

## **1. Expert's Details & Qualifications**

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### **1.1 Name**

My name is Jonathan Geoffrey Stanford.

### **1.2 Address**

My business address is:

Director

Insight Economics Pty Ltd

530 Little Collins Street

Melbourne 3000

My email address is: jon.stanford@insighteconomics.com.au

### **1.3 Qualifications and expertise**

My area of expertise relates to the economic and public policy issues relevant to government strategies to address climate change as well as a strong understanding of Australia's resources and energy sector.

I am sufficiently expert to make this statement because I have had 20 years experience in addressing the economic and policy issues surrounding climate change and energy markets. Within government, I was involved in these issues as a senior official in the Department of the Prime Minister and Cabinet in the early to mid 1990s. In that position, I was Chair of the Australian Government's inter-departmental committee on climate change and of the Intergovernmental Committee on Ecologically Sustainable Development. Since then, as a Director of two consultancy firms, Insight Economics and previously the Allen Consulting Group and as a founding partner in Deloitte Economics, I have undertaken a number of major assignments on climate change issues for the Australian Government, various State governments and private sector interests. These projects have mainly involved economic modelling of the likely impact of various possible policy initiatives to address climate change and an analysis of alternative policy approaches. Recently, I spent over twelve months on a major project as Climate Change Adviser to the Northern Territory Chief Minister and his government more generally. Over the last few years, I have also contributed a large number of articles on climate change policy issues to the opinion pages of *The Australian Financial Review* and addressed the issue in many conference presentations.

I have also worked extensively on energy issues. Both in government and afterwards, as a consultant, I chaired the Commonwealth-State process that led to the national endorsement of the National Gas Code. In recent years I have written extensively on this subject, particularly in the context of addressing climate change, and in 2013 have worked on a project for a State government on options for electricity generation in a carbon constrained world.

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**Annexure A** to this report is my curriculum vitae, which sets out details of my professional qualifications.

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## 2. Instructions

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I have been instructed by Allens on behalf of Hancock Coal Pty Ltd to provide a report in response to the following questions:

1. What is the policy framework that has been adopted by the Australian and Queensland governments to date in respect of the future development of the coal industry?
2. What is the policy framework that has been adopted by the Australian and Queensland Governments to date in respect of addressing environmental concerns that may be associated with greenhouse gas (GHG) emissions and climate change. In particular, what policies have been adopted in relation to:
  - (a) regulating GHG emissions generally?
  - (b) regulating the GHG emissions of individual coal mines? and
  - (c) encouraging the use of renewable energy sources domestically?
3. Has refusing proposed coal mines on a case by case basis to avoid GHG emissions from the mining or use of coal from such mines been considered and, if so, what were the outcomes of those considerations?
4. Have regulators refused to approve a proposed coal mine in order to avoid the GHG emissions from mining or use of coal from that mine?
5. Would refusing proposed coal mines on a case by case basis to avoid the GHG emissions from the mining or use of coal from such mines be consistent with the policy framework referred to in your responses to 1 and 2 above?
6. What impact (if any) would refusing to approve proposed coal mines in Queensland or Australia on a case by case basis have on:
  - (a) The coal industry? and
  - (b) The Queensland and Australian economies?
7. In the context of your response to 6 above, would refusing to approve proposed coal mines in Queensland or Australia on a case by case basis notwithstanding any impact on the coal industry and Queensland and Australian economies be consistent with the policy framework referred to in your responses to 1 and 2 above?
8. From a policy and economic perspective, is refusing to approve proposed coal mines in Queensland or Australia on a case by case basis an

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effective or efficient means for addressing environmental concerns that may be associated with GHG emissions and climate change?

9. From a policy and economic perspective, provide your opinion as to:
- (a) paragraph 62 in the objection by Coast and Country Association of Queensland Inc (**CCAQ**) dated 20 February 2013 and, in particular, the propositions that:
    - (i) "If this mine does not go ahead it will exert some upwards pressure on coal prices"; and
    - (ii) "This reduction in supply and increase in price of coal will push some consumers towards other energy sources which are already becoming cheaper";
  - (b) paragraphs 59, 60 and 61 in the objection by Fiorella Paola Cassoni dated 20 February 2013 and, in particular, the propositions that:
    - (i) "Unsubsidised renewable energy is now cheaper than energy from new coal fired power stations in Australia, and no new coal or gas plants are likely to be required this decade"; and
    - (ii) "there are likely to be cheaper alternatives for energy production soon after the coal from this project reach [sic] the market which do not produce greenhouse gas emissions. Consequently there is not sufficient need for the project...",and
  - (c) the proposition in the objection by Kathryn Kelly dated 20 February 2013 that "Australia could be leading the way in renewable energy technologies, and possibly substituting our coal exports with, for example, dissociated ammonia developed with renewable energy sources".

In your response to (a) and (b), you should have regard to the particulars provided at paragraph 27 of the CCAQ's response to the Applicant's Request for Particulars dated 29 April 2013.

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### **3. Factual Information**

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In producing this report, I have relied on factual information from a large number of sources. I have referenced this material throughout the text in Section 4 of this report.

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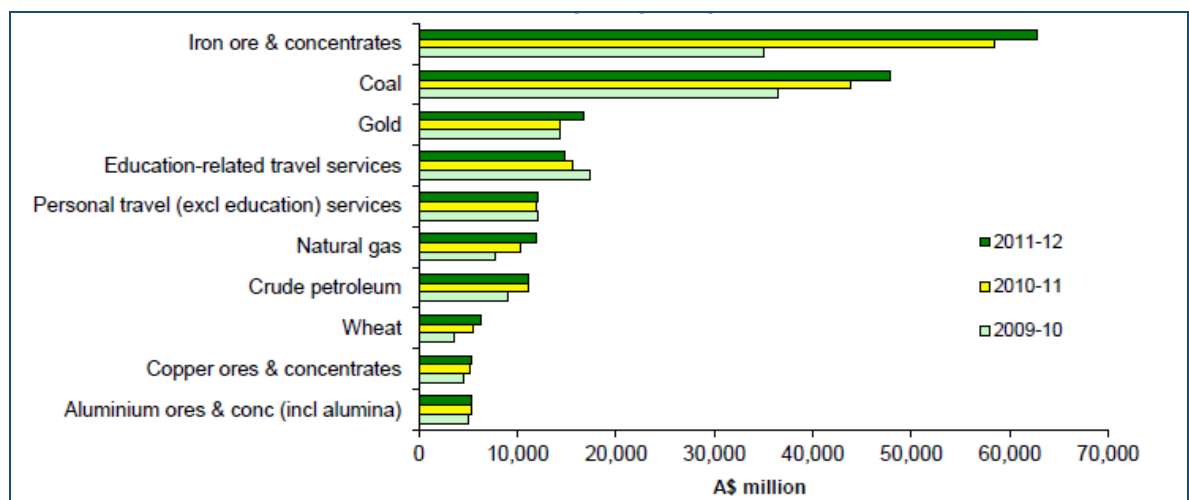
## 4. Opinion and Findings

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### 4.1 What is the policy framework that has been adopted by the Australian and Queensland governments to date in respect of the future development of the coal industry?

Both the Australian and Queensland governments seek to provide a general policy framework that supports the development of the coal industry. In particular, they recognise the benefits in terms of employment and living standards that very substantial export industries such as coal bring.

**Exhibit 1: Australia's Top Ten Exports, 2009-10 to 2011-12 (\$ million)**



Source: Department of Foreign Affairs and Trade, *Composition of Trade Australia, 2011-12*, page 3, <<http://www.dfat.gov.au/publications/stats-pubs/cot-fy-2011-12.pdf>>

As may be seen in Exhibit 1, coal ranked second by value (to iron ore) among Australian exports in the latest year for which data are available, 2011-12. Coal exports increased in that year by 9.3 per cent over the previous year, to a value of \$47.9 billion. Yet it may also be seen from the chart that coal has lost its place as Australia's principal export commodity. In 2009-10, the value of coal exports exceeded that of iron ore. If we go back one further year to 2008-09, coal was by far Australia's most important export, equivalent to twenty per cent of total Australian exports. Coal exports in that year were valued at \$54.7 billion, 60 per cent higher than the value of iron ore exports in that year and 14 per cent greater than the value of coal exports in 2011-12.<sup>1</sup>

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<sup>1</sup> Department of Foreign Affairs and Trade, *Composition of Trade Australia, 2011-12*, Canberra, December 2012, page 3, <[www.dfat.gov.au/publications/stats-pubs/cot-fy-2011-12.pdf](http://www.dfat.gov.au/publications/stats-pubs/cot-fy-2011-12.pdf)>.

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There is no particular policy applied to support most individual export industries such as coal, which are internationally competitive almost by definition. Indeed, government assistance to export industries is generally proscribed under the World Trade Organisation agreements to which Australia is a party.

Ministers at both the Commonwealth and State levels, however, regularly make statements that indicate support for the development of the coal industry. This reflects the substantial contribution that the resources industry in general, of which coal is a key component, makes to the economy and to living standards. As the then Australian Government Ministers for Regional Australia (Simon Crean) and Resources and Energy (Martin Ferguson) stated in 2012:

“The resources sector has been a key driver of economic activity in Australia over the past decade with both rising commodity prices and increased volumes of exports. As a result Australians have enjoyed higher incomes and lower prices for imported products. A key goal of the Australian Government is to sustain and further share the benefits of the boom by ensuring Australia maintains its international competitiveness, grows economy-wide productivity and supports regional communities. To ensure we obtain the maximum long term benefits from the global increase in demand for our mineral resources our physical infrastructure must grow to meet potential export volumes and our social infrastructure must grow to match the resulting demands placed on it. This requires careful planning, proper co-ordination across all stakeholders and optimal timing of investments.”<sup>2</sup>

Australian governments, however, are very conscious that international measures to reduce greenhouse gas (**GHG**) emissions, while necessary and appropriate, represent a longer term threat to coal mining.<sup>3</sup> For this reason, governments are highly supportive of measures to reduce the carbon footprint of coal, particularly when it is combusted for the purposes of generating electricity. For example, the Australian government in particular provides significant support research and development into more efficient ways of using coal and lower emissions processes. In 2011, when it announced the introduction of carbon pricing, it also announced major assistance to the coal industry:

#### **"Coal Sector Jobs Package**

The Government recognises the importance of safeguarding jobs and preserving local communities that rely on coal mining.

The Coal Sector Jobs Package (CSJP) will provide \$1.257 billion over six years to the most emissions-intensive or 'gassy' coal mines.

