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A few words.

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Ben Shafran
Director, Transmission and Distribution Networks
Australian Energy Market Commission
PO Box A2449
Sydney South NSW1235

Submitted via email at www.aemc.gov.au

Reference: ERC0191

Dear Mr Shafran,

Re AEMC 2016, Local Generation Network Credit, Consultation Paper

AGL Energy (**AGL**) welcomes the opportunity to respond to the *AEMC 2015, Local Generation Network Credits, Consultation Paper* (**Consultation Paper**).

AGL is one of Australia's leading integrated energy companies and largest ASX listed owner, operator and developer of renewable generation. Our diverse power generation portfolio includes base, peaking and intermediate generation plants, spread across traditional thermal generation as well as renewable sources. AGL is also a significant retailer of energy, providing energy solutions to over 3.7 million customers throughout eastern Australia. AGL recently established a New Energy Services division, with a dedicated focus on distributed energy services and solutions.

Improving the efficiency of network investment and use has rightly been a strong focus of regulatory and market reform in recent years. These reforms have been instigated against a background of declining demand, poor network utilisation and marked increases in network charges. At the same time rapid advances in technology, such as embedded generation, energy storage, and digital metering and control platforms, are revealing new flexible options for networks to meet their service obligations.

The network reforms implemented to date target both sides of the equation. On the network investment side, a suite of mechanisms have been introduced to encourage network service providers to give due consideration to non-network solutions (such as demand-side management and embedded generation) as an alternative to traditional network augmentations. At the distribution level, these mechanisms include the distribution network planning and expansion framework (encompassing both the regulatory investment test for distribution (RIT-D) and the distribution annual planning and reporting (DAPR) processes) and the demand management incentive scheme and innovation allowance (DMIS and DMIA).

On the customer side, the introduction of network tariffs which better reflect the actual costs of providing electricity is intended to provide customers with appropriate price signals so they can make informed consumption choices and manage their expenditure. In turn, this is expected to produce long term benefits of reduced network spending and improved network utilisation.

The proposed Local Generation Network Credit (**LGNC**) is framed as a 'negative network tariff' designed to send a price signal which encourages export by embedded generators when of most benefit to the network. It is intended to capture any operational cost savings (avoided transportation costs) as well as any savings from deferring or down-sizing network investment (capacity support) that are associated with the embedded generators' exports. In this way the proposed LGNC appears to sit somewhere between customer-side network tariff reform and regulation to encourage efficient network investments, and its interaction and interplay with these other mechanisms should be considered.

AGL continues to support reforms which aim to transition shared network users to a more cost-reflective pricing regime. AGL also emphasises the fundamental importance of frameworks which motivate network businesses to meet their network service obligations using the most efficient means available, including through a thorough and transparent network planning process. However, in AGL's view there are significant complexities that would need to be overcome in order to ensure the proposed LGNC complements the broader transition to cost-reflective pricing and only rewards exports from embedded generation when that export leads to genuine network cost savings and there is no other solution (network or non-network) that would more efficiently achieve that outcome. These complexities are detailed below.

- ***Is there a gap in the existing incentive framework?***

  Given its substantial contribution to costs in the electricity supply chain and their monopoly nature, regulatory frameworks that effectively motivate efficiency in network investment and operation are critical. As the Commission notes a series of recent rule changes have attempted to ensure potential non-network solutions are given due consideration alongside more traditional augmentation approaches. These add to other mechanisms (such as the capital expenditure and efficiency benefit sharing schemes) to encourage efficient network operation and investment decisions.

  We note that by their very nature, frameworks to regulate monopoly infrastructure can only ever approximate the efficiency effects that a competitive market would be expected to produce. In this sense, they will always be second best solutions. Given their relative newness (particularly in the context of long-lived assets) and the general decline in consumption, there has only been limited testing of some of these mechanisms. This makes it difficult at this stage to definitively identify and assess the materiality of any gaps in their effectiveness.

