

**House of Representatives Standing Committee on the Environment and Energy
Inquiry into modernising Australia's electricity grid**

SUBMISSION FROM: David Gillett

Introduction:

This response to the House of Representatives Standing Committee on the environment and energy – Inquiry into modernising Australia's electricity grid – has been based on the context and inquiry terms of reference set out in the Discussion Paper issued 28 February 2017.

For the purposes of focusing the thoughts in my response I repeat some words from the 4th paragraph on page 2, as follows

“ ... in this inquiry the Committee will consider the extent to which the electricity transmission and distribution system has sufficient flexibility to integrate a broad mix of electricity generation – both now and into the future. While the appropriate mix of electricity generation and the emissions intensity of the electricity sector are worthy issues for consideration these matters are outside the scope of the current inquiry.”

[ie the inquiry is limited to the GRID only]

My thanks to the Committee for consideration of this submission. I have made a submission to the FINKEL inquiry into the security of the NEM and comments from that submission are included with this submission because of the overlap of issues.

There are many factors to consider in the delivery of electrical energy across this huge country but I have limited this submission to cover a couple of major issues which I believe are critical precursors to long term stable delivery of electric power across the country.

Summary

Critical precursors to long term stable delivery of electric power across the country are

- 1) The Australian power supply system must be treated as an integrated whole (from fuel source to electric power supplied to each customer). The components cannot be treated piecemeal [Relates to Terms of Reference Items 1 and 2]
- 2) Rethink the whole organisation structure and manning of the NEM administrative edifice - it is a fragmented beast dealing with federal state regime overlap and not organised to have a systems engineering understanding of the power supply system as an integrated whole [Relates to Terms of Reference Items 1 and 2]

Discussion of the two main summary points

Summary Point 1) Treat the power supply system as an integrated whole

- a) By breaking out the GRID as a standalone issue for analysis, the House of Representatives inquiry background paper and the Terms of Reference are only perpetuating the notion that the power supply system can be treated piecemeal – noting that the power supply system consists of
 - a. fuel source (type and location)
 - b. generation (capacity availability location with emissions and efficiency targets)
 - c. distribution based on power demand size nature and location
 - d. with overarching emissions and efficiency requirements

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- b) The GRID is a derivative (not standalone) facility based on
- the actual and predicted geographical spread of location and size of power demand
 - the location and type of fuel source the type of equipment used to convert to electricity
 - the location and capacity of the electricity generation equipment
- c) Not treating the power supply system as an integrated whole is a cultural issue within the non-engineering, poorly advised politician class and its something which all parties need to understand. **Integration** is key.

Summary Point 2) Rethink the whole organisation structure and manning of the NEM administrative edifice

- a) IDENTIFY THE AGENCY PARTICIPANTS in the NEM

I have looked through the objectives org structures and people within the

- Australian Energy Regulator
- Australian Energy Market Operator
- Australian Energy Market Commission

With the observation that there are many other parties with some sort of role in the power supply system.

- b) GENERAL COMMENT ON THE ORGANISATION AND MANNING OF THE AGENCIES

There appears to be no one or no entity within the structure who is charged with understanding the overall electrical power supply system providing the power supply for our country.

Who understands the overall power supply system as an engineered system? Dr Alan Finkel said at his presentation that he had trouble locating base fundamental documents which describe the system as an engineered system – a sure sign of a lack of overall system understanding.

The very fact that the FINKEL expert panel was assembled says that there is no one with a day job with an understanding of system design, system design criteria energy and mass balance equipment list etc etc how it could be expanded as brown fields projects where the next priority green fields projects should be built etc etc – all the things an owners team should know to enable the owner to make informed decisions about how to maintain / increase supply while meeting quality emissions efficiency and availability targets.

This fundamental gap in organisation structure is astounding and is a main contributor to the lack of power supply system performance we see today.

The people within these organisations are predominantly lawyers economists and accountant types.

Based on a review of org charts and CV' s available on the agencies websites, I can identify only 2 or 3 power supply engineers within the senior ranks of all these organisations out of a total of 32 people – incredible!

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For example

. The AEMC has 11 chairman + commissioners + senior management and 1 out of 11 is a power supply engineer the others are economists or lawyers or both

. The AEMO has 17 directors and senior managers and I can identify 1 or 2 power supply engineers

. The AER has 3 board members + CEO – all are economists or lawyers

Also the fact that the NEM is based on energy supply only betrays a lack of understanding by a group of lawyers and economists who configured the market – concocted markets are skewed to complexity, gamed by the participants and, as usual in Australia, favour market intermediaries to the detriment of the ultimate individual consumer.

The fact that there are so many entities within the market shows the agency problem in concocted markets – much scope overlap, complexity, collective lack of grasp and, astoundingly, appears to be missing a fundamental role as described above.

The whole structure needs a complete rethink but who would do that – those same lawyers and economists probably!

Let simplicity reign – we need transparency and control.

Does that mean a return to some sort of state based authorities coordinated under a federal regime to achieve overall country targets?

Contracting out power supply to generator/contractors doesn't mean you give up knowledge and control of the overall system to the benefit of all.

It is my view that the NEM is a fragmented beast dealing with federal state regime overlap and with no party really understanding the power supply system as an integrated engineered whole.

This organisational failure is fundamental to the failure of the performance of the resulting (engineered) system and will be an ongoing problem unless recognised and corrected.

Optimal technical solutions will only result from a minimal but optimal organisation structure with an appropriate mix of multi discipline technical commercial and policy skills and with a management reflecting the mix of skills.

If the fundamental organisational/manning issues are not understood and addressed there will only be more pain ahead.

END

Thank you – David Gillett