

Perverse Forms Of Demand Response

A submission in response to the ACCC Retail Electricity Pricing Inquiry - Preliminary Report

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The ACCC Retail Electricity Pricing Inquiry - Preliminary Report ^[1] concludes demand response "has the potential to facilitate consumers reducing their demand at peak times, and could thereby reduce the need for costly new generation and network infrastructure."^[2] Demand response though, takes many forms and the inquiry has thus far not considered a form of demand response that contains perverse incentives and which involves payment by volume for a volume that can't be measured. The preliminary report states the "ACCC will be mindful of the history of interventions in this market which have too often had unintended consequences to the detriment of electricity users." It is likely that the intervention in the wholesale market to create mechanisms to provide payments to consumers and non consumption aggregators for not consuming electricity is another of those interventions. The concept has got a lot of attention in the popular press^{[3][4]}.

While not described this way by proponents the gist is to provide electricity to consumers at below cost and then pay consumers not to buy it. It is impossible to measure electricity not consumed so non consumption must be estimated from historical usage. This provides an incentive for consumers on fixed rate supply contracts to shift loads as far as practicable into times of high demand to maximise the payment for switching off, the opposite of what is desired. Air conditioners in particular could be more profitably run flat out whenever wholesale electricity prices are high as it is hot weather that causes wholesale price peaks and they provide a large load that can be switched off for payment. The argument for selling electricity at below cost is contained in a 2015 CSIRO study^[5]. It states, "Consumers are particularly resistant to real-time pricing and (especially) capacity pricing, presumably on account of their greater novelty and complexity (hence, perceived risk), and pervasive mistrust and rejection of the concept that electricity should cost more depending upon demand."^[6] Therefore a "flat rate tariff offer with money-back guarantee achieves an unparalleled level of consumer acceptance, unmatched by any other combination of tariff and risk relief."^[7] Hardly surprising really, who wouldn't want to consume what they like at below cost and get paid if they don't.

The rational alternative for demand response is for retailers to sell electricity to consumers at cost plus a margin. This has the advantages that:-

- The amount consumed can be measured.
- Consumers who choose to switch off can capture the full benefit of doing so rather than having to share it with a service provider.
- Consumers can still seek assistance from a service provider when the effort of monitoring prices plus managing loads is too high for the benefit gained without assistance.
- The financial incentive is to shift consumption as much as practicable to times of low demand which aligns with the goal of reducing peaks in demand.

There is also a push to take this further and implement a scheme where non consumption of electricity can be used to increase prices for consumption of electricity by selling non consumption into the electricity market as if it was equivalent to electricity generation. The rationale for this is described in a ClimateWorks report^[8] where selling non consumption as if it were production is described as necessary because reducing consumption "has the potential to reduce market prices at peak times when the marginal generator is high cost. However the benefits of the reduced price are shared by all market participants and cannot be effectively captured by the DSR provider"^[9]. Therefore, non consumption should be able to be bid into the market as equivalent to generation which has the effect of increasing the wholesale electricity price.

There is an example of this being trialed currently. As reported in the Financial Review^[10], "InterCast & Forge have committed to deliver 10 megawatts of electricity off the grid when asked to by the Australian Energy Market Operator, for which it will receive \$323,654 in funding from the Australian Renewable Energy Agency"^[10]. The "company had already saved \$600,000 on their power bills in the past three months alone - from being on the spot market rather than a long-term contract with a retailer as well as turning their four furnaces off for a total of 39 minutes, normally for five minutes or less, during peak periods."^[10]

So this large consumer is already reducing demand during peaks by responding to price signals for their own economic benefit but is now to be paid extra to maintain consumption until asked to switch off. If that payment is to come from other electricity consumers through an increase in the wholesale price, as eventually intended, it can only

result in a sub optimal economic outcome. It creates an obligation to maintain consumption when it is already uneconomic until asked to switch off, and an incentive to consume when uneconomic so as to have consumption that can be sold as available to be switched off. Funds extracted from other consumers through higher prices will be used to fund uneconomic consumption, to the detriment of other electricity users.

An attempt to introduce a demand response mechanism into the wholesale market was rejected in 2016. According to Finkel the "AEMC decided not to introduce the proposed mechanism on the basis that it would be costly to implement and that consumers can already contract with retailers and specialist providers, and can choose to be exposed to the wholesale market spot price through their retail contract"^[11]. The reasons given by the Australian Energy Markets Commission for rejecting this rule change request in the Final Determination^[12] under the headings "Demand response mechanism" and "Overview of determination to not implement the DRM" remain valid and should be considered by the ACCC in the interest of consumers. Finkel goes on to say "If unscheduled participation in the wholesale market as proposed in the 2015 rule change is not appropriate, there are other options in use around the world, including demand response participation in reliability markets in New York and Texas. The important thing is that a suitable option capable of unlocking the vital benefits of demand response is chosen"^[11]. The design of the NEM means the "suitable option capable of unlocking the vital benefits" is the exposure of consumers to the wholesale price and despite the claims of proponents "there are no DRM –like arrangements in any market that is designed similarly to the NEM"^[13]. Eastern Australia has a wholesale price, which can be 150 times the average price during peaks and many consumers, including Intercast & Forge^[10] are reducing consumption when the price of electricity is too high. Electricity plans that made wholesale plus a margin rates available to smaller consumers would make that opportunity available to all and encourage manufacturers to incorporate automation in devices that balanced desirability of device consumption against current price.

There is a variety of mechanisms suggested for paying people not to consume electricity but they all suffer the same fundamental flaw. The amount of electricity that would have been consumed in the absence of payment not to consume it is unknowable. Under a likely model, aggregators will be selling non consumption by volume into the wholesale electricity market when the volume can't be measured. In the interests of shareholders they will be obliged to sell as much as possible, so the aggregation business is likely to

become another of those interventions with unintended consequences to the detriment of electricity users.

Further Reading

Some background material was also written in preparation for this submission which is available at blog.urremote.com.

References

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