  The DAPR and the RIT-D, for example, have the potential to make important contributions. The purpose of the DAPR is to increase the transparency of network planning and expansion and thereby allow third parties to better understand and interrogate drivers for network investment. Under the RIT-D interested parties can then propose alternative non-network options to address identified needs, which must be given due consideration by network businesses.

  As the industry gains more experience working with this framework, it will be extremely important to review whether it is working effectively and achieving its purpose. Relevant questions might include whether the information provided in the DAPR is reliable, targeted and sufficiently detailed enough as to be useful, whether the demand side engagement strategy has produced meaningful dialogue, whether the comparative analysis of network and non-network options has been fair, and whether the RIT-D framework should be extended to replacement expenditure. These enquiries could accompany the regular review of cost thresholds under the RIT-D.

  The revised DMIA and DMIS (soon to come into effect) are also intended to provide further incentives to implement demand management solutions as an alternative to network augmentation. Provided the principles of competitive neutrality are upheld in the implementation of identified solutions (including strict ring-fencing of distribution businesses seeking to enter contestable markets), this scheme has the potential to further encourage more non-capital expenditure by distribution businesses. Until there is some practical experience with the scheme, it is difficult to assess its success.

We note that the RIT-D and DMIA are of broader application than the proposed LGNC in that the credible non-network and demand management options pursued under those frameworks may well involve embedded generation but may also look at broader demand response measures. In our view this is important since curtailable loads (performing essentially as negative generation) will in many scenarios be a more efficient means of responding to network constraints than deploying more embedded generation. The regulatory framework should encourage the most efficient means of meeting network needs, and not favor one solution or technology over another.

Another relevant quality of existing NER mechanisms is that they attempt to encourage *targeted* solutions to *identified* network needs and the implementation of those solutions that produce net *cost savings* over the longer term. AGL is concerned that some of the elements of the LGNC proposal risk producing poorer outcomes against these elements and may result in payments to projects that do not meet network needs.

- ***Specificity of calculations***

Whether embedded generation will provide benefits to the network (and the magnitude of those benefits) is dependent on the location, embedded generator penetration level and network capacity at any given time – for example penetration at low levels may alleviate network investment, but at higher levels may actually force network upgrades.[1] To provide a reasonable pricing signal, the methodology for the LGNC would need to appropriately recognise these issues, and therefore a simple annual average rate paid to all exports seems unlikely to be effective.

Instead there would need to be a reasonable degree of specificity and granularity in the construction of export tariffs if they are to motivate investment in and export from embedded generation in locations and at times of the day when it will deliver a genuine benefit and produce identifiable cost saving to the network. Implementation of a scheme which pays out credits that do not actually motivate the desired behaviour and deliver credible future network cost savings, will only increase overall network costs and effectively introduce a new form of cross-subsidy between different types of customers.

This outcome would not further the National Electricity Objective and would go directly against the objectives of the existing program of network tariff reform. Therefore, before it could be progressed, it would be important to understand whether a sufficiently accurate methodology for an LGNC can be developed, what the likely quantum of potential network benefits expected from introducing the measure are, and whether they outweigh the likely costs of implementing and administrating the regime.

An accurate export tariff would also be variable over time as network demand changes and augmentation that was delayed eventually takes place, or embedded generator penetration in an area grows to a level that substantially alters its value in alleviating a constraint. It is unclear whether under the proposed LGNC an embedded generator would continue to receive a credit at the level available at the time it was installed or whether the LGNC paid to a single embedded generator would vary over time. Following this, another pertinent question is whether the lack of predictability in expected export payments would act to deter the kind of investment that the LGNC proposal actually seeks to encourage.

We note that the progress of network tariff reform may provide useful experience regarding the degree of accuracy and complexity in price signals that may be

[1] EY for the Clean Energy Council, *Calculating the value of small-scale generation to networks*, 2015, available at http://fpdi.cleanenergycouncil.org.au/reports/value-of-small-scale-generation.html

acceptable from an end-user perspective. (Noting, though, that in the network tariff reform process it is generally acknowledged that retailers will play a key role managing complexity on behalf of their customers with new technologies, tools and product offerings).

