RIO TINTO

IRON ORE

APPLICATION FOR DECLARATION OF A SERVICE PROVIDED BY THE HAMERSLEY RAILWAY

AND

APPLICATION FOR DECLARATION OF A SERVICE PROVIDED BY THE ROBE RAILWAY

SUBMISSION BY RIO TINTO IRON ORE IN RESPONSE TO DRAFT RECOMMENDATIONS PUBLISHED BY THE NATIONAL COMPETITION COUNCIL ON 20 JUNE 2008

DATED 21 JULY 2008

Table of Contents

1. Executive Summary

1.1 The National Competition Council's (***NCC***) draft recommendations[1] are fundamentally flawed. As Matthew Stevens, writing in the Weekend Australian, observed:

> The National Competition Council yesterday put our richest export industry on track for the slowest but most costly train crash in Australian history.[2]

The draft recommendations must be completely rethought either by the NCC in its final recommendations or, if the NCC will not do so, by the Federal Treasurer as the relevant decision maker.

Access is contrary to the public interest – Criterion (f)

1.2 Criterion (f) provides that a service should not be declared if third party access to the service would be contrary to the public interest.

1.3 In this case access would be overwhelmingly contrary to the public interest. Turning the Rio Tinto Iron Ore[3] (***RTIO***) rail network[4] into a multi-user, regulated system will severely damage its efficiency and impede RTIO's expansion plans, costing RTIO and the Australian economy tens of billions of dollars. Furthermore, access would not promote competition in any real market or generate other public benefits.

Access will cost RTIO and the Australian economy tens of billions of dollars

1.4 The RTIO rail network is amongst the most efficient in the world. RTIO has grown its Pilbara iron ore sales by more than two and a half times since 2000 and plans to expand output from approximately 160 million tonnes per annum (***mtpa***) in 2007 to 320 mtpa by 2013. This rapid expansion has been made possible because RTIO controls and is the sole user of its rail infrastructure. RTIO can decide how to operate, and how and when to expand, its rail network without needing to agree matters in advance with a regulator or a third party user.

1.5 Access will impose on RTIO's highly efficient operations the infrastructure chaos and inefficiencies that have plagued the east coast coal supply chain. The evidence from the east coast, and reports from all experts who have studied the reasons for the problems on the east coast, show that converting RTIO's single user rail infrastructure into multi-user infrastructure would:

- cause ***delays to expansions***;
- result in RTIO having to build new capacity for third parties, in substitution for its own, higher value, capacity expansions (***displacement costs***);

---

[1] NCC Hamersley Railway Draft Recommendation (the ***Hamersley Draft Recommendation***) and NCC Robe Railway Draft Recommendation (the ***Robe Draft Recommendation***), both dated 20 June 2008 (collectively the ***draft recommendations***).

[2] Matthew Stevens, 'NCC runs off track by railroading miners', Weekend Australian, 21 – 22 June 2008 , page 33

[3] Comprising Hamersley and Robe – see paragraph 1.1 of the Original Submission.

[4] The Hamersley and Robe rail networks are run together by Pilbara Iron Pty Ltd as part of an integrated network, referred to as the ***RTIO rail network***.

- result in a ***loss of system capacity*** as a result of clashes and interactions between multiple users; and
- create a ***disincentive to invest***.

In its submission to the NCC of 30 April 2008 (the ***Original Submission***) RTIO provided expert modelling reports showing that the cost to the Australian economy of these inefficiencies would be in the tens of billions of dollars over the 20 year period for which declaration is proposed.

1.6 The NCC states in its draft recommendations that it 'fundamentally disagrees, and considers that these arguments are based upon simplistic assumptions and are unconvincing'. In reaching this conclusion, however, the NCC:

(a) ***ignores the nature of RTIO's operations:*** RTIO's mines, rail and ports are highly integrated for the purpose of creating blended iron ore products at the ports. RTIO's sole use and control of its rail system give it the flexibility to rapidly alter which trains run from which mines to which dumpers at which ports and is integral to RTIO's production process. The NCC makes almost no reference to the vertically integrated nature of RTIO's operations, but this is fundamental to understanding the costs access will impose.

(b) ***ignores the real world evidence:*** The poor performance of the east coast coal supply chain, both in terms of its operational efficiency and its failure to rapidly expand, particularly when compared to the west coast iron ore supply chains, is well known. The one common feature of each element of the east coast coal supply chain, and the feature that distinguishes it from the west coast, is that it is multi-user infrastructure and as a consequence is subject to regulation in one form or another. The NCC ignores this highly relevant real world evidence of what happens when mining related infrastructure is multi-user, but gives no examples of where multi-user infrastructure has operated as efficiently, or has been expanded as rapidly, as the west coast iron ore supply chain.

(c) ***ignores the expert evidence:*** A number of independent reports and observers (not just 'the service providers and their consultants') have concluded that it is multi-use and regulation that have caused the inefficiencies and slow expansions in the east coast coal supply chain. The NCC has chosen to ignore these independent reports and observers, as well as the expert opinions put forward by RTIO. The NCC has not, however obtained or referred to any expert analysis or advice that suggests that the application of Part IIIA of the *Trade Practices Act 1974* (Cth) (the ***TPA***) to the RTIO rail network will not cause the inefficiencies and diseconomy costs identified by RTIO.

(d) ***relies instead on theoretical 'safeguards' in the TPA:*** The NCC instead places blind faith in certain 'safeguards' found in the arbitration provisions of Part IIIA that the ACCC will have to apply, as the reason for concluding that access and Part IIIA will not slow expansions and cause operational inefficiencies. These 'safeguards' are completely untested and theoretical. Furthermore, they apply only in relation to the setting of access terms and conditions. They do not regulate the ongoing relationship between an access provider and access seeker, either on a day to day basis or when disputes arise. Most fundamentally, any rigorous analysis of the 'safeguards' demonstrates they will not prevent the inefficiencies that real world experience and expert opinion show will arise. The inefficiencies are an inevitable consequence of regulation and multiple users; they cannot be overcome by clauses in legislation or the terms and conditions of access.

1.7 For the reasons given in the Original Submission and discussed further in this submission below, it is clear that access would impose inefficiencies and costs on RTIO and the Australian economy amounting to tens of billions of dollars over a 20 year period.

Access will not generate any public benefits

1.8 The NCC suggests three categories of public benefits that would arise from declaration. For reasons briefly outlined below, none of these benefits would in fact arise:

(a) **There is no spare capacity so access will not avoid the need to construct new railway facilities.** The NCC suggests that the declaration would avoid unnecessary and inefficient duplication of railway facilities (and hence reduce environmental and native title impacts). The NCC itself recognises, however, that there is little or no spare capacity on key sections of the RTIO rail network either as currently configured or following RTIO's proposed expansions[5]. The NCC's draft recommendations are premised on the assumption that ***the ACCC will compel RTIO to expand its facilities to meet the third party demand***. The NCC assumes that it would be cheaper for RTIO to expand than it would be for third parties to construct their own facilities. The NCC reaches this conclusion because of its assumption that heavy haul rail infrastructure must be a 'natural monopoly'. The NCC conducts no analysis of either:

- what expansions would in fact be required to the RTIO rail network to accommodate third party demand (they may well require the construction of a third line along hundreds of kilometres of track); or
- the lowest cost options available to third parties (notably the possibility of constructing a low cost spurline to link up with FMG's existing and planned open access rail lines, which are likely to have spare capacity and which are linked to port facilities to which third parties have access).

As a result there is no basis for the NCC to suggest that declaration would avoid the construction of new rail facilities. New rail facilities will be needed to accommodate the additional demand from third parties with or without access.

(b) **Access will reduce, not increase, iron ore exports:** The NCC suggests that access will increase iron ore exports. This is simply incorrect. The inefficiencies discussed above demonstrate that access will reduce, not increase, iron ore exports. Furthermore, the history of the Pilbara demonstrates that regulated access is not necessary in order for deposits to be developed. The NCC has not identified a single deposit that depends on regulated access for development.

[5] Hamersley Draft Recommendation, paragraphs 5.75 – 5.76 and Robe Draft Recommendation, paragraphs 5.73 and 5.74.

(c) **Declaration will not promote competition:** Neither the NCC nor FMG suggests that declaration will promote competition in the iron ore market. Instead the NCC and FMG say that declaration will promote competition in 'rail haulage' and 'iron ore tenements' markets in the Pilbara. These markets are artificial constructs designed to allow the NCC to recommend declaration and do not reflect the reality that the market in which RTIO and all iron ore companies operate is the global iron ore market. In any event, declaration would not promote competition even in the hypothetical and artificial "markets" the NCC has constructed.

1.9 Even if, contrary to the above, all of the benefits identified by the NCC did arise, and all of the arguments put by FMG are accepted, the total value of any public benefits that would arise as a result of access would be very small, particularly when compared to the costs that access will impose. As a result, there is no conceivable basis upon which the NCC could be affirmatively satisfied that access would not be contrary to the public interest.

(d) It would not be uneconomical for anyone to develop another facility to provide the service – Criterion (b)

1.10 Criterion (b) provides that the NCC cannot recommend declaration of a service unless the NCC is satisfied that it would be uneconomical for anyone to develop another facility to provide the service. The NCC takes the view that this requires the application of a 'natural monopoly' test, ie the NCC says that Criterion (b) is satisfied if a single facility is capable of meeting likely demand at a lower cost than two or more facilities, such that it is uneconomical to develop another facility and society's resources are most efficiently used and costs minimised if additional facilities are not developed.

1.11 RTIO does not accept that this is the appropriate test. Even if it is, the test cannot be satisfied here, since:

- it is impossible to meaningfully forecast demand for services on the RTIO rail network. Demand could literally range from anywhere between nil and hundreds of millions of tonnes per annum. The NCC seeks to avoid this difficulty by saying that a 'precise' estimate of demand is not necessary to apply the test. RTIO accepts that a 'precise' forecast is not required, but some meaningful estimate is required. In this case, the NCC cannot be satisfied that demand would not be very high indeed, and so it cannot be satisfied that it would not be economical for someone to build another facility to meet that demand;
- the NCC accepts that there is little or no spare capacity on RTIO's rail network now or in the foreseeable future. The NCC draft recommendations are, as noted above, premised on the assumption that the ACCC will compel RTIO to expand its rail network to meet third party demand. The NCC assumes that it will be cheaper for RTIO to expand its facilities than for a third party to build a new facility. To accommodate any meaningful third party demand, however, substantial sections of the RTIO rail network would require the construction of an entirely new parallel line. Even without taking into account diseconomy costs, the direct costs of building what is effectively a separate rail line for several hundred kilometres may well exceed the costs that any third party would be likely to incur in building the minimum facility needed to link up to other rail networks or ports;

- in any event, the diseconomy costs discussed above would dwarf the costs of constructing another facility, even if the entire RTIO rail network was to be duplicated.

1.12 Society's resources would be most efficiently used if additional facilities were developed rather than RTIO being compelled by a regulator to expand its facilities, with all the diseconomies and impacts on expansions that would cause.

(e) Access would not promote a material increase in competition in another market

1.13 Criterion (a) provides that a service should not be declared unless access would promote a material increase in competition in another market.

1.14 As briefly noted above, neither the NCC nor FMG suggest that access would promote competition in the global iron ore market. Instead, it is suggested that competition will be promoted in the Pilbara 'rail haulage market' and the Pilbara 'iron ore tenements' market. These 'markets' do not exist; the only relevant market should be the global market for iron ore. In any event, access would not promote competition even in such artificial and hypothetical markets.

1.15 In summary, criteria (f), (b) and (a) are not satisfied. The NCC should reconsider its draft recommendations and recommend against declaration.

2. Criterion (f) – Public Interest

(a) Introduction

2.1 Criterion (f) requires the NCC (and the Minister) to be affirmatively satisfied:

> that access (or increased access) to the service would not be contrary to the public interest.

2.2 The costs of access to the RTIO rail network would greatly outweigh any possible public benefits and as a result access would be contrary to the public interest.

(b) RTIO's Pilbara operations

2.3 In assessing the costs that access will impose, it is important to have a proper understanding of the history and integrated nature of RTIO's Pilbara operations.

Development by RTIO as a vertically integrated operation

2.4 A brief history of the development of RTIO's operations in the Pilbara is set out in Section 3 of the Original Submission. Key points to note are:

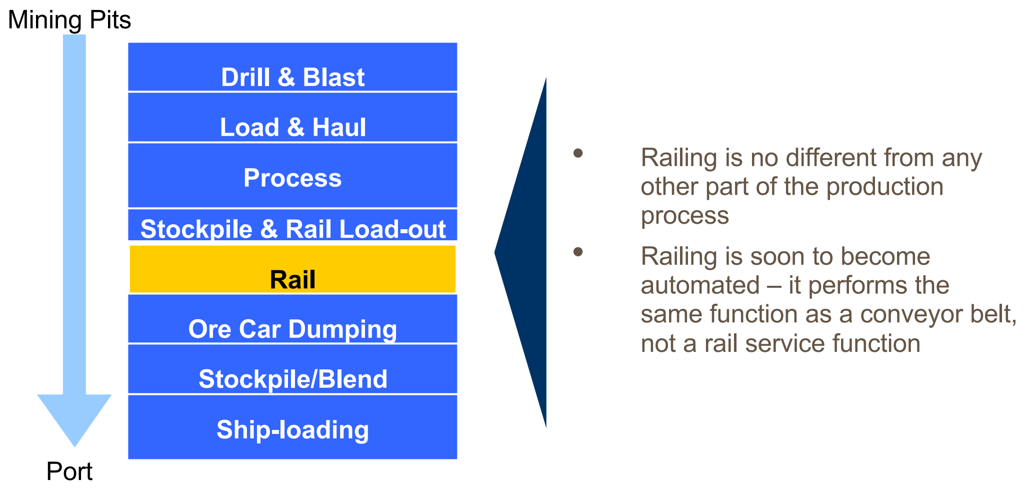
- RTIO's mine, rail and port infrastructure was built and paid for by RTIO and is owned by it under a perpetual lease;
- the mine, rail and port infrastructure was all developed pursuant to 'State Agreements' with the State of Western Australia, the earliest of which dates back to 1963. RTIO also developed associated infrastructure such as power infrastructure, roads and townships. These State Agreements set out RTIO's rights and obligations in relation to its Pilbara operations. It is important to remember that this was the commercial bargain reached with the State (and the people of Western Australia) at the time. The State Agreements enabled the State to achieve certain objectives which would not otherwise have been achieved at that time, including not only the development of mines and infrastructure in remote regions, but also other government objectives which regulated the way RTIO conducted its business (for example, the obligation to use local labour and materials where possible and secondary processing obligations);
- Track access would be contrary to the terms of RTIO's State Agreements, which confer rights of exclusive possession on RTIO, subject to limited rail haulage obligations (which apply where haulage would not cause undue interference with RTIO's operations). Declaration under Part IIIA would mean that developers' obligations under a State Agreement are potentially at risk of variation by executive action in an uncertain fashion at an uncertain time, by the overlay of a Part IIIA access regime. This raises sovereign risk issues and is clearly contrary to the public interest, especially when read in light of the objects of Part IIIA of the Act (as set out in s44AA);
- RTIO's operations in the Pilbara were developed in the 1960s as vertically integrated operations, involving mine, rail and port, as mandated by the State Agreements. Contrary to the impression given in the draft recommendations, RTIO's forty year history as an efficient, vertically integrated producer of iron ore is not something of recent invention developed for the purpose of circumventing Part

IIIA of the Act or to give it market power in the supposed markets for 'haulage services' or for the 'acquisition of tenements'.[6]

RTIO's rail infrastructure is an integral part of its production process

2.5 RTIO uses its rail lines as an integral part of its production process, as illustrated in the table below. In its Original Submission, RTIO contends that the service is therefore not able to be declared. However, irrespective of this legal consequence, the manner in which RTIO uses its rail network to produce blended iron ore at its ports means that access will cause much greater disruption, inefficiency and consequential loss of capacity than would be the case for a traditional 'service oriented' railway.

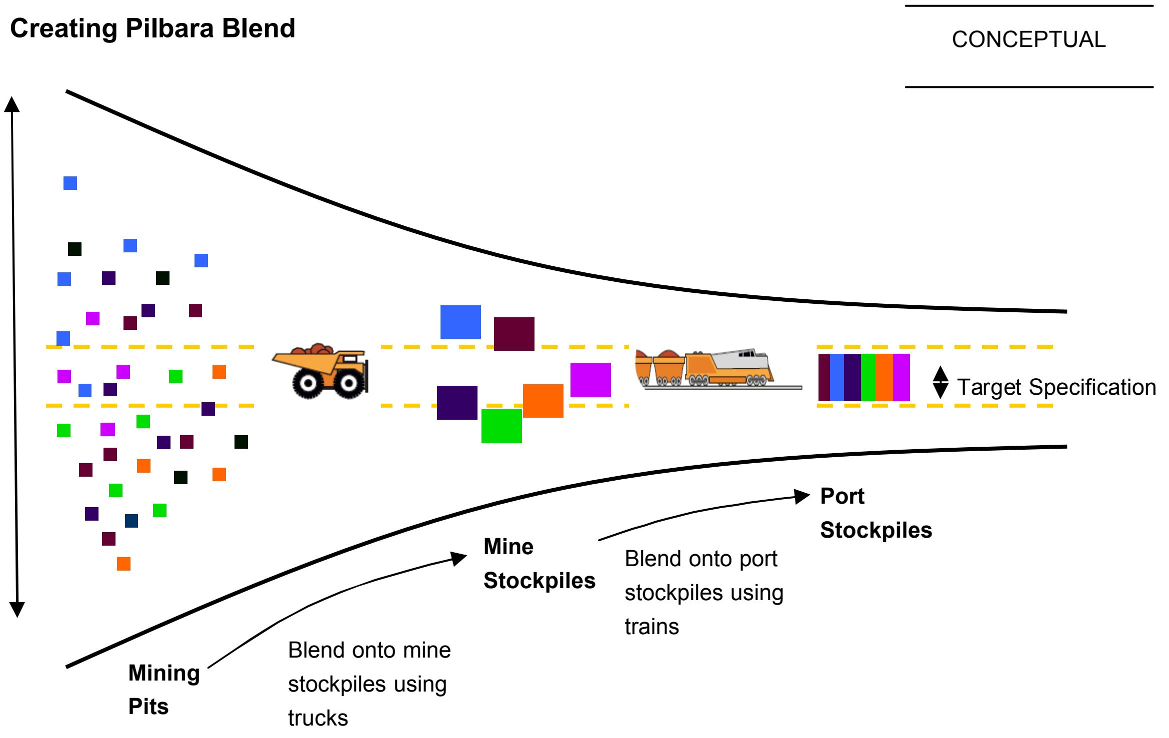
Table 1: RTIO Production Process



2.6 RTIO's rail system is an integral and essential part of the process of blending iron ore taken from numerous mines to create a final product that meets target specifications. Continuous adjustments are made to mining, rail and port blending plans to facilitate the continuous creation of products that meet end specifications. This blending process is illustrated in Table 2 below.

