



**Energy Policy**  
INSTITUTE OF AUSTRALIA



## **Public Policy Paper**

**Paper 4/2017**

# **FUTURE ENERGY POLICY**

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October 2017

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## Key Points

- *Australia is presently on track to meet its emissions reduction commitments but it has destabilised its power system and created an insidious problem of power unreliability and unaffordability. This is threatening its energy-dependent industries and its national prosperity.*
- *There has been a tendency by governments to intervene in energy markets. However, competitive markets must continue to play the central role in energy policy.*
- *There has been too much short-term policy thinking. To counter this, a strategic energy plan, albeit focussed on the electricity sector, is to be developed by a new Energy Security Board (ESB).*
- *All technologies need to be on the table for consideration by the ESB.*
- *Solutions should be commensurate with the scale of the task and the time required for their installation, as well as on the combination of technologies that will deliver whole-of-system optimisation at the least cost.*
- *Solutions should also be matched to Australia's energy resource endowments - in order to provide a firmer foundation for the nation's future prosperity.*
- *Beyond the ESB's strategic plan for the electricity sector, there remains a need for a bolder, more innovative, more collaborative and community-focussed energy policy. This will light the way for future investment across the entire energy sector – and will provide a common point of reference for community education.*
- *Consideration still needs to be given to a national energy commission to replace the present suboptimal governance structure.*

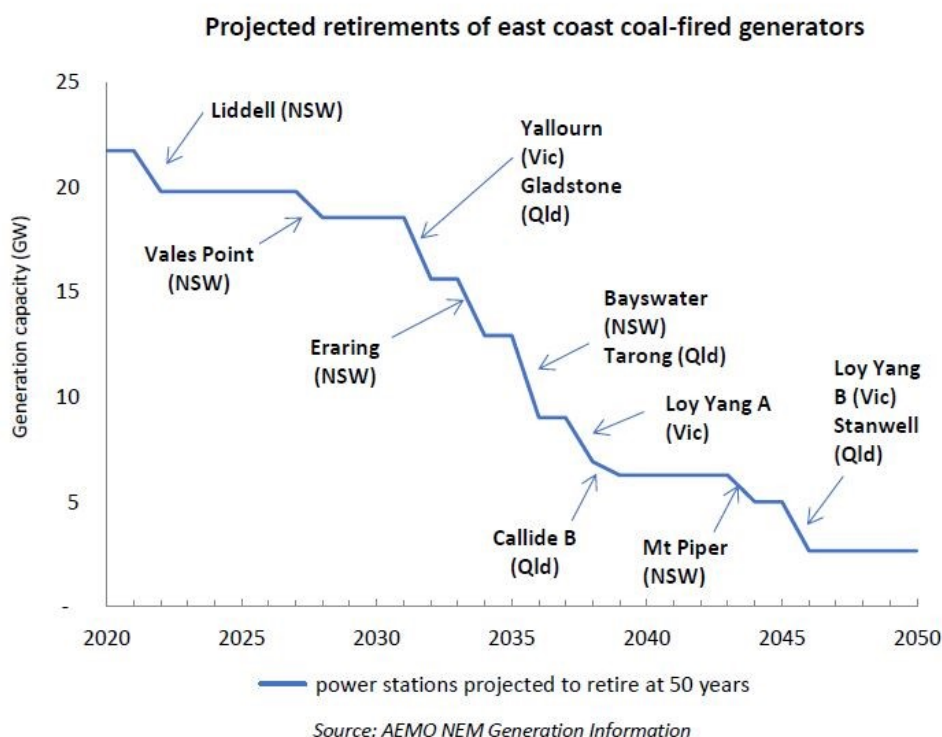
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## 1. A decade of failed energy policy

Australia has an insidious problem – in its efforts to reduce greenhouse gas emissions, it has destabilised its power system. According to the Finkel Review, this was caused by the rapid installation of *'poorly integrated variable renewable electricity generators [that] coincided with the unplanned withdrawal of older coal and gas-fired generators.'*<sup>1</sup>

The potential for further power system destabilisation is illustrated by the following graph that depicts the scale and timing of likely future retirements of base-load, coal-fired generators in the east coast electricity market.