- ***Indiscriminate application***

For a non-network solution to be selected by a distribution business in place of a network augmentation under existing NER frameworks (e.g. RIT-D, network support contracts, DMIA), that non-network solution would need to address an identified constraint to an acceptable level of reliability and predictability. This seems to naturally imply that the size, availability and reliability / dispatchability of particular kinds of distributed generation will be relevant to whether they will be a suitable candidate for addressing network constraints and receiving payment.

Applying a credit indiscriminately to all embedded generators, whether or not they can control the time and volume of their exports (e.g. wind or solar installations) may devalue the targeted support that other embedded generators are able to provide. The rule change proponents suggest this obstacle is overcome by treating all embedded generators as a theoretical portfolio. As the Commission notes, given the highly variable penetration level of embedded generation and the types of embedded generators connected at different locations, there will be many instances in which this assumption will not hold. Relying on such an assumption increases the likelihood that a credit is paid to embedded generators in recognition of a network benefit that is not in fact delivered. Under these circumstances network augmentation works must still then be undertaken and overall costs are increased.

Rather than relying on an assumption that is susceptible to some error, in AGL's view technology may eventually provide the bridge to allowing smaller-scale and more intermittent sources of embedded generation to participate in schemes which compensate embedded generators and the demand side for the network support they provide. Relevant advancements include energy storage, digital metering, advanced flexible load and storage aggregation platforms and remote control systems.

AGL is aware of substantial commercial development being undertaken within industry to test potential applications of these new technologies. These investigations include understanding the various potential value streams for demand side activities and embedded generation, and mechanisms to share the value between beneficiaries. To apply an LGNC to all embedded generation regardless of whether it can actually respond to an identified network need may devalue and act as a break on this research and the development of such innovative solutions and products.

Aggregation platforms also have the potential to overcome the high transaction costs that would be incurred were a distribution business to negotiate network support arrangements with individual small-scale generators. Instead, the distribution business would negotiate with a much smaller set of aggregators who themselves manage the participation of their portfolio of smaller scale embedded generators.

Finally, AGL considers that the Commission makes a fair observation when it asks what efficiency gains are to be had by paying an LGNC to an existing embedded generator that already exports its entire (or a significant portion of its) output and does so in response to stronger signals than an LGNC might provide. For example, where there is minimal onsite consumption, exports from wind and solar will continue to be driven by prevailing weather conditions even in the presence of an LGNC. Similarly, a commercial generator exporting under a financial cap contract will unlikely have the ability to change that existing export pattern by virtue of an LGNC. Accordingly, in these circumstances, an LGNC would represent an additional cost to consumers without influencing generation asset output and, subsequently, future network investment needs.

- ***Overall impact on network costs***

AGL considers that network regulation should provide incentives for distribution businesses to identify and pursue the most efficient (or least cost) solution that can deliver the required level of supply reliability, irrespective of whether that solution is a network or non-network option. In order for the LGNC framework to contribute to a reduction in future costs for all customers, it would need to be structured in such a way that embedded generators are only reimbursed (and thus the broader customer base only charged) for the efficient costs of the investment in embedded generation rather than the (higher) cost of the avoided augmentation works.

Some discount to the LGNC may also be appropriate to account for the fact that even a highly accurate price signal may not deliver a perfect behavioral response and some residual amount of network augmentation may still be required.

We note that the rule proponents suggest that an embedded generator could qualify for compensation under a RIT-D or contracted network support arrangement, and still maintain eligibility for a LGNC. If this is to be the case, then we consider it necessary to make a clearer distinction between what network benefits are purportedly to be rewarded under each mechanism to avoid the potential for embedded generator exports to be rewarded twice for the same benefit of their investment.

