

Submission

No 26

INQUIRY INTO THE ECONOMICS OF ENERGY GENERATION

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To the Public Affairs Committee

Inquiry into the Economics of Power Generation

TRUenergy welcomes the opportunity to provide input into the Public Affairs Committee Inquiry into the Economics of Power Generation. We believe the industry is on the precipice of major change in the next five to ten years with the effect of this change lasting for decades. This provides an ideal opportunity for the New South Wales Government to implement robust and overarching energy policy that will leave an enduring legacy for future generations.

TRUenergy is an experienced generator-retailer operating in the National Electricity Market. We have considerable expertise in generation development. Our current portfolio includes the ownership and operation of brown coal, gas and wind generation assets. Via trading agreements we also have dispatch and fuel management of black coal and gas assets. Our current generation development projects include a range of projects across most of the NEM states and across a broad technology mix.

Mix of energy sources used in New South Wales

Table 1 lists the MW capacity of energy sources in NSW and compares this to the rest of Australia. NSW energy mix in the generation sector reflects its legacy fuel strengths, with the sector being significantly dominated by black coal generation with support from both hydro and natural gas.

Given both the carbon policy and the development of coal seam gas TRUenergy would expect that there will be a significant increase in gas fired generation in the next three- ten years. The main reason to support this increase in gas fired generation is that the technology is mature, can be deployed in short time frame (relative to other technologies) and can be located relatively close to major demand centres (thus reducing losses via the transmission system). Gas fired generation also seeks to mitigate against the increasing levels of intermittent renewable generation.

Renewable energy has a role in the current NSW energy mix, although NSW is less developed than some other States in area. This is more a reflection that other States (particularly South Australia) are blessed with proportionally more of these natural resources.

The other key energy source that is utilised in NSW is the importation of energy from both Queensland and Victoria. Historically NSW has been a net importer of energy and this is forecast to remain the case for the foreseeable future.

Fuel Type	MW Capacity of Generation		
	June 2009		
	NSW/ACT (MW)	Australia (MW)	NSW/ACT as % of Australia
Black Coal	11,730	22,072	53%
Brown Coal	0	7,405	0%
Pumped Storage (Hydro)	240	740	32%
Natural Gas	1,235	8,023	15%
Oil Products	50	614	8%
Renewables – Hydro	2,466.1	7,070.4	35%
Renewables – Wind	187.4	1,714.1	11%
Renewables – Bagasse	75.5	444.1	17%
Renewables Other	97.3	337.7	29%

Table 1 NSW Generation Capacity Source: AEMO and "Key Issues in Energy", Dec 2011

Comparison of NSW's energy mix with other jurisdictions both in Australia and overseas

Whether in Australia or overseas a country's fuel mix tends to be a function of locally available natural resources. Hence the dominant use of black coal is completely expected in NSW compared with brown coal in Victoria. Overseas countries that have a different fuel resource mix will have a generation mix that reflects to some extent that particular resource distribution. For example hydro is a significant generation source in New Zealand, Norway and Chile and natural gas is dominant in the Texas market.

Countries that are not blessed with local energy resources (such as Korea, Japan, and Israel) are reliant on overseas imports and these countries tend to have fuel mixes dominated by transportable fuels such as coal, and LNG as well as nuclear power.

Issues relating to long term energy security in New South Wales

TRUenergy has three key comments to make in relation to the long term energy security.

New generation development

TRUenergy strongly supports the development of an over-arching energy policy to address the development of new generation. We would be very concerned that barriers to development are implemented on a technology-by-technology basis. It is easy to reduce the development options of a single technology – such as wind set back provisions, limitations on gas development, coal emissions limitations. The end result is that over time the State could end up eliminating many cost effective generation options. Therefore when limitations are placed on single technologies or sites we would recommend that these limitations are assessed in the broader context of energy security.