[6] See, for example, paragraphs 4.61 and 4.79 of the Hamersley Draft Recommendation and paragraphs 4.60 and 4.77 of the Robe Draft Recommendation.

Table 2: Ore is blended using haul trucks and trains to create specification products.



RTIO's rail infrastructure facilitates rapid expansion

2.7 In addition to enabling RTIO to operate a highly efficient production process, RTIO's vertical integration and sole control of all of its infrastructure, including rail infrastructure, has facilitated a remarkable expansion of iron ore exports in recent years and is integral to RTIO's future plans for further rapid expansion, as illustrated in Tables 3 and 4 below.

Table 3: RTIO has increased its Pilbara iron ore sales by two and a half times since 2000

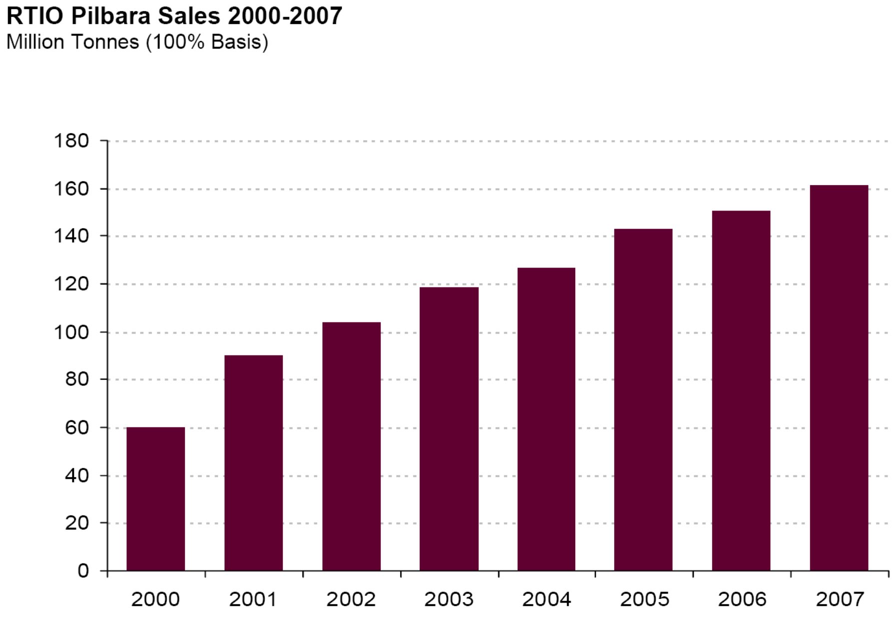
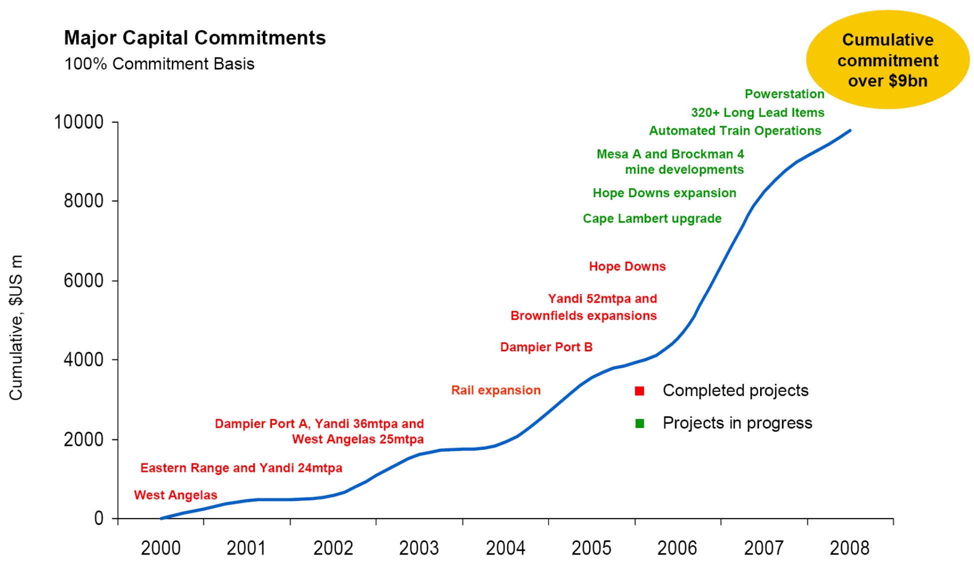


Table 4: Since 2000 RTIO has spent or committed to spend over US$9 billion in capital to expand its Pilbara operations



2.8 RTIO has plans to expand to a production rate of 320 mtpa by 2013 and is considering further expansion to 420 mtpa thereafter.

(c) Costs of access

2.9 The costs that would arise as a result of changing the RTIO Rail Network from a single-user facility, to a multi-user facility can be grouped into the following four categories:

- ***delays to expansions:*** that will flow as a result of a facility being a multi-user facility rather than a single-user facility;
- ***displacement costs:*** that will arise as a result of RTIO having to build new capacity for third parties in substitution for its own capacity expansions;
- ***loss of system capacity:*** that will arise from changes in the way the facility operates as a result of third party access; and
- ***disincentives to invest:*** that arise in multi-user infrastructure.

2.10 Each of these costs is discussed in the Original Submission and summarised more briefly below.

Declaration will cause expansions to be delayed

<u>Empirical evidence</u>

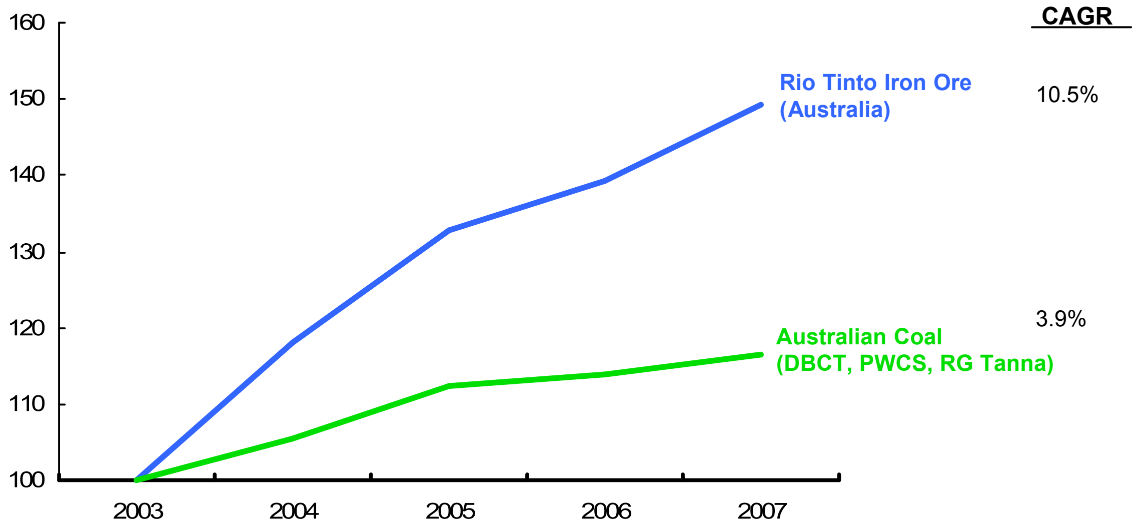
2.11 There is clear and undisputed evidence that, whereas iron ore exports from the Pilbara have increased dramatically in recent years, Australia has not been able to increase the rate of growth of its coal exports because of problems with east coast coal infrastructure.

2.12 Attached to the Original Submission was a detailed report from Dr Brian Fisher (formerly executive director of ABARE and Chairman of the Prime Minister's Exports and Infrastructure Taskforce) which demonstrates that, although there was a significant upswing of both the iron ore price and coal price from about 2002, only Australian iron ore was able to take advantage of that opportunity. The increase in coal exports from Australia remained on a relatively steady path from 2002, notwithstanding the significant surge in demand and price. By contrast, from 2002 the growth of Australian iron ore exports increased from 4.4% per annum to 10.5% per annum. Iron ore exports were able to and did respond to price increases associated with increasing demand from China in the early part of this decade. As a result Australia held its share of the world seaborne iron ore trade, but lost share to overseas competitors in relation to world seaborne coal trade[7].

2.13 Dr Fisher's report reflects RTIO's own experience that exports from RTIO's single-user facilities have increased significantly more than exports from the multi-user facilities that Rio Tinto Coal Australia must use, as illustrated in Table 5 below.

[7] See paragraphs 5.19 to 5.31 of RTIO's Original Submission and the report from Dr Fisher behind Annexure 4 of RTIO's Original Submission

Table 5: Comparison of Export Growth – Coal vs Iron Ore



Note: Output is indexed to 2003 =100.

2.14 The NCC suggests that the striking difference between the expansion performance of the east coast and west coast export chains is not relevant to its consideration of the FMG access applications because 'there are a range of differences including ownership structures, public sector involvement, planning arrangements and the form of regulation'[8]. In fact, the various elements of the east coast coal supply chain themselves display numerous different features (ownership structures, public sector market, form of regulation, etc).[9] The one feature all the east coast coal infrastructure facilities have in common, and the one feature that distinguishes each such facility from the RTIO infrastructure, is that all of those facilities have multiple users. This sends an irrefutable, common sense message that it is multiple use (with the inevitable regulation that follows) that is causing the problems on the east coast.

2.15 Despite rejecting the highly relevant warning given by the poor performance of the east coast coal chain, the NCC provides no example of multi-user, regulated infrastructure in the mining sector (whether regulated under Part IIIA or otherwise) that is as efficient, or expanding as rapidly, as the RTIO infrastructure.

[8] Hamersley Draft Recommendation, paragraph 9.104 and Robe Draft Recommendation, paragraph 9.105

[9] Some elements are Commonwealth Government-owned (eg ARTC owned rail track), some are State Government-owned, (eg Queensland Rail) and some are owned by the private sector (eg Dalrymple Bay Coal Terminal). Some are regulated by independent economic regulators (eg by IPART in the case of the ARTC NSW rail infrastructure and by the QCA in the case of Queensland Rail and DBCT) and others are regulated pursuant to lease agreements with State Governments (eg Port Waratah). Some are operated by third parties (eg ARTC and Queensland Rail) and some are operated by user groups (eg DBCT and Port Waratah).

Expert evidence

2.16 All of the available expert evidence confirms that the reason for the east coast coal chain's poor performance is indeed multi-use and the consequential regulation multi-use brings.

2.17 With its Original Submission, RTIO provided a report from Dr Brian Fisher, where Dr Fisher concluded that:

> … if access were to be granted to the Pilbara single user systems, the most important element leading to delay would be introduced – namely, multiple players with different aims and constraints will be required to negotiate an agreed outcome before any significant changes to the facility (whether of a capital or operating nature) could be implemented. This will inevitably lead to delays in taking such decisions, similar to those that have been observed in the east coast coal facilities.

2.18 This is not just the view of 'service providers and their consultants' as the NCC suggests.[10] It is a view consistently expressed by a number of independent reports and commentators. For example:

> There is a stark contrast here. Where Australia's logistics chains are vertically integrated and are subject to much less economic regulation, the response to increased global demand has been timely, effective and efficient. In contrast, in those parts of the economy where economic regulation sits between investors in export related infrastructure and users, lengthy delays have been widespread, as infrastructure owners, users and regulators focus more on shifting slices of the pie than on ensuring that the pie expands to meet competing demands. (Page 2).
>
> Exports and Infrastructure Taskforce, Taskforce Report, May 2005 (chaired by Dr Fisher, when he was Executive Director of ABARE, not a consultant to a service provider, and co-authored by Mr Max Moore-Wilton and Dr Henry Ergas).
>
> Historically, vertical integration between infrastructure providers and the activities that mostly rely on their services has been a way of avoiding these complications … Difficulties in organising all the parties required for complementary investments to occur, and in securing agreement as to the sharing of the costs of needed capacity expansion, can paralyse the capacity expansion process – perpetuating bottlenecks that all parties would be better off resolving. (Pages 17 to 18).
>
> Exports and Infrastructure Taskforce, Taskforce Report, May 2005.
>
> In the case of coal, major increases in export capacity will require better coordination between producers, infrastructure operators and governments.
>
> RBA, Statement on Monetary Policy February 2005.
>
> Underperformance resulted in lost economic benefit in excess of $1 billion during the past year alone. [Commenting on the Goonyella coal chain in Queensland].
>
> Stephen O'Donnell, Goonyella Coal Chain Review, 30 July 2007.
>
> The problems identified are endemic with multi-user facilities and can never be fully removed. The only facilities in which these problems are avoided are single user facilities and this should be a significant consideration in deciding whether such facilities should be converted to multi-user facilities.

[10] Hamersley Draft Recommendation, paragraph 9.105 and Robe Draft Recommendation, paragraph 9.106

ABARE, Australian Commodities Bulletin, June 2006.

2.19 The NCC fails to point to a single expert opinion or actual experience to support its conclusion that access would not cause the types of delays to expansions that the real world experience of the east coast and all of the available expert evidence demonstrates will occur.

Reasons why access will cause delays in expansions - participation rights

2.20 In its Original Submission, RTIO identified two possible reasons why multi-user, regulated infrastructure is seemingly unable to expand as rapidly as single-user unregulated infrastructure.

2.21 First, declaration will in effect give third parties a right to 'participate' in any rail expansion undertaken by RTIO.

2.22 The NCC says that it is 'not clear to the Council' that a participation right would exist in the manner submitted.[11] It is impossible at this stage to know whether the terms and conditions of access that may be set by the ACCC would include a contractual right to participate in future expansions; there is certainly no basis to exclude that possibility. In any event, because the NCC acknowledges there is no spare capacity on the RTIO rail network, the NCC's draft recommendations are premised on the assumption that the ACCC can require a service provider to expand to meet third party demand.[12] It is not clear that the ACCC in fact has a legal right to compel a service provider to expand to meet third party demand. If it does, however, then that right would give third parties an effective participation right in any expansion. If RTIO is considering expanding its facilities for its own needs, a third party user could, under the Part IIIA process, compel RTIO to undertake a further expansion or a modified expansion in order to accommodate the third party's needs.

2.23 The NCC also says that 'it is not clear' that such participation rights would result in delays to expansions.[13] The NCC seems to advance two reasons for this view.

2.24 First, the NCC says that the extent of delays has been 'overestimated' because the TPA 'provides for arbitrations to be conducted within a 6 month period,[14]' but:

- the ACCC is in fact only obliged to use 'best endeavours' to conduct an arbitration within a 6 month period. That 6 month period can be extended (section 44XA). The complexity of dealing with a third party extension request at the same time as RTIO is considering its own expansion means arbitration may well take longer than 6 months;
- the ACCC's arbitration decision can be appealed to the Australian Competition Tribunal (the ***Tribunal***). The review by the Tribunal is a re-arbitration of the access dispute;

[11] Hamersley Draft Recommendation, paragraph 9.115 and Robe Draft Recommendation, paragraph 9.116.

[12] Hamersley Draft Recommendation, paragraphs 5.77-5.79 and Robe Draft Recommendation, paragraphs 5.75-5.77.

[13] Hamersley Draft Recommendation, paragraph 9.115 and Robe Draft Recommendation, paragraph 9.116.

[14] Hamersley Draft Recommendation, paragraph 9.112 and Robe Draft Recommendation, paragraph 9.113.

- there will be a period of negotiation about the expansion before any arbitration is commenced. This, coupled with the reality of how long ACCC arbitrations are likely to take, and the existence of a right of review by the Tribunal, means delays of 12 months at the very least must be expected[15];
- in any event, even a 6 month delay to expansions would cause massive diseconomy costs. Modelling work conducted by Port Jackson Partners (***PJP***) (Annexure 5 to the Original Submission) shows that on the most optimistic assumption (that is every two year expansion program is delayed for only six months and only 50% of lost volume is taken by overseas producers) access will result in a net cost to Australia over 20 years of ***A$23.9 billion revenue***, with an NPV of ***A$11.7 billion*** over 20 years.

2.25 Secondly, the NCC suggests that delays to expansions could be overcome by negotiating with the multiple participants in the expansion, in 'parallel' with the other work that would need to be conducted on expansion.[16] This demonstrates a failure to understand the complexities of expansions and the interrelationship between third party participation rights and expansion design. For example, agreement would need to be reached among the participants on, *inter alia*:

- the size and configuration of the expansion;
- who will be, or could be, using it now and in the future; and
- whether it is prudent to spend additional capital now to reduce the cost of likely further incremental or major expansions by some or all of the participants, and who would pay for that additional capital.

2.26 Moreover, this suggestion demonstrates a failure to understand the fundamentals of sound project management. The scope of an expansion and the commencement of meaningful work on such an expansion cannot occur in parallel, but only in sequence, as no capital expansion can ever hope to be undertaken on schedule and within budget until the scope of that expansion has first been defined, agreed in detail and then locked in. One of the greatest risk factors in controlling the schedule and cost of any major capital works programme is an ill-defined or shifting scope. Unless all the participants in such an expansion have reached final agreement on all significant matters that will determine the scope of the expansion:

- RTIO will not be able to make commitments to third party suppliers in order to secure long-lead or critical-path items for an expansion of its rail infrastructure;

[15] To date there has been only one ACCC access arbitration (Sydney Water). Sydney Water's services were declared under Part IIIA on 21 December 2005. An arbitration dispute was notified to the ACCC on 6 November 2006 with negotiations presumably occurring between 21 December 2005 and 6 November 2006. The ACCC made its arbitration decision on 22 June 2007. Services Sydney (the access seeker) applied to the Tribunal for review, although that application was withdrawn in September 2007. It should be noted that this 21 month timeframe was achieved in circumstances where the issues for arbitration did not include any complex issue, such as extension of facilities.

[16] Hamersley Draft Recommendation, paragraph 9.116 and Robe Draft Recommendation, paragraph 9.117.

- likewise, RTIO will not be able to lock in key contractors and sub-contractors for an expansion of its rail infrastructure where the timing of the commencement of work and the scope of that work remains uncertain; and
- early engineering and design work could be wasted and would likely have to be redone.

2.27 No rational third-party user will want to commit to fund all or part of an expansion of RTIO's rail infrastructure while it is at risk of paying for significant cost overruns because the expansion is commenced while the scope is still evolving. Because the processes of agreement on scope and commencement of meaningful work must be sequential, this again underscores the point that expansion of a multi-user facility will experience considerable delay compared with a similar capacity expansion undertaken by RTIO for its own use as part of its own vertically-integrated supply chain. A third-party user would in fact be able to bring on new infrastructure capacity for itself earlier and more cost-effectively by building its own capacity, as it will have firm control over the scope of the project.