- ***Interaction with network tariff reform***

AGL supports a move towards more cost-reflective distribution network tariffs. In AGL's view, cost reflectivity encompasses a number of principles including:

  - sending efficient price signals that encourage energy users to minimize the costs they impose on the network;
  - ensuring that all customers contribute fairly to the costs of shared networks;
  - avoiding rebates and subsidies; and
  - promoting informed customer choice about the products and services that they use to meet their energy needs, including through transparent pricing reflecting the costs and benefits of different choices.

Cost-reflective network tariffs are the logical forerunner to network price signals for export at the small customer level for a number of reasons. Firstly, there are substantial network benefits associated with customers managing their own maximum demand on the network. Cost reflective network tariffs are intended to signal this value and will themselves be an important driver of investment in embedded generation and complementary technologies, like batteries and electric vehicles, where these allow the customer to reduce their grid consumption during network peaks.

Secondly, for so long as existing volumetric tariffs predominate, then inherent cross subsidies between those who place a larger burden on the network at peak times and those who place a lesser burden on the network will be sustained. For example, although the cumulative impact of small scale solar installations has been to delay and slightly lower peaks in some networks, the consumption profiles of households with solar do nevertheless contribute (along with the broader customer base) to residual network peaks.[2]

Thus before any network benefits can be *explicitly* rewarded under an LGNC type arrangement, it would be necessary to consider the extent to which they are already *implicitly* rewarded by virtue of network charges avoided under existing volumetric pricing. For similar reasons, AGL has concerns about the proposal to recognise and reward any net benefits that embedded generation provides to the network, but to smear any net costs across all tariff classes (consumers). This seems likely to exacerbate rather than ameliorate any cross subsidies inherent in current pricing regimes. To ensure an equitable outcome and the development of a sustainable network pricing regime, in AGL's view the implementation of an LGNC would need to accompany and complement the broader transition to greater cost-reflectivity.

Nor does AGL support the alternative proposed treatment, namely disallowing additional connections of embedded generators where the cumulative impact of all generators on a feeder is to increase network costs. This goes directly against the underlying principles of the Power of Choice package of reforms, where customers are given greater options and control over the way they use electricity. This should extend to the option to take up distributed energy solutions (including a reasonably sized solar system) provided the customer faces the reasonable costs and benefits of that decision.

Thirdly, the progress of network tariff reform offers useful experience regarding the degree of accuracy and complexity in price signals that may be acceptable from an end-user perspective. While in the long-term, efficient and cost reflective network pricing may involve time- and location (feeder)- differentiated dynamic pricing, it is essential that the complexity of customer tariffs is matched by the availability of enabling technology and retail offerings, so that customers can understand how and why they are being charged, can anticipate and manage their costs and are not exposed to unreasonable risk.

- ***Other research and trials***

Despite AGL's concerns and reservations regarding the particular LGNC proposal currently under consideration, we are keenly aware that the major transformation facing the energy industry – moving from a linear value chain to a decentralised, customer driven market – will require a fresh look at regulatory frameworks particularly those applying to network operation, investment and cost-recovery.

In this regard, AGL is participating in a number of trials, including an Institute of Sustainable Futures study examining the potential for a reduced local network tariff for consumption of locally generated energy. A major challenge of this research will also be devising a methodology that accurately identifies and values any network cost savings associated with only partial use of the network. It will also be necessary to consider the overall impact on the customer base and implications for equity in network charging where tariffs for consumption of centrally generated energy rise to accommodate a tariff reduction for consumption of locally generated energy.

Should you have any questions in relation to this submission, please contact myself on 03 8633 6836 or Eleanor McCracken-Hewson, Policy & Regulatory Manager, New Energy, on 03 8633 7252.

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[2]Simshauser, P., 'Distribution network prices and solar PV: Resolving rate instability and wealth transfers through demand tariffs', *Energy Economics*, 54, February 2016, p108-122, particularly figures 7–10

Yours sincerely,

Stephanie Bashir
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