

Question 1

*Do you agree that the negotiated connection process in Chapter 5A will result in unexpected costs and delays for embedded generator applicants as submitted by the CEC?*

YES, BECAUSE THIS IS AN ECONOMICALLY-RATIONAL RESPONSE BY DNSPs

The monopoly position of DNSPs combined with market rules that incentivize certain behaviours will clearly lead to excessive costs and delays for embedded generator applicants. These issues were identified by the Productivity Commission in their 2013 Review of Electricity Network Regulation<sup>1</sup>:

- Ch.2, “any individual business user has relatively little capacity to negotiate from a position of power with network businesses”
- Ch.3, “rate-of-return regulations ... create incentives for inefficiency by encouraging cost padding”
- Ch.5, “using past information to set future targets reduces the incentives of a firm to lower costs since it knows that it will decrease its revenue in the future”

Question 2

*Do you have any examples or experience of using the negotiated connection process in Chapter 5A? Please identify any difficulties or positive experiences you encountered.*

NO, HOWEVER I AM AWARE OF ANALOGOUS EXPERIENCES OUTSIDE THE NEFC

The 4.1 MW Hepburn Wind project in central Victoria provides a vivid example of the challenges associated with a negotiated connection process. Connection of a wind farm of this size to a 22 kVA powerline had largely not been attempted before, and ultimately grid connection costs for the project blew out from \$210,000 to \$1.8 million – despite the initial estimate being informed by expert opinion:

“Detailed grid studies were initiated after the turbines had been selected, which was relatively late in the project development phase. The grid studies identified two issues that had significant impact on connection costs:

- reactive power control — in order to maintain voltage control, Powercor mandated a tight power factor range (0.85 – 0.87 absorbing), requiring the installation of significant reactive power control capability
- remote regulator monitoring and control — in order to ensure reliable operation of the two automatic voltage regulators on the feeder, significant investment in custom regulator control and monitoring system was mandated.

The complexities associated with the remote regulators exacerbated the delays in securing the full grid connection agreements. In order to move the project forward, the grid connection process was split into two phases.

The Phase 1 Augmentation Agreement, signed on 12 August 2010 and costing \$868,588 includes augmentation of power lines immediate to the wind farm, hardware upgrades within the Powercor

network (particularly at the Bungaree and Muskvale automatic voltage regulators) and network access fees.

Due to technical challenges unrelated to the wind farm project, the upgrades at Bungaree will not be complete until the end of 2011 at the earliest. Until these works are complete the wind farm output is capped to 2.6 MW, resulting in a reduction of project revenue.

At the time of writing, Phase 2 is in progress and is expected to cost \$40k - \$60k. Phase 2 involves the software and testing of the voltage control solution and once complete will allow the wind farm to operate at its full 4.1 MW capacity.”<sup>2</sup>

### Question 3

*Given that basic connection services will be available for micro-embedded generators (those with a generating capacity up to ten kW per phase), and that DNSPs can develop standard connection services, how often will the negotiated connection process in Chapter 5A be used by embedded generator applicants?*

UNCLEAR, BUT FEWER PROJECTS WILL BE SUBMITTED IN THE FACE OF UNCERTAINTY RELATING TO THE CONNECTION PROCESS

However what is clear is the existence of a negative feedback loop as an outcome from the impacts on project financing from uncertainties within the connection approval process. This is because the number of projects that may be potentially submitted for the connection process will be reduced by persistent uncertainty in relation to that same connection process, due to the higher costs of project finance that are an outcome from increased project risk.

This issue is highlighted by statements made by the Productivity Commission in their 2009 Staff Working Paper on Public Infrastructure Financing<sup>3</sup>:

- Ch.2, “Investors take into account any non-diversifiable risks associated with a project (project risk) in assessing the worthiness of an investment. Generally, the return required by investors increases with risk and uncertainty.”
- Ch.2, “The sources of investment risk associated with infrastructure include ... construction risk arises from unexpected design problems, cost overruns and delays in construction works.”

Furthermore, efforts to reduce the costs of finance for embedded generation include those involving securitization of assets. Securitization strategies are at least partly based on standardization of terms, which will be significantly impaired by uncertainty and inconsistency in relation to connection agreements.

### Question 4

*The CEC questions the extent to which model standing offers for standard connection services will be available for embedded generators. Are model standing offers for standard connection services available for embedded generators now and will they be available in the future? Please identify any such offers. In addition, are you aware of circumstances where model standing connection offers for*

*standard connection services may not be suitable, for example, where augmentation of the network is required?*

STANDING OFFERS HAVE PRECEDENT OUTSIDE OF THE NEFC, HOWEVER DNSPs ARE DISINCENTIVIZED FROM PROVIDING THEM

An example of a standing offer of the type described in the consultation paper exists from Ergon Energy in Queensland<sup>4</sup>, which like Victoria lies outside of the NEFC agreement.

Without knowing the background of what led to initiation of the Ergon standing offer, it is worth noting that DNSPs are effectively disincentivized from providing standing offers of this type (refer to my response to Question 1 above for a further explanation of this).

Question 5

*Do you agree with the issues identified by the CEC? Please provide evidence to support your claims.*

YES, FOR THE REASONS AND BASED ON THE EVIDENCE I'VE HIGHLIGHTED PREVIOUSLY

Signed:



Kristian Handberg, 12 June 2014

---

<sup>1</sup> Productivity Commission, Review of Electricity Network Regulation, 26 June 2013, <http://www.pc.gov.au/projects/inquiry/electricity>

<sup>2</sup> Hepburn Community Wind Park Cooperative Limited, *personal communication*, 12 September 2013

<sup>3</sup> Productivity Commission, Staff Working Paper on Public Infrastructure Financing: An International Perspective, 31 March 2009, <http://www.pc.gov.au/research/staff-working/public-infrastructure-financing>

<sup>4</sup> Ergon Energy, Standard for Connection of Embedded Generators in the Energy Distribution Network, Standard STNW1165 v.3, [https://www.ergon.com.au/\\_data/assets/pdf\\_file/0009/172737/STNW1165ver3.pdf](https://www.ergon.com.au/_data/assets/pdf_file/0009/172737/STNW1165ver3.pdf)