AUSTRALIAN ENERGY COUNCIL

Essential Services Commission of Victoria
Level 37, 2 Lonsdale St
Melbourne VIC 3000

By email to: DGInquiry@esc.vic.gov.au

29 July 2016

The true value of distributed generation to Victorian Consumers: Discussion paper

The Australian Energy Council (the Energy Council) welcomes the opportunity to make a submission to the Essential Services Commission (ESC) Inquiry into the true value of distributed generation to Victorian Consumers.

The Energy Council is the industry body representing 22 electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. These businesses collectively generate the overwhelming majority of electricity in Australia and sell gas and electricity to over 10 million homes and businesses.

Stage 2 Discussion Paper: The network value of distributed generation

The Energy Council maintains that distributed generation owners should receive a fair and reasonable value for energy. We acknowledge that network benefits should be considered in the regulatory framework to ensure that network benefits flow to those who generate the benefits. Equally, network costs should be paid by those who cause the costs. To the extent that network tariffs are not appropriately reflective of both the costs and the benefits, they will not send the appropriate signals to users of the network and will be neither efficient nor equitable.

The Energy Council notes that the purpose of this part of the ESC's enquiry is to examine the impact of distributed generation on network investment decisions. The Terms of Reference require the ESC to consider adequacy of these existing frameworks and the ongoing processes that relate to network investment. As the Discussion Paper notes, there already exists a suite of regulatory mechanisms at the national level that have a direct bearing on the efficient deployment and reward of distributed generation that provide network benefits. These include the:

- Regulatory Investment Test for Distribution (RIT-D);
- Demand Management Incentive Scheme (DMIS) and Innovation Allowance (DMIA);
- Capital Expenditure Sharing Scheme (CESS) and the Efficiency Benefit Sharing Scheme (EBSS); and
- Requirement for distribution businesses to develop more cost-reflective distribution network tariffs.

The potential to reduce network costs are highly time and location specific. Some distributed generation owners may increase the use of network infrastructure in their local area by requiring network upgrades or monitoring to maintain reliability, factors which will become increasingly important at high shares of distributed generation. The Australian Energy Market Commission (AEMC) is considering these issues as part of its current rule change Local Generator Network Credits[1]. A nationally consistent approach reduces the cost of doing business and the barriers to entry for energy businesses that operate across state boundaries, ultimately reducing the cost of services to consumers. The Energy Council supports the ESC undertaking its investigation with a clear view to developments and reforms being pursued at the national level and focusing

Level 14, 50 Market Street
Melbourne 3000
GPO Box 1823 Melbourne Victoria 3001

P +61 3 9205 3100
E info@energycouncil.com.au
W energycouncil.com.au

ABN 98 052 416 083

recommendations as a contribution to the development of the National Electricity Market, of which Victoria is a key part. The Energy Council is of the view that the ESC ought to wait until the conclusion of this review until it makes any decision concerning the network value of distributed generation.

Cost benefit analysis – variable renewable energy requires network interconnection to maintain security

There is a lack of evidence, in practice, that unplanned small-scale distributed generation consistently assists in reducing network costs. The impact on network costs of small scale PV varies with a range of factors including location, feeder characteristics and local penetration. Analysis by Ernest and Young for the Clean Energy Council[ii] shows that for sample feeder types, the impact on network costs can change from a benefit at low penetration rates to a cost at high penetration rates. The impact can be highly variable between feeders, suggesting from street to street the network benefit may be significantly variable. By regulating a network benefit across Victoria, some distributed generation owners may be over-compensated while others who truly are benefiting the network may be undercompensated.

As the share of distributed generators rises in a region, interconnection (and the use of the network) with other regions becomes increasingly important. AEMO have forecast[iii] that as early as 2023, solar PV generation in South Australia could be sufficient to exceed demand at times. This would result in the marginal distributed generation needing to use the low, medium and high voltage network and the interconnector in order to be consumed in Victoria. In that case, the theory that exported energy from distributed generation is only using a small part of the network on its journey to a consumer does not hold. At high shares of variable renewable generation (such as solar PV) the network and interconnection of regions becomes important to export energy and match demand with supply, as well as maintaining system security. Victoria is also expected to experience strong take up of distributed generation as lower technology costs and existing policy encourage consumers to install these systems. Victoria's solar PV and storage systems are forecast to increase from under 1000 KW of capacity in 2015 to over 5000 KW in 2037[iv]. The growth of systems uptake is strong until 2033-34 when "saturation" is reached in some regions of the state. The finding implies that some regions could require additional network management or augmentation to accommodate large amounts of distributed generation.

Mismatch between import and export tariffs

The Energy Council is supportive of cost-reflective network tariffs as a means to encourage efficient network use and lower barriers to adaption to decarbonisation. The Productivity Commission has identified energy tariff structures as a barrier to effective climate change adaptation.[v] Restrictions on the time-of-use tariffs distort the price signals faced by consumers and affect decisions to adapt to emissions reduction. For example, consumer decisions to purchase air-conditioners and when to turn them on, whether to insulate a house or use double-glazed windows.