Assisting operators of gassy coal mines will provide time for these operators to explore options for reducing fugitive emissions from these mines.

The CSJP will provide transitional assistance based on historical fugitive emissions-intensity data. This provides an incentive for mine operators to reduce fugitive emissions through the exploration and implementation of available abatement technologies and the development of lower emissions seams.

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<sup>2</sup> Bureau of Resource and Energy Economics, *Australian bulk commodity exports and infrastructure – outlook to 2025*, Canberra, July 2012, page iii, < [http://www.bree.gov.au/documents/publications/\\_other/export-infrastructure-report.pdf](http://www.bree.gov.au/documents/publications/_other/export-infrastructure-report.pdf)>.

<sup>3</sup> See, for example, ABARE (2010), *Australian Energy Resource Assessment, 2010*, <[http://adl.brs.gov.au/data/warehouse/pe\\_aera\\_d9aae\\_002/aeraCh\\_05.pdf](http://adl.brs.gov.au/data/warehouse/pe_aera_d9aae_002/aeraCh_05.pdf)>

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### **Coal Mining Abatement Technology Support Package**

The Government recognises the long-term viability of the coal mining sector depends on the innovation and deployment of new technologies to reduce fugitive emissions from coal mines.

The Coal Mining Abatement Technology Support Package (CMATSP) will provide \$70 million over 5 years to support the development and pilot deployment of innovation technologies to reduce fugitive emissions from coal mines, develop safe abatement practices, and assist smaller operators to develop mine emissions abatement plans."<sup>4</sup>

In addition, the Commonwealth government allocates significant funding to other measures to reduce the emissions associated with the combustion of coal, including the development of carbon capture and storage (**CCS**) technologies. As well as having been the major force behind the establishment of the Global Carbon Capture and Storage Institute, the government supports a range of initiatives and policies to accelerate the development and deployment of CCS in Australia, including the National Low Emissions Coal Initiative, the CCS Flagships program and the National CO<sub>2</sub> Infrastructure Plan.<sup>5</sup>

The fact that governments are spending substantial sums so as to try to ensure a longer term future for coal in the global economy in the context of the international response to climate change suggests a high level of support for the industry. This is not surprising given the importance of the industry to the economy and the number of jobs supported by the industry, directly and indirectly, in regional communities. More details of the impact of the industry on the economy and the Australian community's living standards are provided in Section 4.6 below.

Since coal mining constitutes one of the largest industries in the State, providing significant regional employment, it is also not surprising that successive Queensland governments have been highly supportive of the coal industry and its development. Queensland government Ministers frequently make statements in support of the coal industry and highlight its importance to the State.<sup>6</sup> For example, an information paper published by the Queensland Department of Natural Resources and Mines states that:

"To help meet increasing demand from international buyers, the Queensland Government is working with the coal industry and private enterprise to facilitate

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<sup>4</sup> Department of Resources, Energy and Tourism, *Coal Sector Assistance Package* webpage available at <<http://www.ret.gov.au/energy/clean/ctap/Pages/CSAP.aspx>>

<sup>5</sup> Department of Resources, Energy and Tourism, *Clean Energy*, <<http://www.ret.gov.au/energy/clean/Pages/CleanEnergy.aspx>>

<sup>6</sup> See, for example, 'Queensland achieves new records for mining investment and jobs' statement by Minister for Natural Resources and Mines, the Honourable Andrew Cripps (6 December 2012) available at <<http://statements.qld.gov.au/Statement/2012/12/6/queensland-achieves-new-records-for-mining-investment-and-jobs>>



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mine expansions, the development new coal mining projects and provision of adequate coal export infrastructure.”<sup>7</sup>

The Queensland government has implemented a strategy to support the future development and growth of the industry, *CoalPlan 2030*, which provides a medium to long term plan for the provision of infrastructure required to meet the needs of the Queensland coal industry over the next 20 years.<sup>8</sup> The government has also been supportive of the considerable investment in infrastructure associated with the proposed Alpha project: “Deputy Premier Jeff Seeney said the project had the potential to create thousands of jobs and provide billions of dollars in export revenue and royalties.”<sup>9</sup>

More generally, the Queensland Government is pursuing a regulatory and economic agenda directed towards supporting the resources and mining sector, including coal. That agenda has involved:

- Passing legislation to reduce regulatory red-tape affecting the resources industry<sup>10</sup>
- Identifying the resource industry as one of the 'four pillars' of the Queensland economy in the last State Budget<sup>11</sup> and in proposed planning instruments<sup>12</sup>

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<sup>7</sup> Department of Natural Resources and Mines, 'Queensland's coal – mines and advanced projects' (July 2012) <[http://mines.industry.qld.gov.au/assets/coal-pdf/coal\\_update\\_2012.pdf](http://mines.industry.qld.gov.au/assets/coal-pdf/coal_update_2012.pdf)>

<sup>8</sup> Department of State Development, Infrastructure and Planning, *CoalPlan 2030*, <<http://www.dsdp.qld.gov.au/infrastructure-planning/coalplan-2030.html>>

<sup>9</sup> CM Resources, 'Aurizon and GVK to work jointly on development of \$6 billion Galilee rail-port infrastructure', 15 March 2013. <<http://www.cmresources.com.au/news/2013/03/aurizon-and-gvk-to-work-jointly-on-development-of-6-billion-galilee-rail-port-infrastructure/>>; see also 'Alpha go-ahead – now to South of Embley', statement by the Deputy Premier, Minister for State Development, Infrastructure and Planning, The Honourable Jeff Seeney (23 August 2012) available at <<http://statements.qld.gov.au/Statement/2012/8/23/alpha-go-ahead--now-to-south-of-embley>>; 'Aurizon and GVK to jointly work on Galilee rail-port', statement by the Deputy Premier, Minister for State Development, Infrastructure and Planning, The Honourable Jeff Seeney (11 March 2013) available at <<http://statements.qld.gov.au/Statement/2013/3/11/aurizon-and-gvk-to-jointly-work-on-galilee-railport>>

<sup>10</sup> See, for example, Resource sector – A quick guide to the Greentape Reduction Act (March 2013) Department of Environment and Heritage Protection available at <<http://www.ehp.qld.gov.au/management/greentape/pdf/greentape-resource.pdf>>; 'New legislation cuts resource industry red tape', statement by Minister for Natural Resources and Mines, the Honourable Andrew Cripps (2 August 2012) available at <<http://statements.qld.gov.au/Statement/2012/8/2/new-legislation-cuts-resource-industry-red-tape>>; 'Mining reforms boost investment certainty', statement by Minister for Natural Resources and Mines, the Honourable Andrew Cripps (29 November 2012) available at <<http://statements.qld.gov.au/Statement/2012/11/29/mining-reforms-boost-investment-certainty>>; 'Newman Government passes modern mining reforms', statement by Minister for Natural Resources and Mines, the Honourable Andrew Cripps (20 March 2013) available at <<http://statements.qld.gov.au/Statement/2013/3/20/newman-government-passes-modern-mining-reforms>>

<sup>11</sup> See, for example, 'Growing a four pillar economy: Resources' (11 September 2012) Queensland Government webpage available at <http://www.budget.qld.gov.au/four-pillar-economy/resources.php>

<sup>12</sup> *State Planning Policy: draft for consultation* (April 2013) Department of State Development, Infrastructure and Planning, available at <<http://www.dsdp.qld.gov.au/resources/policy/state-planning/draft-spp.pdf>>; see also,

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- Facilitating the expression of interest process for the potential staged expansion of coal handling facilities at Abbott Point.<sup>13</sup>

The fact that government supports the further development of the coal industry was demonstrated by their reaction when, in May 2011, Greens Senator Christine Milne called for a ban on all new coalmines and on extensions to existing mines. In response the then Australian Government Resources Minister Martin Ferguson rejected such a ban and said it would “destroy jobs and export revenue”.<sup>14</sup> At about the same time, the then Greens’ leader Bob Brown suggested on the ABC *Insiders* program (26 June 2011) that the ultimate aim of Australia’s climate change policy had to be to close down the coal industry. This was quickly repudiated by the Prime Minister, who stated that “I’ve said we will work with the coal industry so it has got a future, and we will do that. I’m very determined to do that and to support the employment of people who work in the coal industry”.<sup>15</sup>

It seems clear, therefore, that the policy position of Australian governments is to support the further development of Australia’s coal industry.

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Temporary state planning policy 2/12: Planning for prosperity (August 2012) Department of State Development, Infrastructure and Planning, available at <<http://www.dsdip.qld.gov.au/resources/policy/state-planning/temporary-state-planning-policy-2-12.pdf>>

<sup>13</sup> See, for example, ‘Interest sought in Abbott Point expansion’, statement by the Acting Premier, The Honourable Jeff Seeney (21 December 2012) available at <<http://statements.qld.gov.au/Statement/2012/12/21/interest-sought-in-abbot-point-expansion>>; ‘New milestone for Abbott Point expansion’, statement by the Deputy Premier, Minister for State Development, Infrastructure and Planning, The Honourable Jeff Seeney (10 April 2013) available at <<http://statements.qld.gov.au/Statement/2013/4/10/new-milestone-for-abbot-point-expansion>>; See also ‘Green groups hypocritical on terminal proposal’, statement by the Deputy Premier, Minister for State Development, Infrastructure and Planning, The Honourable Jeff Seeney (21 May 2013) available at <<http://statements.qld.gov.au/Statement/2013/5/21/green-groups-hypocritical-on-terminal-proposal>>

<sup>14</sup> Online report by *Australian Bulk Handling Review*, 25 May 2011, <<http://www.bulkhandling.com.au/news/2011/may/25-may-2011/greens-call-to-ban-coal-mining-canned/?searchterm=Martin+Ferguson>>.

<sup>15</sup> Sid Maher, “Gillard slams Bob Brown on future of coal industry”, *The Australian*, 28 June 2011, <<http://www.theaustralian.com.au/national-affairs/leader-slams-brown-on-coal/story-fn59niix-1226083110549>>

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- 4.2 What is the policy framework that has been adopted by the Australian and Queensland Governments to date in respect of addressing environmental concerns that may be associated with greenhouse gas (GHG) emissions and climate change. In particular, what policies have been adopted in relation to:**
- (a) regulating GHG emissions generally?**
  - (b) regulating the GHG emissions of individual coal mines? and**
  - (c) encouraging the use of renewable energy sources domestically?**

**Response to 4.2 (a) – Policy framework for regulating greenhouse gas (GHG) emissions generally**

Since signing the Kyoto protocol in 1997, successive Australian governments have played a significant role in participating in global actions and adopting domestic measures to address climate change.

