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ARENA submission on the Retailer Reliability Obligation Draft Interim Contract and Firmness Guideline

This submission provides background information and insight derived from Australian Renewable Energy Agency (ARENA) projects as relevant to the AER's consideration of the Contract and Firmness Guideline under the Retailer Reliability Obligation (RRO) mechanism.

In summary, ARENA considers that the Guidelines should provide flexibility reflecting the range of ways retailers can promote and enable demand response within their customer portfolio. Specifically, consideration should be given to ways of accounting for the price elasticity of demand without requiring retailers to enter into financial hedging agreements with their customers. We expect that the forecasting guidelines and 'contract and firmness' guidelines will need to work together to achieve this.

About ARENA

The Australian Renewable Energy Agency (ARENA) was established in 2012 by the Australian Government. ARENA's function and objectives are set out in the *Australian Renewable Energy Agency Act 2011*.

ARENA provides financial assistance to support innovation and the commercialisation of renewable energy and enabling technologies by helping to overcome technical and commercial barriers. A key part of ARENA's role is to collect, store and disseminate knowledge gained from the projects and activities it supports for use by the wider industry and Australia's energy market institutions.

ARENA projects investigating price-responsive load potential

The RRO is intended to ensure that reliability levels in the National Electricity Market are preserved as the generation mix changes. It will require liable entities, such as electricity

retailers, to hold financial hedge contracts matching their forecast load over each trading interval for which AEMO forecasts a risk of generation shortfall.

ARENA understands that demand response may be provided for in two ways:

1. Demand response may be contracted, in the form of a financial hedge, by a liable entity from its own customer base, or across the market.
2. A level of price elasticity may be included in AEMO load forecasts and potentially in the load forecasts of liable entities, although it is not clear how this will be accommodated under the AER's current proposed approach.

ARENA considers demand response, and customer resources more broadly, will help achieve a transition to higher penetrations of renewable generation at the lowest cost. That is why we are investing in studies and trials that demonstrate the current and future potential for price responsive load as a resource in the power system. For example:

- The [ARENA-AEMO RERT Trial](#) has demonstrated the effectiveness of residential, commercial and industrial demand response as emergency reserve capacity. A key insight from these trials is that energy consumers are willing to engage in demand response in exchange for a range of incentives which can be both financial and non-financial. While currently operating 'out of market' there are strong indications that innovative approaches can be applied to develop greater load flexibility in the wholesale market. This potential relies on continuing developments in technology and retail product development and marketing.
- ARENA has funded the [Smart Hot Water Systems Trial](#) to explore the potential for hot water systems to be dynamically controlled to help balance solar power generation on low voltage networks. Stage 1 of the project has concluded that while dynamically controlled heat pump water heaters have strong (and improving) economic potential, payback for customers varies depending on local gas availability and pricing, solar export constraints and the delta between peak and offpeak retail tariffs.
- The [REALM Project](#) assessed the capacity of commercial and industrial customers to develop load flexibility. A key project finding was that a shift to more cost-reflective network and retail tariffs is likely to unlock price responsive load with the potential to deliver substantial productivity benefits.
- ARENA is supporting a range of [Virtual Power Plant trials](#) which are highlighting the ability of 'behind-the-meter' resources to provide network, wholesale market and system security services. A critical enabler of VPP market development is the ability to stack multiple value streams including the self consumption of solar. ARENA sees increasing interest from VPP providers in services that co-optimize load with battery operation so as to optimize solar exports and peak pricing exposure.
- The ARENA-supported [Australia Electric Vehicle Market Study](#) found that managed charging of EVs could decrease their peak load impact from 16.5 to 3.7 GW in 2040 under its accelerated uptake scenario. This study assumed charging is managed through controlled load tariffs. ARENA considers it likely that, over time, EVs will be increasingly valued as bidirectional energy resources that are able to respond to real time price signals and dynamic network constraints, accessing wholesale and ancillary services markets.

Conclusions relevant to the AER's current consultation

Recognising the scope for retail product innovation

Overall, ARENA's experience indicates that, through the design and marketing of their tariff products, electricity retailers can be an important enabler of load flexibility and this is likely to accelerate as new technology and business models are demonstrated in the market. The conditions under which individual customers are willing to enter into formal derivative contracts however (as envisaged by the AER) may be rare relative to the size of the opportunity. It is therefore important that the AER's implementation of the RRO recognise the spectrum of ways liable entities, and their customers, may contribute to reliability outcomes rather than requiring any one specific contractual approach.

ARENA considers that one option that should be further considered by the AER is allowing for differential treatment of liable entities in relation to the price elasticity of their load portfolio (i.e. by recognising demand response on the load side, rather than the supply side of the compliance equation). This could draw on the work already undertaken by the AER in relation to the sliding scale of firmness for cap contracts relative to their cap price. In the case of demand, the firmness of demand response could be a function of the extent of price pass-through as well as the technical capability of customers to respond to price.

Although potentially more complex to establish, such an approach may offer greater incentives for retailers to promote cost-reflective pricing and demand response solutions to their customers thereby achieving reliability in a manner that meets the needs of customers at the lowest cost. It would also allow retailers to factor in native demand response in their portfolio such as might be observed at the portfolio level through the operation of VPPs, EV managed charging, or vehicle-to-grid operations that might be coincident to their customer base or promoted through specific retail product incentives.

Customer self-management of risk

The energy industry is observing increased interest in business customers self-managing their risk as evidenced by the growth in corporate PPAs. We expect that there will be an increased interest over time in customers obtaining spot pass-through contracts, utilising their load flexibility combined with bespoke hedge products suited to their risks and operations. Under the AER's proposed approach, this may result in both the retailer and the customer contracting against the same load which would be an inefficient outcome.

While patterns of electricity demand will become increasingly responsive to local and temporal pricing signals, this will be optimised for the customer across multiple wholesale, network, system security and customer value streams, taking account of local network constraints. This will greatly improve the flexibility of the electricity system, *in aggregate*, to balance supply and demand during lack of reserve conditions but it may not guarantee the ability of an individual customer to respond in any one incident. Under the AER's current proposed approach, it therefore seems likely that price responsiveness of a retail portfolio may be significantly greater than the sum of individual customer demand response contract commitments.

Please contact Jon Sibley, Principal Policy Adviser, (jon.sibley@arena.gov.au) if you would like to discuss any aspect of ARENA's submission.

Yours sincerely

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