The destabilisation of the power system has caused supply shortages and has pushed up the price of the nation's electricity to unaffordable levels. This is threatening the viability of the nation's energy-dependent industries and endangering the prosperity of the entire nation. The replacement of base-load generating capacity poses nothing less than a national conundrum.

According to a 2014 paper for EPIA by Jim Snow:

*'The consequences of rising energy prices are predictable and are now playing out in what may become a classic case study in economics in the years to come: demand destruction; loss*

<sup>1</sup> Alan Finkel et al, *'Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future'* (Finkel or the Finkel Review), June 2017.

*of competitiveness of Australian industry that relies on reasonably priced energy driving offshoring of production; and rising energy poverty in the residential sector.<sup>2</sup>*

That classic case study has now arrived. According to the Chairman of the ACCC in September 2017:

*'Energy affordability has gone from being a source of economic advantage for Australia to the opposite ... Australia's electricity affordability issues have been a long time in the making and will be a long time in the solving, unfortunately.'<sup>3</sup>*

The reliability and affordability problem is a result of a decade of failed energy policy. Governments saw it coming but were too slow to act and, when they did act, they were too short-term in their thinking. This was largely due to a lack of consensus amongst policymakers of how power systems work; the characteristics and costs of different electricity generation forms; and, last but by no means least, the effect of climate policy. This lack of consensus remains.

In the author's view, Australia's 'cooperative' energy governance framework is no longer up to the task of resolving the problem.<sup>4</sup>

It is not just generation costs that are to blame for the high electricity prices. The main drivers have been higher network charges (41%), higher retail costs (24%), generation costs (19%) and 'green scheme' costs (16%).<sup>5</sup>

The Australian Energy Market Commission's explanation for the increases in wholesale energy market costs was:

*' - a lack of investment due to the uncertainty created by a lack of integration between current energy and emissions reduction policy mechanisms*

*- the retirement of Hazelwood in March 2017, which supplied capacity of 1600 MW equivalent to around 20 per cent of Victoria's electricity consumption. This came on top of the retirement of the Northern Power Station in May 2016, which supplied 546 MW of capacity*

*- increases in gas prices, partially due to high demand for gas for export markets and the moratoria on gas exploration and development.'<sup>6</sup>*

The future role of natural gas, both as a heating fuel and as a fuel in power generation, raises a number of related issues. According to businessman Andrew Liveris:

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<sup>2</sup> Jim Snow, 'The Economic Impact of High Energy Prices,' EPIA Public Policy Paper #2/2014, February 2014.

<sup>3</sup> Rod Sims, Chairman, Australian Competition and Consumer Commission (ACCC), Address to the National Press Club, Canberra, 20 September 2017.

<sup>4</sup> Robert Pritchard, 'Time to Throw Off the Chains,' EPIA Public Policy Paper #2/2017, March 2017.

<sup>5</sup> Rod Sims, footnote 3 above.

<sup>6</sup> AEMC, 'Retail Energy Competition Review', July 2017.

*'The Finkel Report provides one potential road map for resolving this [gas] crisis, but there is more to be done. It is clear that we need pragmatic solutions – not esoteric debate – to address Australia's failed energy policy. The time has come to unleash the potential of our abundant natural gas supply. Natural gas, of course, is a commodity – simple to sell for a profit. But it is also a strategic resource that is vital to Australia's transition to a more sustainable and productive future. Solar and wind power are essential – increasingly so. But natural gas is, today, indispensable. It is not an intermittent power source, but a continuous and fast-responding one. It can fill gaps when our other energy resources are in short supply. Sadly, our mismanagement of our gas resources has robbed us of the opportunity to use gas as a transition fuel.'*<sup>7</sup>

The ACCC has recently predicted a gas supply shortfall in the east coast gas market in 2018. It has reported that gas prices, when combined with rising electricity prices, pose *'an increased risk to the commercial viability of some [commercial and industrial] users.'*<sup>8</sup> The ACCC attributes the uncertainty about future gas supply to (i) the magnitude of gas flows to the LNG projects, which are removing gas from the domestic market, (ii) the low oil price, resulting in declining investment in gas exploration and (iii) moratoria and regulatory restrictions, which are affecting onshore gas exploration and development.