Reliance on imported generation and Interconnectors

NSW is reliant on imported energy. Figure one demonstrates the gap between NSW generation capacity and forecast demand through to 2021. By the summer of 2021 about 2/3 of NSW capacity requirements is needed to be met from interstate generation. This is not necessarily a significant issue if managed well. A design feature of the National Electricity Market allows for least cost generation to be built across the eastern side of Australia and energy is transported through the transmission system to other States. This provides benefits to consumers by providing least cost and reliable energy.

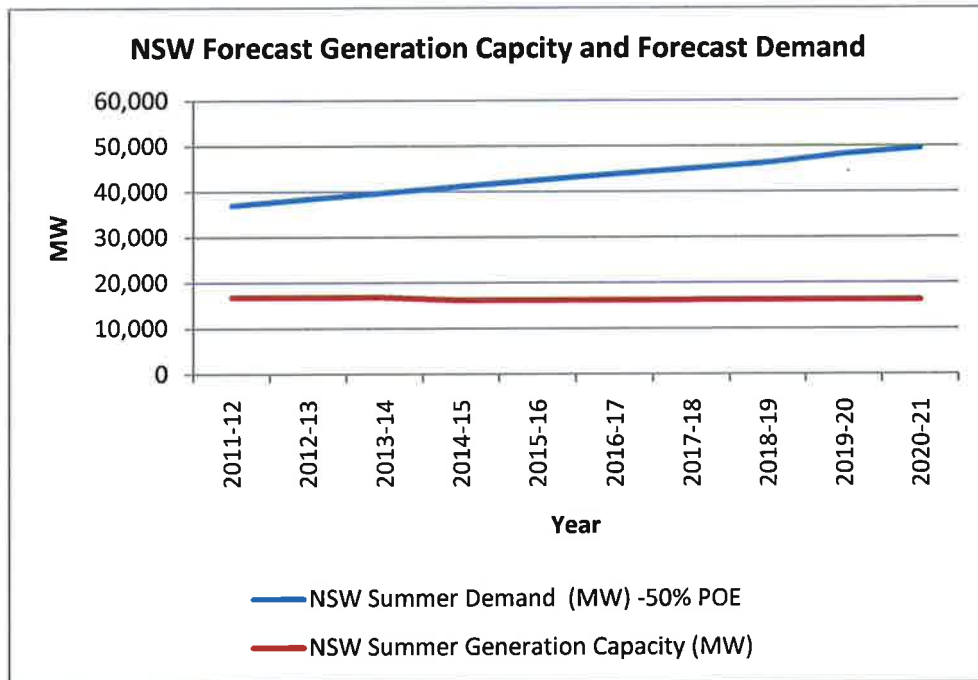


Figure 1: NSW Generation vs Demand Forecast Source AEMO ESOO 2011¹

But this does have implications for NSW – there is a need to be cognizant of energy policy and energy trends across the NEM and especially in the neighbouring States of Victoria and Queensland. For example the carbon policy impacts significantly on the brown coal generation of Victoria. The transition away from brown coal may reduce the amount of low cost energy that could be exported to NSW. Additionally demand growth in Queensland that is driven by both the LNG and mining sectors could absorb excess Queensland generation over the next decade. A NSW energy policy that allows for these types of interstate structural changes is likely to be more robust for the long term energy development of the State.

An additional issue relates to the interconnection with other States. If NSW relies on interstate generation then it also becomes a requirement that the ability to transport energy is not reduced through lack of investment. The Regulatory Investment Test – Transmission (RIT-T) is the prime mechanism for the development of transmission assets, including interconnectors. The policies behind the use of the RIT-T should support appropriate investment in development of transmission assets across the State. TRUenergy recommends that the NSW government closely monitors the application of the RIT-T over time to ensure that an appropriate level of transmission development occurs (neither underbuild nor overbuild).

Viability of new technologies

¹ ESOO 2011, pg 3-21, 4-17

That some minor double counting is included due to the definition of energy generation sent out and maximum demand both include customer load (supplied from network and network losses. However this double counting does not reduce the point that NSW is heavily reliant on energy imports from other States. Generation includes Tumut generation

The Draft Energy White Paper (2011) highlights the uncertainty in the development of future generation technology.

