Submission No 11

COGENERATION AND TRIGENERATION IN NEW SOUTH WALES

Organisation: Energetics Pty Ltd

Name: Mr Tony Cooper

Date Received: 4/09/2013

4 September 2013

Jonathan O'Dea MP
Chair, Legislative Assembly Public Accounts Committee
Parliament House
Sydney

Dear Mr O'Dea,

Inquiry into cogeneration and trigeneration in New South Wales

Energetics welcomes the opportunity to make a submission to the inquiry into cogeneration and trigeneration in New South Wales. We are a specialist management consultancy with almost 30 years experience in energy and carbon management. Energetics delivers measurable outcomes to address key business needs in areas including mitigating climate change risk, meeting compliance obligations, identifying and developing business opportunities, reducing costs and improving productivity. We have a national multi-disciplinary team of over 100 professionals in five offices across Australia.

Energetics firmly believes in market based solutions to drive the development of sustainable energy supplies and the response to climate change.

In our submission, we cover two of the terms of reference in the Inquiry:

- Whether the current regulatory framework can adequately support the utilisation of cogeneration or trigeneration precinct developments.
- The economic viability of cogeneration/trigeneration technology in New South Wales including the impact of future gas prices on the running costs of cogeneration/trigeneration systems.

The current regulatory framework

We draw the Public Accounts Committee's attention to work that Energetics undertook for the then Department of Climate Change and Energy Efficiency on the policy issues that would need to be addressed for embedded generation to be successfully incorporated into the National Construction Code. Our recommendations[1] for addressing some of the major regulatory impediments to the adoption of cogeneration[2] are outlined as follows:

[1] http://ee.ret.gov.au/energy-efficiency/strategies-and-initiatives/national-construction-code/inclusion-energy-generation-building-energy-efficiency-standards

[2] We will use the term cogeneration to mean both cogeneration and trigeneration

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Energetics is a carbon neutral company

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- **Encourage the growth of "virtual private wire networks"**
  Regulatory changes which encourage the introduction of "virtual private wire" networks can greatly assist in overcoming current barriers to cogeneration systems. Virtual private wire networks allow an embedded generator to supply electricity to local sites and pay network charges that reflect the use of local distribution assets rather than the use of the full network and transmission system.

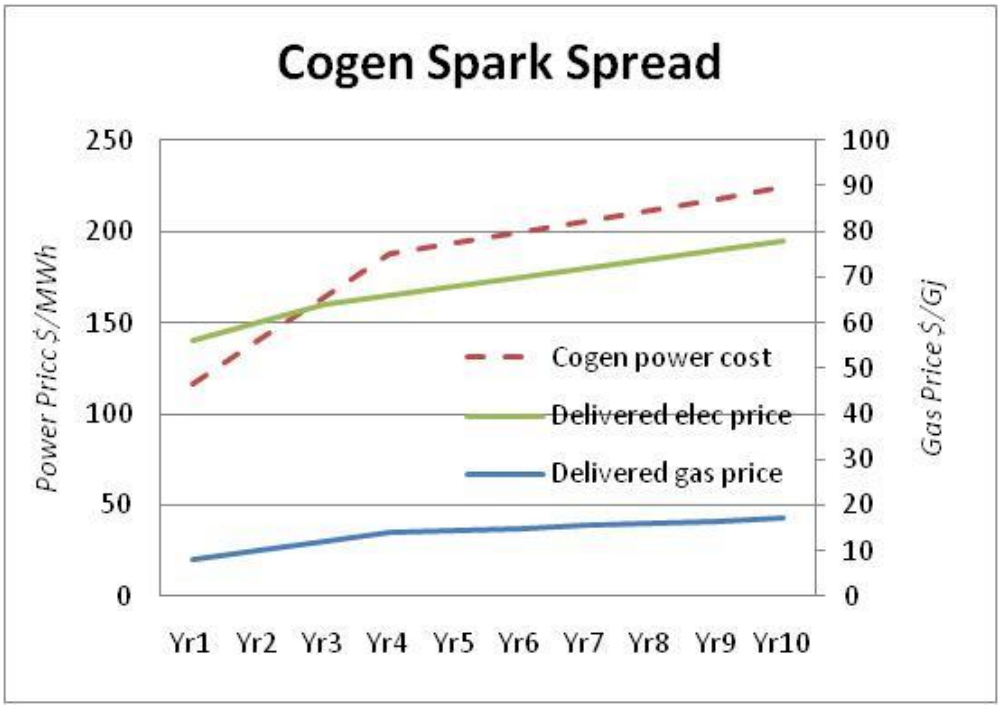
- **Address the costs, delays and complexity associated with network connections**