2.28 Moreover, it is only when the scope of the expansion is finally defined and agreed that detailed design work can commence and only then can planning, safety and environmental approvals be sought and obtained. The reality of how long it has taken the east coast coal chain to expand (notwithstanding similar incentives to expand) amply demonstrates that the idea of negotiating in parallel with other steps required for expansions will not avoid delays, as the NCC seems to believe it will.

<u>Reasons why access will cause delays in expansions – user and regulator consent/consultation rights</u>

2.29 The second key reason why access will inevitably cause delays in expansion is that in practice users' consent or acquiescence will be required because expansions will inevitably have an impact on third party use of the system. In addition, in order for a service provider investing in an expansion to have confidence that its investment will be included in its regulatory asset base for the purposes of setting third party access charges, the service provider is likely to have to consult and potentially agree with users and regulators about the 'reasonableness' of the investment prior to proceeding.

2.30 In relation to the need to consult users, the NCC says in its draft recommendations that there is no 'requirement' in Part IIIA for access terms and conditions to require consent to expansions or to guarantee minimum access rights. Although it is impossible to know what terms and conditions the ACCC would set at this stage in the process, it seems highly unlikely that those terms would not, at the very least, 'guarantee minimum access rights'. As discussed at paragraph 5.33 of RTIO's Original Submission, expansions will inevitably have an impact on users, including as a result of the temporary impact of project works reducing capacity, changes to infrastructure caused by expansions and changes to network operating practices caused by expansions. If the rights of co-users are affected by any proposed expansion or change, and those users consider it in their interests to object, they will invariably do so. Once a dispute arises, there is inevitably delay. Ultimately it may be a very lengthy delay with the parties having to resort to a regulator, arbitrator, or the Courts to settle the dispute.

2.31 In addition, there is also likely in practice to be a need to consult and agree with the ACCC and users about the reasonableness of investment for the purposes of providing assurance that capital expenditure can be included in the regulatory asset base. This has been the case for capital investments by both Queensland Rail and the ARTC in New South Wales.[17]

2.32 The NCC may respond by saying that neither Queensland Rail nor ARTC is regulated under Part IIIA. There is, however, no precedent under the relevant parts of Part IIIA to provide guidance. The approach taken to regulation by the QCA and IPART is very similar to that adopted by the ACCC and there is no reason to believe that a different approach will be taken by the ACCC.

2.33 As a result it is highly likely that there will be a need for RTIO to consult with and obtain agreement from users and regulators to its future expansion plans. Again, the suggestion that these consultations could occur in parallel with other processes is unrealistic for the reasons given above. Regulation will inevitably bring red tape and delays to currently unfettered expansions.

<u>Quantification of costs of expansion delays</u>

2.34 RTIO annexed a report from Port Jackson Partners (***PJP***) to the Original Submission (the ***Original PJP Report***) which showed that if, as a result of access each RTIO expansion over the next 20 years takes three years instead of the usual two years and 80% of the lost volume is taken by Vale or some other non-Australian producer, the impact of this will be a net revenue loss to Australia of ***A$63.8 billion (NPV of A$31.2 billion)*** over a 20 year period. Under the most optimistic sensitivity (ie that each two year expansion program is delayed for only six months and only 50% of the lost volume is taken by overseas producers), there would still be a cost to Australia of ***A$23 billion revenue, (NPV of A$11.7 billion)***. RTIO's Original Submission also attached a report from Access Economics, who modelled the impact of the PJP 'base case' (12 months delay, 80% of sales lost overseas) on the Australian economy. That modelling work shows a ***A$14.1 billion*** loss to Australian GDP.

[17] Queensland Rail for example, has established a rail access undertaking regulated by the QCA. Schedule FB to that undertaking provides a 'master planning process' for the regulated below rail network involving customers for coal carrying train services, above rail operators, and owners/operators of ports (with the QCA and Queensland Resources Council as observers). The Schedule allows for customer pre-approval of the prudency of the scope of capital expenditure proposals (if Queensland Rail obtains approval from 60% or more of the relevant customer group), which removes the risk of the QCA rejecting the prudency of the scope, and assists QR in seeking QCA pre-approval of the prudency of the standard of the proposed expansion (thereby increasing the chances of all of the expansion costs being accepted as part of the regulatory asset base). In practical terms, Queensland Rail does not expand without either such customer and QCA pre-approvals being given, or as demonstrated by the proposed 'Northern missing link' project (the Goonyella to Abbot Point Expansion project), seeking to have access seekers enter an 'underwriting deed' which effectively requires users to make up any loss of revenue to Queensland Rail which occurs because the QCA rejects some of the expenditure from being included in the regulatory asset base. Schedule FB also requires Queensland Rail to prepare a Coal System Master Plan with details on all proposed capital expenditure on a rolling 3 year basis.

The ARTC, which owns (via lease arrangements) below rail infrastructure in the Hunter Valley, is regulated by IPART under the New South Wales Rail Access Undertaking. Clause 3.3 of Schedule 3 of the Undertaking requires new investment to be consistent with the implementation of its network management plan (including the timing of other works to be undertaken pursuant to the network management plan). Clause 3.4 of Schedule 3 of the Undertaking imposes a capital expenditure consultation process, which requires ARTC to consult with access seekers about identifying and prioritising future network investments and formally evaluating significant future investments and alternatives in consultation with access seekers. That consultation process is required as part of proving the prudency of capital expenditure for Hunter Valley system investments, which is a requirement if the investment is to be included in the regulatory asset base.

2.35 The NCC draft recommendations suggest that these results are an 'inevitable consequence' of the assumptions PJP and Access Economics were instructed to apply. No criticism is made of the reasoning of either PJP or Access Economics, just the starting assumptions. The NCC also notes:

> Rio Tinto Iron Ore did not instruct either Port Jackson Partners or Access Economics to critically analyse the key premises on which [their reports] were based; instead the firms were instructed to assume that access would result in substantial expansion delays and lost production. This is unfortunate as it does not address a key issue to be considered by the NCC, which is whether such delays are likely.

2.36 RTIO did not instruct PJP or Access Economics to critically analyse the assumptions because the expert report from Dr Fisher amply demonstrates that delays to expansions will be an inevitable result of access. Given the NCC's comments, however, RTIO has asked both Dr Fisher and PJP to provide supplementary reports about the assumptions made in relation to expansions.[18] These supplementary reports are attached.

2.37 PJP conclude that (page 4):

> If RTIO's rail network were to be declared under Part IIIA of the Trade Practices Act 1974, and hence become a multi user facility, it is our judgment that it is reasonable to expect delays of 12 months or more to each two-year expansion program…

2.38 Similarly, Dr Brian Fisher concludes that (pages 4 and 8):

> I understand that it is the NCC's view that these assumptions represent outcomes that are 'unlikely to in fact result"'(9.99). I disagree, and consider that these scenarios are conservative and that the delays may be longer than assumed.
>
> … I believe that the assumed delay times assumed by PJP and Access Economics are conservative.

2.39 Given the reasonableness of the assumptions made and the undisputed modelling work prepared by PJP and Access Economics, it is apparent that access to the RTIO rail network will cause the delays to expansions and cause, over a 20 year period, a net revenue loss to Australia of ***A$31.2 billion*** in NPV terms and have an adverse impact on Australian GDP of ***A$14.1 billion***.

Declaration will cause displacement costs

2.40 The NCC accepts that the RTIO rail system is at or near full capacity and that RTIO will have to expand its facilities in order to accommodate third parties if RTIO's network is declared. RTIO's rail network and its mine and port facilities are already being expanded by RTIO as quickly as possible to enable RTIO (and Australia) to capitalise on the rapid growth and demand notably from China. If RTIO is required to construct expansions to accommodate third party tonnage it is inevitable that will be at the expense of RTIO's own expansions, given the limited resources for undertaking major project work particularly in the Pilbara in the current environment.[19]

---

[18] RTIO has not asked Access Economics to comment on the assumptions, given that Access Economics' role has been limited to applying its general equilibrium model to determine the economy-wide effect of the loss of revenue flowing from the scenarios considered by PJP and the loss of system capacity estimated by Mr Stephen O'Donnell.

[19] See paragraphs 5.45 to 5.49 of the Original Submission.

2.41 The NCC says this will not occur because of a 'safeguard' in the TPA. Section 44W(1)(a) provides that an ACCC arbitration determination must not prevent a user from obtaining a sufficient amount of the service to be able to meet its reasonably anticipated future requirements *at the time of the dispute*: section 44W(1)(a). The NCC seems to suggest that this section would prevent the ACCC requiring RTIO to carry out an expansion for a third party if RTIO was expanding for its own needs.

2.42 It is, however, important to remember that section 44W is entirely untested and subjective. It will be an area of significant dispute. There is a significant risk of regulatory error, in particular of the ACCC trying to find a compromise requiring some works to be undertaken by RTIO for third parties in the (mistaken) belief that this will not unduly impede RTIO's own expansion programs. It should also be borne in mind that if the ACCC's determination does not fully compensate RTIO for the costs of access to RTIO's rail network (including displacement costs), the Commonwealth Government is required to compensate RTIO for the shortfall under section 44ZZN of the TPA. This follows because declaration and access would amount to an acquisition of property rights conferred on RTIO (eg. RTIO's rights of exclusive possession conferred by its State Agreements).

2.43 The NCC also says that it does not see how forcing access seekers to add to demand for resources by constructing 'unnecessary additional facilities' would assist with the general shortages in the Pilbara. The NCC itself acknowledges, however, that the RTIO rail network is at or near full capacity and that RTIO would need to expand its rail network to accommodate third parties. Additional facilities will need to be constructed with or without access. Compelling RTIO to expand to accommodate third parties will delay RTIO's expansions and hence impose real costs on RTIO (and also on Australia because of the likely lower quality, and hence lower sale price, of third party ore).

2.44 It is impossible to forecast the costs that will be imposed by third party demand displacing RTIO's own expansions because of the difficulty in estimating the quantity of third party demand that must be accommodated.

2.45 Based on the analysis in the original PJP Report, it can be extrapolated that a loss of only 20 million tonnes capacity (the impact of third party tonnage displacing RTIO's volume) will equate to lost RTIO sales of 369 million tonnes over 20 years and lost sales revenue of A$22.3 billion.

2.46 Whilst it might be argued that displacement costs alone (disregarding the inevitable diseconomy costs) is not a net loss to Australia (in the sense that the RTIO tonnage may be displaced by other Australian tonnage supplied by the new entrants), it is highly likely that the quality (and therefore value) of the new product will be lower than the high quality RTIO ore that it displaces. Even if the value differential were only 10%, the cost to Australia would be approximately A$2 billion.

Declaration will cause a loss of system capacity

2.47 In addition to the delays to expansion and displacement of RTIO's capacity, there are losses in operating efficiencies and system capacity that invariably come about as a result of multi-usage compared with single-usage. In an affidavit filed in the Tribunal proceedings relating to the Mount Newman application, Mr Stephen O'Donnell estimates that between

10 and 20% of system capacity is lost as a result of the scheduling that has to be imposed to cater for multiple users compared with the situation that pertains in a single-user system.

2.48 In its draft recommendations, the NCC says that it:

> accepts that access to a railway by third parties is likely to result in some costs to the service providers in the form of loss of system capacity and other diseconomies.[20]

2.49 In other words, the NCC accepts that access will cause a loss of system capacity; the only question is the extent of the system loss.

2.50 In his affidavit, Mr O'Donnell (formerly CEO of Pacific National) estimates that between 10 and 20% of system capacity is lost because of the scheduling that has to be imposed to cater for multiple users, compared with the situation that pertains in a single-user system.

2.51 The NCC suggests that a loss of 10 to 20% of system capacity is unlikely to occur.[21] The NCC seems to suggest that unlike other multi-user systems, it would be possible to operate the RTIO rail network with third party users on it in a flexible manner, without scheduling and therefore avoid or reduce the losses identified in Mr O'Donnell's affidavit. The NCC selectively quotes one paragraph of Mr O'Donnell's affidavit, in which he says it *may* be possible to run a multi-user rail system in a flexible manner, although it would be difficult in a system that was capacity-constrained (which even the NCC acknowledges the RTIO rail network is).

2.52 A number of points can be made in response:

- in setting the terms and conditions of access, there is no guarantee that the ACCC will not require scheduling. It is, after all, how most regulated multi-use rail infrastructure in Australia operates;
- even if scheduling is not required by the ACCC, it is certain that some rules will be imposed about train priority and non-discrimination. This could include, for example, rules about trains 'running when ready' or trains being given priority based on when ships arrive in port (as proposed in the draft WA Rail Haulage Regime). Any such rules will significantly reduce flexibility and hence capacity;
- simply having third parties' trains on the line will remove day to day operational flexibility and hence reduce capacity. This is of particular significance in RTIO's vertically integrated system, where rail forms an integral part of the process of producing blended iron ore products;
- although the NCC quotes one paragraph of Mr O'Donnell's affidavit, the NCC fails to quote Mr O'Donnell's key conclusions at paragraphs 48 and 49:

---

[20] Hamersley Draft Recommendation, paragraph 9.121 and Robe Draft Recommendation, paragraph 9.122.

[21] In paragraph 9.122 of the Hamersley Draft Recommendation and paragraph 9.123 of the Robe Draft Recommendation, the NCC wrongly asserted that Mr O'Donnell's estimate was based on 'his experiences in working on the Goonyella coal chain capacity review' as its justification for dismissing his estimate. Mr O'Donnell states in paragraph 25 of his affidavit that the estimate is based on his 'experience working with **multi-user systems**' [emphasis added]. As is clear from paragraph 3 of his affidavit, this includes his experience as CEO of Pacific National in its involvement in multi-user regimes applicable to the interstate, Western Australian, Victorian and Queensland rail networks.

48. In my experience, the issues discussed above are inherent in multi-user systems such as rail networks. While in some instances these issues may be mitigated by the terms and conditions of access and operating practices of the rail network prior to third party access, I do not believe they can be removed. In practice access terms and conditions are not able to deal effectively with a number of significant and complex issues that arise from multi-user systems.

49. In addition, access terms and conditions struggle to deal efficiently or effectively with capacity expansions and investment in the infrastructure and lead to expansion and investment being inhibited and delayed.

2.53 The NCC also suggests that the loss of system capacity would be compensated in the terms and conditions of access. This is not at all clear. The standard 'building blocks' approach that regulators take to regulated pricing would not include any compensation for such losses. More critically who bears these losses is really beside the point. The losses of system capacity caused by third party use are real, as even the NCC acknowledges. They cannot be ignored for the purposes of assessing whether access would be in the public interest.

2.54 Based on extrapolation from the analysis in the original PJP Report, the cost of a loss of 10-20% (say 15%) of RTIO production using the RTIO rail network, over a 20 year period, results in a loss of 923 million tonnes of sales, which means foregone revenue of $A55.6 billion ($A31.4 billion NPV). This is the loss compared with the situation that would exist if these system losses were not imposed by changing the nature of the facility from single-user to multi-user. It is possible that some percentage of the loss may be captured by other Australian producers, provided they are not also suffering from similar inefficiencies. Consistent with the assumptions in the PJP Report, if 80% of the loss were captured by non-Australian producers, the costs to Australia will be lost tonnes of 738 mtpa and lost revenues of ***A$44.5 billion (A$25.1 billion NPV)***. Macro-economic analysis by Access Economics calculated that the impact on GDP and GSP of the loss of revenue was -$15.5 billion (NPV).[22]

Declaration will discourage further investment

2.55 The Pilbara iron ore industry is one of the few areas where significant investment is being made in Australia to capitalise on available export opportunities.

2.56 Imposing access is likely to discourage further investment, something which is inconsistent both with the objects clause recently inserted into Part IIIA of the TPA and with the Government's important policy objective of trying to strengthen infrastructure investment in Australia.

2.57 As discussed in paragraphs 5.70 to 5.94 of RTIO's Original Submission, it is increasingly recognised by a range of commentators that declaration will discourage further investment in infrastructure:

[22] Calculated by deducting Scenario 2A (Delays to Expansions) from Scenario 2B (Delays to Expansions and Loss of Efficiency) – Table 4 of Access Economics Report.

When incumbent track owners lose their ability to act in their own commercial interest they may withdraw from future investment

Productivity Commission, Progress in Rail Reform, 1999

The National Access Regime does not do enough to guard against the possibility that investment in infrastructure will be deterred

Productivity Commission, Review of the National Access Regime, 2001

..the risk today is that efficient, commercial investment will be delayed or even deterred by inappropriate policy settings

Exports and Infrastructure Taskforce, 2005

…access terms and conditions…lead to expansion and investment being inhibited or delayed'

Stephen O'Donnell Affidavit, December 2007

…investment in both the physical infrastructure and intellectual capital components of the chain depends on their owners' confidence about future access and use of the facilities. Changes in access rules may greatly lower that confidence

ABARE, Australian Commodities Bulletin, June 2006

Conclusion on costs

2.58 RTIO engaged Access Economics to undertake general equilibrium modelling to assess the economy-wide impact of the RTIO rail network becoming a multi-user facility. Access Economics estimated that the combined impact of expansion delays and loss of system capacity costs would be A$29.6 billion.[23]

2.59 It is abundantly clear the costs access would impose on RTIO and the Australian economy would be overwhelming.

(d) Benefits of access

The NCC's approach

2.60 The NCC has found that a number of benefits would arise from declaration. These benefits fall into three categories:

- avoiding unnecessary and inefficient duplication of railway facilities (and hence avoiding adverse impacts on the environment, native title rights, road haulage, etc);
- accelerated development of iron ore mines in the Pilbara resulting in additional iron ore exports; and
- promoting competition in the market for haulage services and in the market for tenements.

2.61 For reasons given below, none of these benefits would arise from declaration.

[23] Applying the assumptions that each two year expansion will be delayed by 12 months and that 80% of the loss of sales will as a result be captured by overseas competitors, and assuming a 15% loss of system loss as a result of multi-use. As noted above, these assumptions appear highly realistic, if not conservative.

Access will not avoid the need to construct new railway facilities

2.62 As discussed above, the NCC acknowledges that there is little or no surplus capacity on key sections of the RTIO rail network, either as currently configured, or as the result of RTIO's proposed expansions.[24] The NCC's draft recommendations are premised instead on the assumption that the ACCC will compel RTIO to expand its facilities to meet third party demand.

