

Joint Expert Report to the Land Court by Jonathan Stanford and Professor Roger Jones

1. Experts Details

1.1 Names

This joint expert report has been prepared by Jonathan Geoffrey Stanford and Professor Roger Jones for the Land Court in accordance with paragraphs 8 and 9 of the Order dated 27 May 2013.

1.2 Previous Expert Reports

This joint expert report is supported by, and relies upon, the following expert reports:

- (a) Expert Report of Jonathan Geoffrey Stanford, dated 30 May 2013; and
- (b) Expert Report of Professor Roger Jones, dated 2 July 2013, to the extent relevant to climate change policy and economics.

1.3 Dates of Meetings of Experts

The experts met on 23 July 2013 at Professor Jones' office at Victoria University.

2. Key issues of Agreement

Roger Jones and Jon Stanford agree on the following:

- That if the global community is to meet the widely-supported objective of limiting the average temperature increase to two degrees Celsius, the combustion of coal needs to decline significantly from current levels unless carbon capture and storage technologies are deployed widely in the future.

3. Key issues of Disagreement

There are a number of areas where the experts disagree. These are set out below.

3.1 Treatment of Scope 3 emissions from the Alpha Mine

In his expert report, Professor Jones compares the total projected greenhouse gas (GHG) emissions associated with the Alpha mine with Australia's aggregate inventory of emissions, current and projected (page 4, italicised section, and paragraph 13).

Jon Stanford's view

Jon Stanford does not understand the relevance of such a comparison. The vast bulk of the GHG emissions associated with the Alpha mine will be Scope 3 emissions arising from the combustion of its coal. Since all the coal from the mine is destined for export, these Scope 3 emissions will occur in other countries and will contribute to those countries' national greenhouse gas inventories (NGGI), not Australia's. As the guidelines published by the UN's Intergovernmental Panel on Climate Change (IPCC) state, each country is required regularly to prepare a NGGI on the following basis:

National inventories should include greenhouse gas emissions and removals taking place within national (including administered) territories and offshore areas over which the country has jurisdiction.¹

It follows, therefore, that the Scope Three emissions resulting from the combustion of coal from the Alpha mine are the responsibility not of Australia, but of the jurisdiction within which the emissions are released. It is up to those countries to regulate or tax the emissions as they see fit.

The greenhouse gas accounting methodology currently used by the IPCC is fundamental to understanding the level and growth of GHG emissions from individual signatories to the UN's Framework Convention on Climate Change (UNFCCC). In Stanford's view, it would be unsafe from a number of perspectives to ascribe to Australia emissions that occur in other jurisdictions, even if they are a consequence of Australian exports of commodities. Similarly, for example, it would be invalid to ascribe to Singapore any emissions emanating from Australia's transport sector on the basis that some of the fuel used in that sector was imported to Australia from that country. It is quite clear from the UN protocols that those emissions are Australia's responsibility and not Singapore's. The policy implications of a shift in focus from emissions that occur within individual countries to include emissions that are associated with exports from that jurisdiction would be extraordinarily difficult to manage. This has not been contemplated, as far as Stanford is aware, in any international forum, including the annual conferences of the parties to the UNFCCC.

Roger Jones's view

Roger Jones was requested to address the risk of total emissions from the Alpha Coal Project including the construction of the railway line transporting coal to the coast and its subsequent combustion overseas. The purpose of the UNFCCC is to 'avoid dangerous anthropogenic interference with the climate system'. As such, negotiations endeavour to reconcile the interests of

individual countries with global interests. It is widely recognized that recent negotiations since the 15th Council of Parties Meeting in 2009 have not been successful in producing an agreement that would limit the increase in global mean temperature to 2°C above pre-industrial levels. Emissions pledges made by individual countries are incorporated into the MEP2030 emission scenario in Jones' report; otherwise current growth is assumed to 2030 before technology policy is imposed from 2030–2100, reducing emissions. Although it is possible for warming to remain under 2°C under this scenario, it is highly unlikely.

Recent research since 2009 has emphasized the use of global carbon budgets as the method that offers the greatest potential for managing the uncertainty around reaching climate policy targets. Assessing current and future emissions from significant projects is relevant to assessing the risks from climate change at both a local and global level. With the gap between various national and international policy positions in reconciling likely outcomes with policy aspirations, it is reasonable to assess total emissions from a proposed project, even if they are separated at the jurisdictional scale.

3.2 Impact of the Alpha mine on net global greenhouse gas emissions

On page 9 of his report, Professor Jones states that “the emissions [from the Alpha mine and other proposed new coal mines in Queensland] would cause a net social cost felt in Australia and the rest of the world”.