The efficiency and equity of network tariffs is not enhanced by the "cherry-picking" that would result from mismatched import and export network tariffs. If consumers who have distributed generation are able to select an export tariff that incorporates a credit for the network, but are not paying cost-reflective tariffs on their consumption, their decision making will not be beneficial to efficient network use.

NERA Economic Consulting investigated the network benefits of a representative consumer with solar PV and estimated that consumers can be overcompensated for network benefits. Data from South Australia was assessed because of the very high penetration rates of solar PV among households in the State. NERA found that under existing tariffs in South Australia,

> *"The implied benefit to customers through lower network charges if the solar PV system is north-facing is approximately 2.4 times the associated reduction in network costs."*[vi]

The analysis also found that the tariff structure implemented in South Australia had created perverse incentives to install north-facing solar PV systems when west-facing systems would have had a greater network benefit during peak demand periods. Modelling with a more efficient tariff (a 'sharp' peak time-of-use tariff that ensures the networks charges reflect the incremental contribution to maximum demand or long run marginal cost) shows the increase in equity and decision making under more efficient network tariffs. Results suggest that under a more efficient network tariff:

- *Consumers without a solar PV system would see a decrease in their annual retail bill of approximately 1.6 per cent; and*

- *A customer with a PV system would see an increase of approximately 8.7 per cent under current feed-in tariffs.*

In 2015, the Victorian Government chose not to implement a rule that would move consumers to more cost-reflective network tariffs. Currently, those consumers who are underpaying for their use of the network are benefiting from non-cost-reflective network tariffs. To the extent that distributed generation owners are receiving a network benefit in their FiT, in fairness they should be reassigned to cost-reflective network tariffs so that they are provided with an incentive to efficiently utilize their distributed generation system.

The Energy Council supports a free market for renewable energy and the existing Commonwealth policies to lower the emissions intensity of Australia. The NEM is interconnected and any policy change in one jurisdiction will impact the efficient operation of the market as the FiT policy does in Victoria. The Energy Council considers the AEMC and AER, as national regulators, are better placed to assess impacts of distributed generation across the National Energy Market. Recent volatility in South Australia only highlights the importance of well-designed policy and planning for the integration of variable renewables and distributed generation.

The COAG Energy Council, of which Victoria is a participant, has agreed to national principles for feed-in tariff schemes. The principles were agreed to because of the recognition that national consistency reduces the cost of doing business for energy businesses that operate across state boundaries, and ultimately reduces the cost of services to consumers. These include the principle that any new FiT rate should be assessed with cost benefit analysis, be time limited and targeted toward specific objectives.

> *"For any new measures, or during any reviews of existing measures, undertake analysis to establish the benefits and costs of any subsidy against the objectives of that subsidy (taking into account other complementary measures in place to support small renewable consumers)."*[vii]

We support this principle and believe it is relevant to guiding the ESC in its evaluation of the merits of distributed generation for the network.

Summary

The AEC believes that any assessment of the true distribution value of embedded generation should be undertaken on a nationally consistent basis. Furthermore it should not be considered in isolation without also understanding both the import and export impacts to the distribution system of the generating customer. It is likely that when both of these factors are determined that the application of any distribution benefit may be customer and locational specific and care must be taken to ensure that the complexity of allocating any benefit or cost does not exceed its true value.

Any questions about our submission should be addressed to Emma Richardson, Policy Adviser by email to emma.richardson@energycouncil.com.au or by telephone on (03) 9205 3103.

Yours sincerely,

Kieran Donoghue
General Manager, Policy & Research
Australian Energy Council

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[i] 2016, AEMC, http://www.aemc.gov.au/Rule-Changes/Local-Generation-Network-Credits

[ii] 2015, Clean Energy Council, ARENA, http://fpdi.cleanenergycouncil.org.au/reports/value-of-small-scale-generation.html

[iii] 2015, AEMO, http://www.aemo.com.au/Electricity/Planning/National-Transmission-Network-Development-Plan

[iv] 2016, Jacobs, AEMO, *Uptake of small-scale systems*, http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/-/media/CFE21AC3511D4FC3A52CE3760E9452C3.ashx

[v] 2013, Productivity Commission, http://www.pc.gov.au/inquiries/completed/climate-change-adaptation/report/climate-change-adaptation.pdf

[vi] 2014, NERA, http://www.aemc.gov.au/Rule-Changes/Distribution-Network-Pricing-Arrangements/Draft/Consultants-reports/NERA-Economic-Consulting-%E2%80%93-Current-and-emerging-te.aspxV

[vii] 2008, COAG Energy Council, https://www.coag.gov.au/sites/default/files/20081129_national_principles_fits.pdf