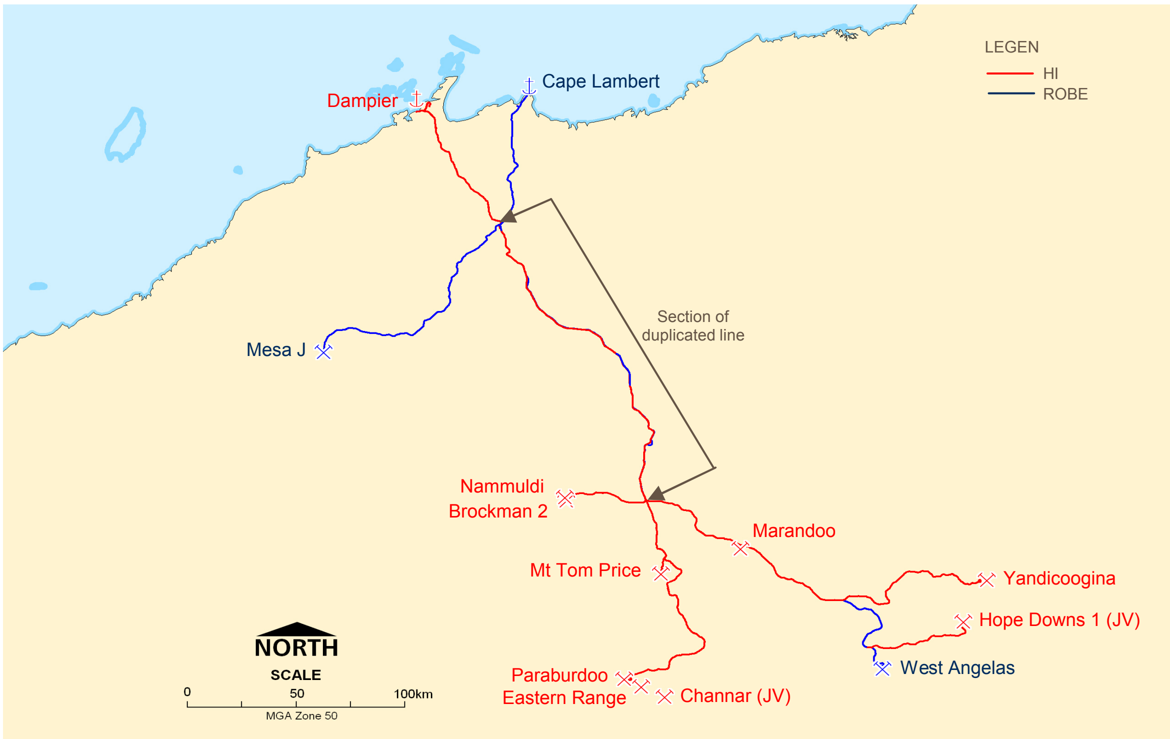
2.63 It is not clear that the ACCC has such a power; certainly the ACCC has never purported to exercise such a power. If such a power does exist, the problems in having substantial capital works mandated by an arbitrator are obvious. A tribunal like the ACCC or the Tribunal would clearly not be equipped to decide and prescribe complex rail capital works and then supervise the construction of them (with the inevitable changes to scope and other variations brought about by countless circumstances). To suggest that such an expansion would not take much longer and be much less efficient than an expansion by a single user or that it would not impact on other works being undertaken by the service provider is ignoring reality.

2.64 The NCC assumes that it will be cheaper for RTIO to expand to meet third party demand than for third parties to construct facilities to meet their own needs. The NCC's reasons for making this assumption are based purely on its theory that heavy haul rail networks must always be 'natural monopolies' and draw on a Queensland Rail submission to the Productivity Commission, without reference to the particular conditions of the RTIO rail network.

2.65 Expanding RTIO's rail network to accommodate third parties would in all likelihood be very costly. As shown in the map below, key segments of RTIO's rail network have already been duplicated. RTIO's expansion to 320 mtpa will require further duplication of a section of track from the crossover to Cape Lambert. As a result, any further expansion to accommodate anything other than very small quantities of ore may well require the triplification of many hundreds of kilometres of rail track.

[24] Hamersley Draft Recommendation, paragraphs 5.75 and 5.76 and Robe Draft Recommendation, paragraphs 5.73 and 5.74.

Table 6: RTIO's existing operations



2.66 Conversely, the capital costs for the third parties to build their own line to a port or to build a spur line linking up to FMG's Chichester and proposed Kennedy rail lines may well be comparatively low. The NCC accepts that the Kennedy rail line will be built.[25] The map at paragraph 5.41 of the Hamersley draft recommendation shows that once the Kennedy line is built, any deposit which is likely to want to use the RTIO rail network is likely to be no more than about 100 km from the FMG open access network, on which there is likely to be spare capacity and which will provide a link to port facilities to which third parties have access. Building a low cost spur line to link up to the FMG open access line (or for those deposits that are close to the coast, building a line directly to a port) is likely to be less than the cost of triplifying key sections of the RTIO rail network.[26]

2.67 In summary, the direct capital costs of expanding the RTIO rail line to meet third party demand may well exceed the capital cost of building a low cost spur line, even before the various diseconomy costs discussed above are taken into account. Access will not avoid the need to construct new rail facilities.

[25] Hamersley and Robe Draft Recommendations paragraph 5.70

[26] The approach the NCC takes to Criterion (b) is to ask whether it would be uneconomic for someone to replicate the entire RTIO rail network, rather than whether it would be uneconomic for someone to construct a facility that provided a real commercial alternative to accessing the RTIO rail network. This reflects the NCC's highly theoretical and confused approach to Part IIIA. It is clear, however, that in considering criterion (f), the cost-benefit analysis must look at what third parties will actually do if the RTIO rail network is not declared. The best option for many third parties may be to build a minimum cost spur line to link up to the FMG Chichester and Kennedy rail lines (which the NCC accepts will be built).

2.68 It is also noted that the NCC does not address in its draft recommendations the fact that operating costs will be higher for TPI trains on the RTIO rail network than on the TPI railway due to reduced axle loads (see paragraphs 6.61 – 6.69 of RTIO's Original Submission). Increased operating costs must be taken into account when assessing criteria (f) and (b).

Access will reduce, not increase, iron ore exports

2.69 Contrary to the NCC's suggestion at paragraph 9.145, declaration will reduce, not increase, Australia's iron ore exports for the reasons discussed above, critically, because access will slow RTIO's expansions and will cause a loss of capacity on the RTIO rail network.

2.70 It is important to note in this regard that access is not necessary in order for deposits in the Pilbara to be successfully developed. Deposits can be developed by:

- ***parties developing their own facilities***: FMG has of course successfully entered the iron ore market by building its own mine, rail and port facilities. Similarly, the API joint venture is currently investigating the possibility of constructing a rail line to either Cape Preston (the port being constructed by Citic Pacific) or a potential port at Dixon Island. In May 2008, a pre-feasibility study commissioned by the joint venture confirmed the technical and financial viability of constructing a 160 kilometre rail line to Cape Preston (subject to commercial agreement with other parties who have interests in this port) to support a 25 mtpa iron ore operation;
- ***parties constructing spur lines to link up to FMG's line***: a number of parties are looking to develop mines and then link, via a spur line (or, if close enough, use trucks to link) to FMG's Chichester line and then use either the FMG port or the public user berth at Port Hedland. For example, Atlas Iron Ltd and BC Iron Ltd have both signed MOUs with FMG that contemplate FMG providing haulage services to those companies. It should also be noted that Brockman Resources' Marillana Project is located about 40 kilometres from FMG's Chichester railway line (the same distance it is from the Hamersley rail). Brockman Resources has announced that one option it is studying to develop its deposit is to link up with the FMG Chichester railway line;
- ***develop a joint venture with infrastructure owners***: another option for a deposit owner is to enter into a joint venture arrangement with an infrastructure owner to exploit the resource, as occurred, for example, in 2005 in relation to the Hope Downs deposit;
- ***mine gate sales***: alternatively, it may be possible, particularly for very small deposits, to enter into mine gate sales or other flexible arrangements with infrastructure owners which facilitate the development of the deposits on commercial terms. For example, Iron Ore Holdings Ltd (***IOH***) has indicated its logistical options from mine to market include mine gate sales (see the 19 June 2008 presentation available from http://www.ironoreholdings.com), while the MOU between FMG and BC Iron Ltd contemplates the possibility of BC Iron Ltd entering into mine gate sales arrangements with FMG.

2.71 Interestingly, in its draft recommendations, the NCC suggests that there are only three deposits likely to wish to use the RTIO's service in the medium term (how the NCC manages to exclude the potential for other demand is unclear, given the very significant numbers of tenement holders in the Pilbara and exploration work being carried out in the Pilbara, driven by global iron ore demand). Each of the three projects identified by the NCC has options for development that do not depend on access (Brockman Resources' Marillana project – use of FMG open access rail line; IOH – mine gate sales arrangement; API West Pilbara Projects – construct own infrastructure).

2.72 As a result, not only will access reduce and not increase iron ore exports, the NCC has not identified a single deposit which depends on declaration for development.

Access will not promote competition

2.73 Neither the NCC nor FMG suggests that access will promote competition in the iron ore market.

2.74 Instead, the NCC and FMG say that declaration will promote competition in 'rail haulage' and 'iron ore tenements' markets in the Pilbara. These 'markets' are artificial constructs designed to allow the NCC to recommend declaration and do not reflect the reality that the market in which RTIO, BHP and FMG operate and compete (and the market in which iron ore tenement holders or applicants aspire to operate and compete) is the global iron market.

Conclusion on public interest

2.75 The costs access would impose on RTIO and Australia are in the tens of billions of dollars, whereas access would not give rise to any tangible public benefit. Even if all of FMG's claims about benefits were accepted in their entirety, the benefits will be negligible compared with the obvious costs and risks access will impose.

3. Criterion (b) – 'uneconomical for anyone to develop another facility to provide the service'

3.1 Criterion (b) provides that the NCC cannot recommend that a service be declared unless it is affirmatively satisfied:

> that it will be uneconomical for anyone to develop another facility to provide the service.

3.2 The NCC takes the view that this requires a 'natural monopoly' test be applied, ie the NCC says that Criterion (b) is satisfied if a single facility is capable of meeting likely demand at lower cost than two or more facilities such that it is uneconomical to duplicate the facility and society's resources are most efficiently used and costs minimised if additional facilities are not developed.[27] For the reasons discussed in paragraphs 6.2 to 6.13 of its Original Submission, RTIO does not accept that this is the correct test. Even applying the NCC's test, however, Criterion (b) is not satisfied here.

(a) Impossible to reasonably forecast demand

3.3 The NCC cannot be affirmatively satisfied that it will be uneconomical for anyone to develop another facility to provide the service, particularly if the NCC's 'natural monopoly' test is applied, without being able to make a reasonable forecast of demand. If demand is high enough, it may well be economic to construct another rail facility. Given the extensive deposit holdings in the Pilbara and active exploration activity, demand could well be very high, particularly over the 20 year period for which declaration is proposed.

3.4 The NCC says in response to this that it does not accept that if 'precise' calculations of demand cannot be made Criterion (b) can never be satisfied. No one has suggested that precise calculations must be made. However there needs to be some confidence in the estimate of demand. The NCC's apparent suggestion that only three companies might wish to use the service over a 20 year period is highly unlikely to be correct. It is just as likely (or even more likely) that demand could be much higher. In these circumstances, it is impossible for the NCC to be satisfied that Criterion (b) is met.

3.5 With its Original Submission, RTIO submitted reports from two eminent economists, Professor Janusz Ordover and Professor Joseph Kalt, in which they each demonstrate that a natural monopoly test cannot be satisfied in this case. Professor Ordover concludes:

> The Council cannot be [satisfied a natural monopoly test is met] if there is a wide range of plausible joint demands for the facility from the incumbent and third parties (including the access seeker)…

Professor Kalt concludes:

> In short, natural monopoly is only meaningfully defined in the context of reasonably reliable, quantitative estimates of market demand. An applicant's representation that demand cannot be reasonably estimated and is 'nothing more than an educated guess' must leave any assertion that the service in question here is a natural monopoly baseless.

[27] Hamersley and Robe Draft Recommendations, paragraph 5.2.

In its draft recommendations, the NCC chooses to ignore the unequivocal conclusions by these economists without reference to any expert opinion or economic reasoning.[28]

(b) Costs of expansion are likely to exceed the costs of alternative facilities

3.6 As discussed above, the NCC accepts that there is little or no spare capacity on RTIO's rail network now or in the foreseeable future. The NCC draft recommendations are, as noted above, premised on the assumption that the ACCC will compel RTIO to expand its rail network to meet third party demand. The NCC assumes that it will be cheaper for RTIO to expand than for a third party to build a new facility. To accommodate third party demand, however, substantial sections of the RTIO rail network would need to have an entirely new third line built. Even without taking into account diseconomy costs, the direct costs of building what is effectively a separate rail line for several hundred kilometres may well exceed the costs that any third party would be likely to incur in building the minimum facility needed to link up to other rail networks or ports. In effect, RTIO is being asked to build capacity dedicated to serving a third party, but not in the most efficient location to serve that party's needs.

3.7 In keeping with its highly theoretical approach, the NCC says that in applying Criterion (b), you should ask not what minimum facility would need to be built to enable a third party to get its ore to port and sell it on the international iron ore market, but rather, what it would cost **to replicate the entire Hamersley rail network**. This highly theoretical approach cannot have been intended by the drafters of the legislation and cannot be correct. The correct question should be: would the capital costs of expansion be materially less than the cost of building an alternative facility that serves the same operational end, ie transporting ore from the mine to a port?

(c) Diseconomy costs

3.8 In any event, as discussed above, the diseconomy costs that access would cause would dwarf the cost of constructing another facility, even if the entire RTIO rail network is to be duplicated.

3.9 As a result, it is impossible for the NCC to be satisfied that it be uneconomical for anyone to develop another facility to provide the service.

---

28 The problem arising because no reasonable forecast can be made of demand is exacerbated because FMG has sought the declaration of a service from 'any point to any point' on the Hamersley and Robe rail networks (and is not seeking access from a particular mine to a particular port). The NCC suggests that the issues that arise from the multitude of services FMG seeks to have declared could be dealt within an ACCC arbitration but acknowledges that access to a particular service might not be available for one reason or another (such as acute congestion). Thus, the NCC concedes that a service that it recommends be declared may not be available because that service is fully utilised. In these circumstances, how could the NCC conclude that the service satisfies criterion (b) or (f)?

4. Criterion (a) – promote a material increase in competition in another market

4.1 For the reasons discussed above in relation to the public benefits and Criterion (f), and as accepted by the NCC and FMG, access would not promote a material increase in competition in the only relevant market (the global iron ore market). The NCC's attempt to construct artificial and hypothetical markets to ensure compliance with Criterion (a) is one of the stark examples of the NCC having a pre-determined position in relation to the FMG application, as discussed further in Part 5 of this submission.

4.2 In any event, declaration would not promote competition even in the hypothetical and artificial 'markets' the NCC has constructed, for the reasons given in Section 7 of the Original Submission.

5. NCC Process and Conclusion

5.1 Pursuant to s44F(2)(b) of the TPA, the NCC is bound to make a recommendation to the designated Minister (in this case, the Federal Treasurer) in respect of each of the Hamersley and Robe access applications. In doing so, the NCC is obliged to have regard to the objects of Part IIIA of the Act (as set out in s44AA) for the purpose of those recommendations. The NCC also accepts (as it must do) that for the purpose of evaluating the declaration applications, it must be **affirmatively** satisfied of each of the criteria set out in s44G of the TPA.

5.2 After considering the findings proposed by the NCC in the draft recommendations for the Hamersley and Robe applications, RTIO can draw no other conclusion than the NCC has failed to have proper regard to the objects set out in s44AA, and that there is no basis whatsoever for the NCC expressing the view that it is affirmatively satisfied of various criteria specified in s44G.

5.3 Rather, it appears to RTIO that the NCC seems intent on pursuing a pre-determined course of recommending declaration of the services the subject of the Robe and Hamersley applications, without any proper regard for, or evaluation of, the submission put forward by RTIO and the supporting material annexed to that submission.

5.4 RTIO's Original Submission consisted of 90 pages of detailed analysis together with supporting material prepared by a number of expert consultants and commentators including:

- Dr Brian Fisher;
- PJP;
- Access Economics;
- Professor Janusz Ordover;
- Professor Joseph Kalt;
- Dr Phillip Williams;
- CANAC Railway Services.

5.5 In addition, RTIO's submission is supported by a detailed rail modelling report prepared by TSG Consulting, as well as independent reports concerning general infrastructure issues prepared by the Exports and Infrastructure Task Force and Dr Brian Fisher and Roger Rose.

5.6 In relation to Criterion (f), RTIO's submission (supported by eminent experts and consultants) is that the potential impact of RTIO's Pilbara railway becoming a multi-user facility over a 20 year declaration period – on **conservative** assumptions – may be of the order of:

- $28.9 billion GDP – Western Australia;
- $29.6 billion GDP – Australia

5.7 In fact, the impact may be much greater. In this regard, supplementary reports by PJP and Dr Fisher attached to this submission state that, not only were the underlying assumptions for the quantitive analyses prepared by PJP and Access Economics legitimate, they were probably conservative.

5.8 Despite the significance of these assessments, the NCC did not retain any independent consultant or expert to critically analyse the contents of RTIO's Original Submission, or the numerous expert reports attached to it, which overwhelmingly establish that there was no basis upon which the NCC could be affirmatively satisfied of each of the criteria specified in s44G. Moreover, none of the submissions received from other interested parties (to the extent that they support declaration) contain any critical analysis of the material or issues addressed by RTIO or those of the independent experts whose reports were submitted by RTIO.

5.9 Notwithstanding the preponderance of material submitted by RTIO in opposition to declaration (which was reinforced by an equally compelling submission and expert reports from BHPBIO) and notwithstanding the NCC's own failure to either critically examine the materials submitted by RTIO or to commission appropriate experts or consultants to do so, the NCC has simply dismissed each of the substantive propositions advanced by RTIO. The NCC has done so on various unconvincing and unsubstantiated bases, for example, that the claims made by RTIO concerning efficiency losses and the costs arising from delays to expansion may be 'exaggerated', or statements to the effect that 'everything will be taken care of' by the ACCC by reason of the regulatory framework established in Part IIIA.

5.10 Far from establishing any proper basis upon which the NCC could be affirmatively satisfied of each of the criteria, the NCC's dismissal of the concerns raised by RTIO (and BHPBIO) without any rigorous internal or expert analysis is further compounded by the fact that the NCC:

- did not (and could not) point to any example under any existing regulatory regime whereby the costs and inefficiencies of multi-use of export infrastructure identified by RTIO have been satisfactorily addressed; and
- without explanation, simply ascribe a 'nil cost' to the 'exaggerated' assertions concerning expansion delays, efficiency losses, displacement costs and disincentives to investment, made by RTIO.

5.11 The material before the NCC demonstrating that there should be no declaration recommendation is overwhelming. Contrary to s44AA, the NCC has had no regard to maintaining the current economically efficient operation of the RTIO and Robe rail infrastructure, which maintains Australia's current competitive position in the world iron ore market. Against this background, the only conclusion which can be drawn is that the NCC is predisposed towards recommending access, and has predetermined its position on recommendation without any due regard to the submissions opposing access.