Jon Stanford's view

Jon Stanford fundamentally disagrees with this view, which, he considers, would only be tenable if it could be demonstrated that the commissioning of the Alpha mine would lead to a net addition in global emissions. Other things being equal, new projects, anywhere in the world, that burn coal provided by a new mine such as Alpha will clearly lead to an increase in GHG emissions. But Stanford contends that in terms of *net* emissions, the commissioning of the Alpha mine would be irrelevant. The aggregate combustion of coal around the world is a consequence of the demand for the commodity and, in terms of satisfying that demand, Alpha is in competition with a range of other possible new or expanded coal mines worldwide.

It is not evident that the decision on whether or not to ban the development of the Alpha mine would have any impact on the global demand for coal. As Stanford indicated in section 4.8 of his report, global reserves of coal are very substantial and less than nine per cent of them are located in Australia. Not only is there no global supply constraint for coal, but Australia can have very little impact on global supply beyond the short term. In sections 4.6 of his report, Stanford shows that there is strong competition in the global coal market, with countries such as Indonesia being clear rivals to Australia in supplying new demand. Among a number of other countries, the United States is also competing vigorously in the global coal market.

If it is agreed, therefore, that the level of demand is the determining factor in the quantum of global emissions from the combustion of coal, the absence of supply constraints suggests that the development of the Alpha mine or, indeed, any new coal mine in Australia, will have no impact on the level of net GHG emissions associated with coal fired power generation worldwide. If the Alpha

¹ Intergovernmental Panel on Climate Change, *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reporting Instructions, Overview*, page 4, <http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/overri.pdf>

mine does not go ahead, demand for coal will not change but will merely be satisfied from somewhere else.

Roger Jones's view

Mr Stanford argues that the Alpha mine project would not produce any additional emissions to those that would be inevitable due to underlying market demand. Certainly, the International Energy Agency in its mid-term coal market report foresees coal taking over as the largest single energy source by 2017. This report estimates expansion of coal mining in the Australian region. It is a five-year outlook, so covers short-term demand. Over the full life of the proposed mine however, there is no existing mechanism to reconcile energy, resource extraction and climate change policies domestically or internationally. Roger Jones' report shows that the proportion of emissions attributable to a single mine as a proportion of global emissions in a successful climate policy environment in 2040–2050 is much greater than in an unsuccessful policy environment.

Clearly, for climate policy to be successful (e.g., to avoid 2°C with a greater 50–75% certainty) there need to be demand constraints within the life of the proposed mine that are greater than those currently existing. This may be seen as an issue of private risk faced by the mine owner and operator, but there is also an added element of public risk in that public resources (biodiversity, water resources and access to the Great Barrier Reef for transport) are all placed at some risk, while policies designed to constrain unmanaged carbon emission are being developed and implemented over the proposed project lifetime.

Climate change has been referred to as a form of market failure at the global scale (e.g., Garnaut, 2008). To my knowledge there is no reliable test available for additionality when demand is poorly constrained in a competitive market. However, increased competition will lead to downward pressure on coal prices. This will have an opposite effect to policies designed to incorporate external costs (e.g., the price of pollution) into coal prices.

Stanford's and Jones' views are expressed via extractive industry and climate change policy respectively. They demonstrate the incommensurate nature of these policies in their current state with respect to achieving climate policy targets; especially in reconciling the short-term outlook of the coal industry (that is based on the prospect of the underlying market conditions remaining relatively constant over the life of the project) whereas, climate policy suggests these conditions will change.

3.3 Risk of carbon leakage through policy action on the supply side

Jon Stanford's view

While he agrees with much of Professor Jones's commentary on the dangers of climate change and the contribution of the combustion of coal to bringing about such climate change, Jon Stanford is concerned that in discussing climate change policy Roger Jones does not pay sufficient heed to the potential effects of carbon leakage.

Carbon leakage is said to occur when unilateral policy action on climate change by one country causes new investment and job creation to migrate from the country taking action to other nations that do not take similar action.

Carbon leakage causes economic costs to the first country through a loss of jobs and investment. While this would be acceptable if the economic costs were outweighed by greater environmental

benefits such as lower GHG emissions, this will not occur if the same level of emissions occurs somewhere else. (There are some examples of where project migration can lead to net benefits, for example if an aluminium smelter using electricity generated by high emissions brown coal migrated to a country where it could use hydro electricity. However, this does not apply to the coal-fired power generation industry.)

Stanford contends, on the basis of the arguments used in 3.2 above, that banning the Alpha mine would lead to carbon leakage. The global demand for thermal coal would remain the same but the coal that would have come from Alpha would be supplied from some other country. The economic benefits of jobs and investment that would have occurred in Queensland will shift to the other country, while global GHG emissions will remain the same.