While the Howard Australian Government did not ratify the protocol, it established the Australian Greenhouse Office and developed a suite of policies to address climate change. In his party's platform for the 2007 election, Prime Minister Howard also announced an emissions trading scheme if his government were to be re-elected.<sup>16</sup> Following the 2007 election, one of the first actions of the Rudd Australian Government was to ratify the protocol and since then the Australian Government has taken substantial action to respond to climate change.

Reporting regime

Australia's obligations under the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto protocol require the Australian Government to measure and report its GHG emissions on a regular basis. Importantly, neither of the reporting protocols require a national government to report third party or Scope 3 emissions that occur in other countries as a result of the use of material exported from the first country. For example, Australia is not required to measure and report the emissions that occur in other national jurisdictions as a result of the combustion of coal exported from Queensland. While these are Scope 3 emissions from an Australian perspective, they become Scope 1 or Scope 2 emissions in the country where the coal is combusted and therefore become the reporting responsibility of the country that imports and uses the coal.<sup>17</sup>

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<sup>16</sup> *AustralianPolitics.com*, 'Howard Commits to Emissions Trading Scheme', <<http://australianpolitics.com/2007/07/17/howard-commits-to-emissions-trading-scheme.html>>

<sup>17</sup> See, for example, Department of Energy and Climate Change, UK (2009), *Guidance on how to measure and report your greenhouse gas emissions*,

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Under the Kyoto protocol, to which Australia acceded in 2008, Australia has committed to constrain its average annual GHG emissions in the period 2008-12 to a level not more than eight per cent above the recorded level in 1990.<sup>18</sup> Australia's accession to the UNFCCC and the Kyoto protocol is also binding on Australian States.

In terms of the collection and reporting of GHG emissions data, from 2008-09 the system transitioned to new arrangements with increased reliance on the data obtained under the *National Greenhouse and Energy Reporting Act 2007*. This Act introduced mandatory reporting for businesses that produce emissions above defined thresholds. The objectives of the Act, as stated in the legislation, are to:

- inform government policy and the Australian public
- help meet Australia's international reporting obligations
- assist Commonwealth, state and territory government programs and activities
- avoid the duplication of similar reporting requirements in the states and territories
- underpin the introduction of an emissions trading scheme.<sup>19</sup>

Under the Act:

"A registered corporation must, in accordance with this section and in respect of each financial year mentioned in subsection (2), provide a report to the Greenhouse and Energy Data Officer relating to the:

- (a) greenhouse gas emissions; and
- (b) energy production; and
- (c) energy consumption,

from the operation of facilities under the operational control of the corporation and entities that are members of the corporation's group, during that financial year."<sup>20</sup>

The Act is clearly framed to conform to international protocols and conventions and therefore requires entities to report their Scope 1 (direct) emissions as well as Scope 2 (consumption of energy) emissions. Importantly, the legislation does not require entities to report Scope 3 emissions, which refer to the use to which their product is put by a third party, over which they may have little or no control.

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<[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69282/pb13309-ghg-guidance-0909011.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69282/pb13309-ghg-guidance-0909011.pdf)>

<sup>18</sup> Department of Climate Change and Energy Efficiency, <<http://www.climatechange.gov.au/national-inventory-report-2009>>

<sup>19</sup> Department of Climate Change and Energy Efficiency, <<http://www.climatechange.gov.au/reporting>>

<sup>20</sup> Commonwealth of Australia, *National Greenhouse and Energy Reporting Act 2007*, Section 19.

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The lack of a reporting requirement for Scope 3 emissions is irrespective of whether those emissions occur in Australia's jurisdiction or outside it.

#### Policies to reduce Australia's GHG emissions

In light of its international obligations, the Australian government has a strong policy framework to address climate change.<sup>21</sup> Before detailing this approach it is worth noting that notwithstanding the Australian Opposition has a different policy approach, both sides of politics are committed to reducing Australia's GHG emissions by at least five per cent from 2000 levels by 2020.<sup>22</sup>

The Australian government has adopted a multi-faceted approach to reducing GHG emissions. This is set out under the *Clean Energy Future* package of measures. The centrepiece of the policy is the implementation of a price on carbon emissions, first in the form of a carbon tax of \$23/tonne of CO<sub>2</sub>-e that was introduced on 1 July 2012. This is due to be replaced by an emissions trading system on 1 July 2015, under which the price of carbon will no longer be fixed but will be set according to market forces, both domestic and, to a degree, international.<sup>23</sup>

The effect of the carbon price on the electricity sector, for example, is to discourage domestic power generation from using high emissions fuels, such as coal, and encourage lower emissions sources, such as renewable energy. Because of the high average level of emissions currently associated with electricity generation in Australia, the effect of the carbon price is also to increase the price of electricity. This can be expected to have a negative effect on demand.

Other elements of the *Clean Energy Future* program include support for renewable energy, as discussed further below in response to (c), and support for R&D into low emissions technologies, including cleaner coal processes and CCS.

In this context, one element underlying government policies on reducing GHG emissions and climate change is a desire to avoid 'carbon leakage'. Carbon leakage occurs when the imposition of an explicit or implicit charge on GHG emissions in one country reduces the international competitiveness of a particular industrial activity and effectively drives new investment in that industry overseas to jurisdictions that either do not tax emissions at all or levy a lower carbon charge. Carbon leakage would be of no benefit to the Australian community because it would result in reduced investment, fewer jobs and reduced living

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<sup>21</sup> Department of Climate Change and Energy Efficiency <<http://www.climatechange.gov.au/reducing-carbon/reducing-australias-emissions>>

<sup>22</sup> Greg Hunt, MP, 'The Coalition's Direct Action Plan', <<http://www.greghunt.com.au/Issues/DirectAction/DirectAction-Index.aspx>>

<sup>23</sup> Department of Climate Change and Energy Efficiency <<http://www.climatechange.gov.au/reducing-carbon/reducing-australias-emissions>>

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standards in Australia, while at the same time bring no benefits in terms of lowering global GHG emissions because they would merely be transferred to other jurisdictions overseas. Since the effects of GHG emissions know no borders and climate change is a global phenomenon, there is no environmental benefit to anybody in shifting emissions around between countries.

In order to reduce the prospects of carbon leakage, the government's *Clean Energy Future* policy package contained measures to support emissions intensive trade-exposed industries so as to discourage the activities from migrating to other countries. These included industries such as aluminium and Liquefied Natural Gas (LNG) that give rise to carbon emissions associated with the production process. Industries that met the required criteria were allocated a number of free carbon permits that significantly reduced their costs of compliance with the carbon tax policy.<sup>24</sup>

The coal industry does not qualify for assistance under the program designed for emissions-intensive trade-exposed activities because its production process in most cases does not give rise to sufficiently high Scope 1 or Scope 2 emissions to satisfy the criteria. Nonetheless, the government was concerned not to impose any significant cost burden on such an important export industry, and so introduced a special program under the *Clean Energy Future* package designed specifically to support coal mining. The aim of the program is "to support the small number of existing coal mines that are facing significant costs with the implementation of the carbon price. The package is comprised of the Coal Sector Jobs Package (CSJP) and the Coal Mining Abatement Technology Support Package (CMATSP)."<sup>25</sup>

The Queensland government under Premier Newman appears not to have articulated a specific policy approach to regulating GHG emissions and addressing climate change. The government has abolished the previous administration's Office of Climate Change and with it many climate change measures.<sup>26</sup> Instead, it is implementing the LNP's policy platform on energy at the last State election. This committed the party, if elected, inter alia to "developing

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<sup>24</sup> According to the Department of Climate Change, "the most emissions-intensive trade-exposed activities will receive assistance to cover 94.5 per cent of industry average carbon costs in the first year of the carbon price, with less emissions-intensive trade-exposed activities to receive assistance to cover 66 per cent of industry average carbon costs. Assistance will be reduced by 1.3 per cent each year to encourage industry to cut pollution": Department of Climate Change and Energy Efficiency, 'Jobs and Competitiveness Program', <<http://www.climatechange.gov.au/government/initiatives/jobs-competitiveness-program.aspx>>.

<sup>25</sup> Department of Resources, Energy and Tourism, 'Clean Energy', <<http://www.ret.gov.au/energy/clean/Pages/CleanEnergy.aspx>>

<sup>26</sup> Daniel Hirst, 'Workplace rights office, justice body axed', *brisbanetimes.com.au*, <<http://www.brisbanetimes.com.au/queensland/workplace-rights-office-justice-body-axed-20120518-1yvvw.html>>

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clean energy, alternative and renewable technologies and fuels, while ensuring coal fired electricity can remain competitive and viable".<sup>27</sup>

**Response to 4.2 (b) – Policy framework for regulating emissions at coal mines**

Neither the Australian nor the Queensland governments specifically regulate emissions from individual coal mines. As stated above, Scope 1 and Scope 2 emissions produced by the mining of coal are not particularly high relative to some other industries which are more emissions-intensive in their production processes. While some individual mines are 'gassy' and give rise to higher emissions when the coal is mined, the Australian Government has implemented a program, as described in the previous sub-section above, to address this.

In the context of the environmental impact assessments required of all major new investment projects such as coal mines, however, proponents are generally required to provide details of their strategies in regard to addressing GHG emissions. In addition, as a condition of approving the project, government may require the developer to utilise best practice processes so as to manage or constrain emissions of GHGs from the project.

It should be emphasised, however, that these policy approaches apply to all major resource projects. As far as I am aware, no Australian government singles out the coal industry for special treatment. In fact, such an approach would be inconsistent with a policy approach relying, on the one hand, on a broad, market driven mechanism and, on the other, on positive measures to encourage investment in renewables, energy conservation and energy efficiency.