5.12 The NCC must, in its final recommendation, recommend against declaration.

Annexures

1. Supplementary Report of Port Jackson Partners

2. Supplementary Report of Dr Brian Fisher

Annexures

1. Supplementary Report of Port Jackson Partners

Economic evaluation of the impact of lost iron ore production and share — Review of key assumptions

Report by
Port Jackson Partners Limited

July 2008

1. INTRODUCTION

1.1. In April 2008 Port Jackson Partners, on instruction from Allens Arthur Robinson, solicitors for Rio Tinto Limited, provided advice on the economic impact of third party access to the Hamersley Iron and Robe Railway Networks. Specifically, Port Jackson Partners Limited (PJPL) estimated the economic impact of delays to the expansion program of Rio Tinto Iron Ore ("RTIO") in the Pilbara that would arise if RTIO's rail network were a multi-user facility through declaration under Part IIIA of the Trade Practices Act 1974. This document formed a submission to the National Competition Council in relation to the Hamersley Access Application and the Robe Access Application.

1.2. In its draft recommendation in relation to the Hamersley access application (and repeated in the Robe access application) the National Competition Council expressed the following view:

> *9.98 Rio Tinto Iron Ore did not instruct either Port Jackson Partners or Access Economics to critically analyse the key premises on which their modelling was based; instead the firms were instructed to assume that access would result in substantial expansion delays and lost production. This is unfortunate as it does not address a key issue to be considered by the Council, which is whether such delays are likely.*
>
> *9.99 In the Council's view the results of the modelling undertaken by Port Jackson Partners and Access Economics, and the various internal analyses, are an inevitable consequence of the assumptions they were instructed to apply and are unlikely to in fact result. These assumptions are examined in detail below.*

1.3. By letter dated 30 June 2008 (attached), Port Jackson Partners Limited (PJPL) was once again retained by Allens Arthur Robinson to review the key assumptions on which the modelling of the economic impact of delays was based. Specifically PJPL has been asked to give an expert opinion on whether the assumptions regarding expansion delays are valid in the circumstances of third party access being granted.

2. OVERVIEW OF KEY ASSUMPTIONS

2.1. In its initial submission to the NCC in relation to the Hamersley and Robe access applications, PJPL was asked to prepare an economic evaluation of the impact of access based on the assumption that delays would occur as a consequence of third party access being granted to the Hamersley and Robe rail networks.

2.2. To assess the economic impact on RTIO of its expansion program being delayed, PJPL modelled an unimpeded base case and four alternative impeded production expansion scenarios. The two assumptions varied amongst the four scenarios were:

2.2.1 **the length of delay for every 2 year expansion** (ranging from 6 months to 18 months) and

2.2.2 **the proportion of volume lost by RTIO that is captured by offshore producers** (50% or 80%).

2.3. The rationale for the assumption that either 50% or 80% of RTIO's lost production volume would be lost to Australia (that is, not picked up by another Australian iron ore producer) was outlined in some depth in our previous submission and was not discussed in the NCC's draft report. We do not comment any further on it here.

2.4. Section 3 of this submission addresses the basis on which we formed the judgment that a 12 month delay to each two year expansion program represents a reasonable, but conservative estimate of the length of possible delays.

2.5. Section 4 of this submission provides brief comments on other assumptions that are the subject of discussion in the NCC's draft report, and could impact the economic cost of third party access, but were not directly related to the modelling in our previous submission.

3. LENGTH OF EXPANSION DELAYS

3.1 If RTIO's rail network were to be declared under Part IIIA of the Trade Practices Act 1974, and hence become a multi user facility, it is our judgment that it is reasonable to expect delays of 12 months or more to each two-year expansion program

3.2 In the first instance, we developed this view by considering the likely process that will take place when an access provider, e.g. Rio Tinto Iron Ore, seeks to expand or otherwise modify its rail system operations.

3.3 Although there may not be a formal "consent requirement" in the Part IIIA access terms, in practice it will be essential to obtain a third party's agreement to any system change that will impact the third party's access to the system on either a temporary or permanent basis. Failure to reach agreement with a third party on the impact of a system expansion or enhancement will reduce the possible benefit of the expansion to the service provider. It is highly unlikely that RTIO, or any other infrastructure owner, would be prepared to commit to a major capital expansion of its rail network without the assent of any third party that has rights to use the facility.

3.4 The two key factors that influence the length of the delay are:

a) time spent negotiating with other users, before seeking regulatory resolution; and

b) time taken for a regulator to make a decision on a matter that goes through a prescribed regulatory arbitration process.

3.5 We agree with the NCC's perspective in paragraph 9.114 of the Hamersley draft recommendations, which states that "Access seekers must negotiate in good faith before bringing an access dispute to the ACCC for determination." In fact, it is our opinion that this period of "negotiation in good faith" that will extend over six months or more, as the parties haggle over the impact of any proposed change to system operations.

3.6 In our judgment, allowing just six months to negotiate over matters that may involve many tens or even hundred of millions of dollars amongst the parties is potentially quite optimistic. For example, if an expansion of RTIO's rail capacity was going to involve a temporary loss of system capacity that resulted in reduced output of just 10 trainloads of iron ore this would involve the potential loss of $20-25 million of revenue at today's prices. Ten trainloads could be lost in less than a single day's disruption to service.

3.7 Although commercial negotiation in good faith is the first, and preferred, course of achieving agreement on issues related to system expansions or modifications, it is our view that most of these negotiations will fail to reach an agreement satisfactory to both parties. The "win-lose" nature of the issues typically under discussion, and the ability of the third party to force the process to arbitration will result in most disputes being referred to the ACCC under the processes for access dispute resolution.

3.8 As is noted by the NCC, the TPA provides for arbitrations to be conducted within a six month period (Hamersley draft recommendation para 9.112). In making our estimate of a 12 month period for a typical delay, we have assumed a six month arbitration process, although we know that this period can often be extended.

3.9 The NCC notes (Hamersley draft recommendation para 9.112) that "any access related issues can be dealt with in parallel with other activities and within overall planning timeframes so as to minimise delay." Our estimates of likely expansion delays take this factor into account; they represent additional delays to the overall timeframe for achieving completed infrastructure expansions.

3.9.1 First, the NCC's views that expansions to railways are planned "many years in advance of work commencing" (Hamersley draft recommendation para 9.114) and that "the Council considers it feasible for parties negotiating in good faith to resolve issues relating to the impact of any third party access on expansion and optimisation plans before the commencement of those plans is delayed" fail to recognise the realties of system expansions. Although RTIO does have plans for rail system expansion out to 2013, it would not be in a position to begin negotiations with a third party using the rail system until much closer to the date. Most importantly, the details of rail expansions are dependent on the choice of mines to be expanded and the port options, as well. In many cases, it simply would not be feasible to begin negotiating the commercial terms until much later in the development process (the access provider would not have a clear picture of the terms and issues to be negotiated)

3.9.2 Even if the parties begin negotiating as soon as the issues for negotiation emerge, there may not be a great deal of urgency on the part of the third party to negotiate terms that may have a cost to them in terms of tonnes, capital or system flexibility, even if on a temporary basis. Even if there is limited direct cost to the third party, they may seek to delay the access provider's expansion plans for their own commercial objectives. It may be "feasible" to resolve issues before the commencement of expansion plans is delayed, but it is our judgment that it would be highly unlikely in practice, given the nature of the commercial agreements required.

3.10 Again, the NCC perspectives (Hamersley draft recommendation) para 9.116) suggest that the negotiation processes can proceed in parallel with other planning activities, and that these activities involve multiple parties. This perspective fails to reflect the fact that the timing and nature of the negotiation process with a third party is likely to be very different from the processes with providers such as planning, safety and other regulatory authorities. In our opinion, negotiations with a third party will create additional delays beyond those in the existing process. By way of example, the commercial negotiations between the access provider and the third party may identify solutions that involve re-submitting plans to one or more regulatory authorities (e.g. if the parties agree to seek a slightly different path for the rail network in order to minimise the impact on the third party). In our experience, the more parties involved in a process, the more complexities, and the more time it inevitably takes to complete. To imply that the additional complexity of negotiating (or arbitrating) a commercial arrangement with a third party would be handled within the timeframe of existing project processes is, in our judgment, unrealistic, and, as discussed below, not consistent with experience in other multi-user infrastructure environments.

3.11 Thus, the combination of "negotiating time" plus "arbitration time" supports our opinion an assumption of delays of 12 months to expansion plans is reasonable.

3.12 PJPL also analysed sensitivity cases. In these cases the delay length was:

- **Reduced to a delay of 6 months for every 2 year expansion** – this reflects cases where commercial agreements can be reached relatively quickly without arbitration, or alternatively, the parties concede that negotiating is unlikely to lead anywhere and agree to go to launch the arbitration process quickly (and it is a relatively quick process)
- **Increased to a delay of 18 months for every 2 year expansion** – reflecting scenarios where commercial negotiations become protracted and/or the arbitration period drags out beyond the nominal six month period.

3.13 Our "bottom-up" assessment of the likely length of delays caused by third party access is consistent with and supported by the experience of the multi-user rail systems on the east coast of Australia.

3.14 Actual experience at DBCT has shown that despite the indicative resolution timeframes imbedded in a regulatory framework, it is still likely that the delays due to disputes will be longer. In a well-publicised example at DBCT, the regulator (the QCA in this case) took 22 months to resolve a dispute on pricing and access terms. At the 2005 Energy Summit in Sydney, Ed Willet, a commissioner of the ACCC, stated that:

"in the case of DBCT... capacity expansion is not proceeding because of a substantial difference between what users are willing to pay and the price the coal terminal owners are seeking before they undertake that expansion"

3.15 This dispute significantly delayed the expansion of DBCT (the dispute did not happen in parallel with the resolution of other matters, such as environmental permitting). Interestingly, by the time the DBCT dispute had been resolved and the expansion built, the adjacent, single user and unregulated Hay Point Coal Terminal, managed to complete two terminal expansions.

3.16 Given the delay experienced at DBCT lasted 22 months, and our experience in other commercial negotiations and regulatory processes of this nature, we judge 12 months to be a reasonable, albeit conservative estimate of the likely delay to expansions caused by third party access.

3.17 The fact that east coast ports have lagged behind the Pilbara in capturing growth opportunities demonstrates the impact of expansion delays. In his submission to the NCC, Dr Brian Fisher contrasted the response of the iron ore industry to the response of the coal industry to the recent surge in demand for both commodities.

3.18 The NCC's draft report suggests that the factors driving the performance of the east coast rail networks are different (for a range of reasons) to the dynamics in the Pilbara, and that the problems in one system would not be transferred to the other. Obviously, the systems on the east coast and the west coast have different characteristics, but it is our judgment that the lack of alignment of interests amongst multiple users is an inherent source of conflict, and resultant delays, in multi-user systems. Regulators' role is to try and balance the interests of access providers and access seekers in a fair way, but the process of doing so is inherently confrontational, not collaborative and, again, inevitably leads to delays.

3.19 Some aspects of the Pilbara rail systems may make the likelihood and magnitude of delays even larger in the Pilbara than they are in the east coast systems. Specifically, as has been well documented elsewhere, RTIO's Pilbara rail systems are operated in a way that brings together ore from various mines to create finished product at the port. By contrast, the east coast rail systems typically carry finished product from mine stockpiles to the port (there is some blending onto ship). The need to ensure flexibility to manage the rail system to cope with variability will create a further, critical point of contention amongst an access provider and third party access seekers, which could lengthen the time required to negotiate an acceptable commercial arrangement.

4. COMMENTS ON OTHER ASSUMPTIONS

4.1 Neither "displacement costs" nor the "loss of system capacity" were factored in to the modelling in our report , Economic Impact of Lost Iron Ore Production and Share, which was annexed by RTIO in its recent submission to the Council.

4.2 Nonetheless, we feel it is important that we briefly comment on those two factors as they are the subject of some discussion in the NCC's draft report, and they will add to the economic impact of delays caused by third party access.

Displacement Costs

4.3 Displacement costs are the costs associated with volume lost due to the need to accommodate a third party's volume on the access provider's network in lieu of its own capacity. It is relevant in the Pilbara, in particular, because RTIO is expanding the network as quickly as possible to meet its own needs, now and into the foreseeable future.

4.4 In essence, the NCC did not argue with this concept, rather choosing to point out that if this situation can be established in a particular case, then the regulator is unlikely to resolve any dispute in favour of the access seeker.

4.5 Given the current situation, and the growth plans for the next few years, it is our judgment that any capacity obtained by an access seeker would, in fact, displace existing (or planned) RTIO volume. Of course, given that there is no specific request for volume (nor specific location) from the access seeker at present, it is difficult to say how many tonnes would be displaced, but if an access seeker seeks 20 mtpa on "at (or soon to be at) capacity" segment of the RTIO network, then at least 20 mtpa of existing capacity might be displaced. If an access seeker seeks 25 mtpa, then at least 25 mtpa of existing capacity might be displaced.

Loss of System Capacity

4.6 Mr Stephen O'Donnell provided evidence to the NCC indicating that the 'rigid timetables' in a multi-user system typically result in a 10-20% reduction over what would be achievable on the same network on a single-user basis.

4.7 Although PJPL does not have the same in-depth experience in running rail systems as Mr O'Donnell, our practical experience indicates that it certainly far more difficult to achieve the full potential of a rail network when its capacity is shared amongst multiple users. In our experience with the Hunter Valley rail system, for example, we can point to specific inefficiencies caused by the lack of incentive for individual producers to invest in equipment upgrades that will result in improved system performance, but not result in direct benefits for them.

4.8 The Hunter Valley rail system (and the Queensland rail system) consistently fail to achieve their expected capacity levels. In large part, our view is that this is because individual producers have an incentive to act in their own interests (maximising their own throughput) even if this is at the expense of total system throughput.

4.9 Our practical experience supports Mr O'Donnell's view that imposing a multi-user system in the Pilbara, with the inherent conflicts amongst multiple users, could lead to throughput reductions of 10-20% compared to the same system operated by a single user.

Allens Arthur Robinson

30 June 2008

ABN 47 702 595 758
530 Collins Street
Melbourne VIC 3000
Australia
Tel 61 3 9614 1011
Fax 61 3 9614 4661
Correspondence
GPO Box 1776Q
Melbourne VIC 3001
Australia
DX 30999 Melbourne
www.aar.com.au

Phil Stern
Port Jackson Partners
Level 32
50 Bridge Street
Sydney NSW 2000

By Email

Dear Phil

Applications by Pilbara Infrastructure Pty (*TPI*) for declaration of the services provided by the Hamersley and Robe Rail Networks in the Pilbara

I refer to our telephone discussions on Friday 27 June concerning the draft recommendations issued by the National Competition Council (the ***Council***) in relation to the Hamersley and Robe rail access applications lodged by The Pilbara Infrastructure Pty Ltd (***TPI***).

As you will recall, in the Report prepared by Port Jackson Partners Limited (***PJP***) in April 2008 entitled 'Economic Evaluation of the Impact of Lost Iron Ore Production and Share' (which was annexed to the RTIO submission to the Council), PJP modelled a number of sensitivities to demonstrate the negative impact of any impediments to RTIO's expansion program. At paragraphs 9.98 and 9.99 of its draft recommendation in relation to the Hamersley access application (replicated at paragraphs 9.99 and 9.100 of the Council's draft recommendation in respect of the Robe access application) the Council expressed the following view:

> 9.98 Rio Tinto Iron Ore did not instruct either Port Jackson Partners or Access Economics to critically analyse the key premises on which their modelling was based; instead, the firms were instructed to assume that access would result in substantial expansion delays and lost production. This is unfortunate as it does not address a key issue to be considered by the Council, which is whether such delays are likely.
>
> 9.99 In the Council's view the results of the modelling undertaken by Port Jackson Partners and Access Economics, and the various internal analyses, are an inevitable consequence of the assumptions they were instructed to apply, and are unlikely to in fact result. These assumptions are examined in detail below.

Having regard to the observations made by the Council in the paragraphs set out above, you are asked to review the key assumptions on which your modelling was based for the purpose of expressing your opinion as to whether those assumptions (ie. expansion delays and lost production) are valid in the circumstances of third party access being granted.

The Council has requested responses to its draft recommendations by 21 July next. In the circumstances, it would greatly assist us if you would provide us with your observations regarding the matters set out in this letter, as soon as possible prior to 14 July 2008.

Bangkok
Beijing
Brisbane
Hanoi
Ho Chi Minh City
Hong Kong
Jakarta
Melbourne
Perth
Phnom Penh
Port Moresby
Shanghai
Singapore
Sydney

Our Ref CWPM:605369950

cwpm A0110644628v1 605369950 30.6.2008

MEL112.06

If you have any queries or require any further information please do not hesitate to contact me.

Yours sincerely

Craig Phillips
Partner
Craig.Phillips@aar.com.au
Tel +61 3 9613 8938

2. Supplementary Report of Dr Brian Fisher

Response to the NCC's draft recommendations in relation to the Hamersley Railway Network and the Robe Railway

Brian S. Fisher

21 July 2008

TABLE OF CONTENTS

1. INSTRUCTIONS

This report is in response to instructions I received on 30 June from Allens Arthur Robinson acting on behalf of Rio Tinto Iron Ore (RTIO) in relation to applications by The Pilbara Infrastructure Pty Ltd (***TPI***) under Part IIIA of the Trade Practices Act 1974 for declaration of services provided by railway lines described by TPI as the Hamersley Rail Network and the Robe Railway. Copies of my letters of instructions are attached to this report as Appendix A. I have been requested to prepare a report addressing the following matters:

'At paragraphs 9.98 and 9.99 of its draft recommendation in relation to the Hamersley access application (replicated at paragraphs 9.99 and 9.100 of the Council's draft recommendation in respect of the Robe access application) the Council expressed the following view:

9.98 Rio Tinto Iron Ore did not instruct either Port Jackson Partners or Access Economics to critically analyse the key premises on which their modelling was based; instead, the firms were instructed to assume that access would result in substantial expansion delays and lost production. This is unfortunate as it does not address a key issue to be considered by the Council, which is whether such delays are likely.

9.99 In the Council's view the results of the modelling undertaken by Port Jackson Partners and Access Economics, and the various internal analyses, are an inevitable consequence on the assumptions they were instructed to apply, and are unlikely to in fact result. These assumptions are examined in detail below.

Having regard to the observations made by the Council in the paragraphs set out above, you are asked to review the key assumptions on which the PJP and Access Economics modelling was based for the purpose of expressing your opinion as to whether those assumptions (ie. expansion delays and lost production) are valid in the circumstances of third party access being granted.'

In the next section I set out my background and the basis for my expertise pertaining to the matters covered in my instructions and then I deal with the instruction.