The unreliability and unaffordability problem is not confined to Australia.<sup>9 10</sup> It has however been exacerbated in Australia by a suboptimal energy governance framework and by political differences amongst the nine governments that make up the membership of the Coalition of Australian Governments (COAG).

## 2. Climate policy

Ever since Australia became a party to the UN Framework Convention on Climate Change in 1992, it has like many other countries struggled to find the right balance between energy and climate policy.

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<sup>7</sup> Andrew Liveris, Address to the University of Queensland, Brisbane, August 2017.

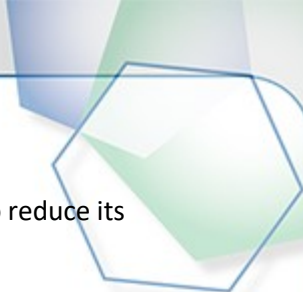
<sup>8</sup> ACCC, *'Gas Inquiry 2017-2020, Interim Report'*, September 2017, p 11.

<sup>9</sup> In the US, the Department of Energy carried out a review in 2017 that reached four main conclusions:

- (i) The continued closure of traditional baseload power plants calls for a comprehensive strategy for long-term reliability and resilience;*
- (ii) States and regions are accepting increased risks that could affect the future reliability and resilience of electricity delivery for consumers in their regions;*
- (iii) Hydropower, nuclear, coal, and natural gas power plants provide essential reliability services and fuel assurance critical to system resilience: and*
- (iv) A continual comprehensive regional and national review is needed to determine how a portfolio of domestic energy resources can be developed to ensure grid reliability and resilience.*

US DOE Staff Report to the Secretary on Electricity Markets and Reliability, DOE, Washington DC, August 2017. In September 2017, the Secretary directed the Federal Energy Regulatory Commission to consider imposing rules on system operators and transmission organizations *'to ensure that reliability and resilience attributes of electric generation resources are fully valued.'*

<sup>10</sup> In the UK, the government recently commissioned Professor Dieter Helm, criticised as 'a renewable power critic', to undertake an independent review into the cost of energy. His report had not been completed at the time of writing this paper.



With the 2006 Paris Agreement, Australia entered into a non-binding commitment to reduce its greenhouse gas emissions by 26 to 28 per cent below its 2005 levels by 2030.

The Commonwealth Government is presently considering whether to adopt a Clean Energy Target (CET) to supersede its existing Renewable Energy Target (RET). If it decides to proceed, it will need to set a target level and timescale. As well, there may be a need for a legislative safety valve to guard against any damage to the reliability of the power system.

### 3. The stakes remain very high

The energy affordability stakes remain very high for Australia, no more so than for the aluminium industry, which employs 15,000 people and sustains the livelihoods of many more. It is the largest employer in several regional areas. As the industry told Finkel:

*'Our industry is feeling the full force of the 'trilemma' that the review has been asked to address – the difficulty of accessing reliable and globally competitive electricity supply while transitioning to lower greenhouse gas emissions. As the most electricity-intensive sector of the economy we are a leading indicator of issues that will soon be facing other parts of the manufacturing industry.'*<sup>11</sup>

The cement industry is another case in point. As it told Finkel:

*'The secure, reliable and affordable supply of electricity is a key competitiveness concern for large users of energy and electricity such as Australian cement manufacturers. Supply disruptions, such as those experienced in South Australia in late 2016 and continuing into 2017, place significant pressure on operations as they strive to meet customer demands for their products. Affordability is also an important issue, particularly since electricity use can represent over 20 per cent of production costs. Electricity prices, particularly for large businesses, have increased sharply since 2009 and are forecast to continue rising.'*<sup>12</sup>

### 4. The ESB and the national strategic energy plan

COAG has adopted a package of reforms recommended by the Finkel Review. These reforms revolve around a national strategic energy plan to be developed and coordinated by the new Energy Security Board (ESB).