**Response to 4.2 (c) – Policy framework for encouraging the use of renewable energy sources domestically**

While Australia's carbon price offers a market-oriented measure in support of renewable energy, an integral part of the Australian Government's approach to reducing Australia's emissions of GHGs is to complement this by supporting investment in renewable energy using more explicit measures. The government states that:

"The transformation of our energy sector will drive around \$100 billion in investment in the renewables sector over the period to 2050. The Government's plan to support this investment includes:

- commercialisation and deployment of clean technologies through the commercially oriented \$10 billion Clean Energy Finance Corporation
- research, development and commercialisation of renewable energy at an early stage through the \$3.2 billion Australian Renewable Energy Agency

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<sup>27</sup> Liberal National Party, 'The CanDo LNP Resources and Energy Strategy', <<http://lnp.org.au/state-election-2012/grow-a-four-pillar-economy/resources-and-energy-strategy/>>

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- research and development of clean technologies through the \$200 million Clean Technology Innovation Program
  - increased use of renewable energy through the carbon price and the Renewable Energy Target.”<sup>28</sup>

The most important measure to support investment in renewable energy is the Renewable Energy Target (RET), under which 20 per cent of electricity supplies are to be provided by renewable energy technologies by 2020. The RET provides a considerable indirect subsidy to renewables by means of increasing the price of electricity and thereby enabling renewable technologies to become more competitive. Because the demand for electricity has declined below projected levels, it is likely that the RET, which is specified in terms of GWh of electricity to be produced by renewables rather than a percentage market share, will account for more than 20 per cent of power supplies in 2020.<sup>29</sup>

In terms of the Queensland government, as stated above the LNP policy position coming into government was to encourage the development of renewable energy in the State. In this context, the Queensland government is currently preparing an Electricity Strategy for the State, to cover the next thirty years, which will include issues around the generation mix.<sup>30</sup>

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<sup>28</sup> Australian Government, 'Renewable Energy', *Clean Energy Future*,  
<<http://www.cleanenergyfuture.gov.au/clean-energy-future/renewable-energy/>>

<sup>29</sup> *Ibid.*

<sup>30</sup> Department of Energy and Water Supply, 'Directions Paper for the 30-Year Electricity Strategy',  
<<http://www.dews.qld.gov.au/policies/electricity-sector-reform/directions-paper>>



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**4.3 Has refusing proposed coal mines on a case by case basis to avoid GHG emissions from the mining or use of coal from such mines been considered and, if so, what were the outcomes of those considerations?**

To my knowledge, there has never been any public indication that Australian governments would consider prohibiting coal mine developments on the grounds of avoiding GHG emissions. To do so would be inconsistent with an ongoing government position of encouraging resource developments, including coal mining and with a 'least cost' approach to reducing GHG emissions. As discussed in the response to Question 4.1 above, governments have reacted strongly against suggestions from Greens leaders that coal mining in Australia should be reduced or phased out.

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**4.4 Have regulators refused to approve a proposed coal mine in order to avoid the GHG emissions from mining or use of coal from that mine?**

No coal mine in Australia has been refused approval on the basis of avoiding GHG emissions from the mining or use of coal from that mine. I can find no evidence that any coal mine overseas has been prohibited on that basis.

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**4.5 Would refusing proposed coal mines on a case by case basis to avoid the GHG emissions from the mining or use of coal from such mines be consistent with the policy framework referred to in your responses to 4.1 and 4.2 above?**

Refusing to approve proposed new or expanded coal mines on a case by case basis for the avoidance of GHG emissions would not be consistent with the support for the future growth of the coal industry enunciated by both the Commonwealth and Queensland governments.

It would also be inconsistent with Australian governments' policy framework for regulating GHG emissions and addressing climate change.

As stated above, the Australian government's approach to reducing carbon emissions is to put a price on carbon. The carbon price applies to the coal industry although, because of the government's support for the industry, a package of assistance has been provided to reduce the compliance costs. The carbon price applies to the industry's Scope 1 emissions, some of its Scope 2 emissions and some of the Scope 3 emissions where they occur in Australia, for example where coal is combusted for the purpose of generating electricity.

Downstream, or Scope 3, emissions are not covered where they occur overseas. Effectively seeking to regulate Scope 3 emissions in another jurisdiction overseas would also appear to be contrary to international convention. As stated in the response to 4.2(a) above, under the various rules and conventions developed under the auspices of the UNFCCC, each sovereign nation is responsible for its own GHG emissions.

It should also be noted that other industries, including some with substantially higher emissions associated with the production process than coal, are not subject to prohibition through the approvals process. Nevertheless, proposed new projects in such industries may be required to meet best practice emissions standards as a condition of approval. This approach may also be applied to the coal industry.

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**4.6 What impact (if any) would refusing to approve proposed coal mines in Queensland or Australia on a case by case basis have on:**

- (a) The coal industry; and**
- (b) The Queensland and Australian economies?**

**Response to 4.6(a) – Impact on the coal industry**

In the short run, a policy of refusing approvals for proposed new mines may have little immediate impact on the coal industry except in terms of its growth. Existing mines would continue to produce, to provide jobs and to export most of their production. But in the longer term such a policy approach could very well, in my opinion, lead to the decline of the industry in Queensland and, if applied in other Australian jurisdictions, in Australia more generally. Most of the companies that have major investments in the coal sector in Australia are transnational enterprises with a portfolio of global investment opportunities and the capacity to develop new coal projects virtually anywhere in the world. If the policy environment for investing in coal turns negative in Australia, new investment will occur elsewhere and the coal industry in Queensland and Australia more generally will decline.

Overall, the application of a policy to deny approvals to individual proposed mines on the grounds of third party emissions would be likely to have a substantial negative impact on investment in the industry in the jurisdictions where the policy was applied. In my opinion, this would apply not just to investment in proposed new mines and extensions, but a loss of confidence in the government's support for the industry could well lead to a disinclination to invest further in the existing industry in that jurisdiction so as to maintain its productive capacity. Investors in the industry may well see policies such as the ones described above as a precursor to a gradual phase-out of the industry in Australia. In such circumstances, safeguarding shareholder value in the companies concerned may well dictate a measured exit strategy from the Australian coal industry, which could well contain, as one of its key elements, minimising future capital spending.

In this context, it should be noted that while the Australian coal industry has exhibited strong growth, in *relative* terms it may already be falling behind other countries. Globally the coal industry continues to expand rapidly. According to the World Coal Association, total production of coal globally reached 7,678 million tonnes (Mt) in 2011, an increase of 6.6 per cent over 2010 having grown at an annual rate of 4.4 per cent since the turn of the century.<sup>31</sup> Coal production declined in Australia in 2010-11, although this was largely due to the Queensland floods which led to a reduction of production of 30 per cent in that State.<sup>32</sup> It may

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<sup>31</sup> World Coal Association, 'Coal Statistics', <<http://www.worldcoal.org/resources/coal-statistics/>>

<sup>32</sup> Australian Coal Association, 'Coal production', <<http://www.australiancoal.com.au/coal-production.html>>

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be seen from Exhibit 2 below that while Australia is a major coal exporter, its production is much lower than that of China and the USA.

**Exhibit 2: Major Coal Producing Countries (2011)**

<b>Country</b>	<b>Production (Mt)</b>
<b>China</b>	<b>3,471</b>
<b>USA</b>	<b>1,004</b>
<b>India</b>	<b>585</b>
<b>AUSTRALIA</b>	<b>414</b>
<b>Indonesia</b>	<b>376</b>
<b>Russia</b>	<b>334</b>
<b>South Africa</b>	<b>253</b>
<b>Germany</b>	<b>189</b>
<b>Poland</b>	<b>139</b>
<b>Kazakhstan</b>	<b>117</b>

Source: World Coal Association, 'Coal Statistics', <<http://www.worldcoal.org/resources/coal-statistics/>>

As a result of the significant proportion of high value coking coal (used for steel production) in its exports, Australia is still the world's leading coal exporting country in terms of value.<sup>33</sup> In terms of volumes, however, it is increasingly being challenged. Perhaps partially as a result of the Queensland floods, Australia fell to second place in terms of export volumes in 2011, the latest year for which data are available. As may be seen in Exhibit 3, Indonesia overtook Australia in 2011 as the world's leading coal exporter by volume, with exports of 309 Mt (up by over 50 per cent in three years). In addition, other countries such as the USA are becoming significant competitors in the energy export trade.

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<sup>33</sup> Australian Coal Association, Submission to the Draft Energy White Paper, March 2012, covering letter, <<http://www.ret.gov.au/energy/documents/ewp/draft-ewp-2011/submissions/256.aca.pdf>>

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**Exhibit 3: Major Coal Exporting Countries by Volume**

<b>Country</b>	<b>Exports, 2011(Mt)</b>	<b>Exports, 2008(Mt)</b>	<b>Growth 2008-11(%)</b>
<b>Indonesia</b>	<b>309</b>	<b>203</b>	<b>52</b>
<b>AUSTRALIA</b>	<b>284</b>	<b>252</b>	<b>13</b>
<b>Russia</b>	<b>124</b>	<b>101</b>	<b>23</b>
<b>USA</b>	<b>97</b>	<b>74</b>	<b>31</b>
<b>Colombia</b>	<b>75</b>	<b>74</b>	<b>1</b>
<b>South Africa</b>	<b>72</b>	<b>62</b>	<b>16</b>

Source: International Energy Agency, Key World Energy Statistics 2009; World Coal Association, 'Coal Statistics', <<http://www.worldcoal.org/resources/coal-statistics/>>

The message from this is that Australia is by no means the only country in which investors can develop new coal mines for export. Other countries certainly have the capacity to take over coal production displaced from the Australian industry as a consequence of policy-driven carbon leakage or a wider decline in competitiveness. According to the Australian government agency ABARE, both Indonesia and Mongolia have the capacity to increase their exports substantially.<sup>34</sup> Russia, South Africa and Kazakhstan are also potential rivals. In none of these countries, as far as I am aware, is there any significant questioning of the legitimacy or acceptability of the coal industry. In my opinion, these countries generally have less rigorous approvals processes for new projects, less of an emphasis on environmental protection and lower labour costs than Australia. In the past, Australia possessed a significant relative advantage as a destination for investment because of its low political risk. But in recent times, sustained political stability in nations such as Indonesia is likely to have reduced the value of this advantage.

**Response to 4.6(b) – Impact on the Australian and Queensland economies**

As suggested above, any refusal to allow proposed new coal mining operations to go ahead would threaten not merely the investments in question but eventually the future of the coal mining industry. This would have a profound impact on the Queensland and Australian economies.

