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Inquiry into the true value of distribution generation, Proposed approach paper, December 2015

Jemena Electricity Networks Vic Ltd (**JEN**) welcomes the opportunity to respond to the Essential Services Commission's (the **Commission**) proposed approach paper on the inquiry into true value of distribution generation (**DG**).

Our key messages:

- JEN welcomes the Commission's staged approach and timing of this inquiry.
- We consider the ongoing network operation and augmentation costs¹ (not connection costs) driven by DG is within the scope of the inquiry and must be taken into consideration when determining the true value of DG.
- JEN includes both the costs and benefits (including deferment of any network augmentation as a result of DG) in their five yearly regulatory determination proposals. In light of this—and the fact that annual revenue requirements of the Victorian DNSPs are capped—any requirement to reward DGs would mean customer tariffs for all customers would increase by the amount payable to DGs.
- The DG benefit to the distribution network is highly dependent on the time and location of the generation.
- Distorted DG investment signals will lead to inefficient outcomes to all consumers.

Our detailed responses to the consultations questions in the proposed approach paper are set out in Attachment 1. If you have questions in relation to the submission, please contact me

Yours sincerely



Siva Moorthy
Manager Network Regulation

¹ Operational and capital expenditures related to management of fault levels, two-way electricity flows and voltage regulation in areas of high DG penetration.

Attachment 1

Q1. Do you agree with how the Commission is proposing to define true value? If not, why not? Are there other definitions the Commission could use?

JEN agrees with Commission's approach to define true value of distributed generation (DG).

Q2. Do you agree with the Commission's view that this Inquiry is focussed on identifying the public benefit of distributed generation? If not, why not?

Yes. This approach is consistent with the National Electricity Objective to focus on the long term interests of customers.

Q3. Do you agree with how the Commission is proposing to define public benefit as it relates to distributed generation?

Yes. We support the Commission's approach to identifying the public benefit of DG—that is, the Commission will consider economic, environmental and social benefits.

Q4. Is the Commission's understanding of how the costs, to network businesses and consumers, of connecting distributed generation are calculated and recovered correct? If not, why not?

JEN considers there are two cost elements in connecting a DG to the network:

- a) The initial cost of connecting a DG to the network which includes the specific connection assets and potentially network augmentation (create network capacity) to accommodate the DG; and
- b) The ongoing costs associated with the operation and maintenance of the network as a result of energy generated by DGs.

The most common DGs installed in JEN's distribution area are micro solar photovoltaic (PV) installations up to 30 kW (3kW on average) connected to the distribution network via an AS4777 inverter. They are generally installed in combination with the load in residential and small businesses premises. Our current approach is to provide automatic access to the network as the basic connection² asset that supports the load at these premises has the capacity to accommodate the micro DG. If there is a supply connection already installed, the DG applicant is only required to pay to modify the metering installation to measure bi-directional energy flows. If there is a new connection, the connection applicant is required to pay a connection fee.

For DGs greater than 30 kW, JEN analyses the impact of the connection on the network and approves them individually. Analysis includes the potential for reverse power flow and the connection applicants are required to pay the full connection costs at the time of connection. Connection costs are currently determined in accordance with the ESC Electricity Industry Guideline No 15. However post June 2016 (and no later than 1 Jan

² The *basic connection service* is defined in Chapter 5A of the National Electricity Rules (NER)

2017) Victorian distributors are required to calculate the connection charges in accordance with the AER's connection charge guideline.³

As micro DGs connect to the network, there comes a time when the combined generation of the micro DGs exceed the load, the energy flows in a reverse direction and cause voltage problems to all customers connected in that segment of the network. The costs of resolving these issues may include network augmentation work at the substation and the costs are borne by the distributor and ultimately recovered from all customers through network charges.

The Commission is correct in stating “*Distribution businesses make forecasts for the level of both of these costs during the process of developing their five yearly regulatory determination proposals*”, however the key point to note is that the costs are recovered from all customers—including those who do not have DG.

JEN understand that the terms of reference of this inquiry will not consider the policy and regulatory frameworks governing the costs of connecting DG to the network. However, JEN considers the ongoing network operation and augmentation costs⁴ (not connection costs) driven by DG is within the scope of the inquiry and must be taken into consideration when determining the *true value* of DG.

We agree with the Commission's assessment that “...the costs to distribution businesses and consumers of connecting distributed generation and using the network are already accounted for...”⁵; JEN includes both the costs and benefits (i.e. deferment of any network augmentation as a result of DG) in their five yearly regulatory determination proposals.

Q5. Do you agree with the Commission's proposed approach to the inquiry? If not, why not, and what alternative approach would you propose?

JEN agrees with the Commission's proposed inquiry timetable.

Q6. Do you agree with how the Commission is proposing to define distributed generation? If not, why not?

The Commission proposes to define DG for this inquiry as:

- Distributed generation below 5 MW capacity
- Distributed generation of any fuel type
- Battery storage

We support the inclusion of battery storage as they have the potential to export electricity into the network noting the inquiry should be technologically neutral. However, we request the Commission considers lowering the DG capacity from the proposed 5 MW threshold for the purposes of assessing network benefit. Refer to our response to Q7.

³ AER, *Connection charge guidelines for electricity retail customers under chapter 5A of the NER*, version 1.0, June 2012.

⁴ Operational and capital expenditures related to management of fault levels, two-way electricity flows and voltage regulation in areas of high DG penetration.

⁵ ESC, *Inquiry into the true value of distributed generation, Our Proposed Approach, December 2015*, p 7.

Q7. Are there other definitions of distributed generation the Commission could consider?

