

6 February 2014

The Secretary
Energy White Paper Taskforce
Department of Industry
GPO Box 1564
CANBERRA ACT 2601

Dear Sir/Madam,

**PUBLIC COMMENT ON AUSTRALIAN GOVERNMENT DEPARTMENT OF INDUSTRY
ENERGY WHITE PAPER**

The Australian Climate Change Adaptation Research Network for Settlements and Infrastructure is an Adaptation Research Network within the National Climate Change Adaptation Research Facility. ACCARNSI's mission is to develop effective response strategies for risks due to climate change and its impacts on settlements and infrastructure.

There are three principal issues that receive no mention within the white paper yet are fundamental to considerations of Australia's future energy needs:

1. Climate change adaptation has not been considered

Energy infrastructure subsystems have design and operational lives in excess of 50 years. Over the next century, significant changes are predicted in temperatures, sea levels and coastal winds. The character and intensity of droughts and floods may change as well.

These changes in climate will have important implications for the future performance of Australian energy infrastructure which has been directly impacted by recent severe climatic events including:

- Flooding impacts, causing reduction in generating capacity at Yallourn Power Station (2012), disruption to Queensland coal supplies (2010/2011 and 2014), substation outages in Victoria (2011), and disruption to uranium supplies from the Ranger mine (2011).
- Heatwaves and bushfires, causing major blackouts due to substation and power line failures in Victoria (2009). These failures have motivated the Victorian Government to now locate power lines underground in some areas.
- Droughts, significantly reducing the output of the Snowy Hydro system as well as coal-fired power stations in NSW and Queensland (2006/7).

The report acknowledges the impact of peak demands on retail energy costs – principally as motivation for improving energy efficiency or implementation of demand management. However, it does not acknowledge that climate change (increasing temperatures and more heat wave days) will cause per capita demand to rise during the dominant summer peak. Climate change will lead to further significant increases in cost to consumers due to statutory requirements to maintain service delivery standards.

2. The significant social and environmental impacts of gas have not been considered

Although the report emphasises the potential of gas in its various forms, it does so without due consideration of the possible social and environmental impacts – now increasingly being discussed in the community with regard to coal seam gas.

3. Energy storage has not been considered

A major omission in the document is the lack of attention given to energy storage within the electricity grid system.

Readily-available stored energy at times of peak demand will significantly improve system efficiency, reduce energy infrastructure investment and, consequently, costs to consumers.

Effective large-scale storage is critical to the development of renewable energy sources. Renewable energy sources (especially wind and solar) are only generated under favourable climatic conditions. This makes their integration incompatible the requirements of service delivery within the existing grid system.

The future of hydro-electric sources is glibly discarded within the report on the grounds that it will be constrained by environmental considerations. This is done in favour of nuclear technologies which are seen as an “option for future reliable energy”. This is surprising position in view of ongoing and recent community concerns regarding the environmental and social risks associated of nuclear energy due to high profile nuclear disasters that have occurred overseas.

On the contrary, there is significant opportunity to expand hydroelectric power in the form of pumped storage, especially in eastern Australia¹. Pumped storage:

- has a 50 year track record of providing reliable, rapidly-accessible electrical energy to stabilise grid systems and reduce market volatility.
- has the potential to provide sufficient energy storage to make large-scale wind or solar developments non-volatile sources of electrical energy.
- can significantly reduce the environmental impacts of dams and run-of-the-river hydro-electric schemes via improved infrastructure design and operation.
- enables more effective use of existing infrastructure to mitigate floods.

The NSW government has recently included consideration of possible implementation of pumped-hydro schemes using existing water storages as a means of providing energy storage to match peak demands and thereby reduce costs to consumers.

These comments on the energy white paper have been prepared in collaboration with Associate Professor Bill Peirson, co-convenor of the ACCARNSI Infrastructure node. If you have any questions, please do not hesitate to contact me.

Yours faithfully,



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¹ <http://www.nccarf.edu.au/settlements-infrastructure/sites/www.nccarf.edu.au.settlements-infrastructure/files/Discussion%20Paper%20Z%20Final.pdf>