Embertec Pty. Ltd, **ABN:** 61 110 367 809
182 Fullarton Road, Dulwich 5065, Australia
Tel: +61 8 8334 3300 **web:** www.embertec.com.au

Mr John Pierce

Chair, Australian Energy Market Commission

Level 6, 201 Elizabeth Street

Sydney NSW 2000

13 October 2016

Re: ERC0186 Draft Rule Determination National Electricity Amendment (Demand Response Mechanism and Ancillary Services Unbundling) Rule 2016

Dear Mr. Pierce,

Embertec Pty. Ltd welcomes the opportunity to comment on the Draft Rule Determination AEMC 2016 (Demand Response Mechanism and Ancillary Services Unbundling) of 1 September 2016.

Embertec is an innovator, a leading developer, and manufacturer of energy efficiency, demand management, and energy productivity technology with sales to Australia, Canada, and the United States. Embertec is proudly an Australian SME and is investing more than $3M annually on research and development.

With respect to the AEMC draft decision, Embertec find it frustrating and disappointing that the Commission has determined not to make the Demand Response Mechanism (DRM) rule change. The Demand Response Mechanism (DRM) Rule Change was originally proposed by the AEMC in 2012. The most recent cost benefit analysis completed on behalf of the COAG Energy Council confirmed that a DRM would deliver net benefits and should be an integral component of Australian electricity landscape going forward. That this long delayed Rule change is now proposed to be abandoned is a lost opportunity to reform the NEM to bring about the benefits promised by the Power of Choice review.

Embertec strongly supports the introduction of a Demand Response Mechanism (DRM) in the Australian National Electricity Market (NEM) and support the COAG Energy Council rule change request to:

- Introduce Demand Response Aggregators (DRAs) as a new class of market participant;
- Empower AEMO with discretion on the implementation of an appropriate and standardised baseline calculation methodology (BCM) to apply to a demand response events; and
- Have DR capacity settled and paid (or penalised for under delivery) at the prevailing spot price.

We believe that the Commission has taken an extremely narrow view of the potential benefits of a DRM mechanism. The Commission's response to the rule change request is limited to citing the experience of very large customers, who are capable of dealing with retailers, or indeed the NEM, entirely on their own.

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Embertec reminds the AEMC that the COAG Energy Council was prepared to start the DRM with single site large energy users, but there was always an expectation that this would be a stepping stone to a fully-fledged DRM in which aggregated loads of smaller energy users are allowed to participate. The rule change request specifically requested that the "design of the scheme should not prevent the lowering of the DRM threshold to smaller customers in the future"; this would include small business and residential households. As you are aware, technology to provide aggregated demand response services exists now[1] and there are already governing networks operators in other international jurisdictions in particular the United States that are making it happen[2]. By dismissing the DRM in its entirety and not acknowledging or presenting a clear path forward with a work program focused on introducing a market based mechanism for settlement and compensation of malleable small/medium sized distributed loads is effectively omitting a key evolutionary expectation of the DRM as envisaged by COAG Energy Council and perspective DRAs.

Embertec request that as part of the AEMC's final determination that the Commission clearly detail their decision as it relates to the impact for future development of a regulatory DR mechanism that will support direct market participation for small and medium sized consumers. Aggregated residential loads and small scale distributed energy resources (for example switching off home air conditioners, charging hot water systems, or dispatching rooftop solar/battery) through centralised control are fundamentally capable of providing more than just ancillary services and are capable of responding in real-time to real market prices. The AEMC should not simply view their capabilities as limited to providing ancillary services.

Further comments

The market solutions which the Commission sees as negating the need for the DRM are of course only available to very large customers, and will never be extended to residential and small business customers.

The Commission contends that demand side management (DSM) services now exist which "play a similar role envisaged for the demand response aggregator". As already noted, for small business users, and for residential users, this can never be true. Moreover, the evidence put forward by the Commission does not support this contention even for very large customers.

The Commission identifies[3] five products and services provided by DSM service providers to very large customers, being:

[1] The Draft Rule Determination - Box 3.5 'United Energy and New Energy (AGL's new business division) Demand response trial' provides but one example of this capability.
[2] Greentech Media Oct 2014 '*Homes Are Being Tested as Grid-Responsive Assets—No Utilities Required*', online: http://www.greentechmedia.com/articles/read/debuting-the-grid-market-connected-smart-home
[3] Draft Rule Determination, Table 3.1.

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1. Identify opportunities for curtailment
2. Support to tender large loads
3. Spot price forecasting technologies
4. Hedging support
5. Enable/support participation in DR programs.

Examination of these services, as undertaken in the Draft Rule Determination, shows that these can be reduced to two actions for the customer:

- Exposure to the spot price, with some support; or
- Negotiation with a retailer, on an individual basis, to be allowed to join the retailer's DR program.

Exposure to the spot price, even partial exposure, can have serious financial consequences if not carefully managed. Moreover, once such exposure is obtained, the customer is on a treadmill from which they cannot retire – they *must* respond to price signals or face significant financial penalty. Risk mitigation is essential and it is the very large customers who can afford the systems and resources required to ensure that the exposure is adequately managed. Even the best resourced customer must also have the flexibility to respond at any time, however inconvenient. DRAs provide a buffer to the downside risk for such customers. The DRA will have other sources of demand response capability which can be brought in to cover any unavailability of DR from any single customer, thus enabling the DRA to provide protection from the risks of exposure to the spot market for their customers.