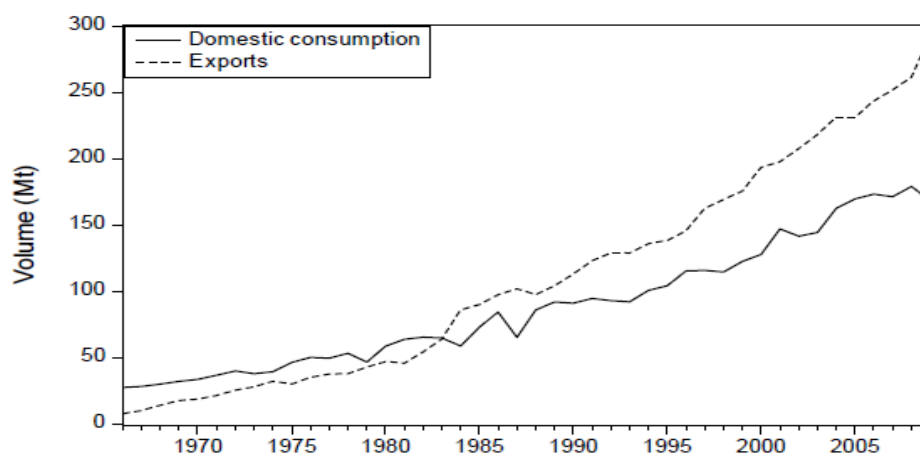
In the years leading up to the global financial crisis, the world price of coal increased substantially. This was a major factor contributing to the rise in Australia's terms of trade, which peaked in 2011 at a historically high level. With iron ore and LNG, the industry lies at the heart of Australia's resources boom. The rise in the terms of trade gave rise to a considerable increase in Australian

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<sup>34</sup> ABARE and Geoscience Australia, *Australian Energy Resource Assessment 2010*, page 151, <[http://adl.brs.gov.au/data/warehouse/pe\\_aera\\_d9aae\\_002/aera.pdf](http://adl.brs.gov.au/data/warehouse/pe_aera_d9aae_002/aera.pdf)>

incomes and boosted household wealth and living standards.<sup>35</sup> In response to the increase in global demand for coal, reflected in higher prices, the coal industry expanded rapidly. As shown in Exhibit 1 above, coal ranks second among Australia's commodity exports. It is also interesting to note that the rapid growth in coal exports is a relatively recent phenomenon in Australia. Until the early 1980s, domestic consumption of coal exceeded exports, after which the export industry grew at a very rapid rate until it became a major contributor to Australia's GDP (Exhibit 4).

#### Exhibit 4: Growth of Australia's Coal Industry, 1966-2009



Source: Maslyuk, Svetlana and Dharmaratna, Dinusha (2012), *Impact of Shocks on Australian Coal Mining*, Department of Economics Discussion Paper 37/12, Monash University, page 12,  
<http://www.buseco.monash.edu.au/eo/research/papers/2012/3712impactmaslyukdharmaratna.pdf>

According to the Australian Coal Association (ACA), the coal industry's share of Australia's GDP rose from 1.7 per cent in 2006-07 to 3.5 per cent in 2008-09.<sup>36</sup> Taking account of its high growth over time as well as its contribution to GDP, this is clearly a very valuable industry that provides a significant underpinning to the wealth of the Australian community.

In the words of the Australian Coal Association:

"Coal plays a fundamental role in the Australian economy. It is NSW's and Queensland's most important export earner and Australia's second largest export industry. In 2011-12, Australia's coal mines will add \$4.5 billion to state royalties – including \$2.7 billion to the Queensland Government and \$1.7 billion to the New South Wales Government – and generate over \$49 billion in export revenue. They directly employ over 48,000 people and at least a further 100,000 indirectly – mostly in regional areas. Coal is, indeed, a source of significant financial stimulus to coal mining regions. It is also important to metropolitan regions. For example, the resources sector added

<sup>35</sup> See for example, Glenn Stevens, Reserve Bank of Australia, Remarks at the Victoria University Public Conference, *The Resources Boom: Understanding National and Regional Implications*, Melbourne, 23 February 2011, <http://www.rba.gov.au/speeches/2011/sp-gov-230211.html>

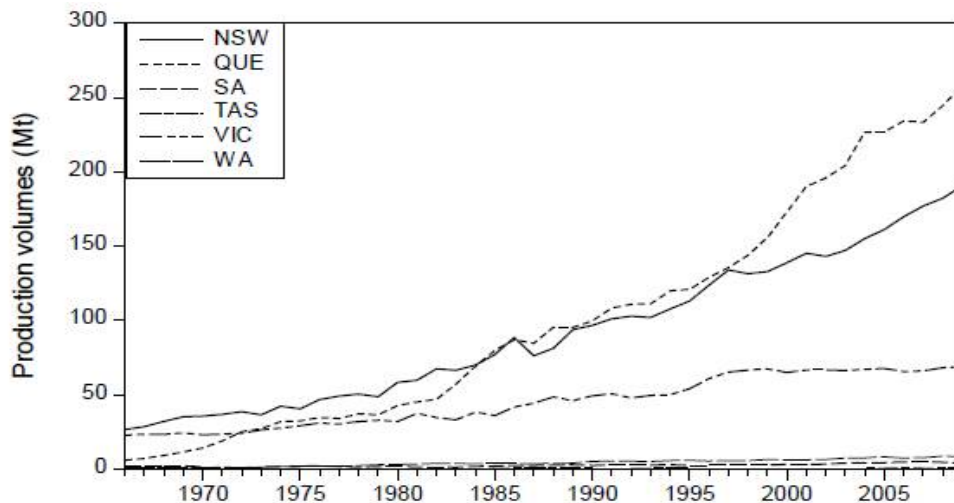
<sup>36</sup> Australian Coal Association, 'Coal exports', <http://www.australiancoal.com.au/exports.html>

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\$12 billion to the Brisbane economy in 2010-11, much of this is due to the coal industry.<sup>37</sup>

Since the late 1990s, the output of the coal industry has been higher in Queensland than in any other Australian State and has grown at a faster rate (Exhibit 5).

**Exhibit 5: Growth of Australia's Coal Industry by State, 1966-2009**



Source: Maslyuk, Svetlana and Dharmaratna, Dinusha (2012), *Impact of Shocks on Australian Coal Mining*, Department of Economics Discussion Paper 37/12, Monash University, page 12,  
<<http://www.buseco.monash.edu.au/eo/research/papers/2012/3712impactmaslyukdharmaratna.pdf>>

A study by Peter Knights and Michael Hood of the University of Queensland in 2009 estimated the impact of the coal mining industry on the Queensland economy. The study suggested that that in 2006-07 around 73,000 jobs in the State were indirectly created by the activities of the coal industry.<sup>38</sup> If we accept this estimate as correct and then factor in the industry's growth since the modelling was undertaken, the implication is that, despite recent job losses, perhaps around 100,000 jobs in Queensland currently are directly or indirectly dependent on the coal industry. This high level of employment is particularly important because much of it will occur in non-metropolitan regions, where there are often fewer alternative employment opportunities than in the city.

The University of Queensland study, which employed the Monash Multi-Regional Forecasting (MMRF) economic model, showed that in 2008 as a result of the

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<sup>37</sup> Australian Coal Association, Submission to the Draft Energy White Paper, March 2012, page 2,  
<<http://www.ret.gov.au/energy/documents/ewp/draft-ewp-2011/submissions/256.aca.pdf>>

<sup>38</sup> Peter Knights and Michael Hood (2009), *Coal and the Commonwealth*, Brisbane, University of Queensland, October, page 60,  
<[http://www.peabodyenergy.com/mm/files/News/Publications/Special%20Reports/coal\\_and\\_commonwealth%5B1%5D.pdf](http://www.peabodyenergy.com/mm/files/News/Publications/Special%20Reports/coal_and_commonwealth%5B1%5D.pdf)>.



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activities of the coal industry household disposable income in Queensland was nearly seven per cent higher than it otherwise would have been.<sup>39</sup> This is a relatively high figure for the impact of a single industry and demonstrates how the economic benefits of coal mining are both very substantial and diffused throughout the Queensland economy.

The coal industry therefore makes a major contribution to the Queensland and Australian economies and to the community's living standards. In light of this and their support for the future development of the Australian coal industry, as cited above, Governments will be wary of taking actions that will increase the industry's costs in Australia or of allowing regulators to impose conditions that could prevent proposed new mines from going ahead or discourage investment in the industry. As discussed in 4.8 below, this will not be likely to produce any beneficial environmental outcomes in terms of climate change or pollution more generally.

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<sup>39</sup>*Ibid*, page 6.

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**4.7 In the context of your response to 4.6 above, would refusing to approve proposed coal mines in Queensland or Australia on a case by case basis notwithstanding any impact on the coal industry and Queensland and Australian economies be consistent with the policy framework referred to in your responses to 4.1 and 4.2 above?**

Refusing to approve proposed coal mines would not be consistent with the policy framework discussed in my earlier responses. Such an approach would:

- Be contrary to Australian governments' approach to support the growth of the coal industry and to provide special measures to assist the industry to adjust to a carbon price
- Be clearly at odds with the Australian Government's policy objective of using a market mechanism as the primary measure to address climate change
- Single out coal mines for special, discriminatory treatment even though its emissions in the production process are not particularly high
- If adopted because of a mine's potential Scope 3 emissions overseas, be contrary to the international convention as recognised in the Kyoto protocol that each nation is responsible only for the emissions that occur directly within its jurisdiction
- Likely give rise to carbon leakage by encouraging the thwarted investments to occur overseas
- For this reason, have no impact on reducing GHG emissions globally.

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**4.8 From a policy and economic perspective, is refusing to approve proposed coal mines in Queensland or Australia on a case by case basis an effective or efficient means for addressing environmental concerns that may be associated with GHG emissions and climate change?**

Ross Garnaut has frequently described addressing climate change as a “diabolical policy problem”.<sup>40</sup> The policy difficulties and complexities are evident in many dimensions, a major one being that GHG emissions know no borders and so a global policy framework is required. Another major complexity refers to intergenerational equity. Essentially, in the context of climate change, this requires the current generations to make economic sacrifices now in order for future generations to benefit from the avoidance of the adverse environmental impacts associated with climate change. This is particularly difficult in countries where much of the current generation has yet to emerge from poverty. The challenge for governments in that regard is to design policies that minimise the costs to the existing community in pursuing a defined level of benefit for future generations. This requires the policies to meet criteria relating to their efficiency and effectiveness.

In my opinion, refusing to approve proposed new coal mines, either on a general or a case by case basis, would be neither an efficient nor an effective means of addressing environmental concerns associated with GHG emissions and climate change.

