seed

Mr Chris Pappas
General Manager
Australian Energy Regulator
GPO Box 520
Melbourne VIC 3001

2 August 2011

Dear Mr Pappas

Connection Charge Guidelines: submission in response to the Australian Energy Regulator's Consultation Paper.

Seed Advisory and Climateworks Australia have been working with a group of developers of cogeneration projects, distributed energy services businesses, distribution businesses, regulators, government representatives and other stakeholders to identify ways in which the barriers to cogeneration and trigeneration experienced by project proponents can be significantly reduced. Details of the project can be found on Climateworks Australia's website.

In working as part of a large group of stakeholders in collectively addressing the issues faced by project proponents, we have focussed on a group of "shovel ready" projects – projects that are currently in the design and development phase in and around Melbourne. A description of the key characteristics of the projects included in our work is attached to this submission. All of the projects, should they proceed, will fall into the category considered by the AER in the discussion paper – non-registered embedded generators. Our comments on the AER's views draw on our experience in this project and the characteristics of the projects we considered.

The AER seeks comments on its proposal that embedded generators should fund specific network shared network augmentation to remove constraints on their outputs due to limits of the existing network.

The projects' characteristics suggest that the Australian Energy Regulator (AER) has not adequately considered the characteristics of these types of projects in its proposal that embedded generators should be treated in a similar way to generators and required to fund what were previously known as *deep connection costs* and the AER now proposes to call *shared network augmentations*. We believe the comparison relied on by the AER in establishing competitive neutrality as required by Ch. 5A.E.1.(a) is flawed.

- Typically, the projects considered in our project propose to compete with generation only within the boundaries of the site or development: to the extent that access to the distribution network is required for export, then this requirement is for load balancing and synchronising purposes[1]. In these cases, the choice of the treatment applying to generation connections

[1] In using the word "site", we are using a logical boundary relating to a single enterprise owned and/or operated by the same entity on contiguous titles, rather than, for example, a definition based on land title or the existence of a meter. In our view, the logical boundary is the appropriate basis for distinguishing the interface with the distribution network.

under conditions of constraint as the comparison for the purposes of competitive neutrality, as required under Section 5A.E.3.(d).(2), does not appear appropriate.

- The project proponents' experience in seeking connection is also inconsistent with the view that these projects are treated in practice in a similar way to generators. The AER's discussion of the generation comparison suggests that *connection* and *energy export* can be considered separately – a generator can be guaranteed *connection*, subject to meeting the technical standards required of all generators, but is not guaranteed *export capacity at specific times*, as a result of the operation of network constraints which a generator can then pay to alleviate. However, even where a project proponent's load on the lowest consumption day of the year – typically over the Christmas break – is higher than the capacity of the proposed embedded generator, a project proponent may find that the *connection is refused* or subject to conditions that materially restrict the operation of the embedded generator at all times, for example, by requiring the embedded generator to be run in island mode – not synchronised with the network – effectively *preventing all export*. Given this, the comparison with generation does not appear appropriate.
- The choice of generation as the basis for the comparison appears to be inconsistent with the AER's previous, frequently stated, view that embedded generation represents a substitute for network services[2,3].
- Further, if the intention of the revisions to the National Electricity Rules (NER) was to require non-registered embedded generators to be treated identically to registered embedded generators and other transmission connected generators, the inclusion of non-registered embedded generators in other relevant parts of Chapter 5 or elsewhere in the NER, rather than Ch. 5A, would appear to have been more appropriate.

In proposing that non-registered embedded generators should pay for specific network shared network augmentation to remove constraints on their outputs, the AER's proposal:

- Assumes that non-registered embedded generation projects are similar to new, large customer connections – that is, that the projects are new, discrete connections often at some distance from the existing distribution network. Of the projects considered in our work, only one may fall into this category[4]. All but one of the other projects is a replacement of an existing connection[5]. We believe that our project set is likely to be representative of non-scheduled embedded generation projects in the future – these projects will likely be in existing, high density areas with a high commercial demand for better quality building. If this is the case, then for these projects, the key issue will be the cost and incidence of shared network services. Given this, the AER needs to consider whether the treatment of non-registered embedded

[2] For example, *Final Framework and approach paper for Victorian electricity distribution regulation - Citipower, Powercor, Jemena, SP AusNet and United Energy: Regulatory control period commencing 1 January 2011,* May 2009, cites embedded generation consistently as one of only a few possible substitutes for network services in a range of categories.

[3] The projects considered in our work are substitutes for network services, again, only in a narrow sense that by taking some or all of the associated load out of the market, transmission and distribution capacity requirements will generally be lower. None of the projects is considering providing network support as a key element of their design intent or economics, although lower TUoS and, possibly, DUoS charges are part of the economic case underlying the investments. If, however, non-registered embedded generation is regarded generally as a substitute for network services, then the AER needs to address issues of market power and asymmetric information that effectively allow a DNSP to restrict or, in some cases, prohibit the entry of a close substitute to their network.

[4] This project may, however, fall inside the relevant DNSP's planning envelope for network growth.

[5] The remaining project displaces generation currently imported by the project proponent.

generators should be different to that proposed for large customers, in particular with regard to the treatment of the cost of shared network services.