Negotiation with a retailer for participation in a DR program of course requires that the retailer provide such a program on attractive terms. Even very large customers will always have a disadvantage in seeking attractive terms, even when well advised and supported by DSM service providers. The DR which a single customer has to offer will have particular characteristics, whether of size, location or available time, which cannot be economically changed. A DRA can amalgamate loads from many customers to create a more flexible, and hence valuable, DR capability. This leverage is not available to an individual customer, however large. It is certainly not available to smaller industrial or business customers, or residential customers.

In any case, as the Commissions Draft Rule Determination goes on to make clear – participation in a retailer's DR program is simply exposure to the spot price by another name[4]. The DSM service provider may provide a valuable advice service, but they do not introduce a new mode of operation – the alternatives are still full exposure to the spot price, or hope for the best from a retailer.

[4] Draft Rule Determination, Section 3.3.2, Demand side participation through a retailer's demand response program.

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The decision to not make a DRM rule goes against emerging international practice. California is demonstrating that DR using capacity available from domestic consumers and small businesses is viable and worthwhile.[5] The California Public Utilities Commission, in a recent proposed decision has said:

> *Demand response shall be market-driven leading to a competitive, technology-neutral, open-market in California with a preference for services provided by third-parties through performance-based contracts at competitively determined prices…*[6]

California has long experience with DR, and has had only modest success with Utility driven programs. The proposed decision referred to above indicates a decision that innovation and progress ultimately require third party competition.

Embertec believes that DRM will become increasingly important as generation technologies change, more intermittent renewables come on-line and the over-supply of capacity in both generation and network infrastructure eases. Evidence of the need for more modes of response to network events can clearly be seen in the recent very large spikes in the spot price in South Australia in response to relatively low probability combinations of events. The South Australian experience shows that, while the market will eventually deliver an alignment of supply and demand in infrastructure and generation, there are likely to be significant hiccups along the way. The inherently "lumpy" nature of the supply of new, and the removal of old, infrastructure and generation means that a flexible "smoothing" capacity will always be required. DRM can provide this. Therefore, it is critical to immediately introduce the DRM so that the market can move through its growing pains and quickly mature.

The decision not to implement DRM will relegate DR to a niche market. The impossibility of extension to smaller customers will rob those customers of the opportunity to leverage their available flexibility and condemn them to higher electricity bills.

Further, this fossilisation of the DRM market will effectively stifle any innovation in this area, removing any incentive for Australian industry to innovate in this area and to leverage local experience to become players in a rapidly expanding worldwide market.

The example given in the Draft Rule Determination of the Brisbane Cold Store[7] is indicative of how little innovation will be encouraged in the absence of a widely accessible DRM. The idea of simply forcing (or begging) large users to use their emergency generators to avoid brownouts is a very old idea. Doing it by price rather than telephone does not really add much innovation. The result is still that an inefficient, polluting,

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[5] Greentech Media Sep 2016 *'Sweeping Changes Proposed for Demand Response in California'* , online: http://www.greentechmedia.com/articles/read/big-changes-proposed-for-demand-response-in-california

[6] *Decision Adopting Guidance for Future Demand Response Portfolios and Modifying Decision 14-12-024*, Proposed Decision before the CPUC, dated 30 August, 2016, p48.

[7] *Draft Rule Determination*, Box 3.3

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greenhouse gas emitting generator was brought into play. More advanced administrations such as California have in fact moved to ban this from demand response[8].

We agree with the Draft Rule Determination insofar as it concerns the Ancillary Services Unbundling rule change request. We strongly urge the Commission to reconsider the opportunity which will be missed if the DRM part of the rule change request is not implemented. If the proposed mechanism is indeed too costly an option and too logistically difficult for the Australia market, the AEMC needs to move forward, take inspiration from other international jurisdictions, and investigate design options more suited for Australia. For example each of the big four system operators in the United States – the Pennsylvania New Jersey Maryland (PJM) Interconnector, Midcontinent Independent System Operator (MISO), California Independent System Operator (CAISO) and the Electricity Reliability Council of Texas (ERCOT) – facilitate and provide oversight to multiple types of Demand Response markets including Real-time, Day-ahead, Capacity, and Ancillary-services. Australia too is well positioned to support demand response markets beyond Ancillary Services and as multiple cost benefit analyses have already demonstrated (repeatedly) a DRM has an important role in creating an efficient and responsive future energy grid here. One that ultimately improves the economics for all end users of electricity, supports and improves the overall value proposition for owners of distributed energy resources, and delivers additional social, environmental, and economic benefits beyond BAU.

For further information please contact me at henry@embertec.com.

Yours sincerely,

Henry Otley
Strategic Business Analyst
Embertec Pty Ltd

[8] *Decision Adopting Guidance for Future Demand Response Portfolios and Modifying Decision 14-12-024*, Proposed Decision before the CPUC, dated 30 August, 2016.