

A few  
words.

12 February 2016

James Clinch  
Essential Services Commission of Victoria  
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Melbourne, Victoria 3000

Submitted via email: [energy.submissions@esc.vic.gov.au](mailto:energy.submissions@esc.vic.gov.au)  
[www.aemc.gov.au](http://www.aemc.gov.au)



Dear Mr Clinch,

**Re Inquiry into the true value of distributed generation – Proposed Approach Paper, December 2015**

AGL Energy (**AGL**) welcomes the opportunity to respond to the Essential Services Commission's (the **Commission**) paper on the *Inquiry into the true value of distributed generation – Proposed Approach (Approach 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. In Victoria, AGL has 633,000 Victorian electricity customers as at 31 December 2015.

The energy industry is undergoing a major transformation, moving from a linear value chain to a decentralised, customer driven market. AGL has embraced this change and established a New Energy Services division, with a dedicated focus on distributed energy services and solutions to all end use customers. Within New Energy Services, we are able to offer customers beyond the meter energy solutions. This includes new technologies such as batteries and electric vehicles, solar PV systems for both residential and business customers, and digital meters through our subsidiary business Active Stream.

This evolution is bringing into the spotlight questions about how industry participants (including customers and distributed generators) will interact with and value the grid into the future. This evolution will therefore have broad, National Electricity Market (**NEM**)-wide impacts and it is essential that the Commission's analysis and recommendations take a national perspective and contribute to NEM-wide frameworks and reforms where possible.

This is particularly relevant to the question of identifying, quantifying and rewarding any network benefits associated with distributed generation as this is currently being directly considered by the Australian Energy Market Commission (**AEMC**).<sup>1</sup> Any potential measures must also be assessed in light of the state of progress towards more cost-reflective

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<sup>1</sup> In response to a rule change request for a Local Generation Network Credit see <http://www.aemc.gov.au/Rule-Changes/Local-Generation-Network-Credits>

network tariffs and the manner in which network costs are recovered absent substantial take-up of such tariffs.

Similarly, although AGL supports the Commission separately considering the energy value of distributed generation, the final recommendations of this inquiry must take account of the overall direction of electricity pricing reform and the interrelationships of network, retail and export pricing policies. Without this holistic view, there is a risk of perpetuating an unbalanced and unsustainable pricing system. An important component of this overall reform process must involve transitioning to a framework where all electricity customers contribute equitably to the costs of shared network services, and where export pricing schemes do not increase electricity prices for non-solar customers.

AGL's answers to the specific questions posed by the Commission are set out below. Should you have any questions in relation to this submission, please contact myself or Eleanor McCracken-Hewson, Policy & Regulatory Manager, New Energy,

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Stephanie Bashir', written over a faint, light blue circular watermark.

Stephanie Bashir  
Head of Policy and Regulation, New Energy

## COMMISSION'S APPROACH

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?

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?

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

AGL agrees that the focus of the inquiry should be public benefits as private benefits already accrue directly to the investor. No regulatory mechanism is required to enable an investor to capture these benefits.

AGL strongly agrees with the Commission's statement that any payment structures that are developed to capture an identifiable and quantifiable public benefit should not take the form of a reward or subsidy. The industry is currently embarking on a much-needed transition to more cost-reflective network tariffs, one of the primary objectives of which is to address cross-subsidies inherent in current volumetric pricing regimes. It is essential that any payment structures for recognising a public benefit from embedded generation complement this broader reform process and are not implemented independently of it.

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?

The Commission's understanding is correct with respect to the standard connection of small-scale embedded generators, and that these costs are recovered through network charges (i.e. smeared across customer tariff classes). For this reason, it is essential that any new payment structures recommended by this inquiry to explicitly reward any network benefits provided by embedded generators (assuming these can be identified and quantified) take account of the extent to which such embedded generators are already implicitly rewarded for those benefits by virtue of network charges avoided under existing volumetric pricing structures.

To ensure an equitable outcome and the development of a sustainable network pricing regime, any new payment structure recommended out of this inquiry would need to accompany and complement the broader transition to greater cost-reflectivity in network pricing.

The costs of connecting larger scale embedded generators are recovered directly from the connection applicant and must be in line with a costing methodology approved by the AER (including charges for specific infrastructure and services which form part of the connection). The overall connection cost will depend on the specific elements forming part of the connection and is subject to a degree of negotiation.

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

AGL considers that the principles of materiality, simplicity and behavioural response are sound principles to guide the inquiry.

AGL considers that wherever possible analysis and recommendations should take a national perspective and focus on NEM-wide frameworks and reforms. This is particularly relevant to the question of identifying and quantifying any network benefits associated with distributed generation as this is currently being directly considered by the AEMC in

response to a rule change request for a Local Generation Network Credit.<sup>2</sup> So as to avoid duplication, AGL recommends that the Commission's analysis be focussed as a contribution to the detailed process being run by the AEMC.

