Goanna Energy Consulting Pty Ltd

Overcoming the Barriers to Renewable Embedded Generation in Tasmania

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Cover Photo: *Bruny Island Health Centre, Tasmania, August 2010.*
See also video: http://www.youtube.com/watch?v=mgjCK_WeI7w

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Executive Summary

This report examines the opportunities for overcoming the barriers to the wide scale adoption of commercial scale renewable embedded generation in Tasmania. For the purpose of this report, Embedded Generation (EG) is a term that describes an electricity generator, which is electrically connected to the load side of a customer's billing meter, within a customer's installation.

This report specifically focuses on "commercial scale" embedded generation, which is defined as being from 10KW to 3MW. At the bottom end of this scale is, for example, the Bruny Island Health Centre embedded generation plant, through the Marine Board Building wind turbines, to the mid-size Nichols Poultry wind turbine and above. Embedded generators of this scale are above the size (10KW) where "Feed-In Tariffs" are generally available in Tasmania to incentivize the uptake of small scale renewable technology.

This report aims to assist the Tasmanian Renewable Energy Industry Development Board (TREIDB) to influence policy and decision makers, through highlighting and exploring the experiences of the pioneering embedded generation stakeholders in Tasmania. Revealing current policies, practices and their application in a practical context, to highlight the hurdles end use customers face in the implementation of embedded generation projects.

Most of Tasmania's electricity is supplied by large hydro-electric schemes, the Tamar Valley natural gas fired generator and imports from Victoria, across the Basslink interconnecting cable.

Whilst there are economies of scale from these large centralised energy plants, around the world the response to climate change and technological advances in renewable energy generation are leading to strong uptake of smaller scale generation plants known as “Distributed Generation”, located closer to customer loads.

Distributed Generation, the parent category of Embedded Generation, has been identified by the CSIRO’s Intelligent Grid report as having a significant welfare gain ($130Bn) and a key role to play in the early action response to a carbon constrained future (CSIRO, 2009, P. 314.).

The research commenced with a literature review which identified key local, national and international themes. Key in these themes was the increasing take up rate of renewable generation, driven by the global response to climate change. The literature review also revealed the implications of this growing trend, specifically in its impact on the investment required by electricity distribution network providers to manage the move from centralised to distributed generation.

Thirteen interviews and one focus group were held with local embedded generation pioneers and stakeholders. The drivers for embedded generation identified included:

1. A sense of responsibility by business owners to take a lead role in responding to climate change;
2. An expectation that embedded generation would lead to reduced electricity costs;
3. To exhibit an environmentally sustainable business;
4. A risk management response to climate related policy initiatives (I.e. NABERS);

5. To help meet state government internal targets for reduced energy consumption and greenhouse gas emissions.
6. That embedded generation allowed a business to “take back control” and to be “energy independent”.

Despite the relative cost leadership position enjoyed by wind turbines compared to other commonly available renewable energy technologies, the only commercial scale embedded generation projects commissioned in Tasmania had benefitted from government grants or had been undertaken by a government department.

The lack of a price on carbon and the complexity in setting equitable policies to return the most cost efficient early action response to climate change, were both seen as significant challenges. In particular that, economic signals from some climate change policies appear to have been misinterpreted by consumers and may have masked the true cost of the transition to a lower carbon electricity supply.

The report sets out 16 recommendations to overcome the barriers to renewable embedded generation, summarised as follows:

1. Reviewing the distribution pricing model in light of the move from centralised to decentralised generation and demand side response.
2. Seeking reforms to the planning and approvals process for wind turbines, promoting consistency and reducing elapsed time.
3. Facilitating improvements to the embedded generation supply chain, improving confidence and simplicity for consumers.
4. Promoting case studies and other fact based information on the physical and financial performance of local embedded generators.
5. Leveraging any future embedded generation grants by requiring recipients to provide performance data to support R4 above.

6. Providing Distribution Network Service Provider (DNSP) pricing signals for embedded generation.
7. Publishing DNSP network constraints and opportunities.
8. Improving DNSP connection agreements and processes.
9. Investigating inequities in the DNSP connection point definition for agri-business and other dispersed connection point industries.
10. Addressing customer knowledge gaps, which lead to market failures (identified in the “Wedges Report”), in the efficient early response to climate change.
11. Promoting the role of REC’s in supporting investment in renewable embedded generation.
12. Pursuing “Scale Efficient Network Extension” policies.
13. Seeking alternate retail energy products with longer reconciliation periods for seasonal businesses.
14. Developing a social license for Tasmania’s renewable energy industry based on community consultation, earned trust and confidence.
15. Improving Retail energy agreements and processes.
16. Pre-empting the technical issues of system security and inertia, likely to arise from increased adoption of renewable energy.

The report concludes that much work remains to be done to facilitate the adoption of renewable embedded generation projects.

To this end we encourage the Tasmanian Renewable Energy Industry Development Board and other stakeholders, to set about using the findings and recommendations contained herein, to influence policy and decision makers, in order to overcome the barriers to renewable embedded generation in Tasmania.