In order to be efficient, a policy directed towards reducing GHG emissions in Australia must ensure that the cost of abatement is minimised. In principle, a market mechanism, as proposed by the Australian Government, is the most efficient means of reducing emissions because it allows market participants to choose the cheapest abatement options — if the cost of abatement is lower than the carbon price it will pay to reduce emissions and if the cost of abatement is higher than the level of the carbon price they will pay for the right to emit. According to Government’s recent *Clean Energy Future* policy statement, an opinion with which I agree, “extensive analysis by economists and independent institutions such as the Productivity Commission has demonstrated that market mechanisms like a carbon price or an emissions trading system are the cheapest ways of reducing pollution”.<sup>41</sup>

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<sup>40</sup> See for example, Ross Garnaut, ‘A Diabolical Policy Problem’, Paper presented to the Festival of Ideas, Melbourne, 16 June, 2009, <<http://www.rossgarnaut.com.au/Documents/Festival%20of%20Ideas%20Ross%20Garnaut%20160609.pdf>>

<sup>41</sup> Australian Government, *A Clean Energy Future*, <<http://www.cleanenergyfuture.gov.au/clean-energy-future/securing-a-clean-energy-future/>>

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A policy of not approving individual coal mines (or coal mines in general) would contradict this policy by arbitrarily pursuing a discriminatory course against one source of emissions without knowing whether or not this would deliver the lowest cost of abatement. On what basis could the government be confident that banning a new coal mine would be a more efficient means of containing GHG emissions than, say, closing down the aluminium industry or planting a million trees? Unless we avail ourselves of market signals, an economist would deem it inevitable that governments will select a sub-optimal solution.

In terms of the effectiveness of an approach based on refusing mines, it would almost certainly be quite ineffective and possibly even be counter-productive because of carbon leakage. Coal is a commodity for which there is a high and growing demand in the world economy, as is evidenced by the considerable increase in its global production in recent years. Global reserves of coal are very substantial and, in contrast to resources such as uranium, where Australia accounts for a major share of global reserves, Australia only has less than nine per cent of the world's black coal reserves.<sup>42</sup> In addition, despite being one of the world's largest coal exporting countries, Australia ranks fourth in coal production, accounting for six per cent of the global total.<sup>43</sup> If Australian governments take action effectively to reduce the supply of coal, therefore, there is no evidence at all that this would constrain global production of the commodity. Global demand for coal will not change as a result of Australia's actions and the requirements of the market could readily be supplied from somewhere else.

In summary, banning individual coal mines on a case by case basis will not provide:

- an *efficient* solution, because in the absence of a market mechanism we cannot be sure that it would provide a least cost outcome, nor
- an *effective* solution, because it would not reduce global GHG emissions since almost certainly the emissions would merely occur somewhere else.

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<sup>42</sup> US Energy Information Administration, 'International Energy Statistics', <<http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=1&pid=7&aid=6>>

<sup>43</sup> ABARE and Geoscience Australia, *Australian Energy Resource Assessment 2010*, page 137, <[http://adl.brs.gov.au/data/warehouse/pe\\_aera\\_d9aae\\_002/aera.pdf](http://adl.brs.gov.au/data/warehouse/pe_aera_d9aae_002/aera.pdf)>

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**4.9 From a policy and economic perspective, provide your opinion as to:**

- (a) paragraph 62 in the objection by Coast and Country Association of Queensland Inc (CCAQ) dated 20 February 2013 and, in particular, the propositions that:**

  - (i) "If this mine does not go ahead it will exert some upwards pressure on coal prices"; and**
  - (ii) "This reduction in supply and increase in price of coal will push some consumers towards other energy sources which are already becoming cheaper";**
- (b) paragraphs 59, 60 and 61 in the objection by Fiorella Paola Cassoni dated 20 February 2013 and, in particular, the propositions that:**

  - (i) "Unsubsidised renewable energy is now cheaper than energy from new coal fired power stations in Australia, and no new coal or gas plants are likely to be required this decade"; and**
  - (ii) "there are likely to be cheaper alternatives for energy production soon after the coal from this project reach [sic] the market which do not produce greenhouse gas emissions. Consequently there is not sufficient need for the project..."**,

**and**
- (c) the proposition in the objection by Kathryn Kelly dated 20 February 2013 that "Australia could be leading the way in renewable energy technologies, and possibly substituting our coal exports with, for example, dissociated ammonia developed with renewable energy sources".**

**In your response to (a) and (b), you should have regard to the particulars provided at paragraph 27 of the CCAQ's response to the Applicant's Request for Particulars dated 29 April 2013.**

**Response to 4.9 (a) – Price and supply impacts**

I do not accept that in prohibiting this proposed mine from going ahead there would be an upward pressure on the price of coal, thus reducing demand.

First of all, according to the World Coal Association there are abundant resources of coal worldwide and, hence, many alternative sources of supply to Australian

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mines. Germany's Bundesanstalt für Geowissenschaften und Rohstoffe, for example, estimates that there are 1,004 billion tonnes of coal reserves available, equivalent to 130 years of production at 2011 levels.<sup>44</sup> Data produced by the US Energy Information Administration suggests that while Australia's coal endowments are extensive, they amount to less than nine per cent of global reserves.<sup>45</sup>

The conclusion from this is that Australia can have little control over the global supply of coal or its price. In my opinion, failure to allow this mine to proceed would have no upward effect on the price of coal. If increasing demand for coal justified industry expansion, prohibiting such expansion in Australia would merely lead to the development of another mine in another country with no consequential upward pressure on the coal price. Further, it may be that Australia has lost some of its cost advantages in mining coal. A new mine developed elsewhere may well enjoy lower costs than an Australian operation. Recent analysis of the coal industry, for example, suggests that:

"In general, the low cost tonnes [of coal] are coming out of Indonesia and Mongolia and even the US, where the switch from coal to gas as a fuel of choice for power stations has created a stockpile estimated to stand at 100mt of thermal coal."<sup>46</sup>

Therefore, to the extent that production costs influence the coal price, the banning of a new Australian mine, if it is to have any effect at all, may lead to marginally lower coal prices globally rather than the higher prices postulated in the CCAQ objection.

Turning to (a)(ii), since I do not accept that banning a coal mine in Queensland will have any impact on global supplies of coal or its price, it follows that there would be no change in the relative price differential between coal and alternative lower emission fuels.

#### **Response to 4.9 (b) – Relative costs of power generation technologies**

In terms of (b), I should say at the outset that I struggle to see the relevance of the comments on the relative technology costs. The global demand for coal continues to increase. There is no domestic or international legal barrier to prevent the combustion of coal for electricity generation, although generators may be regulated in terms of pollution and carbon emissions in some countries.

That said, however, the obvious response to a contention that renewable technologies are now competitive with coal in power generation is that, if the

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<sup>44</sup> World Coal Association, 'Coal Statistics', <<http://www.worldcoal.org/resources/coal-statistics/>>

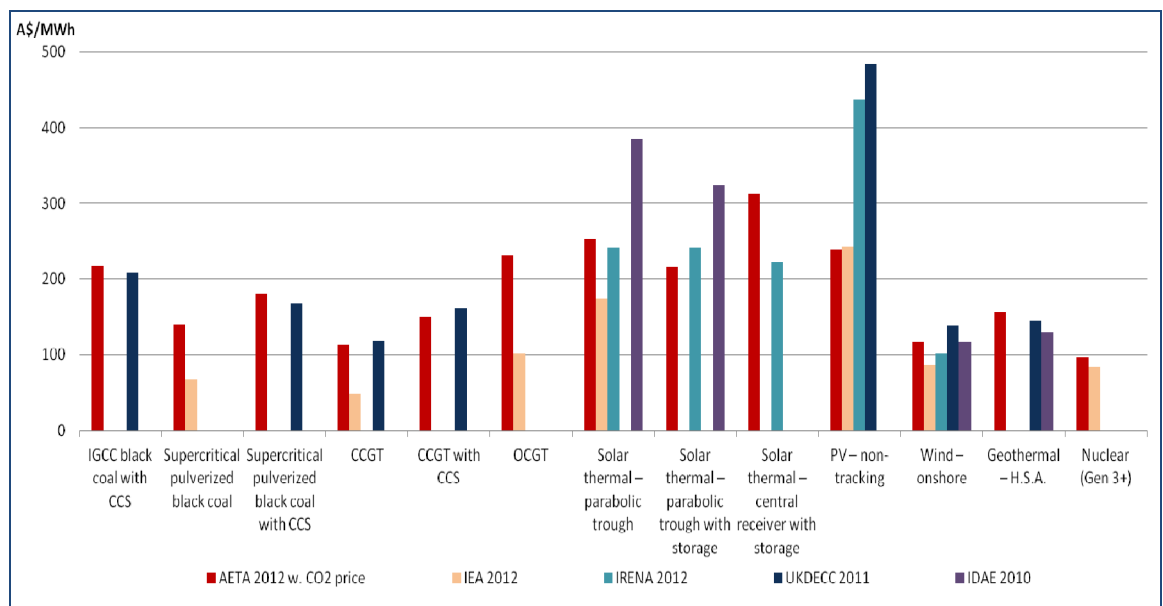
<sup>45</sup> US Energy Information Administration, 'International Energy Statistics', <<http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=1&pid=7&aid=6>>

<sup>46</sup> Matthew Stevens, 'Drive to lift coal's dark prospects', *The Australian Financial Review*, 21 May 2013, <[http://www.afr.com/p/business/companies/drive\\_to\\_lift\\_coal\\_dark\\_prospects\\_mPrh2hCGBrVz9dVwsmYfGJ](http://www.afr.com/p/business/companies/drive_to_lift_coal_dark_prospects_mPrh2hCGBrVz9dVwsmYfGJ)>

contention is correct, governments and courts need take no action at all. In an open market, a profit maximising investor in electricity generation will choose the most efficient and effective technology. The fact that this is an obvious response does nothing to rob it of its veracity. If, on the other hand, investors in new generation plant are not choosing to invest in unsubsidised renewables, this suggests that the contention that renewables represent the most cost-efficient and effective technologies is, in fact, incorrect. This is discussed in detail below.

Turning first to efficiency, many estimates are available of the relative costs of various generation technologies, none of which are cited in the Objections. The data in Exhibit 6 below show a number of estimates made by Australia's Bureau of Resource and Energy Economics (BREE) for the Australian Energy Technology Assessment (AETA) in 2012; by the International Energy Agency (IEA) in 2012; the International Renewable Energy Agency (IRENA) also in 2012; the UK Department of Energy and Climate Change (DECC) in 2011; and the Spanish Institute for Energy Diversification and Saving (IDAE) in 2010.

