technology.

Finally, hot water storage heating is a natural off-peak appliance and while it may need to be boosted during the day, this is only for short time periods. We realise that these storage units are greenhouse gas intensive (as long as electricity production is based on coal) and that the Government is phasing out off-peak hot water storage and promoting alternatives such as gas, solar and heat pumps. We have placed hot water on the bottom of this list as storage off-peak hot water does not affect household amenity due to TOU pricing. We note however, that households with electric instantaneous water heaters would probably find themselves on the top of this list, as we do not believe most people would be able or willing to shower according to electricity price signals.

Non-price based DSP solutions

As outlined in the above discussion, Consumer Action recognises that there is some peak demand that may be reduced by providing price signals such as TOU pricing. However, we do not believe there is enough peak load that can easily be reduced through load shifting to justify an approach that is costly (TOU metering) and carries a risk of potential social harm from under-consumption and turning off essential appliances.

Rather, Consumer Action recommends the AEMC focus on solutions that are less dependable on consumer behaviour and less blunt than TOU price signals. We strongly believe DLC must be considered for appliances such as air conditioners and pool pumps. While we acknowledge there is a cost attached to rolling out DLC programs as well, we believe the evidence for 'bankable' benefits is strong. TOU solutions, on the other hand, rely on theoretically constructed elasticity of demand calculations (and the results of short term pilots) showing that consumers respond to price signals, in order to realise the benefits. DLC technology is therefore more likely to actually pass a cost-benefit case.

NERA Economic Consulting published a major cost-benefit assessment of smart meters and DLC technology in 2008 (commissioned by the Ministerial Council on Energy Smart Meter Working Group). In relation to rolling out non-smart meter based DLC technology it found that:

> "[N]ationally, direct load control can deliver net benefits of between $34 million and $618 million;
>
> - in Queensland a non-smart meter DLC rollout is estimated to provide positive net benefits in both the upper and lower end of the ranges considered;
> - in New South Wales a non-smart meter rollout has a positive net benefit in the upper bound and a marginal net cost in the lower bound. However, this reflects the winter peaking assumption in New South Wales, which results in DLC not leading to any network deferral. Under the summer peaking sensitivity a non-smart meter DLC rollout is estimated to provide positive net benefits in both the upper and lower bounds;
> - for Victoria, South Australia and Western Australia a non-smart meter DLC rollout is estimated to provide positive net benefits in the upper end of the ranges considered and to have either a zero or only marginal net benefit in the lower end of the range; and
> - for the Northern Territory, the Australian Capital Territory and Tasmania a DLC rollout is not expected to result in a positive net benefit, as result of the particular

characteristics of load in these jurisdictions and the limited scope for network deferral."[15]

Finally, for smaller loads relating to appliances such as dishwashers, washing machines and dryers, we do believe educational campaigns can provide an effective and efficient alternative. Educational campaigns, calling on consumers to 'do the right thing' are a safe and inexpensive way to reduce consumption or shift load. These are simple messages to be conveyed: it is basically why households should aim to use dishwashers and washing machines after 10pm and how we would all benefit if we do. The recent Save Water Target 155 community campaign in Victoria was regarded as successful by the three metropolitan water retailers, who have stated that the campaign saved 60 billion litres of water.[16] Another component of domestic energy consumption that may benefit from being targeted through education campaigns is the cost of leaving appliances on stand-by.

Why we do not support TOU pricing for domestic consumers

It is our understanding that most stakeholders at the AEMC forum in Sydney on 19 April expressed positive views on TOU pricing, albeit stressing precautions around consumer protections and information requirements. Unfortunately we were unable to attend the forum but we continue to believe that TOU pricing for the residential sector is an overly risky approach to curbing peak demand.

Consumer Action is concerned about the impact on households that cannot easily reduce their consumption at peak times. We believe the peak price would have to be significant in order to curb load and some households will therefore experience significant increases to their electricity bills.

Furthermore, Consumer Action does not understand how a DSP response can be TOU pricing based on choice. We understand, and support, the Victorian discussion on voluntary TOU tariffs in response to a situation where smart meters have already been mandated.

However, if voluntary TOU pricing was introduced as a DSP measure, surely most people who clearly benefit from such tariff shapes would sign up. That is, consumers who already consume mostly at off-peak or shoulder times (most likely due to working hours). As such these consumers will benefit, without having done anything to their consumption pattern, to the detriment of others who may see an increase in their electricity bill by not being able to respond to TOU but also because someone has to pay for the loss in revenue created by the 'natural TOU profile' households. Simultaneously, no significant savings would be achieved to pass through to consumers as households with a 'natural TOU profile' have not shifted any load or created any benefits in terms of network capacity or peak wholesale market prices. This issue was raised by the St Vincent de Paul Society's study into smart meters and customer protections in 2010 which stated:

[15] NERA Economic Consulting, *Cost Benefit Analysis of Smart Metering and Direct Load Control*, Overview Report for Consultation, 29 February 2008, p 202

[16] See, for example, The Age, *Retailers promoting axed Target 155 scheme*, 16 March 2011 at www.theage.com.au/environment/retailers-still-promoting-axed-target-155-scheme-20110315-1bw4b.html

> "[I]f only customers who can reduce their overall bill are on a TOU tariff and everyone else is on a flat tariff, the flat rate may increase to off-set the reduction in revenue made from TOU customers. Although TOU pricing is supposed to be cost reflective pricing, it would be difficult to achieve enough demand response from a voluntary TOU tariff to defer network augmentation. Hence the networks would need to recuperate the loss in revenue from other customers (e.g. those on a flat tariff rate)."[17]

Additionally, if the underlying network tariff contains a TOU structure, we believe retailers will (and probably should) charge flat rate customers an 'insurance premium' in order to cover the additional risk that the retailers will be exposed to.

The other option is of course to mandate TOU network tariffs. From a DSP perspective this probably makes more sense, as it will at least increase the chances of achieving demand response (load shifting) that *may* result in reduced network costs. However, as argued above, TOU pricing is a blunt tool and it will create winners and losers so if governments are willing to take this path they must commit to enhanced concession arrangements for some of the consumers hardest hit by price increases, and be prepared for some community backlash from non-concession households facing cost of living pressures, such as families with stay at home parents. As noted by the St Vincent de Paul Society:

> "From an energy affordability perspective, TOU pricing will penalize many households that can ill-afford price increases. If the Government decides to introduce such pricing structures due to broader market benefits, it must be clear about the impact it will have on households as well as develop and introduce policies and regulation to mitigate these impacts before the new tariffs take effect."[18]

Price signal options

Consumer Action does not oppose the use of all price signals in the domestic energy sector. We believe a fair and appropriate tool to curb overall demand for energy is to set prices according to an inclining block tariff structure. The inclining block tariff provides households with an incentive to not use more than required (e.g. minimise waste). Currently, the price becomes gradually more expensive the more a household consumes within a billing period, but it is important to note that this time span for inclining block tariff consumption can be shortened. As such, a 24 hour inclining block tariff could be introduced in order to provide consumers with a stronger price signal but without penalising households that for whatever reason need to use electricity during the day. A 24 hour based inclining block tariff combined with a two part tariff (off-peak night rates) may be sufficient to curb future increases in peak demand. As with other policies that rely on pricing, an inclining block tariff may harm some consumers, in this case large households or those with inefficient appliances that cannot reduce their usage. If this was to proceed, then targeted protections must be developed to ensure such groups are not harmed.

[17] St Vincent de Paul Society, *New Meters, New Protections – A National Report on Customer Protections and Smart Meters* by May Mauseth Johnston, February 2010, p 33
[18] Ibid, p 34

Other issues

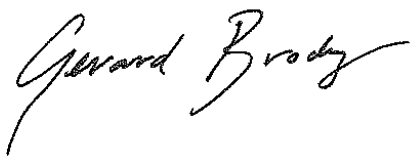
Firstly, Consumer Action wishes to express caution in relation to the discussion of providing network businesses with commercial incentives to reduce demand. Clearly we support the idea of providing incentives to manage demand if it can provide a cheaper alternative to network investment. We also support the investigation of disincentives for distribution businesses to achieve an efficient level of DSP within the current regulatory framework. However, we caution against the development and hurried introduction of commercial incentives. As discussed above, the data is unclear about growth in overall consumption as well as future growth in peak demand, and as consumers have already paid billions for network upgrades (largely to ensure that they can cope with peak demand forecasts) it could start to look like a double-dipping opportunity for the network businesses if we now started to pay the distribution businesses not to use the full capacity of the network that we paid them to build.

As such, Consumer Action is not opposed to the AEMC exploring opportunities for network driven DSP but we would recommend a 'slowly, slowly' approach as the party with the best information sources on consumption trends are the distribution businesses, and their main interest is to receive direct commercial incentives and/or indirect incentives through lowered supply standards.

Finally, in relation to supply chain interactions, Consumer Action does not believe it is possible to align the commercial incentives of the market participants without mandating policies that will disadvantage some and benefit others. In our view, this is largely why the Victorian Government went down the path of a mandated smart meter roll out that resulted in significant cost to consumers and benefits yet to be realised (let alone passed through to consumers). As long as the key aim of DSP is to reduce peak consumption, the differences in peak times between networks and wholesale market must be recognised as a real obstacle to these initiatives. In our view, one of the worst possible outcomes from this review would be the introduction of costly DSP initiatives combined with aspirational solutions for how to overcome the split-incentives of the supply chain.

Should you have any questions in relation to this submission, please contact me on 03 9670 5088.

Yours sincerely
CONSUMER ACTION LAW CENTRE



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