Although AGL supports the Commission separately considering the energy value of distributed generation, the final recommendations of this inquiry must take account of the overall direction of electricity pricing reform and the interrelationships of network, retail and export pricing policies. Without this holistic view, there is a risk of perpetuating an unbalanced and unsustainable pricing system. An important component of this overall reform process must involve transitioning to a framework where all electricity customers contribute equitability to the costs of shared network services, and where export pricing schemes do not increase electricity prices of non-solar customers.

AGL considers that Victoria – a jurisdiction with effective retail competition and the first to deregulate retail pricing – should ultimately move to also deregulate electricity feed-in tariffs. In Victoria, customers can and do 'shop around' for retailers that offer attractive rates for both usage and solar exports. In New South Wales and south east Queensland, there are no mandatory feed-in tariffs for customers who are not on the Solar Bonus Schemes. In AGL's view, the Commission should take this into account when considering the extent to which complicated adjustments should be made to the mandatory minimum rate.

#### **DEFINITION OF DISTRIBUTED GENERATION**

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

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

AGL is comfortable with the proposed definition of distributed generation only for the purposes of this inquiry.

We note for clarification that an inverter prescribed by AS4777 may have a capacity of no more than 5kVA as single phase (not 200 kVA as suggested). This acts as a barrier to customers wanting to retrofit their solar installation with a battery system, as the 5kVA limit applies to the sum of the solar and battery inverters. This effectively means that either the customer must limit the size of battery installed, or reconfigure and rewire the installation so as to connect the battery utilising the same inverter (at some cost), or alternatively install an export limiting device (which negatively impacts on the customer's use of the system).

#### **WHAT VALUES CAN BE ATTRIBUTED TO DISTRIBUTED GENERATION**

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

There may be another class of 'unrealised' benefits associated with distributed generation – that is, benefits that distributed generation could provide if markets were opened to competition from distributed sources. For example, if the frequency control ancillary services (**FCAS**) market was opened up to allow participation beyond registered market generators private benefits could flow to participating distributed generators (payments for provision of ancillary services) if they could provide these services on competitive terms. Public benefits would also arise if these services were provided more efficiently.

As the NEM transitions to a greater penetration of renewable energy, there may emerge a need for markets for other types of network support (e.g. voltage support). However, as

<sup>2</sup> <http://www.aemc.gov.au/Rule-Changes/Local-Generation-Network-Credits>

NEM stability and reliability is managed by the Australian Energy Market Operator (**AEMO**) on a NEM-wide basis, we consider that any reforms to realise these benefits should also occur on a national (that is, NEM-wide) basis. This is the case with the AEMC's current consideration of the ancillary services unbundling rule change proposal.<sup>3</sup>

While there may be other broad public benefits associated with the energy generated by a distributed generator, AGL has not been able to identify any that are material, easily quantifiable or unique to the investment made by distributed generators, and which are not already recognised and rewarded.

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?

AGL agrees that the environmental benefits of distributed generation are primarily associated with the energy market, rather than network operation and investment – i.e. derived from lowering emission intensity of generation fleet (and reduced losses).

## REGULATORY FRAMEWORK

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?

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?

The particular aspects of the regulatory framework as outlined by the Commission of particular importance to this enquiry include:

- **The NEM-wide distribution network planning and expansion framework** overseen by the Australian Energy Regulator (**AER**) (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**). These are two reforms aimed at ensuring potential non-network solutions are given due consideration alongside more traditional augmentation approaches.

AGL considers that 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, are of fundamental importance. The full suite of available options (whether network or non-network) should be given due consideration by network businesses. Similarly, within the category of non-network options, all solutions should be considered and assessed on their merits – whether these be demand (load) management options or distributed generation. Schemes which exclusively reward distributed generation as a solution may divert funds from alternative solutions which meet network needs more efficiently.

While it will be extremely important to review the effectiveness of these schemes as the industry gains experience working with them, AGL considers it important to maintain a holistic, NEM-wide focus to network planning and investment. We would

<sup>3</sup> <http://www.aemc.gov.au/Rule-Changes/Demand-Response-Mechanism>

not support a separate jurisdictional scheme that diverts attention from the primary task of ensuring those processes are working effectively.

- **Rules requiring distribution businesses to introduce more cost-reflective network tariffs.** The final recommendations of this inquiry must take account of the overall direction of electricity pricing reform and the interrelationships of network, retail and export pricing policies. Without this holistic view, there is a risk of perpetuating an unbalanced and unsustainable pricing system. The overall reform process should involve transitioning to a framework where all electricity customers contribute equitably to the costs of shared network services, and where export pricing schemes do not increase electricity prices of non-solar customers.
- **The ongoing national reform process** and, in particular, rule change proposals currently being considered by the AEMC including the proposal for the implementation of a local generation network credit. In AGL's view, that is the appropriate forum for considering issues related to the network impacts of embedded generation, particularly since cost recovery for network services is a process overseen by the AER and the two are intrinsically interrelated.
- **Previous Victorian feed-in tariff schemes.** AGL considers that there are valuable lessons to be learned from experience with previous Victorian feed-in tariff schemes where feed-in tariff rates, that were not reflective of the avoided costs to the market from the operation of such distributed generation, resulted in cross subsidies between different customers.
- **Network support payments, avoided TUoS and avoided DUoS.** Any new payment structures introduced to reward any network benefits of distributed generation must take account of existing schemes so as to avoid distributed generators being rewarded twice for the same benefit.
- **The Renewable Energy Target (RET)** is clearly relevant to the Commission's assessment of whether distributed generators are already sufficiently rewarded for any environmental benefits they provide.