2. MY EXPERIENCE

I am currently Executive Director, Economic Analysis at Concept Economics Pty Ltd. Immediately prior to my current appointment I was Vice President and Director, Economic and Public Policy at CRA International. Until late 2006 I was Executive Director of the Australian Bureau of Agricultural and Resource Economics (ABARE). During my time at ABARE I also served as an Associate Commissioner of the Productivity Commission.

Prior to heading up ABARE, I was Professor of Agricultural Economics at the University of Sydney and became Dean of the Faculty of Agriculture at the University in 1987. I was appointed Adjunct Professor of Sustainable Resources Development in 2003.

Early in my career I specialised in the econometric analysis of market demand and supply for a range of commodities and have published over 250 papers and monographs including articles in refereed international journals. Much of the analysis in many of the quantitative papers that I have published in refereed journals relies on regression analysis, the statistical technique used in my earlier report.

In my role as ABARE's Executive Director I was responsible for the production, quality and dissemination of the bureau's commodity forecasts including short and medium term forecasts of world prices and Australian exports of the major minerals and energy commodities including coal and iron ore. These forecasts were (and still are) updated each quarter. The development of these forecasts required the detailed analysis of world supply and demand conditions as well as any production or transport constraints that impinged on Australia's ability to move commodities into the export market. I regularly released the forecasts and regularly explained the forecasts and the reasons underlying them to stakeholders both in Australia and overseas.

As ABARE's Executive Director I regularly updated my industry knowledge by site visits to key mining and infrastructure facilities around Australia and overseas. I visited the iron ore production, rail and port facilities in the Pilbara in 1989, 1992, 2004 and 2006.

During 2005 I was the Chairman of the Prime Minister's Exports and Infrastructure Taskforce. This taskforce reported to the Prime Minister on the set of issues underlying the serious delays in infrastructure development in Australia that have hindered the ability of the country's mining industry to meet rapid increases in demand for minerals and energy commodities arising from very strong economic growth in China.

As Chairman of the Taskforce I personally conducted face to face meetings with all of the major stakeholders involved in the transport and shipment of Australia's bulk commodities including coal and iron ore and visited the major coal export ports of Dalrymple Bay and Hay Point, Gladstone and Newcastle in order to gain a full understanding of the infrastructure constraints impinging on Australia's commodity exports.

I hold a PhD in agricultural economics from the University of Sydney. My curriculum vitae is attached at Appendix B.

3. INSTRUCTION:

HAVING REGARD TO THE OBSERVATIONS MADE BY THE COUNCIL [IN PARAGRAPHS 9.98 AND 9.99 OF ITS DRAFT RECOMMENDATIONS], YOU ARE ASKED TO REVIEW THE KEY ASSUMPTIONS ON WHICH THE PJP AND ACCESS ECONOMICS MODELLING WAS BASED FOR THE PURPOSE OF EXPRESSING YOUR OPINION AS TO WHETHER THOSE ASSUMPTIONS (IE. EXPANSION DELAYS AND LOST PRODUCTION) ARE VALID IN THE CIRCUMSTANCES OF THIRD PARTY ACCESS BEING GRANTED.

I have been asked to review the key assumptions used by PJP and Access Economics in their assessment of the costs to Australia of allowing third party access to the private railways of Rio Tinto Iron Ore (RTIO) in the Pilbara. The assumptions are that each two year expansion project will take six months, twelve months or eighteen months longer than it otherwise would have, and that these delays cause foreign iron ore customers to meet their demand by contracting with other suppliers, mostly outside Australia.

I understand that it is the NCC's view that these assumptions represent outcomes that are 'unlikely to in fact result'"(9.99). I disagree, and consider that these scenarios are conservative and that the delays may be longer than assumed.

My original response to instructions from RTIO's legal representatives appears as an annexure to RTIO's submission to NCC entitled *Economic Evaluation of the Relative Efficiencies of Multi-user and Single User Rail and Port Facilities*. In it I make numerous references to the likelihood of delays, drawing principally on my experience as Chairman of the Prime Minister's Infrastructure Taskforce. I state that:

> ...in circumstances where multi-user infrastructure facilities are used and where economic regulation plays a dominant part in investment decisions, lengthy delays in expansion of port and rail infrastructure occur.

And furthermore that:

> while delays in infrastructure investment in response to demand signals may occur due to the large and lumpy nature of such investments, the Taskforce highlighted certain situations in which investment in infrastructure can be further delayed as a result of difficulties associated with coordination. Where the owner of an infrastructure asset is different from the users, coordination of decisions on investment in expansion may not readily occur if the transactions costs it entails are high. Divergent interests of different users of multiple access facilities may stem from different hurdle rates or priorities for investment, poor information flows between parties, or even strategic competitive reasons for one user delaying investment that would assist another user of the shared infrastructure. In addition, there may be disagreement as to the distribution of gains from additional investment between parties that can hinder more timely or efficient development of infrastructural assets.

To substantiate my view that multi-user access can delay expansion, I compared the ability of Pilbara iron ore operators to respond to world price increases relative to coal operators on the east coast and concluded that:

> the fundamental difference [between the two operations' capacity to adapt] is that coal exporters rely on multi-user, regulated infrastructure whereas the major iron ore exporters utilise single-user, owner operated integrated infrastructure.

In its draft recommendations the NCC finds this argument to be 'based upon simplistic assumptions' and 'unconvincing'. The NCC took a similar position in relation to the Mount Newman rail access issue. In my submission I dealt specifically with the NCC's view in relation to this matter:

> ...NCC seeks to demonstrate why access to coal infrastructure differs from access to the Pilbara facilities and concludes by stating that 'there is little value in extrapolating' to a declared BHPB facility. The NCC employs the lack of vertical integration in the Hunter and Dalrymple facilities as a key differentiator and suggests that as a result there will be significant differences in the types of diseconomies of scope arising at those facilities *vis a vis* the Mt Newman facility.
>
> Whilst there may be some differences in the ways in which the Pilbara and east coast coal transport and handling systems would work in a multi-user environment if access were to be granted to the Pilbara single user systems the most important element leading to delay would be introduced – namely, multiple players with different aims and constraints would be required to negotiate an agreed outcome before any significant changes to the facility (whether of a capital or operating nature) could be implemented. This will inevitably lead to delays in taking such decisions similar to those that have been observed in the east coast coal facilities. This view is consistent with the findings of the Prime Minister's Export Infrastructure Taskforce. In addition, the granting of access ex post will not only reduce the efficiency of the system for individual users but will also lead to the loss of real option values and the crowding out of low cost exports thus resulting in a further reduction in economic welfare for Australia as a whole.

NCC's view is that the differences in ownership structures, the level of public sector involvement and planning arrangements are too stark as to admit comparison. I maintain that it is hard to imagine what better comparison could exist than between two systems using the same type of transportation operating in the same country, both transporting minerals commodities, both subject to substantial increases in world price, both 'relatively complex logistic[ally]' (9.104) but one subject to multi-user regulation and the other not. I am also of the view that the differences NCC emphasises are precisely those it is seeking to impose on efficient rail operators in the Pilbara: namely planning arrangements and public sector involvement.

The comparison of rail operations in different parts of the country is not without precedent. I note that the ACCC made such a comparison in its response to questions raised by the NCC in relation to the declaration of BHP Billiton Iron Ore's Pilbara assets where it refers to the 'run-when-ready' scheduling of coal trains in the Hunter Valley as an example of what is possible under mandated rail access, presumably with the Pilbara in mind (ACCC no date).

I draw attention to a sample of submissions I received as Chairman of the Prime Minister's Infrastructure Taskforce. They each present the view that regulation relating to third party access can delay projects. For example, the Australian Council for Infrastructure Development stated that:

> The response to [regulatory risk] is usually to delay capital commitment until such time as [issues regarding the form the regulation will take] are clear, if that it is at all possible. The delay that has been experienced in increasing capacity in the Dampier-Bunbury Gas Pipeline is directly a result of the uncertainty created by the decision making of the Western Australia Gas Regulator that also ultimately led to the break-up of Epic Energy. In a similar vein, the administration of the airport price control regime by the ACCC became so unpredictable that the Board of Melbourne Airport refused to undertake any aviation related investment until it had a final pricing decision from the regulator. (Submission by Australian Council for Infrastructure Development to Prime Minister's Infrastructure Taskforce, page 11).

And also that:

> Major regulatory decisions are rarely completed within six months and if an appeal process is involved, the minimum time frame appears to be one year. They are necessarily inferior to commercial negotiations because of the need to demonstrate due process and transparency through the publication of issues papers, draft decisions and final decisions. (Submission by Australian Council for Infrastructure Development to Prime Minister's Infrastructure Taskforce, page 13).

Furthermore:

> If negotiations occur in an environment that the user can turn to a regulator to set some or all of the access terms and conditions (as there is under Part IIIA of the TPA and the Gas Code), then there is very little incentive for that user to reach a conclusive agreement. Put simply, given the general conduct of regulators, users will believe that the point at which negotiations break down, the supplier's final offer, is the worst outcome that they will achieve. Given that the costs of proceeding down the regulatory path are then small relative to the potential gains large (and potential losses virtually non-existent), why would users possibly agree? (Submission by Australian Council for Infrastructure Development to Prime Minister's Infrastructure Taskforce, page 14).

Finally, the Minerals Council of Australia maintained that:

> …there has also been a delay in the response of the private (non-minerals sector) port owner to invest due to the unwieldy nature of the regulatory process regarding access pricing. (Submission by Minerals Councils of Australia to Prime Minister's Infrastructure Taskforce of, page 4).

I also refer to the affidavit of Mr Stephen O'Donnell submitted to the NCC which states that common user rail and port systems have 'a number of fundamental problems' including:

- Lack of flexibility in daily operations, making it difficult to implement changes at short notice to maximise system throughput;
- Difficulties in aligning contractual frameworks to deal with commercial relationships between system participants;
- Delays associated with implementing changes;
- Constraints on operational and technological improvements; and
- Lack of appropriate governance and accountability mechanisms.

I note Mr O'Donnell's extensive experience (referred to in his affidavit) in the rail industry and his thorough knowledge of rail access regimes in Australia.

In a response in 2004 to the Victorian Government's consultation paper entitled *Options for Reform of the Victorian Rail Regime*, Queensland Rail (QR) also referred to the problem of delay in relation to access regimes albeit from the perspective of an access seeker:

> In QR's experience, a critical issue to the efficacious implementation of an access regime involves providing a reasonably high degree of certainty as to the likely outcomes of arbitration processes which recognise the legitmate business interests of the parties.
>
> Failure to provide this certainty will only result in a relatively high level of disputation between access seekers and the access provider. This disputation creates expense and delay. While the costs associated with disputes are relatively well-known, in QR's view it is the consequential delay that in practice can be most harmful to the competitiveness of the emerging above rail market.

In its draft recommendations the NCC refers to the advantages of the time limits for formal arbitration contained in Part IIIA and states that the ACCC must use its best endeavours to resolve the dispute within six months. Aside from noting that six months' revenue from a typical Pilbara iron ore project is substantial, I would point out that it is not only the time taken for ACCC arbitration that is of concern. It is well-known that commercial disputes around access arrangements take time exist well before they go to arbitration. For example, in January 2007, Virgin Blue notified the ACCC of a long running access dispute with Sydney Airport Corporation Limited. The issue was finally resolved in May 2007 by Virgin Blue withdrawing its notification following a commercial settlement (ACCC 2008, p.120). The resolution of the Virgin Blue case ended four and a half years of dispute (Virgin Blue 2007).

In November 2006, Services Sydney notified the ACCC of a dispute in relation to the methodology of pricing access to Sydney Water's declared sewage transportation services under Part IIIA that dated back to at least June 2004 (see Davies 2004). The ACCC made its final determination in June 2007 (ACCC 2008, p.122) meaning the dispute lasted at least three years. In this case the dispute was simply over pricing and involved none of the additional complications that might be expected to exist in the case of third party access to an operating railroad, particularly if the ACCC is being asked by the access seeker to order the access provider to extend its facility to accommodate the access seeker.

These examples can be compared with the modelling assumptions used by PJP and Access Economics of delays of six months, twelve months and eighteen months. Note that accounting for a six-month arbitration by the ACCC alone accounts for one of the delay assumptions used by PJP and Access Economics let alone the length of time required for good faith negotiations. Therefore, I believe that the assumed delay times assumed by PJP and Access Economics are conservative.

The NCC maintains that negotiations regarding expansion projects can be 'dealt with in parallel with other activities' as part of 'the planning and commercial evaluation that is associated with expansion and development of infrastructure projects' (9.112).

It is my view that this is not an accurate representation of how businesses make decisions about large infrastructure investments. It either assumes that an increase in uncertainty cannot affect RTIO's investment decisions or that RTIO can take as given that all parties (some of whom could be unidentified during the planning phase) will ultimately be convinced of terms acceptable to the access provider. NCC 'accepts that service providers would likely need to give notice of expansion plans to other users, and consult other users in relation to them' (9.115). This is an acknowledgement that there are likely to be third parties involved at least indirectly in the decision making about the expansion. As discussed further below this is tantamount to accepting that delays will occur.

Deciding on the timing and size of an expansion project is not easy. In my earlier report I drew attention to the theory of real options which I believe is a useful framework for representing the decision problem faced by a business. I stated:

> ...a vertically integrated firm has good information flows and is better able to resolve trade-offs in the timing of and access to infrastructure; holds a clear right to exercise the infrastructure option in full and has the capacity to exercise the option as new information becomes available and uncertainties are resolved.

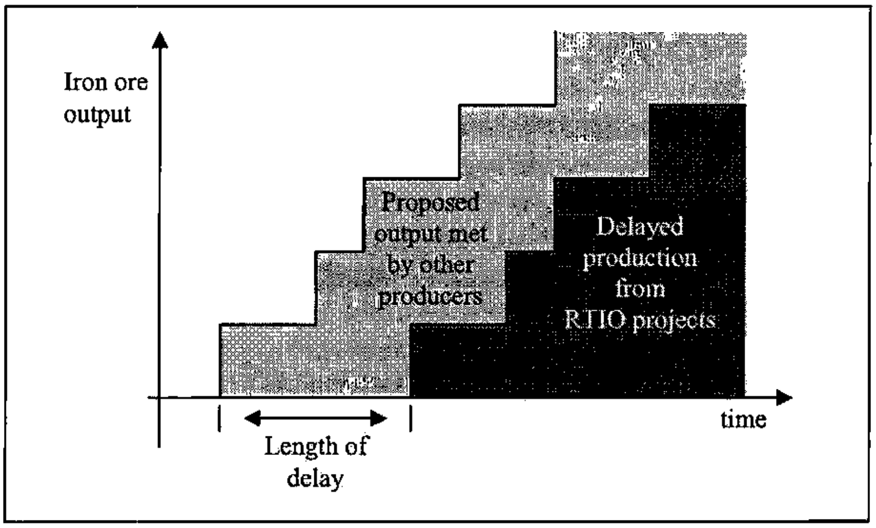
I also referred to Grenadier and Wang (2005) who concluded that conflicting objectives and the capacity to withhold information or to take unobserved actions can substantially alter the option value of an investment. Further, a lack of alignment between the investment decision and the collective interests of shareholders can lead to what Grenadier and Wang refer to as investment inertia.

I note that the NCC believes there is 'ongoing debate as to the validity of [the real options] approach' (9.133). I maintain that this is not the case. A search of a database of economic literature returns references to 319 peer-reviewed journal articles, 32 books and over 100 chapters or essays on the topic. The ACCC may be unaccustomed to valuing real options when it arbitrates in disputes as NCC notes — 'in practice, this may involve difficulties in determining the amount involved' (9.133) — but this does not detract from its usefulness in the analysis of capital investment and pricing decisions made by businesses.

I agree with the NCC's statement that Part IIIA has provisions allowing the ACCC to 'balance the interests of services providers and access seekers' (9.106). However, what is lacking is recognition that there is no mechanism for asset owners to recoup the costs of the additional uncertainty imposed on capital investment decisions by the likelihood of stymieing and gaming behaviour by third parties. Given that commercial access disputes generally take many years to resolve (ACCC arbitration alone can be expected to take at least six months), the cost of this added uncertainty in the decision-making of infrastructure owners is likely to be large and, unfortunately for the owners of declared assets, disruptive of investment.

One of the outcomes of delay is that it would prevent RTIO from meeting the share of world demand increases that it had anticipated that it would meet. This would create an opportunity for other iron ore suppliers to meet it instead (Figure 1).

Figure 1. Example of the capture of production share by other producers because of delays



Drawing on my experience in commodity analysis, I consider it unlikely that small Australian mining companies would be able to capture more than 50 per cent of the value of delayed production, and are in fact likely to capture only 20 per cent. I maintain therefore that the lost production assumptions are wholly reasonable and in fact flow in a straightforward manner from assumptions regarding delays, which I regard as reasonable, if not conservative.

4. REFERENCES

ACCC (Australian Competition and Consumer Commission) (no date), 'ACCC responses to questions raised by the NCC re arbitration under Part IIIA'.

—— 2008, ACCC Annual Report 2006-07, February.

Davies, A. 2004, 'Monopoly on waste challenged', Sydney Morning Herald, June 15.

Grenadier, S. and Wang, N. (2005), 'Investment timing, agency, and information', *The Journal of Financial Economics*, 75, pp.493-533.

Virgin Blue 2007, 'New deal and new lounge as Virgin Blue and SACL sign "sensible" new commercial agreement', media release, 23rd May.

APPENDIX A: INSTRUCTIONS

Allens Arthur Robinson

ABN 47 702 595 758
530 Collins Street
Melbourne VIC 3000
Australia
Tel 61 3 9614 1011
Fax 61 3 9614 4661
Correspondence
GPO Box 1776Q
Melbourne VIC 3001
Australia
DX 30999 Melbourne
www.aar.com.au

30 June 2008

Dr Brian Fisher
Concept Economics
Level 7
107 Pitt Street
Sydney NSW 2000

By Email

Dear Dr Fisher

Applications by Pilbara Infrastructure Pty (*TPI*) for declaration of the services provided by the Hamersley and Robe Rail Networks in the Pilbara

As you are aware, on 20 June 2008 the National Competition Council (the ***Council***) issued draft recommendations in relation to the Hamersley and Robe rail access applications lodged by The Pilbara Infrastructure Pty Ltd (***TPI***).

In a Report prepared by Port Jackson Partners Limited (***PJP***) in April 2008 entitled 'Economic Evaluation of the Impact of Lost Iron Ore Production and Share' (which was annexed to the RTIO submission to the Council), PJP modelled a number of sensitivities to demonstrate the negative impact of any impediments to RTIO's expansion program. Similarly, Access Economics prepared a report for Rio Tinto dated 23 April 2008 (also annexed to RTIO's submission to the Council) which set out a quantitative analysis of the respective GSP and GDP effects upon Western Australia and Australia, arising from four alternative scenarios of expansion delays and efficiency losses expected to arise as a consequence of the RTIO Pilbara railways becoming multi-user facilities.