  The requirements for connecting an embedded generator to a distribution network present perhaps the most important technical and economic barriers to the greater use of on-site generation. Distribution Network Service Providers (DNSPs) each have their own guidelines and requirements, creating processes and costs for connections that are highly variable and not well understood. There is a clear need to streamline the connection process. This issue is the subject of a review being conducted by the Australian Energy Market Commission examining a new framework to support the connection of embedded generation projects to a distribution network. The draft rule aims to provide a clearer connection process, with greater clarity and transparency provided by the DSNPs in the provision of information, including technical requirements and associated costs.

The economic viability of cogeneration and trigeneration

Energetics believes that the economics of cogeneration in Australia, and particularly in the commercial sector are not as compelling as elsewhere in the world.

The following figure shows the relationship between the grid power cost, natural gas price and the cost of the power generated from a cogeneration unit. Note that this graph aims to show how changes in gas and power prices can impact the economic viability of cogeneration. The graph does not present price projections.



In this scenario, which is approximately the current situation in NSW, the cogenerated power becomes more expensive than grid power once the gas price exceeds around $10/GJ. The anticipated rises in natural gas prices, expected to result once liquefied natural gas is exported from the east coast of Australia, will undermine the business case for cogeneration. Note in this scenario the full cost of the gas has been assigned to the generated power, and so the available heat has a low marginal cost. This means that the available heat carries the full fixed cost of the cogeneration unit.

The most compelling application for cogeneration is on industrial sites that have a large continuous demand for process heat. It was therefore revealing that in the months leading up to the Federal Government entering caretaker mode, a large number of applications for funding under the Clean Technology Investment Program (CTIP) and the Clean Technology Food and Foundries Investment Program (CTFFIP) were for industrial cogeneration units. This suggests that business understands the role of cogeneration but needs government incentives to enable investments in cogeneration to meet internal financial hurdles.

The purpose of presenting this example was not to argue that cogeneration should be discouraged by government. Rather we wish to point out that claims that non-market barriers are the sole reason that cogeneration is not widely adopted in NSW, may be inaccurate.

We also want to highlight the role of distributed generation in managing network constraints. However, Energetics suggests caution in responding to calls for widespread incentives to support cogeneration as a means of addressing network constraints. The avoided cost of distributed energy resources is highly dependent on area- and time-specific marginal distribution cost. Unlike system level bulk transmission and generation costs, electricity distribution costs are both spatially and temporally distributed. Unless a cogeneration unit is located in a constrained zone substation area, or proposed to be built at a time close to a distribution capacity expansion investment, and the unit can be operated at a time coincident with the local network peak demand, the unit will not address the distribution network constraint in a cost effective way.

Energetics believes that the Networks NSW distribution businesses are the best agents to determine the value of cogeneration units within their networks. The NSW Government can act to encourage distributors to explore options such as cogeneration to address a network constraint before installing additional network hardware. Together with appropriate incentives for the effective deployment of cogeneration in NSW, these recommendations could be included in the current informal engagement carried out by the Australian Energy Regulator examining a new demand management and embedded generation connection incentive scheme.

Thank you for this opportunity to make this submission.

Yours sincerely

[redacted]

Tony Cooper,
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