- Assumes that specific shared network augmentation costs attributable to any one specific project can be robustly separated from other costs incurred in a meshed network subject to demand growth and upgrading over time. Project proponents' experience suggests that this is not the case: the principle applied in allocating shared network augmentation costs to projects is not one that applies a unit rate to all applicants, but could be described as "last in, worst dressed" – the project proponent whose connection application coincides with a ceiling on network capacity, such as available fault level headroom, being reached is asked to meet the full costs of the required shared network augmentation[6]. No recognition is given to the contribution of other earlier connections to exhausting the available capacity and, depending on the existence and robustness of any refund scheme, the unlucky project proponent provides a free ride for future connection applicants using the same augmentation. This treatment gives rise to a cross-subsidy from the project proponent required to pay for additional capacity and all subsequent users of that capacity and, arguably, from the unlucky project proponent to all earlier connections using the same services.
- Reverses the treatment applied to these and other embedded network connections in a number of jurisdictions, including Victoria, NSW and, for small embedded generators, South Australia.
- Fails to provide a justification for the *appropriateness* of its proposed treatment, particularly in relation to that treatment previously prevailing in a number of jurisdictions – something which Ch. s5A.E.1.(a) requires in considering the capital contribution required of a non-registered embedded generator.

In our view, the AER should consider, consistent with the intention of Ch. 5A, encouraging the DNSPs to consider non-registered embedded generators as a class or classes under the Standard Connection services, with a common unit rate charge to apply to the cost of all shared network services for a similar types of connection equipment – for example, characterised by the make and model of equipment proposed for installation. Very similar arguments to the efficiency arguments underlying the basic connection offer for households and micro-generators in Ch. 5A exist for mini and small non-registered embedded generators.

Further, the classes introduced by the DNSPs should, to the maximum extent possible, be common: if every DNSP was to use the Energy Networks Association's categories – mini, small, medium and large – but introduce different cut off points and requirements, then there could be up to 44 different embedded generator Standing Offers in the National Electricity Market[7]. Non-registered embedded generators would continue to be liable for project specific connection and network extension costs. This treatment would be similar to that required by Ch. 5A for basic connection services below the threshold proposed by the AER, but, in comparison to the AER's proposal has the merits of:

- Recognising the differences between many non-registered embedded generator projects and large new customer projects, in particular the issues relating to the need for access to shared network services.

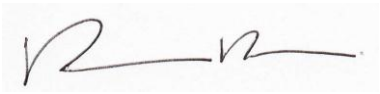
[6] The problem is compounded by the absence of any relevant information on the capacity of the network for new embedded generation connections. Project proponents are unable to choose whether or not to consider a proposed investment on the basis of the availability of capacity in a given network area or, alternatively, the costs of connecting in a given area, as DNSPs treat each application on a case-by-case basis and, to the extent that information is provided, that information is directed at network support projects.

[7] There are 5 Victorian DNSPs, 2 in NSW, 2 in Queensland and 1 in both Tasmania and South Australia.

- Providing for a more equitable treatment of the costs of shared networks services between connections of a similar type in a given network/network division, by removing the "last in, worst dressed" elements of the current and proposed approaches.
- Recognising that very similar arguments to the efficiency arguments underlying the basic connection offer for households and micro-generators in Ch. 5A exist for mini and small non-registered embedded generators[8]. For reasons of lower cost, equity between projects and public policy relating to the take-up of lower emission technologies, a process similar to that outlined in the basic connection service should be adopted for smaller embedded generators.
- Removing the significant barriers to connection that result from the current connection processes and uncertain costs for embedded generators, thereby increasing the potential penetration of embedded generation and improving efficiency for market participants, consistent with the requirements of the National Electricity Objective.
- If embedded generation is generally regarded as a potential substitute for network services, then there is also an issue of competition policy in addressing the barriers to connection: while the DNSPs are able to control the entry of potential substitutes, there is no level playing field.

We would welcome the opportunity of discussing this submission and our project with you. I can be contacted on 03 9658 2352 or on 0412 254 589.

Yours sincerely



Patricia Boyce
Director

[8] In earlier discussions of the changes to the NER that have been given effect to by Ch. 5A, there was significant debate about the coverage of the proposed basic connection service and, from time to time in those discussions, some of the projects included in our work would have been included under the basic connection service as part of the smallest class of embedded generators.

Project Descriptions

Description of site	Size of generation unit	Directional Flows	Relationship to load serviced	DNSP
CBD office tower, single title, new build	2 by 1.15 MW cogeneration units and possibility of further diesel back-up generation. Trigeneration under consideration	Overflow and synchronising flows into the distribution network planned.	Servicing own needs, base power, heating and possibly chilling	Citipower
CBD office tower, single title, retrofit	2MW trigeneration	Inflows at the meter for tenants' requirements; no planned flows into the distribution network, (including in the event of failure)	Servicing own needs, base power, heating and chilling. Desirably, sale of power to third party tenants	Citipower
New build within large brownfields development, single land owner	1MW cogeneration	Grid synchronised, in line with requirements of private network; capable of running in island mode	Own use, with the potential for a small number of unrelated tenants to take power off the network assuming metering capability existed.	UED (Jemena)
Multi-use, single site, existing build	Existing 6 x 1MWe cogen units also connected to absorption chillers. Proposed project is to expand to 12MWe tri-gen system.	Overflow into the distribution network for export to other buildings within the site.	Servicing own needs with base power, standby power, heating and cooling.	Citipower
Brownfields development, consolidated site, single land owner,	200kW cogeneration	Grid synchronised. Inflows at the meter for balance of development's requirements; no planned flows into the broader distribution network (including in the event of failure).	Small number of tenants (land owner sponsored/funded enterprises) on consolidated site to take power from cogen unit	UED (Jemena)

Description of site	Size of generation unit	Directional Flows	Relationship to load serviced	DNSP
Greenfields "new model urban development", currently single site and title. Subsequent subdivision and sale of land parcels	1MW trigeneration, with increments to 3MWs and 6MWs as development proceeds, linked by hub-and-spoke network	Planned export from cogeneration unit to other sites within development. Will require net inflows from grid for backup and for balance of development's requirements. Consideration of alternative network configurations to address 'export' problems.	District scale heating and cooling network provided to future owners/tenants; power provided to a range of future businesses/ activities connected to local network	SP AusNet