Under the current regulatory framework AGL has previously received network support payments (**NSP**) in respect of the output of one of its larger embedded generators. Whether a distributed generator will enter into a contract for NSP depends on a number of factors the most important of which being, firstly, whether there is an ongoing constraint that the generator's output is able to alleviate (noting that this may change over time as an augmentation that was temporarily deferred is eventually undertaken) and, secondly, how the payments under an NSP contract compare with potential value that could otherwise be realised in the wholesale market.

AGL also currently receives avoided TUoS payments for generators connected to the distribution network. The avoided TUoS payment is an effective way of capturing the avoided transmission network cost of medium size generators on a connection by connection basis (the NER calculations take into account peak consumption intervals and relative connection locations to TNSP/DNSP boundaries). AGL's Victorian distribution connected generators have also received avoided DUoS payments.

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 the DAPR and the RIT-D. This makes it difficult at this stage to definitively identify and assess the materiality of any gaps in their effectiveness. 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.

Mechanisms like NSPs and the RIT-D have historically been out of reach of smaller-scale embedded generators. However, in AGL's view, technology may well 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 targeted network support they provide. Relevant advancements include energy storage, digital metering, advanced flexible load and storage aggregation platforms and remote control systems.

#### KEY ISSUES FOR THE INQUIRY

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?

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

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

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

The energy value of exports from a distributed generator may vary according to the time of the day, but AGL considers that the flat, weighted average structure should be retained at this point in time.

About 90% of AGL's Victorian residential customers remain on the Domestic General rate which is generally a flat, single rate. About 10% of AGL's customers are on the two rate tariff i.e. with peak and off peak rates (GH/GL Weekend Saver), with less than 0.5% of customers currently on flexible tariffs. Consideration of whether a time-of-use feed-in tariff should be introduced must take account of the pace of overall electricity pricing reform (including customer take-up of cost-reflective, time-varying network tariffs) and the interrelationships of network, retail and export pricing policies.

It is also important to note that current solar feed-in tariffs have been determined after taking into account the typical solar export profile so that the time-varying wholesale value of energy production is built into the flat rate.

It is also important to note that current solar feed-in tariffs have been determined after taking into account the typical solar export profile so that the time-varying wholesale value of energy production is built into the flat rate. 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?

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?

AGL agrees with the view expressed by the Commission. The RET (small and large scale) was implemented as part of a package of measures including a carbon price. There was wide recognition that as the carbon price took hold into the future that the RET price would gradually reduce as the carbon benefit of renewable energy was increasingly prominent as part of the overall price of electricity. Therefore it is appropriate to assume that absent the explicit price on carbon, the RET certificates (SREC and LGC) include an implicit amount that represents the value of carbon abatement.

AGL acknowledges the reference to the potential carbon benefit associated with distributed generators whose output is less emissions intensive than the NEM-average, but are ineligible for the RET. However this benefit is not unique to distributed generators (for example, transmission-connected, centrally dispatched gas generators may offer the same benefit). AGL agrees with the original VCEC view that a national carbon price is the most efficient mechanism to reward generation with lower relative emissions intensity. To implement a scheme specific to distributed generation would require development of an explicit carbon price for calculation purposes and an efficient mechanism for the allocation and administration of such benefit.

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?

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

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

As the VCEC and other analysis referred to by the Commission shows, any network benefits associated with distributed generation are highly time and location specific. Further, the connection and operation of a substantial degree of distributed generation on the network may in fact force network upgrades and impose additional costs. For this reason, AGL does not consider that the benefits of distributed generation to the network can be considered and rewarded in isolation without taking into account how network costs are recovered from the broader customer base. Rather the overall impact of distributed generation on the network needs to be considered.

Although the 2016 – 2020 Regulatory Determinations and Tariff Structure Statements published by the Victorian distribution businesses will indicate when embedded generation is of most value to the networks in term of minimising strain during local peaks, they will not reveal the penetration rate in a particular location that will lead to an increase in network costs (by forcing a network upgrade). Accordingly, the Commission should only treat these statements as indicative of the times of the day when distributed generation will most likely be of value to the network but not determinative of whether a network benefit will flow from exports from a particular distributed generator.

AGL considers that wherever possible analysis and recommendations should take a national perspective and focus on NEM-wide frameworks and reforms. This is particularly relevant to the question of identifying and quantifying any network benefits associated with distributed generation as this is currently being directly considered by the AEMC in response to a rule change request for a Local Generation Network Credit.<sup>4</sup> So as to avoid duplication, AGL recommends that the Commission's analysis be focussed as a contribution to the detailed process being run by the AEMC.

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<sup>4</sup> <http://www.aemc.gov.au/Rule-Changes/Local-Generation-Network-Credits>