JEN proposes the inquiry focuses on identifying the public benefit that arises from the investment in DG up to 1 MW when determining whether and how a DG is rewarded for any quantified public benefit it generates. JEN considers that 1 MW would be a more appropriate DG capacity threshold for the following reasons:

- The vast majority of DG systems installed on the JEN network are less than 200 kW (including residential and commercial scale solar PV as well as industrial co-generation / tri-generation plants);
- Applications for systems greater than 1 MW are typically subject to more rigorous assessment of network impact including potential benefits. If the DG has the potential to provide network benefits, we would take this into consideration and the parties would negotiate appropriate terms and conditions of any network support payments;
- There are already a range of mechanisms under the NER that requires distributors (DNSPs) to compensate DG:
 - DNSP's have an obligation to consider non-network solutions to relieve network constrains⁶;
 - DNSP's are required to pass through avoided TUOS charges to DG connection applicants⁷;
 - The NER provides for a DG owner to be compensated if they connect in a location where they reduce distribution losses⁸.

These mechanisms are accessible to medium to large DG (i.e. > 200 kW) because the connection applications as assessed individually having regard to the obligations under the NER.

Q8. Are there other public benefits that the electricity generated by a distributed generator provides? How can these identified benefits be quantified?

Other than the economic and environmental benefits identified by the Commission, JEN is unable to identify any other public benefits that could be attributed to DG. We consider the ESC's definition of economic benefits on page 4 is inclusive of all consumer benefits.

Q9. Are there any environmental or other public benefits that a distributed generator provides to the distribution network? How can these identified benefits be quantified?

JEN considers there is environmental benefit from an energy value perspective through reduction in line losses, but not from a network value perspective.

⁶ Clause 5.13.1 (e) and (f) of the NER.

⁷ Clause 5.5 (h) of the NER.

⁸ Clause 3.6.3 (b1) of the NER.

Q10. Are there particular aspects of the current regulatory framework outlined in this paper that the Commission should consider when evaluating the adequacy of the current Victorian policy and regulatory frameworks governing the remuneration of distributed generation?

Jemena considers the aspects identified for consideration is adequate.

Q11. What is the impact of the current regulatory framework on the valuation of distributed generation in Victoria? In particular, what has been the scale and scope of support provided to distributed generators by: avoided TUOS payments, avoided DUOS payments, Network Support Payments, the Distribution Network Pricing and Assessment Framework, and the RIT-D?

JEN pays avoided TUOS payments to a large DG (150 MW) .

There are approximately 26,000 solar PV installations (<30 kW) and they have a combined capacity of approximately 70 MW.

There are approximately 50 solar PV and tri-generation DGs (>30 kW) and combined installed capacity is approximately 4.5 MW. We have individually assessed these DGs and considered their potential for network support. As yet, we have not found any opportunities for deferment.

Q12. Do you agree with the Commission's proposal to develop a methodology for calculating the time-of-use benefit of the electricity produced by a distributed generator? If not, why not?

JEN agrees with the Commission's approach for calculating the time-of-use benefit of the electricity produced by a DG.

Q13. Which of the two time-of-use options presented do you favour?

The Commission has identified two time-of-use options:

1. Using the peak, off-peak and shoulder periods in place for flexible pricing in Victoria.
2. Identifying the time periods when the value of the electricity generated is highest, as per the Frontier Economics modelling for IPART.

DG owners should be incentivised to generate at time periods when electricity wholesale spot price is highest. Accordingly, JEN supports option 2 time-of-use benefit of the electricity produced by a distributed generator.

Q14. Are there other time-of-use options that the Commission could consider?

We do not have any other options to offer for consideration.

Q15. Are there other methodologies for calculating the locational benefit of distributed generation?

JEN supports the Commission's methodology of calculating locational benefit of distributed generation based on distribution losses.

Q16. Do you agree with the Commission's view that the environmental benefit of distributed generation may be sufficiently reflected in the payments available under the RET? If not, can you provide evidence to detail what environmental benefits of distributed generation are not already captured by the RET scheme and how they can be valued?

Jemena agrees with the Commission's view that the environmental benefit of solar PV distributed generation may be sufficiently reflected in the payments available under the RET.

Q17. Are there other methodologies that the Commission could consider for calculating the carbon benefit of distributed generation technologies that are not covered by the RET?

Jemena does not have any further views to add.

Q18. Do you agree with the Commission's proposal to undertake further analysis into the economic benefit of distributed generation to distribution networks? If not, why not?

JEN agrees that the mechanisms⁹ in the NER sufficiently recognise the economic benefit of DG but they may not be appropriate for smaller DG to access. Consequently, we propose this inquiry be directed to DG up to 1 MW.

The Commission has identified recent developments¹⁰ that will inform the inquiry. Whether further analysis is required or the extent of any analysis will depend on these developments, in particular the AEMC final determination on local generation network credit rule change request.

Q19. Do you agree with the proposal to focus this analysis on the three pieces of analysis highlighted? If not, why not?

JEN supports the Commission's proposal to focus this inquiry on the other developments¹¹ as it would provide useful insights to this inquiry.

⁹ Network support payments, avoided TUOS payments, RIT-D, demand side engagement strategy.

¹⁰ ESC, *Inquiry into the true value of distributed generation, Our Proposed Approach, December 2015*, p 52.

¹¹ Local generation credit rule change, EY analysis into value of small-scale generation to networks and the Tariff Structure Statement published by the Victorian distribution businesses.

Q20. Is there other analysis that might be helpful to the Commission in considering the economic benefit of distributed generation to distribution networks?

JEN includes both the costs and benefits (deferment of any network augmentation as a result of DG) in their five yearly regulatory determination proposals. The annual revenue requirements of the Victorian DNSPs are capped. So any requirement to reward DGs would mean customer tariffs for all customers would increase by the amount payable to DGs.