At paragraphs 9.98 and 9.99 of its draft recommendation in relation to the Hamersley access application (replicated at paragraphs 9.99 and 9.100 of the Council's draft recommendation in respect of the Robe access application) the Council expressed the following view:

> 9.98 Rio Tinto Iron Ore did not instruct either Port Jackson Partners or Access Economics to critically analyse the key premises on which their modelling was based; instead, the firms were instructed to assume that access would result in substantial expansion delays and lost production. This is unfortunate as it does not address a key issue to be considered by the Council, which is whether such delays are likely.
>
> 9.99 In the Council's view the results of the modelling undertaken by Port Jackson Partners and Access Economics, and the various internal analyses, are an inevitable consequence of the assumptions they were instructed to apply, and are unlikely to in fact result. These assumptions are examined in detail below.

Having regard to the observations made by the Council in the paragraphs set out above, you are asked to review the key assumptions on which the PJP and Access Economics modelling was based for the purpose of expressing your opinion as to whether those assumptions (ie. expansion delays and lost production) are valid in the circumstances of third party access being granted.

Bangkok
Beijing
Brisbane
Hanoi
Ho Chi Minh City
Hong Kong
Jakarta
Melbourne
Perth
Phnom Penh
Port Moresby
Shanghai
Singapore
Sydney

Our Ref CWPM:605369950

cwpm A0110650920v1 605369950 30.6.2008

The Council has requested responses to its draft recommendations by 21 July next. In the circumstances, it would greatly assist us if you would provide us with your observations regarding the matters set out in this letter, as soon as possible prior to 10 July 2008.

If you have any queries or require any further information please do not hesitate to contact me.

Yours sincerely

Craig Phillips
Partner
Craig.Phillips@aar.com.au
Tel +61 3 9613 8938

APPENDIX B: CURRICULUM VITAE - BRIAN S. FISHER

PROFESSIONAL QUALIFICATIONS

BScAgr (Hons I)	University of Sydney, 1973
PhD	University of Sydney, 1978

STAFF POSITIONS HELD

1973 to 31-12-75	Commonwealth Postgraduate Scholar in the Department of Agricultural Economics, University of Sydney
1-1-76 to 31-12-81	Lecturer in Agricultural Economics, University of Sydney
1-1-82 to 19-2-84	Senior Lecturer in Agricultural Economics, University of Sydney
6-7-82 to 19-2-84	Head, Department of Agricultural Economics, University of Sydney
20-2-84 to 16-5-85	Chief Research Economist, Bureau of Agricultural Economics (BAE), Canberra
17-5-85 to 27-10-85	Deputy Director, BAE, Canberra
28-10-85 to 21-8-88	Head, Department of Agricultural Economics, University of Sydney
28-10-85 to 21-11-88	Professor of Agricultural Economics, University of Sydney
1-8-87 to 21-11-88	Dean, Faculty of Agriculture, University of Sydney
21-11-88 to 19-2-95	Executive Director, Australian Bureau of Agricultural and Resource Economics (ABARE), Canberra
20-2-95 to 3-12-95	Executive Director, Agriculture and Forests Group, Department of Primary Industries and Energy, Canberra
4-12-95 to 15-9-06	Executive Director, ABARE, Canberra
25-9-06 to 24-3-08	Vice President, CRA International
25-3-08 to present	Executive Director, Economic Analysis, Concept Economics

CONCURRENT STAFF APPOINTMENTS

5-3-01 to 31-3-02	Chief Operating Officer, Department of Agriculture, Fisheries and Forestry, Australia
14-4-03 to 30-4-04	Associate Commissioner, Productivity Commission, Australia
18-3-05 to 20-5-05	Chairman, Prime Minister's Taskforce on Exports and Infrastructure

PROFESSIONAL ACTIVITIES, COMMITTEES AND BOARD MEMBERSHIPS

1976-83, 1986-87	Committee Member, NSW Branch, Australian Agricultural Economic Society
1980	President, NSW Branch, Australian Agricultural Economics Society
1981-1990	Member, Federal Council, Australian Agricultural Economics Society
1984-1985	Committee Member, ACT Branch, Australian Agricultural Economics Society
1986-1989	Member, Wool Research and Development Council and Chairman Economic Research Advisory Committee of the Council
1987	Economic Consultant to the Royal Commission into Grain Storage, Handling and Transport
1988	President Elect, Australian Agricultural Economics Society
1989	President, Australian Agricultural Economics Society
1989-2002	Member, Executive Board, Department of Primary Industries and Energy, Australia (and from 1998 Department of Agriculture, Fisheries and Forestry); member, Audit Committee (1995-1999); and Chairman, Year 2000 Management Committee (1998-1999)
1989-1995	Member, CSIRO Agricultural Sector Advisory Committee
1992-1994	Member, Board of the Australian Centre for Mineral and Energy Economics, University of Newcastle
1992-1993	Member, Board of the Australian Wool Realisation Commission
1995-1997	Chairman, Board of the Australian Animal Health Laboratory

1995-1997	Member, Board of Wool International and member, Pricing Committee
1996-1997	Member, Board of the Australian Animal Health Council Limited and Chairman, Audit Committee
1996-2002	Member, Australian Academy of Science's National Committee for Climate and Global Change
1996-1998	Member, CSIRO Wool Textile Advisory Committee
1996-2001	Member, Australian Climate Change Negotiating Team
1998-1999	Member, Australian Experts Group on Emissions Trading
1999- 2004	Member, Asia Pacific Energy Research Centre (Institute of Energy Economics, Japan) Advisory Board
2003- 2006	Security Executive and member, Executive Management Team, Department of Agriculture, Fisheries and Forestry, Australia
2003- 2004	Member, Australian Government Oceans Policy Science Advisory Group

EDITORIAL POSITIONS HELD

1981-83	Member, Editorial Committee, Australian Journal of Agricultural Economics
1984-87	Joint Editor (with Carolyn Tanner), Australian Journal of Agricultural Economics
1985-86	Associate Editor, The Scientific Basis of Modern Agriculture (1988), Sydney University Press, Sydney
1988	Member of the Sydney University Press/Oxford University Press Joint Editorial Board
1993-2002	Member, Editorial Board, Resources Policy
1995-2000	Member, Editorial Advisory Board, Agricultural Economics, The Journal of the International Association of Agricultural Economists
1997- 2002	Member, Editorial Board, Australian Journal of Agricultural and Resource Economics
2003- 2006	Member, Editorial Board, Journal of Mitigation and Adaptation Strategies for Global Change

ACADEMIC OR PROFESSIONAL AWARDS AND DISTINCTIONS

1974	Editor's prize for the best article published in Australian Journal of Agricultural Economics
1976	Australian Agricultural Economics Society's travel grant for attendance at the 16th International Conference of Agricultural Economists, Nairobi, Kenya
1983	Editor's prize for the best paper published in the Australian Journal of Agricultural Economics (shared with Dr Robyn Munro)
1991-1992	Visiting Professor, Department of Agricultural Economics, University of Sydney
1993-1995	Appointed as Convening Lead Author in the area of assessment of policy instruments for the mitigation of climate change for Working Group III of the UN Intergovernmental Panel on Climate Change
1994	Awarded the Farrer Memorial Medal for 'outstanding contribution to agricultural economics in the field of research and education'
1995-	Fellow, Academy of the Social Sciences in Australia
1998-2000	Appointed as Lead Author in the area of assessment of the impacts of climate change and climate change policy for Working Group III of the UN Intergovernmental Panel on Climate Change
2002	Awarded the Public Service Medal for 'outstanding public service in the field of agricultural and resources policy development'
2003-	Distinguished Fellow, Australian Agricultural and Resource Economics Society
2003-2006	Adjunct Professor of Sustainable Resources Development, Faculty of Food, Agriculture & Natural Resources, University of Sydney
2003-2007	Appointed as Coordinating Lead Author in the area of assessment of emission scenarios for Working Group III of the UN Intergovernmental Panel on Climate Change
2007	Appointed an Officer of the Order of Australia for service to agricultural economics, international trade and climate change through research and public policy analysis

MEMBERSHIP OF PROFESSIONAL SOCIETIES

American Agricultural Economics Association

American Economics Association

Australian Agricultural and Resource Economics Society

Economic Society of Australia

International Association of Agricultural Economists

International Association of Energy Economics

PUBLICATIONS

Book

1. Campbell, K.O. and Fisher, B.S. (1991), Agricultural Marketing and Prices, 3rd edn, Longman Cheshire, Melbourne, 160 pp.

Chapters in Books

2. MacAulay, T.G., Batterham, R.L. and Fisher, B.S. (1988), 'A spatial equilibrium model of regional grain flows: details of methodology and data used for northern New South Wales programming model', in Royal Commission into Grain Storage, Handling and Transport, Vol. 3, Supporting Paper 8, Appendix C, Commonwealth of Australia, Canberra, pp.109-125.

3. Fisher, B.S. (1988), 'Northern New South Wales programming model results', in Royal Commission into Grain Storage, Handling and Transport, Vol. 3, Supporting Paper 8, Appendix D, Commonwealth of Australia, Canberra, pp.126-86.

4. Quiggin, J. and Fisher B.S. (1988), 'Peak-load pricing', in Royal Commission into Grain Storage, Handling and Transport, Vol. 3, Supporting Paper 6, Commonwealth of Australia, Canberra, pp.58-76.

5. Fisher, B.S. (1988), 'Synthetic construction and operating cost functions', in Royal Commission into Grain Storage, Handling and Transport, Vol. 2, Supporting Paper 3, Commonwealth of Australia, Canberra, pp.103-6.

6. Fisher, B.S. (1988), 'Construction costs for grain handling facilities', in Royal Commission into Grain Storage, Handling and Transport, Vol. 2, Supporting Paper 3, Commonwealth of Australia, Canberra, pp.41-50.

7. Fisher, B.S. (1988), 'Cost function analysis and results for grain terminals at Australian ports', in Royal Commission into Grain Storage, Handling and Transport, Vol. 2, Supporting Paper 3, Commonwealth of Australia, Canberra, pp.97-102.

8. Fisher, B.S., Quiggin, J.C. and Wall, C.A. (1988), 'Operating cost functions: port terminals', in Royal Commission into Grain Storage, Handling and Transport, Vol. 2, Supporting Paper 3, Commonwealth of Australia, Canberra, pp.27-40.

9. Fisher, B.S. (1988), 'Estimation of operating cost functions for grain handling facilities in New South Wales and South Australia', in Royal Commission into Grain Storage, Handling and Transport, Vol. 2, Supporting Paper 3, Commonwealth of Australia, Canberra, pp. 71-96.

10. Piggott, R.R., Coelli, T.J., Fleming, E.M. and Fisher, B.S. (1988), 'Operating cost functions: country sites', in Royal Commission into Grain Storage, Handling and Transport, Vol. 2, Supporting Paper 3, Commonwealth of Australia, Canberra, pp.19-27.

11. Campbell, K.O. and Fisher, B.S. (1988), 'Agricultural price and income policies', in K.O. Campbell and J.W. Bowyer (eds), The Scientific Basis of Modern Agriculture, Sydney University Press, Sydney, pp.445-59.

12. Fisher, B.S. (1988), 'Marketing agricultural products', in K.O. Campbell and J.W. Bowyer (eds), The Scientific Basis of Modern Agriculture, Sydney University Press, Sydney, pp.438-44.

13. Fisher, B.S. (1988), 'Demand and supply in agricultural markets', in K.O. Campbell and J.W. Bowyer (eds), The Scientific Basis of Modern Agriculture, Sydney University Press, Sydney, pp.430-7.

14. Fisher, B.S. and Campbell, K.O. (1988), 'The role of agriculture in economic development', in K.O. Campbell and J.W. Bowyer (eds), The Scientific Basis of Modern Agriculture, Sydney University Press, Sydney, pp.407-10.

15. Tin Soe and Fisher, B.S. (1990), 'An economic analysis of Burmese rice-price policies', in M. Than and J.L.H. Tan (eds) Myanmar Dilemmas and Options, Institute of South East Asian Studies, Singapore, pp.117-66.

16. Wonder, B. and Fisher, B. (1990), 'Agriculture in the economy' in D. B Williams (ed.) Agriculture in the Australian Economy, Oxford University Press, Melbourne, pp.50-67.

17. Fisher, B. (1991), 'Seven principles for a market based agriculture', in M. Ann Tutwiler (ed.), New Food Systems for Central Europe and the U.S.S.R., Dower House Publications, Somerset, pp.108-16.

18. Fisher, B. (1992), 'Natural resource management: issues for the future', in Nancy Wallace (ed.), Natural Resource Management: an Economic Perspective, ABARE, Canberra, pp.317-28.

19. Hinchy, M.D. and Fisher, B.S. (1992), 'Global emission trading for greenhouse gases: possibilities and constraints', in Nancy Wallace (ed.), Natural Resource Management: an Economic Perspective, ABARE, Canberra, pp.263-90. Reprinted in Jones, B.P. and Wheeler, E.F. (eds) (1992), Greenhouse Research Initiatives in the ESCAP region: Energy, Proceedings of a conference, Bangkok, 21-23 August 1991, ESCAP, ABARE and JIEE, Bangkok, pp.291-311. (Reprint of paper presented at the 'Environmental Strategies for Asia Pacific Oil & Gas' conference, IBC Asia (Conferences) Ltd, Pan Pacific Hotel, Kuala Lumpur, 26-27 August, 1991).

20. Beil, S., Croft, Q., Hinchy, M. and Fisher, B.S. (1992), 'Economics and the greenhouse effect: some early implications for coal', in J.P. Dorian and F. Fesharaki (eds), International Issues in Energy Policy, Development and Economics, Westview Press, Inc., Boulder, Colorado, pp.293-308.

21. Piggott, R., Fisher, B., Alston, J. and Schmitz, A. (1992), 'Australia: Grain marketing, institutions, and policies' in M.J. McGarry and A. Schmitz (eds), The World Grain Trade: Grain Marketing, Institutions, and Policies, Westview Press, Boulder, Colorado, Part Three, pp.281-339.

22. Piggott, R. and Fisher, B. (1993), 'Australia' in D. Blandford, C.A. Carter, and R. Piggott (eds), North-South Grain Markets and Trade Policies, Westview Press, Boulder, Colorado, pp.31-55.

23. Huggan, K., Smith, V.L. and Fisher, B.S. (1993), 'Shifting sands: the changing face of global politics and its impact on world minerals and energy markets' in N. Wallace and J. Evans (eds), International Commodity Markets: An Australian Perspective, ABARE, Canberra, pp.55-73. (Reprint of paper presented at the Australian Financial Review Energy & Minerals Outlook Conference, Hilton International, Sydney, 1 July 1992).

24. Tie, G. and Fisher, B. (1993), 'World primary commodity trade: experience of the 1980s and prospects for the 1990s', in N. Wallace and J. Evans (eds), International Commodity Markets: An Australian Perspective, ABARE, Canberra, pp.475-86.

25. Vanzetti, D., Andrews, N., Hester, S. and Fisher, B.S. (1994), 'U.S.-E.C. agricultural trade relations and the Uruguay Round: A Cairns Group perspective', in G. Anania, C.A. Carter and A.F. McCalla (eds), Agricultural Trade Conflicts and GATT: New Dimensions in U.S.-European Agricultural Trade Relations, Westview Press, Boulder, pp.341-64.

26. Fisher, B.S. (1994), 'U.S.-E.C. farm trade confrontation: an outsider's view – discussion', in G. Anania, C.A. Carter and A.F. McCalla (eds), Agricultural Trade Conflicts and GATT: New Dimensions in U.S.-European Agricultural Trade Relations, Westview Press, Boulder, pp.291-5.

27. Hanslow, K., Hinchy, M. and Fisher, B.S. (1994), 'International greenhouse economic modelling', in W.J. Bouma, G.I. Pearman and M.R. Manning (eds), Greenhouse: Coping with Climate Change, CSIRO Publishing, Collingwood, Vic., pp.641-9.

28. Fisher, B.S., Hinchy, M. and Thorpe, S. (1994), 'International climate change policy instruments and policy assessment under uncertainty', in W.J. Bouma, G.I. Pearman and M.R. Manning (eds), Greenhouse: Coping with Climate Change, CSIRO Publishing, Collingwood, Vic., pp.650-61.

29. Fisher, B.S., Barrett, S., Bohm, P., Kuroda, M., Mubazi, J.K.E., Shah, A., Stavins, R., Haites, E., Hinchy, M. and Thorpe, S. (1996), 'An economic assessment of policy instruments for combating climate change', in J.P. Bruce, Hoesung Lee and E.F. Haites (eds), Climate Change 1995: Economic and Social Dimensions of Climate Change, Cambridge University Press, Cambridge, MA, pp.397-439.

30. Kennedy, D., Hinchy, M. and Fisher, B. (1997), 'Effects of greenhouse gas abatement in OECD countries on developing countries', in B.P. Flannery, K.R. Kohlase and D.G. LeVine (eds), IPIECA Symposium on Critical Issues in the Economics of Climate Change, Words and Publications, Oxford, pp.211-24.

31. Fisher, B. (1997), 'International impacts: An Australian view', in J.H. Adler (ed.), The Costs of Kyoto: Climate Change Policy and its Implications, Competitive Enterprise Institute, Washington DC, pp.73-81.

32. Fisher, B.S. and Beil, S. (1998), 'The role and future of international emissions trading', in Bureau of Transport Economics, Trading Greenhouse Emissions: Some Australian Perspectives, Commonwealth of Australia, Canberra, pp.xiii-xx.

33. Kennedy, D., Polidano, C., Lim, J., Tulpule, V. and Fisher, B.S. (1998), 'Global economic impacts of the Kyoto Protocol', in Bureau of Transport Economics, Trading Greenhouse Emissions: Some Australian Perspectives, Commonwealth of Australia, Canberra, pp.91-113.

34. Hinchy, M. and Fisher, B.S. (1999), 'Negotiating greenhouse abatement and the theory of public goods', in C. Carraro (ed.), International Environmental Agreements on Climate Change, Kluwer Academic Publishers, Dordrecht/Boston/London, pp.27-36.

35. Fisher, B. (2001), 'Looking forward on a global scale: comment', in P. G. Pardey (ed.), The Future of Food: Biotechnology Markets and Policies in an International Setting, International Food Policy Research Institute, Washington DC, pp.93-5.

36. Hourcade, J-C., Priyadarshi, S., Cifuentes, L., Davis, D., Edmonds, J., Fisher, B., Fortin, F., Golub, A., Hohmeyer, O., Krupnick, A., Kverndokk, S., Loulou, R., Richels, R., Segenovic, H. and Yamaji, K. (2001), 'Global, regional, and national costs and ancillary benefits of mitigation' in B. Metz, O. Davidson, R. Swart and Jiahua Pan (eds), Climate Change 2001: Mitigation (Contribution of Working Group III to the Third Assessment Report of the Intergovernmental Panel on Climate Change), Cambridge University Press, Cambridge, pp.499-559.