There is also another, broader policy issue to be considered here. The main thrust of global policy, such as it is, to avert dangerous climate change is to take action on the demand side. Measures such as carbon taxes and emissions trading systems seek to reduce the demand for emissions-intensive products in the jurisdiction in which they are applied. To be sure, supply side measures also play a role in terms of providing government financial support for innovation and the development of low emissions technologies. However, nowhere in the world, insofar as I am aware, are countries taking action to deny commodities to countries that propose to use them in a manner entirely consistent with national and international law.

Roger Jones's view

Jon Stanford uses leakage in the economic sense here, rather than the more conventional climate policy sense applied to greenhouse gas emissions being transferred to another jurisdiction. While I accept most of what he has written here, it is also appropriate to point out that as an Annex 1 country under the UNFCCC, Australia has certain responsibilities. Based on the principle of common but differentiated responsibilities, the lead in mitigation is assigned to developed countries (UNFCCC Article 3.1) that takes the needs and special circumstances of developing countries into account (UNFCCC Article 3.2). Also, with regard to Mr Stanford's final point above, Australia has exercised limitations on uranium mining because of concerns with the whole life cycle of the nuclear power process from mining and production through to waste management.

3.4 Future demand for coal and renewables in emerging economies

Professor Jones suggests that renewables constitute the fastest growing energy sector in China and that coal use is stabilising.

Jon Stanford's view

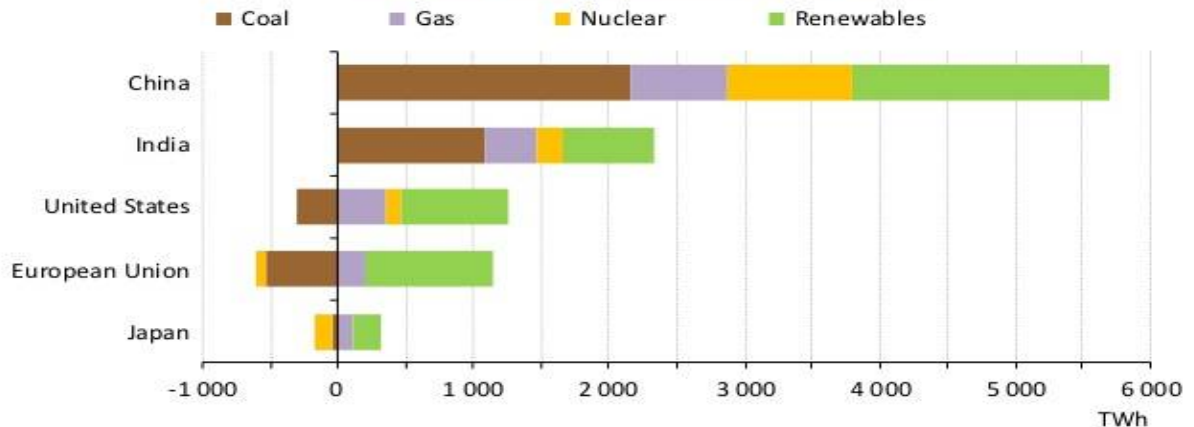
Jon Stanford agrees with Roger Jones that China is devoting significant resources to renewables as well as to nuclear power (which is rarely, if at all, mentioned as a low emissions alternative to coal by those experts opposed to the development of the Alpha mine). He would make two points, however:

- While renewables and nuclear are projected by the International Energy Agency (IEA) to make a major contribution to power generation in China in the future, coal is still seen as making a larger contribution to 2035 than either of them (although less than the two combined). Coal is projected to continue to account for a major share of new investment in power generation in China for the next twenty years and beyond (see below, a chart presented in Antoine Nsair's expert evidence).

A power shift to emerging economies

WORLD
ENERGY
OUTLOOK
2012

Change in power generation, 2010-2035



The need for electricity in emerging economies drives a 70% increase in worldwide demand, with renewables accounting for half of new global capacity

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Source: International Energy Agency, *World Energy Outlook*, Presentation to the Press, November 2012, <http://www.slideshare.net/internationalenergyagency/world-energy-outlook-2012-presentation-to-press>London,

- In any case, it is unclear how much of the coal mined at Alpha is destined for the China market. In other emerging economies, such as India, coal is still projected to make a major contribution.

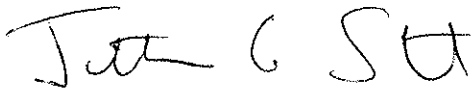
Roger Jones's view

Successful climate policy depends on rapid transitions to a substantially different energy mix in both developed and developing countries.

4. Expert's Statement

We confirm the following:

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



Jonathan Geoffrey Stanford

30 July 2013



Professor Roger Jones

30 July 2013