“Variations in modelling results suggest that changes from 2020 onwards become less predictable, and will depend on the ability of new technologies to overcome technical and cost hurdles as well as carbon price movements.”²

The Draft Energy White Paper then discusses some of the potential technology futures.

“Lower gas prices would see gas use increase, and gas would most likely replace coal and new geothermal generation. If geothermal and/or carbon capture and storage do not prove commercially viable or are significantly delayed into the market it is possible that CCGT usage will increase. It is also possible that a more rapid reduction in solar thermal costs and technical leapfrogging (as some anticipate) and advanced energy storage and grid management could provide a larger transformation that described here.”³

TRUenergy is currently investigating a wide range of development options as well as keeping a watching brief on the commercial viability of a number of emerging technologies. In keeping with the conclusions drawn by the Energy White Paper we also believe that the energy resource mix of both NSW and Australia are uncertain at this time. We believe the best course of action for the NSW government is to remain open-minded for a range of possible solutions with a slight tilt on solutions that utilise the natural resource availability in the State.

Potential for NSW sourcing energy interstate

This has been discussed in the section relating to key issues relating to long term security for the State. In summary the design of the energy market facilitates the importation of energy, and that NSW should also monitor energy policy and trends in other States with a view to assessing indirect impact on New South Wales.

Potential for and barriers to, development of alternative forms of energy generation in New South Wales

As noted above TRUenergy requests that government policy remains open minded to the development of alternative forms of energy generation. We also note that there needs to be a careful balance between winners and losers. TRUenergy believes that a case can be made for firming up technology options with government support where it can be shown that this presents a long term benefit to the consumers of New South Wales, but we are cautious of significant government support for technologies that in effect become subsidies to accommodate weak business models. In these cases a wealth transfer is created at the expense of the New South Wales consumer. One of our core business activities is to continually assess the commercial viability of a range of generation options (both traditional and alternative) and we would be comfortable developing alternative generation options if they prove to be both commercial and technically feasible.

In terms of specific technology we note the Background Paper: Key Issues in Energy 4/2011 produced by the NSW Parliamentary Library Research Service highlights a number of factual points on the potential for alternative forms of renewable energy.⁴

In relation to tidal power the Background Paper notes that NSW has only 1.21TJ of tidal kinetic energy⁵. This is very low compared to the 2,441TJ for all of Australia.

² Federal government Draft Energy White Paper pg 40

³ Federal government Draft Energy White Paper pg 41

⁴ Key Issues in Energy: Background Paper No4/2011, NSW Parliamentary Library Research Service.

⁵ Ibid pg 8

The situation for both solar and geothermal is also marginal with the State solar resources averaging around 15MJ/m² increasing to 21 MJ/m² in the northwest of the State⁶. Geothermal resources for the State are also low relative to other States⁷. Furthermore if there are significant distances to a load centre the effectiveness of large scale solar or geothermal can be diminished.

Wind energy appears to be more favourable with windy locations also co-located near existing transmission infrastructure.⁸ The key conclusion we draw is that relative to other States NSW does not have proportionally higher alternative energy options. In this case it might be sensible to allow other States to take the lead in developing these resources. In addition the State could also maintain a watching brief for significant technology developments in alternative forms of generation that may commercialised some of the more marginal alternative resource options.

In summary NSW relies on black coal and interstate generation transfers to meet the energy demands of the State. The development of carbon pricing as well as the Federal Government Mandatory Renewable Energy Target as well as the development of more efficient generation technology places all of Australia into an uncertain position with regards to future energy development.

TRUenergy believes that the NSW Government should retain an open mind to the development of future generation options, be cognizant of the developments in neighbouring States, and ensure that the State can leverage of the best of its resource options.

Please feel free to contact [REDACTED] if you have any questions. TRUenergy would also be pleased to be invited to appear before the Public Affairs Committee if requested.

Yours sincerely,

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⁶ Ibid pg 5

⁷ Ibid pg 7

⁸ Ibid pg 6