*'The Energy Security Board will provide a single point of responsibility and accountability. It will drive implementation of the recommendations of this report, and release an annual Health of the NEM Report. The Energy Security Board will draw on the expertise of market bodies and coordinate how they exercise their separate accountabilities to keep pace with*

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<sup>11</sup> Australian Aluminium Council (AAC), submission to the Finkel Review, March 2017.

<sup>12</sup> Cement Industry Federation, submission to the Finkel Review, 2017.





*the rate of change. More rapid rule-making processes will help keep pace with the rate of change in the NEM.*<sup>13</sup>

The development of a national energy plan and the publication of an annual report on the health of the NEM are warmly supported by EPIA.

From a policy point of view, an important challenge for the ESB will be to articulate the true nature and scale of the affordability problem, the technologies that may be feasible to address it over the medium and long terms and the likely mechanisms for and timing of their future deployment.

The main limitation of the national energy plan is that it is focussed on the electricity sector. In addition, the benefits of the plan will take time to be felt whilst, in the meantime, the industrial, technological and economic landscape is continuing to change.

## 5. The continuing central role of competitive markets

The National Electricity Market was established in 1998, with effective competition as its central and essential theme. Competitive markets have played the central role since that time and should continue to do so, with the increased predictability that the ESB's national plan and annual report should provide.

Governments should only intervene where there is clear evidence of market failure – and then only to the extent necessary to remedy the failure.

## 6. AEMO and short-term market priorities

In the short term, according to AEMO:

*'The NEM is not delivering enough investment in flexible dispatchable resources to maintain the defined target level of supply reliability, as the transition from traditional generation to variable energy resources proceeds. This was vividly illustrated by the load-shedding events of February 2017 and by the Finkel Review analysis. Most stakeholders see changes to market rules as the most economically efficient way to remedy this deficiency. AEMO forecasts of NEM demand and published investment plans confirm the urgency of this task and short-term measures will be necessary until a long-term solution is agreed and becomes fully effective.'*<sup>14</sup>

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<sup>13</sup> Finkel Review, chapter 7 page 157.

<sup>14</sup> AEMO, 'Advice to Commonwealth Government on Dispatchable Capability', September 2017.



AEMO has made four recommendations to the Commonwealth Government:

- **Prior to summer 2017-18:** *A strategic reserve of around 1,000 megawatts (MW) of flexible dispatchable energy resources is required to maintain supply reliability in South Australia and Victoria over next summer. AEMO is already acting to deliver this under our summer readiness plan.*
- **Up to 2021-22:** *Progressively decreasing levels of strategic reserve will be required over the next four summers, provided there is no unforeseen major loss of existing resources. New mechanisms to deliver these reserves must be identified and in place in time for 2018-19.*
- **Liddell Power Station retirement:** *Prior to the retirement of Liddell (announced by AGL to occur in 2022), around 1,000 MW of new investment is expected to be required to preserve reliability of supply in New South Wales (NSW) and Victoria at the NEM standard. Mechanisms should be established in the NEM design to address this, and similar requirements, for the long term.*
- **Stakeholder consultation:** *Action on each of the above should include much broader and deeper stakeholder consultation than has been possible in the preparation of this initial advice.*

The Minister for the Environment and Energy has commented that *'The message from this AEMO report is that coal and dispatchable power provided by other thermal generators like gas or indeed provided by hydro power is absolutely critical to the stability of our system and to ensuring a more affordable energy system.'*<sup>15</sup>

## 7. What a sample of stakeholders told us

In September 2017, EPIA conducted a web-based survey of a cross-section of energy industry stakeholders.

Stakeholders were asked to rank the three goals of the 'energy trilemma.' They responded, first and foremost, with reliability (a score of 59%), second, with affordability (23%) and, third, with lower emissions (18%).

As to whether Australia was achieving any of these goals under current policy, almost everyone was negative:

- an overwhelming 98% said 'no' to achieving affordability
- 77% said 'no' to achieving reliability and
- 57% said 'no' to achieving lower emissions.

A sizeable 68% nonetheless said they supported the new Energy Security Board.

A more sizeable 75% agreed with AEMO's proposal to establish a Strategic Reserve in the NEM for next summer (as outlined in section 6 above).

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<sup>15</sup> Hon Josh Frydenberg, Press Conference with the Prime Minister, Canberra, 6 September 2017.

