17 January 2020

Arek Gulbenkoglu
A/General Manager, Distribution
Australian Energy Regulator
GPO Box 520
Melbourne VIC 3000

By email: AERinquiry@aer.gov.au

Dear Mr Gulbenkoglu

Re: Assessing DER integration expenditure

CitiPower, Powercor and United Energy welcome the opportunity to respond to the Australian Energy Regulator's (AER) consultation paper on assessing distributed energy resources (DER) integration expenditure.

We support the AER's objective to provide distributors with more guidance on how it will assess DER driven investment. To achieve the best long-term outcomes for customers, the AER should allow a broad and flexible assessment approach — it is important to allow distributors the opportunity to find innovative solutions to integrating DER. Failure to do so will lead to solutions that are ultimately deemed unsustainable or inefficient resulting in poor economic and environmental outcomes for customers over the longer term.

In assessing DER integration expenditure, the AER should:

- take into account government priorities for taking action on climate change
- take a long-term view of benefits
- take into account unquantified benefits.

We consider that failing to take these into account will harm customers.

The AER must consider climate change in assessing DER integration expenditure

Rooftop solar and other DER initiatives are integral to transitioning to a low carbon future. Tackling climate change and providing a cleaner future are key aims of State and Federal government policies, instruments and initiatives.

The National Electricity Objective (NEO)

The NEO promotes efficient investment over the long term and considers a range of factors including climate change.

The NEO, as stated in the National Electricity Law (NEL), is:

> *to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—:*
>
> - *price, quality, safety and reliability and security of supply of electricity*
> - *the reliability, safety and security of the national electricity system.*[1]

[1] Section 7, *National Electricity (South Australia) Act 1996*.

The Australian Energy Market Commission (AEMC) has stated that to make decisions that meet the NEO, consideration must be given to whether the decisions are robust (with respect to price, quality and reliability of supply) in the face of 'how policy makers, consumer and investors are responding, or are likely to respond, to the risks presented by climate change' and by how the physical world is changing or is likely to change as a result of it.[2] Consequently, AER decisions would not be consistent with the NEO if they do not take account of initiatives which advance measures to mitigate the impact of climate change.

Carbon reduction is a priority for state and federal governments

Carbon is no longer an externality but rather a priced commodity in Australia. The Australian Government's Emission Reduction Fund is the centrepiece of the Australian Government's carbon policy. As outlined in its White Paper:[3]

> *The Government is committed to practical actions that will achieve real, measurable results for the environment. The Emissions Reduction Fund is a central component of the Government's [plan]*

Enacted through the *Carbon Credits (Carbon Farming Initiative) Act 2011* and associated regulations, the Emissions Reduction Fund places a price on carbon as measured by the Australian carbon credit units.[4] The prevailing carbon price under Emission Reduction Fund's June 2019 auction was $14.17 per tonne of carbon.[5]

Hence, should the AER fail to consider carbon reduction benefits in assessing distributors' DER integration expenditure proposals, it will be in contradiction to the carbon reduction initiatives of state and federal governments.

DER benefits are long term

As outlined in the NEO, a longer term perspective must be taken when evaluating whether DER investment is prudent and efficient. Many benefits associated with DER are unlikely to be realised in the short term, yet will provide significant long term benefits. Failing to proactively manage and plan for the uptake of DER may result in lost opportunities and greater cost to consumers over the longer term.

We intend to invest in the network to proactively facilitate and enable the significant uptake of new technologies including rooftop solar, batteries and electric vehicles that is expected to occur over the medium to longer term. Our investment in this space will use a mixture of technology and traditional assets to build upon the foundations provided by our smart meters.

One of the quantified benefits of these investments will be deferred augmentation through limiting the impact of electric vehicles charging at peak periods. These benefits will be realised over the longer term. If the AER only considers short term benefits in this space, customers will be disadvantaged.

It is not possible to quantify all benefits of innovative and future-focused technologies

We agree with the AER that benefits should be quantified where possible. However, any assessment should recognise the difficulty in quantifying the benefits of emerging innovations in advance, often due to a lack of data or certainty of outcomes. The future payoff of innovation is not always certain. However, this should not stop innovation occurring. For example, despite an inability to always quantify the benefits of innovative

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2 Applying the Energy Market Objectives, Australian Energy Market Commission, 8 July 2019, p. 8.