#### Exhibit 6: International Comparisons of Technology Costs in Power Generation



Source: Bureau of Resources and Energy Economics, *The Australian Energy Technology Assessment*, presentation to the Economic Club of Canada, July 2012, <<http://www.bree.gov.au/documents/presentations/aeta-31july.pdf>>

Note: IGCC = Integrated Gasification Combined Cycle; CCS = Carbon Capture and Storage; CCGT = Combined Cycle Gas Turbine; OCGT = Open Cycle Gas Turbine; HSA = Hot Sedimentary Aquifer

In comparing the estimates in Exhibit 6, it should be noted that the AETA estimates for Australia include a carbon price while the other overseas estimates do not. This is of no account with near zero emissions technologies like renewables and nuclear but it is important, for example, in the case of supercritical black coal, where the AETA (red bar) cost estimate is around double

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that of the IEA (orange bar). In addition, the cost of CCGT gas generation, while shown to be the lowest in the chart according to the IEA, depends critically on the gas price. While gas is now abundant and cheap in the US, for example, this is no longer true in Australia and has never been true in many parts of Europe and Asia. If CCGT were fuelled by imported liquefied natural gas (LNG), its cost would be significantly higher than coal and some renewable technologies.

That said, the estimates in the chart, particularly those published by the IEA shown with the orange bar, suggest that in the absence of a carbon price, coal and natural gas provide the most efficient solution to electricity generation, with costs of well under \$100/MWh. Among low emissions alternatives, only onshore wind and nuclear power, according to the IEA's estimates (orange bar), have costs of under \$100/MWh.

When discussing the cost competitiveness of renewables such as wind and solar energy, however, there are two important further points to consider. First of all, the cost comparison may be too generous to wind generation, for example, because in assessing the efficiency of renewable energy, it is important to take account of some additional imposts that a focus on pure generation costs generally ignores. Apart from the costs of fossil fuel back-up, which are discussed below, the supply costs cited for most renewable technologies generally ignore connection costs, which can be substantial. As the OECD has pointed out:

"Including the system costs of variable renewables at the level of the electricity grid increases the total costs of electricity supply by up to one-third, depending on country, technology and penetration levels. Currently, such grid-level costs are absorbed – unacknowledged – by electricity consumers through higher network charges and by the producers of dispatchable electricity in the form of reduced margins and lower load factors. Not accounting for system costs means adding implicit subsidies to already sizeable explicit subsidies for variable renewables."<sup>47</sup>

In terms of efficiency, therefore, the contention in favour of renewable energy put by the objectors and referred to in Question 4.9, is not proven. All forms of renewable energy identified in Exhibit 6 are substantially less efficient than coal or gas in the generation of electricity.

Turning to effectiveness, we should first acknowledge that the purpose we are examining here is not just electricity generation in general, but base load, or continuous, power generation. This is the purpose for which thermal coal is used. Coal generators cannot be used for peaking power because the ramp-up time is too long, nor are they ideal for intermediate duty for the same reason. In comparing like with like, only a few renewable technologies are suitable for base load generation. Geothermal is one, but the resource is only available in a relatively few locations. Hydro-electricity is another, but not only is this not widely available, it also often comes with some substantial environmental costs.

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<sup>47</sup> OECD (2012), *Nuclear Energy and Renewables: System Effects in Low-carbon Electricity Systems*, <<http://www.oecd-nea.org/ndd/reports/2012/system-effects-exec-sum.pdf>>



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Wind and solar power are the technologies most frequently cited by environmental groups as substitutes for coal as a source of electricity generation. But while suitable for intermediate duty, both of these are interruptible technologies that are not capable of providing reliable, low cost continuous base load electricity. In order to do this, they would require a very significant investment in fossil fuel backup facilities, usually by means of open cycle gas turbines (OCGT). Not only is the cost of OCGT relatively high, as may be seen in both the estimates shown in Exhibit 6, but its CO<sub>2</sub> emissions, at around 700kg/MWh, are not far short of those produced by supercritical coal generation. In addition, substantial costs are involved in investing in OCGT back-up facilities which are used only intermittently. In California, for example, where a 33 per cent renewable energy target has been mandated for 2020:

“One of the hidden costs of solar and wind power — and a problem the state is not yet prepared to meet — is that wind and solar energy must be backed up by other sources, typically gas-fired generators. As more solar and wind energy generators come online, fulfilling a legal mandate to produce one-third of California's electricity by 2020, the demand will rise for more backup power from fossil fuel plants ... ‘This issue is someplace between a significant concern and a major problem,’ said electricity system expert Severin Borenstein, a professor at UC Berkeley's Haas School of Business. “There is definitely going to be a need for more reserves.”<sup>48</sup>

These costs are not accounted for in the cost comparisons generally made, including in Exhibit 6.

Based on the data in Exhibit 6, however, the most likely low emissions technology to supersede coal in the base load duty is nuclear power. Despite the Fukushima accident, there is a considerable interest in Asia in particular in building nuclear generators in order to reduce the carbon footprint of the electricity industry. While China is also investing heavily in renewables, its nuclear development program dwarfs that of other countries with 77 reactors under construction or planned and another 120 proposed, amounting to around 40 per cent of the world's total civilian reactor build activity.<sup>49</sup> Perhaps the suitability of nuclear power as an alternative to coal for base load power is best illustrated by the counterfactual. Following Fukushima, Germany is seeking to phase out its fleet of nuclear power stations. Yet despite being the country whose government provides perhaps the greatest support of all for renewable technologies, new coal generators (some of them using very high emissions lignite) are being built in Germany in order to replace nuclear power for base load duty. As reported in January 2013 in *The Economist*:

“In Germany, RWE, the biggest user of coal in Europe, generated 72% of its electricity from coal and lignite (a dirtier, low-grade form of coal) in the first nine months of 2012, compared with 66% over the same period in 2011.

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<sup>48</sup> Ralph Vartabedian, ‘Rise in renewable energy will result in more use of fossil fuels’, *Los Angeles Times*, 9 December 2012, <http://articles.latimes.com/2012/dec/09/local/la-me-unreliable-power-20121210>>

<sup>49</sup> World Nuclear Association, ‘Reactor Database’, <<http://www.world-nuclear.org/info/Facts-and-Figures/World-Nuclear-Power-Reactors-and-Uranium-Requirements/#.UaGtdZ-9aQ>>

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Germany needs new capacity because it is closing down its nuclear plants: RWE is building a new coal-fired plant in Hamm, in North Rhine-Westphalia and another in Emshaven in the Netherlands. E.ON, Germany's biggest power producer, is also building a new coal-fired plant in North Rhine-Westphalia. It and its partners are considering shutting down a gas-fired plant in Bavaria. Vattenfall, a Swedish state-owned company, has just completed a lignite-fired plant in eastern Germany and is building a coal plant near Hamburg. EnBW, based in southern Germany, is building a coal-fired plant in Karlsruhe, and another jointly with RWE in Mannheim.<sup>50</sup>

Finally, many households in developing countries still have no access to electricity. Tackling climate change is unlikely to be a major priority for them; understandably, they will seek access to the cheapest possible power supply in order to help alleviate poverty. In some cases this will be provided by coal, while in other areas distributed generation and renewables are being installed. The Australian community currently enjoys access to a reliable and still relatively inexpensive power supply, most of which is provided by the combustion of coal. In my opinion, there are some difficult ethical issues around seeking to deny coal to less fortunate people in other countries or to advise them on what technologies they should use for generating electricity, particularly if the recommended technologies are not the cheapest available.

#### **Response to 4.9 (c) – Exporting renewable technologies rather than coal**

I don't know anything about dissociated ammonia and so cannot comment on the likelihood that Australian industry will develop an international competitive advantage in its production. If they did, I do not understand why it would replace coal exports. Australia does not have a centrally planned economy where governments mandate what is exported and what is not. Australia's international trade occurs as a result of commercial decisions made by companies and individuals within a regulatory framework laid down by government. Nevertheless, as detailed above in response to 2(c), the renewable energy industry enjoys substantial subsidies in Australia and these should assist it in increasing its international competitiveness and export potential.

That said, and notwithstanding some honourable exceptions (such as bionic ears and blood plasma products), Australia tends to have more of a comparative advantage in resources and energy exports than complex new technologies or manufactured products. For that reason it seems more likely to me, for example, that if coal exports trend down in the future as a consequence of international measures to address climate change, we will be able to shift towards lower emissions exports by exploiting our strong position in endowments of uranium. At around 40 per cent, Australia has a significantly greater share of the world's recoverable uranium resources than coal.<sup>51</sup>

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<sup>50</sup> *The Economist*, 'Europe's energy policy delivers the worst of all possible worlds', 5 January 2013, <<http://www.economist.com/news/briefing/21569039-europes-energy-policy-delivers-worst-all-possible-worlds-unwelcome-renaissance>>

<sup>51</sup> Australian Uranium Association, <<http://www.auran.org.au/Content/Resources.aspx>>

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It should also be noted that Australian industry has attempted in the past to build a global position in producing solar panels, only to be significantly undercut on price by Chinese enterprises. Nevertheless, there are Australian companies operating in the low emissions energy field. One Sydney-based company, Silex Systems, for example, specialises in low emissions technologies and has recently commissioned a major solar energy facility near Mildura. The company has also developed a leading-edge, third generation technology for the production of nuclear fuel rods from refined uranium. This technology has been licensed to General Electric in the US and is currently in the final stages of evaluation.<sup>52</sup>

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<sup>52</sup> For information on Silex Systems, see the company's website at <<http://www.silex.com.au/>>

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## 5. Summary of Opinion and Findings

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My findings support the view that regulating the coal industry so as to restrict the development of new proposed mines would give rise to no benefit and, indeed, a considerable cost to the Australian and Queensland communities.

The Australian coal industry, much of which is located in Queensland, lies at the heart of the resources boom that has had and is still having a profound positive effect on Australian incomes and the community's living standards. Not only is Australia the largest coal exporting country in the world by value, but coal provides more export income for Australians than any other commodity or industry with the exception of iron ore. Export income allows Australians to import goods and services, like cars and overseas holidays, which make a material contribution to improving living standards.

In most countries, the combustion of coal still provides the cheapest and most efficient means of generating large scale supplies of electricity. Around the world, there is a strong correlation between energy consumption and living standards and access to affordable energy lies at the heart of the rapid emergence from poverty of people in developing economies, particularly in China and India. An increase in energy costs could have a substantial deleterious effect on the ability of governments in developing countries to help their people emerge from poverty.

Yet the combustion of coal comes at a cost in the form of the emissions of greenhouse gases (GHGs), which, according to the weight of scientific opinion, lead to high carbon concentrations in the atmosphere, global warming and ultimately to climate change. In the context of global efforts to address climate change by reducing GHG emissions, would it be in the public interest to prohibit the development of more coal mines in Queensland on a case by case basis, so as to avoid the GHGs emitted first by the mining operations and then by the combustion by a third party of the coal produced?