In relation to the retirement of baseload power stations, 55% were in favour of deferring retirement and 60% of those who were in favour thought the government should pay for this.

Respondents were asked to indicate whether five randomly selected generation technologies had 'a future in Australia.' At least half of respondents said 'yes' to each the following:

Gas-fired generation	95%
Pumped hydro	91%
HELE coal generation	73%
Nuclear generation	64%
CCS	62%

77% of respondents agreed that all technologies should be on the table (and almost all expected that the government should pay for innovation).

Respondents were equally split over whether the States should keep away from national energy issues.

As to the proposed Clean Energy Target proposed by the Finkel Review, 64% of respondents said they supported it.

## 8. All technologies must now be on the table

Apart from relying on competitive markets, an overriding principle of future energy policy in Australia must be that all technologies be on the table.

Even though it is confined to the electricity market, the national strategic energy plan should be formulated by the ESB and updated as the industrial and economic landscape changes and as energy technologies continue to develop. It should be fully informed by industry and the community.

The greatest challenge is the sheer scale of the task and the time it will take to develop the replacement technologies.<sup>16</sup>

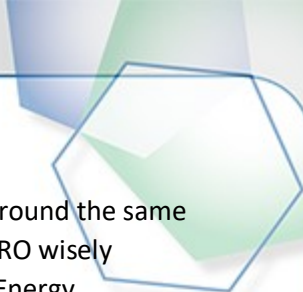
An apolitical approach is essential - no technology should be ruled in or out by policymakers. There should be a commonly-understood pathway for all potentially significant technologies, including renewables, gas, HELE coal, CCS, nuclear power and storage systems.

The purpose of a strategic energy plan should not be to force any particular technologies into the system but to point the way to the future deployment of the optimal combinations of technologies as and where the system requires.

Before the Finkel Review commenced, CSIRO was engaged by the Commonwealth Department of the Environment and Energy to prepare a 'Low Emissions Technology Roadmap' canvassing a very

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<sup>16</sup> Chris Greig and Robert Pritchard, 'Accelerating Low-Emissions Energy Innovation – An Australian Perspective,' EPIA Public Policy Paper #2/2016, January 2016.



wide range of technologies in the energy and related sectors.<sup>17</sup> This was completed around the same time as Finkel. CSIRO identified a wide range of pathways that could be followed. CSIRO wisely refrained from picking winners. Most recently, CSIRO, in collaboration with National Energy Resources Australia (NERA), published a roadmap identifying the challenges facing the oil and gas sector in which it highlighted how sectoral challenges can be converted to opportunities if they are prioritised and addressed.<sup>18</sup> The same approach can be taken for the coal mining and uranium mining sectors, both important for Australia's industrial development and balance of trade.

The Finkel Review did not include a roadmap for the installation or development of potentially feasible generation technologies but it recommended that all presently-installed generation technologies, including renewables, coal, gas and hydroelectric technologies should be the province of the ESB. Somewhat oddly, 'other' technologies were categorised by Finkel as '*Beyond the Blueprint*',<sup>19</sup> leaving it unclear whether the ESB had a mandate to consider their inclusion.

These 'other' technologies include a range of generation technologies, such as biomass, waste-to-energy, gas alternatives, carbon capture and storage, hydroelectricity and nuclear, as well as a range of storage technologies, such as batteries, pumped hydro and hydrogen.

Most if not all EPIA members would concur with Finkel that:

*'... the future NEM should be conducive to any of these technologies, in line with the principle of technology neutrality'*<sup>20</sup>

They would also concur that:

*'The evolution of power generation, storage and integration technologies continues in Australia and globally. The maturity level and rate of development of these technologies in terms of cost, scalability and operability will vary depending on levels of ongoing investment, the ability to integrate and undertake controlled trials of new developments under realistic conditions and sustained demonstration at scale.*

*Their inclusion as part of the energy system requires consideration of operating characteristics and other externalities such as emissions intensity, flexibility, scalability and dispatchability and future potential.*

*It is important that there is ongoing oversight of development progress both nationally and internationally and that appropriate incentives, urgency, support and planning mechanisms exist to ensure timely development of these future options.'*<sup>21</sup>