3 Australian Government, Emissions Reduction Fund White Paper, April 2014, Minister's foreword.

4 We note Emission Reduction Fund was further topped up by the Australian Government by an additional $2 billion in 2019. Department of the Environment and Energy <https://www.environment.gov.au/climate-change/government/emissions-reduction-fund/about>

5 Clean Energy Regulator <http://www.cleanenergyregulator.gov.au/ERF/Auctions-results/july-2019>

technologies, Apple has spent over USD $16 billion on research and development (R&D) in 2019,[6] and Microsoft spent USD $14.7 billion in 2018.[7]

Given that DER driven network investment will likely require innovative answers to solve associated network issues, it is important that any guidelines recognise and take into account the difficulties of full benefit quantification.

The AER's recent approach to the Information and Communications Technology (ICT) Expenditure Assessment Guideline provides precedent for considering unquantified benefits, by stating that unquantified benefits may be considered through other supporting evidence of the proposed benefit to be provided.[8]

Unquantifiable benefits of enabling residential rooftop solar

For example, there are important longer term benefits from enabling greater exports of solar generation. The AEMC has highlighted that exports will allow customers to participate in a raft of new markets in the future, including:[9]

- engaging in local energy (peer-to-peer) trading—buying and selling electricity from other customers rather than from central generators
- retail and wholesale electricity price arbitrage activities—selling exported electricity to third parties (such as retailers) to avoid that party having to purchase wholesale electricity
- wholesale market support—selling electricity at times of wholesale generation shortfalls
- transmission congestion management and distribution network investment deferral—selling electricity at times of peak load on the networks to avoid the need for capacity driven network investments.

These new markets improve the efficiency of the electricity market operations and reduce overall costs. They also create value for solar customers who will be paid for participating in them. Without exports, these markets will not properly develop and the value of the substantial solar investments made by customers and governments may be stifled.

Failing to support DER integration expenditure will harm customers

Should it not broadly consider long-term or unquantifiable benefits of DER integration expenditure, the AER will cause harm to consumers.

Innovation will be stifled and result in higher costs for customers

It is the nature of innovation that benefits might not be realised immediately after a project is undertaken. Such projects have benefit-paybacks accruing over longer term timeframes, and may have negative upfront net present value (NPV).

The AER has previously indicated that projects with longer term benefits will not be funded.

Such an approach to assessing DER integration expenditure proposals would have a stifling effect on innovation and ultimately penalise customers through higher costs resulting from:

- projects not being implemented at all

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6 https://www.cnbc.com/2019/08/03/apple-rd-spend-increases-fulfilling-tim-cook-doctrine.html

7 Microsoft 2018 Annual Report, https://www.microsoft.com/en-us/annualreports/ar2018/annualreport

8 Australian Energy Regulator, 'ICT expenditure assessment guideline review - Response to submissions' (September 2019).

9 AEMC, Distribution Market Model, August 2017.

- inefficient projects being implemented, through small-scale incremental changes
- projects being delayed until problems grow so large so that there is a higher enough, short-term payback. In the meantime customers will suffer adverse outcomes and have to pay for more expensive solutions (e.g. handling the uptake of solar).

The network will be constrained

In the absence of DER integration, much of existing and future rooftop solar generation will increasingly be constrained. Solar exports cause network voltage to rise and when it reaches a sufficiently high level, customers' solar inverters trip off and stop generating for both in-home consumption and for exports. If we undertake no action to accommodate solar, by 2025 the average customer on 47% of our zone substations will experience constraints more that 20% of the time and almost 15% will experience constraints over 40% of the time.

Our customers have unequivocally told us that some solar constraints can be tolerated but network investment is needed to ensure they are not excessive.

Unsafe and noncompliant voltage fluctuations

Further, the rise in solar exports on the network will cause voltage issues if not proactively addressed. To enable exports, customers' solar inverters operate at a higher voltage than the network to 'push' the solar electricity back into the network. This causes the localised network voltage to rise.

Stakeholder feedback

We seek that the AER provide clear guidance on how it will take into account stakeholder feedback about DER integration expenditure. We query how the AER will use this information in decision making. For instance, if all stakeholders give a distributor unequivocal feedback that carbon emission reductions are important to them, we seek to understand how the AER will take this into account when assessing distributors' DER integration expenditure proposals.

Should you have any queries about this letter please do not hesitate to contact me on [redacted] or [redacted]

Yours sincerely,

[redacted]

Brent Cleeve
Head of Regulation
CitiPower, Powercor and United Energy