Submission No 239

INQUIRY INTO ELECTRICITY SUPPLY, DEMAND AND PRICES IN NEW SOUTH WALES

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Select Committee on Electricity Supply, Demand and Prices in NSW
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Dear Select Committee Members,

Inquiry on Electricity Supply, Demand and Prices in New South Wales

I wish to draw the Select Committee Members' attentions to my serious concerns about our looming energy security challenges.

On 5 July 2017, as a constituent and concerned citizen, I met in person with Paul Toole MP, NSW Member for Bathurst, and presented to him my PowerPoint slides titled *Australia and NSW's looming energy security challenges, some available solutions for mitigation, and questions to reflect upon*. Mr Toole then referred my concerns, on my behalf, to Don Harwin MLC, NSW Minister for Resources, NSW Minister for Energy and Utilities, NSW Minister for the Arts, and Vice-President of the Executive Council. Minister Harwin responded with a letter, dated 24 October 2017 (reference **17/11205:IM17/18204**). Please find **enclosed** scanned copies of:

1. My PowerPoint presentation slides to Paul Toole MP; and
2. A copy of Minister Don Harwin's letter in response.

Earlier this month, the Post Carbon Institute published a report titled *SHALE REALITY CHECK: Drilling Into the U.S. Government's Rosy Projections for the Shale Gas & Tight Oil Production Through 2050*, by J. David Hughes, an earth scientist who has studied the energy resources of Canada for four decades, including 32 with the Geological Survey of Canada as a scientist and research manager. Visit **shalebubble.org**. The Executive Summary in this report includes these comments:

> The "shale revolution" has provided a reprieve from what just 13 years ago was thought to be a terminal decline in oil and gas production in the U.S. It has sparked calls for "American energy dominance"[2]—despite the fact that the U.S. is projected to be a net oil importer through 2050, even given EIA forecasts. This reprieve is temporary, and the U.S. would be well advised to plan for much-reduced shale oil and gas production in the long term based on this analysis of play fundamentals.

Accumulating evidence that I see suggests humanity is approaching a post- 'peak oil' world probably before 2030 and with a significant risk of it occurring before 2020, and a post- 'peak gas' world probably soon after 2020. Global coal demand is declining.

To avoid the risks of severe to catastrophic disruptions to our economy, politics, and society, humanity must:

* Leave petroleum oil, before oil leaves us.
* Leave fossil natural gas, before gas leaves us.
* Leave oil, gas and coal before 2050, to mitigate dangerous climate change.

Reducing network electricity consumption can be achieved by installing more efficient electrical devices and 'behind the meter' energy generation and storage devices. As an example, at my residence in Lithgow NSW, I had:

- Installed a roof-mounted 3.2 kW capacity solar photovoltaic net-metered network-tied system on 2 April 2015;
- Replaced an ageing gas-fired hot water tank system, with a high efficiency electric heat-pump hot water 250 litre storage tank system on 25 August 2015, programmed to operate from 10am EST to utilise the solar-PV energy being generated when available to recharge daily the new hot water storage tank;
- Retired a gas space heater at the end of 2016, and installed a high efficiency electric 5 kW cooling / 6 kW heating capacity reverse-cycle air conditioner for both heating and cooling for the living area on 24 March 2017.

For your information, please also find **enclosed** scanned copies of:

3. My *Electricity Network Energy Import and Export Statistics* table; and
4. My *Natural Gas Energy Imported/Consumed* table.

As the enclosed tables indicate, my combined electric and gas bills over the first four quarters totalled $1487.70, and the last four quarters totalled $683.16. This represents a saving of more than $800 per annum on my energy (electric + gas) bills, without any change to my lifestyle. Further energy bill savings could be made by replacing the gas range (i.e. all gas 4-burner cooktop/grill/oven) with an all-electric induction cooktop/grill/oven range, and permanently disconnect from the gas supply network to avoid the gas bill standing charges.

RenewEconomy article headlined **ACT to trial first "gas free" suburb in next stage of 100% renewable goal**, dated 2 February 2018, concerning the new master-planned Ginninderry stage 1 development precinct of the suburb, affecting the first 350 homes, reported:

> Rather than being connected to the gas-grid, each home will include mandatory solar panels and smart meters, and be equipped with efficient electric heating and cooling, and induction cooktops.

I think all new residential developments should be following the ACT government initiative. I think Australian residential gas networks should be decommissioned by no later than 2035, and current residential gas consumers should be encouraged to switch to efficient electric appliances.

(a) Comments on the reasons for recent large increases in the price of electricity

It seems to me a succession of governments, at both the state and federal levels, have abrogated their responsibilities for more than a decade, to ensure the electricity supply remains adequately reliable and affordable. Since the state-wide "system black" event in South Australia on 28 September 2016, it appears that governments are now refocussing their attentions towards electricity and gas supply, reliability and affordability. I think governments are still ignoring Australia's liquid fuel security and affordability (please see http://crudeoilpeak.info/will-australia-have-a-strategic-oil-reserve-before-it-is-too-late-part-2).

(f) Comments on the adequacy of planning to meet future electricity demand, including utilising high efficiency, low emissions coal technology as well as the use of nuclear, gas, solar and wind energies, and energy storage through batteries, pumped-hydro and hydrogen, and improved transmission between regions

I draw the Select Committee Members' attentions to *Lazard's Levelized Cost of Energy Analysis – Version 11.0* (November 2017), particularly the **Unsubsidized Levelized Cost of Energy Comparison** table on page 2, that compares a range of alternative and conventional energy technologies. Renewable energy and energy storage technologies are becoming economically competitive with, and in some instances out-competing, conventional energy technologies.

Higher efficiency, lower emissions (it's certainly not low emissions) coal technology appears to be an unsafe long-term bet (please see my PowerPoint presentation slides #33, #35 and #54). Governments need to implement a rapid transition plan away from thermal coal dependency by 2030.

Nuclear fission energy appears unlikely to be viable in Australia (please see my PowerPoint presentation slides #38 and #43). Nuclear energy for Australia appears extremely difficult to justify, when proposals for 100% renewable energy, like Beyond Zero Emissions' 2010 *Stationary Energy Plan*, can be built significantly faster, probably significantly cheaper, providing reliable, 'dispatchable' energy, and without the long-term high-level nuclear waste disposal problems.

Evidence I see suggests global gas production is likely to peak within the next few years (please see my PowerPoint presentation slides #25, #26, #27, #29 and #30). US gas production in 2016 represented just over one-fifth (21.1%) of global production, with the US also having the world's fifth largest gas reserves, yet US proved reserves-to-production at the end of 2016 is estimated at only 11.6 years. Policies for expanding natural gas production serve to deplete those resources sooner. Investments needed to develop gas resources, wherever they may be, would be better invested in alternative, more energy efficient, zero-carbon emissions energy technologies to maximise future long-term energy security.

When considering deploying alternative energy technologies, the Energy Returned on Investment (EROI) of these technologies should be a determining factor (please see my PowerPoint presentation slides #9, #42 and #44). Higher EROIs are better.

It seems to me some industry, politicians and governments appear to be engaging in wilful denial of the very real energy security and climate change challenges facing our society. I hope the Select Committee Members acknowledge our society's energy security and climate change challenges and make the appropriate recommendations taking into consideration those challenges.

Yours Sincerely,

Geoff Miell