Recourse to all new technologies should be part and parcel of strategic energy planning. Nuclear power poses a particular dilemma for energy planners: it is the only dispatchable, base-load form of

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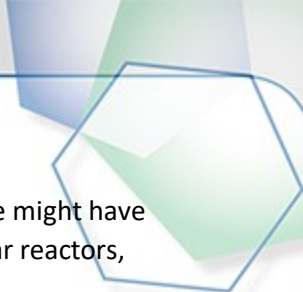
<sup>17</sup> CSIRO (Tom Campey et al), '*Low Emissions Technology Roadmap*', June 2017.

<sup>18</sup> CSIRO, '*Oil and Gas, A Roadmap for Unlocking Future Growth Opportunities for Australia*', October 2017

<sup>19</sup> Finkel Review, Chapter 8.

<sup>20</sup> Finkel Review, Chapter 8 page 185.

<sup>21</sup> Finkel Review, Chapter 8 page 197.



zero-emissions power but its deployment in Australia is subject to a moratorium. One might have thought that each state wishing to introduce a new technology, such as small modular reactors, should have the right to do so with appropriate safety and environmental regulation.

## 9. Beyond the electricity sector

Energy policy cannot stop with a strategic plan for the electricity sector. Sound policy should provide investment certainty for investors and should encompass the energy sector more broadly: the development of primary energy resources; their conversion to electricity and other secondary forms; and their transport and distribution to industrial and domestic consumers, both in Australia and abroad.

The recent Sector Competitiveness Plan of National Energy Resources Australia (NERA) neatly explained the challenges facing policymakers and industry:

*‘From an energy perspective, Australia is currently facing a number of serious challenges, and urgently needs a clear and cohesive pathway for its transition to a low emissions future and to underpin economic development. To get there will require substantial, highly funded collaboration in selected areas between industry, research institutions and government.’<sup>22</sup>*

NERA has suggested that Australia has the potential to both develop and commercialise low emissions technology and to transfer and export that knowledge and capability globally. The research has been done and the next stage is demonstration and deployment. EPIA agrees with NERA that this will be difficult without clear priorities and concerted effort by all parties.

## 10. Conclusions – lighting the way

Investment decisions need as far as possible to be the prerogative of risk-taking investors.

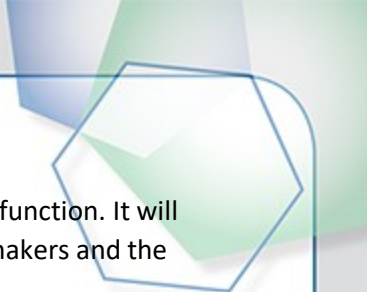
The central purpose of Australian energy policy should be to light the way to the least-cost, or most affordable, route to an efficient energy system for the benefit of all stakeholders and for the benefit of the economy as a whole.

The key principle must be to facilitate competitive markets, with all technologies being on the table. Governments should only intervene where there is clear evidence of market failure – and then only to the extent necessary to remedy the failure.

Beyond the ESB’s strategic energy plan for the electricity sector, there remains a need for a bolder, more innovative, more collaborative and community-focussed energy policy. This will light the way for future investment across the entire energy sector.

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<sup>22</sup> National Energy Resources Australia, ‘Sector Competitiveness Plan, Summary 2017’, Foreword, Kensington WA.



Sound, well thought-through energy policy will also perform an important education function. It will provide a common point of reference for all stakeholders including investors, policymakers and the community.

Finally, Australia's complex, awkward and suboptimal institutional structure for governance of its national electricity market remains in need of fundamental review. Consideration needs to be given to replacing what has been established by the nine Australian jurisdictions with a national energy commission.

October 2017

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### *About the Author*

**Robert Pritchard** is Executive Director of the Energy Policy Institute of Australia.

*Robert has 50 years' experience as a lawyer and adviser to industry, governments and organisations on energy projects and policies, both in Australia and overseas, and as a director of companies in the energy sector.*

*Robert was the first chairman of the Energy Law Section of the International Bar Association and served for nine years on the Finance Committee of the World Energy Council.*