My opinion on this question is clear. While such an approach may be superficially attractive from the perspective of addressing climate change, it would not represent an efficient or effective policy approach in pursuit of this objective. Not only would it be contrary to the Australian and Queensland governments' policy framework to take such action, but it would also not be in the public interest to do so. There are several reasons for this:

- The principal climate change policy of the Australian government is now to put a price on carbon, which will allow the market to determine where emissions cuts are made – a command and control approach that discriminates against selected industries (such as coal mining) would be inimical to and inconsistent with such an approach. Economists generally agree that a market-based policy that puts a price on carbon represents the most efficient means of reducing GHG emissions.

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- Under the UNFCCC, Scope 3 emissions that occur as a result of combusting coal exported from Australia in another country become the reporting responsibility of the country concerned. In the context of any global agreement to address climate change, containing such emissions would also be the responsibility of the country in which the combustion of coal and consequent GHG emissions occur.
  - Complementary policies of the Australian government involve supporting the development of renewable energy, encouraging energy efficiency and subsidising R&D into greenhouse friendly technologies – again, discriminating against selected industries such as coal would be entirely contrary to this approach.
  - In addressing climate change, Australian governments seek to avoid carbon leakage – there is no benefit to Australians when investment is driven offshore since it leads to a loss of economic activity and jobs in Australia with no offsetting benefit in terms of climate change since the emissions that would have occurred in Australia are merely transferred overseas. Both levels of government support the further growth of the coal industry, to the extent that the Australian Government has provided assistance to the industry to adjust to the carbon tax.
  - As well as being inefficient, the proposed approach of seeking to ban new coal mines on a case by case basis would not be an effective approach to reducing GHG emissions. This is because there are substantial reserves of coal around the world and many other countries seeking to increase their exports. In my opinion, a decision to ban a proposed mine in Australia would lead to the demand for coal to be satisfied elsewhere.
  - In my opinion, a decision to ban a new mine in Queensland would not lead to an increase in the world price of coal. Indeed, with some countries now being lower cost producers than Australia, the world price may even be lower as a result of such an approach, perhaps leading to an increase in demand for coal.
  - Renewable energy is not yet able to provide a cost-effective substitute to coal and gas as a means of generating base load power. The most efficient low emissions alternative to coal is nuclear power, which has not been raised in the Objection.

Overall, the refusal of the proposed Alpha coal mine as called for in some of the Objections cannot be justified in the context of current government policy. If implemented, they would have a negative impact on living standards in Queensland and Australia more generally. There would be no offsetting benefit in terms of reducing global GHG emissions; indeed, these may even be higher as a result of such a policy approach.

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## 6. Additional Information Required

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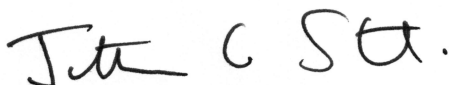
I am satisfied that I have had access to all the information I need to reach a reliable conclusion.

## 7. Expert's Statement

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I confirm the following:

- (a) the factual matters stated in this report are, as far as I know, true;
- (b) I have made all enquiries that I consider appropriate;
- (c) the opinions stated in this report are genuinely held by me;
- (d) the report contains reference to all matters I consider significant; and
- (e) I understand my duty to the court and have complied with the duty.



Jonathan Geoffrey Stanford  
Director  
Insight Economics Pty Ltd

30 May 2013

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## **Appendix A**

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# Jon Stanford

## Curriculum vitae



### **Director**

#### **Insight Economics Pty Ltd**

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Email: [jon.stanford@insighteconomics.com.au](mailto:jon.stanford@insighteconomics.com.au)

## **Expertise**

Since taking up a career as a consultant in the mid-1990s, Jon Stanford has developed a strong practice in economics and policy issues related to climate change, energy, the resources sector, industry development and defence. In this period, Jon was a Director of the Allen Consulting Group for over ten years before leaving to establish a new firm, Insight Economics, with four other consultants. From 2006-09 Jon was a Partner with Deloitte and helped to establish their new economics practice. With three colleagues, he has now re-formed Insight Economics as a small, specialist consultancy focussing on public policy and corporate strategy.

Throughout his consulting career, Jon has worked closely with economic modelling agencies, predominantly the Centre of Policy Studies at Monash University.

Before becoming a consultant, Jon Stanford had a significant career with the Australian Public Service working in areas that involved economics and public policy. His final position was as head of the Industry, Resources and Environment Division in the Prime Minister's Department.

Jon has regularly contributed articles to the op ed pages of the *Australian Financial Review*.

## **Consulting career**

### **Climate change**

While in government, Jon was Chair of the Australian Government's inter-departmental committee on greenhouse and Chair of the Inter-governmental Committee on Ecologically Sustainable Development. Since then, he has developed a strong practice in the economics and public policy aspects of climate change. He has analysed the appropriate public policy responses and modelled the economic impact of possible policies for a number of clients, including the Commonwealth and State governments and industry groups. A major report on emissions trading, undertaken ten years ago for



the Victorian Government, was the first attempt in Australia to model the economic impact of measures to address climate change.

Recent climate change projects include:

- Major assignment for the Northern Territory Government assisting in developing a climate change strategy for the Territory and advising the Chief Minister on climate change policy (2008-09).
- Major project for the Commonwealth government that included climate change modelling (2011).
- Several projects for the Global Carbon Capture and Storage Institute, including drafting a paper to be presented by Lord Stern, a member of the Institute's International Advisory Board (2010-11).
- Assessments for two jurisdictions on the complementarity of existing climate change programs with the Rudd government's proposed Carbon Pollution Reduction Scheme (2008-09).
- Project for a State government to assess proposed carbon emissions limits for a major resources project (2009).
- A major report for the Victorian Government, *The Greenhouse Challenge for Energy* (2005)
- Undertook the research and modelling underpinning a report by the Australian Business Roundtable on deep cuts to greenhouse gas emissions (2006).
- Significant work for the National Emissions Trading Taskforce (NETT) in 2006.

Over the last few years, Jon has contributed a number of articles on greenhouse policy to the opinion pages of *The Australian Financial Review*. He has also acted as an expert witness and has regularly addressed conferences on the issue.

## **Energy and resources**

Following on from his responsibilities in energy and competition policy in the Department of the Prime Minister and Cabinet, in the late-1990s, Jon was Chair of the Council for Australian Governments' Gas Reform Implementation Group, which developed and implemented the National Gas Code. This group included all nine Australian governments, the gas industry, gas users, the ACCC and the National Competition Council. While there were different views, the Group was highly successful in that the details of the National Gas Code were finalised in a relatively short period of time and the Code has not been significantly revised subsequently.

More recently Jon has directed a number of energy related projects including:

- Recent project for a State government on energy options for base load under a climate change constraint (2013).
- A review of the options for base load electricity generation in Australia with a carbon constraint (2010).
- Assisting a State/Territory Government develop a renewable energy strategy (2009).
- A major report for the Australian Uranium Association on prospects for the uranium industry in the light of the international climate change response.
- A report for the Commonwealth Government on regulatory impediments to the further development of the uranium industry (2007).

## **Economic modelling: impact of major projects**

Working with the Centre of Policy Studies at Monash University, Jon has undertaken a number of economic modelling projects to estimate the economic impact of major investment projects. These include

- A project for Gunns Ltd on a proposed pulp mill at Bell Bay
- Significant work for Woodside on several LNG projects.

- A project for BHP Billiton to estimate the economic impact of the proposed Olympic Dam expansion.
- A major project for the Western Australian Government to examine the economic, social and strategic aspects of the Gorgon JV's proposal to build a LNG processing plant on Barrow Island.
- A project for Rio Tinto estimating the economic impact of the HIsmelt project
- A recent project for Qenos Ltd estimating the impact of a proposed new investment project.

## **Industry development**

Much of Jon's public service career was concerned with industry development policy. In recent years, as a consultant, he has directed:

- A very substantial project for the automotive companies in the Philippines to examine the potential for the industry to participate in regional global supply chains and to design a policy framework to sustain the industry in the future.
- A project for a major Australian player in the motor vehicle industry on future business strategies.
- An assignment for Hawker de Havilland in relation to its involvement in the Boeing 787 project.

## **Defence**

Jon has had a long interest in defence issues. In recent years he has directed several projects related to defence, including:

- Assisting the Defence Materiel Organisation to draft the Strategic Sector Plan for the defence aerospace industry.
- A project for the Victorian Government on building the Air Warfare Destroyers.
- An assignment for an Australian defence company on participation in the F-35 (Joint Strike Fighter) project.
- A project on defence shipbuilding policy.
- A project for the Victorian Government on defence industry policy.
- An assignment for the governments of Victoria, Queensland and Western Australia on building the Landing Ships, Helicopter Dock.

## **Program reviews**

Jon Stanford has also undertaken some important program reviews, including evaluations of:

- Government regulation of the uranium industry
- The Greenhouse Challenge program
- Programs to support the export of education services
- The Overseas Projects Corporation of Victoria Ltd.

## **Public Service career**

Before becoming a consultant, Jon Stanford had a significant career with the Australian Public Service in Canberra.

Jon's final position with government was as head of the Industries, Resources and Environment Division in the Department of the Prime Minister and Cabinet. In that position he was responsible for coordinating competition policy across the Commonwealth Government and in the CoAG process. He was also, *inter alia*, Chair of the CoAG working groups on gas reform and water reform and Chair of the Inter-governmental Committee on Ecologically Sustainable Development. Within the Commonwealth Government, he chaired the standing inter-departmental committee on Greenhouse.

The position also involved briefing the Prime Minister on energy, resources and manufacturing industry issues, as well as communications policy. Jon was Chair of the major crisis response group. He played a significant role in drafting various economic statements, including *Working Nation*.

Before his period in PM&C and after an early career in the forbears to the Productivity Commission, in the early 1990s, Jon worked in the industry portfolio. He was Director of the Bureau of Industry Economics, a relatively independent government agency that undertook policy-oriented research for the then Minister, Senator John Button. He then became head of the Policy Division.

## **Professional and academic qualifications**

Jon was born in England and studied Economics at the University of Manchester before migrating to Australia. In the 1980s, he won a Public Service scholarship to undertake a two year MBA program at London Business School. In the early '90s, Jon spent a year in London as the Public Service Fellow at the Sir Robert Menzies Centre for Australian Studies at the University of London. In that position, he edited a book on industry policy, launched by Senator Button.

Jon Stanford's academic qualifications are as follows:

1. MBA, London Business School
2. Master's degree in Economics, University of Manchester
3. BA (Economics), Honours, University of Manchester