37. Fisher, B.S. and Hinchy, M.D. (2004), 'The role of energy prices in global climate change', in A.D. Owen and N. Hanley (eds), The Economics of Climate Change, Routledge Explorations in Environmental Economics, Vol.3, Routledge, London, pp.193-213.

38. Fisher, B.S., Matysek, A.L., Ford, M.A. and Woffenden, K. (2007), 'International climate change policy: approaches to policies and measures, and international coordination and cooperation', in M. Schlesinger, H. Kheshgi, J. Smith, F. de la Chesnaye, J.M. Reilly, T. Wilson and C. Kolstad (eds), Human-induced Climate Change: An Interdisciplinary Assessment, Cambridge University Press, pp.403-13.

39. Fisher, B.S., Nakicenovic, N. et al. (2007), 'Issues related to mitigation in the long term context' in B. Metz, O. Davidson, P. Bosch, R. Dave and L. Meyer (eds), Climate Change 2007: Mitigation of Climate Change, Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge, pp. 169-250.

Articles in Journals

40. Fisher, B.S. (1974), 'A quarterly model of agricultural investment in Australia', Australian Journal of Agricultural Economics 18(1), 22-31.

41. Fisher, B.S. (1975), 'Supply response in the wheat belt of south-eastern Australia: the impact of delivery quotas on wheat plantings', Australian Journal of Agricultural Economics 19(2), 81-93.

42. Fisher, B.S. and Tanner, C. (1978), 'The formulation of price expectations: an empirical test of theoretical models', Australian Journal of Agricultural Economics 60(2), 245-8.

43. Fisher, B.S. (1978), 'In search of Hunt's short-run price cycles in the Sydney wool futures market', Australian Journal of Agricultural Economics 22(2), 129-34.

44. Fisher, B.S. (1979), 'The demand for meat - an example of an incomplete commodity demand system', Australian Journal of Agricultural Economics 23(3), 220-30.

45. Fisher, B.S. (1981), 'The impact of changing marketing margins on farm prices', American Journal of Agricultural Economics 63(2), 261-3.

46. Fisher, B.S. and Lee, R.R. (1981), 'A dynamic programming approach to the economic control of weed and disease infestations in wheat', Review of Marketing and Agricultural Economics 49(3), 175-87.

47. Fisher, B.S. (1982), 'Rational Expectations: implications for research in agricultural economics and agricultural policy', American Journal of Agricultural Economics 64(2), 260¬-5.

48. Fisher, B.S. and Munro, R.G. (1983), 'Supply response in the Australian extensive livestock and cropping industries: a study of intentions and expectations', Australian Journal of Agricultural Economics 27(1),1-11.

49. Fisher, B.S. (1983), 'Rational expectations in an agricultural market: a study of the Australian wool industry', Australian Journal of Agricultural Economics 27(3), 212-20.

50. Fisher, B.S. (1985), 'Frontiers in agricultural policy research', Review of Marketing and Agricultural Economics 53(2), 74-84.

51. Fisher, B.S. (1986), 'The rural recession: an assessment and an analysis of some policy options', Australian Quarterly 58(2), 146-52.

52. Hinchy, M. and Fisher, B. (1988), 'Benefits from price stabilization to producers and processors: the Australian buffer stock scheme for wool', American Journal of Agricultural Economics 70(3), 604-15.

53. Wall, C.A. and Fisher, B.S. (1988), 'Supply response and the theory of production and profit functions', Review of Marketing and Agricultural Economics 56(3), 383-404.

54. Fisher, B. S. and Piggott, R. R. (1988), 'Agriculture in the Australian Economy', Rivista di Diritto Valutario e di Economia Internazionale (Review of Currency Law and International Economics) 37(4), 947-62.

55. MacAulay, T.G., Batterham, R.L. and Fisher, B.S. (1989), 'Spatial trading systems with concave cubic programming', Australian Journal of Agricultural Economics 33(3), 170-86.

56. Fisher, B. S. (1990), 'Australia's commodity sector: issues for the 1990s', Agriculture and Resources Quarterly 2(1), 56-60.

57. Fisher, B.S. and Wall, C.A. (1990), 'Supply response in the Australian sheep industry: a profit function approach', Australian Journal of Agricultural Economics 34(2), 147-66.

58. Fisher, B.S. and Thorpe, S. (1990), 'Issues in resource management', Australian Journal of Agricultural Economics 34(2), 87-102.

59. Haynes, J., Fisher, B.S. and Jones, B.P. (1990), 'An economic perspective on the greenhouse effect', Agriculture and Resources Quarterly 2(3), 307-16, reprinted in Wallace, N. (ed.) (1992), Natural Resource Management: an Economic Perspective, ABARE, Canberra, pp.245-62.

60. Fisher, B.S. (1991), 'Australian commodities - short and medium term prospects', Agriculture and Resources Quarterly 3(1), 47-52.

61. Fisher, B.S., Beare, S.C. and Sutcliff, A. (1991), 'The optimal disposal of Australia's wool stockpile: an analysis of the issues', Wool Technology and Sheep Breeding 34(3), 92-5.

62. Fisher, B.S. (1992), 'Australian commodities - short and medium term prospects', Agriculture and Resources Quarterly 4(1), 47-52.

63. Gunasekera, H.D.B.H. and Fisher, B.S. (1992), 'Australia's recent experience with the collapse of its wool buffer stock scheme', The World Economy, 15(2), 251-69 (reprinted in Reinsel, R.D. (ed), (1993), Managing Food Security in Unregulated Markets, Westview Press, Boulder, pp.49-66).

64. Fisher, B.S. (1993), 'Prospects for Australian commodities', Agriculture and Resources Quarterly 5(1), 54-9.

65. Fisher, B.S., Tulpule, V., and Bowen, B. (1993), 'Sustainable development and exploration', APEA Journal, pp.401-10.

66. Fisher, B.S. (1994), 'World commodity markets to 2010', Australian Commodities 1(1), 46-9.

67. Fisher, B.S. (1994), 'The development of international climate change policy', Australian Commodities 1(1), 50-4.

68. Quiggin, J.C., Fisher, B.S. and Peterson, D. (1994), 'Cost pooling in Australian grain handling: a common property analysis', American Journal of Agricultural Economics 76(2), 262-9.

69. Hanslow, K., Hinchy, M., Small, J., Fisher, B.S. and Gunasekera, D. (1994), 'Climate change: trade and welfare effects', Australian Commodities 1(3), 344-54.

70. Fisher, B.S. (1995), 'Australian commodities: overview', Australian Commodities 2(1), 50-5.

71. Fisher, B.S. (1995), 'Climate change: what is the optimal international policy response', Australian Commodities 2(1), 56-60.

72. Fisher, B.S. (1996), 'Outlook to 2001: future of Australian commodities', Australian Commodities 3(1), 56-62.

73. Fisher, B.S. (1997), 'Commodities sector: outlook and issues for the medium term', Australian Commodities 4(1), 62-6.

74. Fisher, B.S., Tulpule, V. and Brown, S. (1998), 'The climate change negotiations: the case for differentiation', Australian Journal of Agricultural and Resource Economics 42(1), 83-95.

75. Fisher, B.S. (1998), 'Australian commodities: outlook to 2002-03', Australian Commodities 5(1), 64-70.

76. Podbury, T., Sheales, T., Hussain, I. and Fisher, B.S. (1998), 'Use of El Nino climate forecasts in Australia', American Journal of Agricultural Economics 80(5), 1096-1101.

77. Beare, S.C., Bell, R. and Fisher, B.S. (1998), 'Determining the value of water: the role of risk, infrastructure constraints and ownership', American Journal of Agricultural Economics 80(5), 916-40.

78. Kennedy, D., Brown, S., Graham, B. and Fisher, B.S. (1998), 'Kyoto Protocol: Advantages of emissions trading over independent abatement', Australian Commodities 5(4), 511-21.

79. Tulpule, V., Brown, S., Lim, J., Polidano, C., Pant, H., and Fisher, B.S. (1999), 'The Kyoto Protocol: an economic analysis using GTEM', Energy Journal, Special Kyoto Issue, 257-85.

80. Beil, S., Fisher, B.S., and Hinchy, M. (1999), 'The economics of international trading in greenhouse gas emissions - some post-Kyoto issues', Energy and Environment 10(3), 231-44.

81. Polidano, C., Brown, S., Woffenden. K., Beil, S. and Fisher, B.S. (1999), 'The Kyoto Protocol: economic impacts on Annex B economies and key Australian industries', Energy and Environment 10(5), 517-34.

82. Penm, J. and Fisher, B. (2000), 'Commodity overview: directions of commodity prices in the new millennium', Australian Commodities 7(1), 5-21.

83. Fisher, B. and Penm, J. (2001), 'Commodity overview: prospects for commodity prices', Australian Commodities 8(1), 5-22.

84. Fisher, B. and Penm, J. (2002), 'Commodity overview: prospects for world economic recovery and commodity prices', Australian Commodities 9(1), 5-22.

85. Jakeman, J., Hester, S., Woffenden, K. and Fisher, B.S. (2002), 'Kyoto Protocol: the first commitment period and beyond', Australian Commodities 8(1), 176-97.

86. Hooper, S., Martin, P., Love, G. and Fisher, B.S. (2002), 'Farm size and productivity – where are the trends taking us', Australian Commodities 9(3), 495-500.

87. Garner, M.G., Fisher, B.S. and Murray, J.G. (2002), 'Economic aspects of foot and mouth disease: perspectives of a free country, Australia', Revue Scientifique et Technique Office International Des Epizooties 21(3), 625-35.

88. Penm, J. and Fisher, B.S. (2003), 'Economic overview: prospects for world economic recovery in 2003', Australian Commodities 10(1), 5-19.

89. Roberts, I., Buetre, B., Warr, S., Gordon, W. and Fisher, B.S. (2003), 'Trade reform: synergies between open markets and other economic reforms', Australian Commodities 10(1), 100-10.

90. Fisher, B.S., Jakeman, G.N., Woffenden, K.G., Tulpule, V.A. and Hester, S.T. (2003), 'Dealing with climate change: possible pathways forward', APPEA Journal, 611-22.

91. Penm, J. and Fisher B.S. (2004), 'Economic overview: prospects for world economic growth in 2004', Australian Commodities 11(1), 5-20.

92. Fisher, B.S., Woffenden, K., Matysek, A., Ford, M. and Tulpule, V. (2004), 'Climate change policy; alternatives to the Kyoto Protocol', International Review for Environmental Strategies, 5(1), 179-97.

93. Jakeman, G., Hanslow, K., Hinchy, M., Fisher, B.S. and Woffenden, K. (2004), 'Induced innovations and climate change policy', Energy Economics, 26, 937-60.

94. Penm, J. and Fisher B.S. (2005), 'Economic overview: prospects for world economic growth to 2010', Australian Commodities 12(1), 5-18.

95. Kokic, P., Heaney, A., Pechey, L., Crimp, S. and Fisher B.S. (2005), 'Climate change: predicting the impacts on agriculture – a case study', Australian Commodities 12(1), 161-70.

96. Nair, R., Chester, C., McDonald, D., Podbury, T., Gunasekera, D. and Fisher, B.S. (2005), 'Opportuities for reform: the Doha Round and the US farm bill', Australian Commodities 12(4), 689-98.

97. Ford, M., Jakeman, G., Matysek, A., Gurney, A. and Fisher, B.S. (2006), 'Prospects for the Australian energy sector: an international perspective on climate change policies', Australian Economic Review 39(2), 196-206.

98. Fisher, B.S. and Rose, R. (2006), 'Export infrastructure and access: key issues and progress', Australian Commodities 13(2), 366-97.

99. Jakeman, G. and Fisher, B.S. (2006), 'Benefits of multi-gas mitigation: and application of the Global Trade and Environment Model (GTEM)', The Energy Journal, Multi-Greenhouse Gas Mitigation and Climate Policy Special Issue, pp.323-42.

100. Pant, H.M. and Fisher, B.S. (2006), 'Alternative measures of output in global economic-environment models: purchasing power parity or market exchange rates', Energy Economics, 29(3), pp. 375-89.

101. Fisher, B.S., Jakeman, G., Pant, H.M., Schwoon, M. and Tol, R.S.J. (2007), 'CHIMP: A simple population model for use in integrated assessment of global environmental change', Integrated Assessment, 6(3), pp.1-33.

102. Matysek, A.M. and Fisher, B.S. (2007), 'Prospects for nuclear power in Australia and New Zealand', International Journal for Global Energy Issues, forthcoming.

Research Reports and Chapters in Research Reports

103. Fisher, B.S. (1978), An Analysis of Storage Policies for the Australian Wheat Industry, Research Report No.7, Department of Agricultural Economics, University of Sydney, 200 pp.

104. Munro, R.G. and Fisher, B.S. (1982), The Formulation of Price Expectations - An Empirical Study of Woolgrowers in New South Wales, Research Report No.8, Department of Agricultural Economics, University of Sydney, 261 pp.

105. De Vega, M. and Fisher, B.S. (1983), An Empirical Study of Food Consumption in Rural and Urban Households of the Philippines, Research Report No.9, Department of Agricultural Economics, University of Sydney, 114 pp.

106. Fisher, B.S. and Gooden, J.M. (1986), An Economic and Technical Assessment of the Establishment of an Australian Fat-Tail Sheep Industry, Research Report No.10, Department of Agricultural Economics, University of Sydney, 52 pp.

107. Wall, C.A. and Fisher, B.S. (1987), Modelling a Multiple Output Production System: Supply Response in the Australian Sheep Industry, Research Report No.11, Department of Agricultural Economics, University of Sydney, 178 pp.

108. Johnson, C.E. and Fisher, B.S. (1988), The Japanese Beef Market: A Study in Political Economy, Research Report No. 12, Department of Agricultural Economics, University of Sydney, 158 pp.

109. Fisher, B. S. and Quiggin, J. (eds) (1988), The Australian Grain Storage, Handling and Transport Industries: An Economic Analysis, Research Report No. 13, Department of Agricultural Economics, University of Sydney, 112 pp.

110. Quiggin, J. and Fisher, B.S. (1988), 'Market and institutional structures in the grain handling industry: an application of contestability theory', in Fisher, B.S. and Quiggin, J. (eds), The Australian Grain Storage, Handling and Transport Industries: An Economic Analysis, Research Report No. 13, Department of Agricultural Economics, University of Sydney, pp.33-46.

111. Fisher, B.S. (1988), 'Pooling in the Australian grain handling and transport industries', in Fisher, B.S. and Quiggin, J. (eds), The Australian Grain Storage, Handling and Transport Industries: An Economic Analysis, Research Report No. 13, Department of Agricultural Economics, University of Sydney, pp.47-53.

112. Hinchy, M., Fisher, B. and Wallace, N. (1989), Mineral Taxation and Risk in Australia, ABARE Discussion Paper 89.8, AGPS, Canberra, 45 pp.

113. Beare, S.C., Fisher, B.S. and Sutcliff, A.G. (1991), Managing the disposal of Australia's wool stockpile, ABARE Technical Paper 91.2, AGPS, Canberra, 55 pp.

114. Hinchy, M., Thorpe, S. and Fisher, B.S. (1993), A tradable emissions permit scheme, ABARE Research Report 93.5, Canberra.

115. Brown, S., Donovan, D., Fisher, B., Hanslow, K., Hinchy, M., Matthewson, M., Polidano, C., Tulpule, V. and Wear, S. (1997), The Economic Impact of International Climate Change Policy, ABARE Research Report 97.4, Canberra, 107pp.

116. Donovan, D., Schneider, K., Tessema, G.A. and Fisher, B.S. (1997), International Climate Change Policy: Impacts on Developing Countries, ABARE Research Report 97.8, Canberra, 75pp.

117. Wear, S., Tulpule, V., Schneider, K., Matthewson, M., Fisher, B.S., Donovan, D. and Brown, S. (1997), International Climate Change Policy: Impacts on the European Union, ABARE Research Report 97.9, Canberra, 80pp.

118. Hinchy, M., Fisher, B.S. and Graham, B. (1998), Emissions Trading in Australia: Developing a Framework, ABARE Research Report 98.1, Canberra, 62pp.

119. Hinchy, M., Hanslow, K., Fisher, B.S. and Graham, B. (1998), International Trading in Greenhouse Gas Emissions: Some Fundamental Principles, ABARE Research Report 98.3, Canberra, 105pp.

120. Brown, S., Kennedy, D., Polidano, C., Woffenden, K., Jakeman, G., Graham, B., Jotzo, F. and Fisher, B.S. (1999), Economic Impacts of the Kyoto Protocol: Accounting for the Three Major Gases, ABARE Research Report 99.6, Canberra, 131pp.

121. Polidano, C., Jotzo, F., Heyhoe, E., Jakeman, G., Woffenden, K. and Fisher, B.S. (2000), The Kyoto Protocol and Developing Countries: Impacts and Implications for Mechanism Design, ABARE Research Report 2000.4, Canberra, 104pp. (Also published in French.)

122. Nair, R., Chester, C., McDonald, D., Podbury, T., Gunasekera, D. and Fisher, B.S. (2005), Timing of the US Farm Bill and WTO negotiations: A Unique Opportunity, ABARE eReport 05.11, Canberra, 32pp.

123. Fisher, B.S., Ford, M., Jakeman, G., Gurney, A., Penm, J., Matysek, A. and Gunasekera, D. (2006), Technological Development and Economic Growth, ABARE Research Report 06.1 prepared for the Inaugural Ministerial Meeting of the Asia Pacific Partnership on Clean Development and Climate, Sydney 12 January, 66pp.

124. Davidson, A., Lawson, K., Kokic, P., Elliston, L., Nossal, K., Beare, S. and Fisher, B.S. (2006), Native Vegetation – Management on Broadacre Farms in New South Wales: Impacts on Productivity and Returns, ABARE eReport 06.3, Canberra, 43pp.

125. Matysek, A., Ford, M., Jakeman, G., Gurney, A. and Fisher, B.S. (2006), Technology: Its Role in Economic Development and Climate Change, ABARE Research Report 06.6, Canberra, 110pp.

126. Ahammad, H., Matysek, A., Fisher, B.S., Curtotti, R., Gurney, A., Jakeman, G., Heyhoe, E. and Gunasekera, D. (2006), Economic Impact of Climate Change Policy: The Role of technology and economic Instruments, ABARE Research Report 06.7, Canberra, 66pp.

127. McDonald, D., Nair, R., Podbury, T., Sheldrick, B., Gunasekera, D. and Fisher, B.S. (2006), US Agriculture without Farm Support, ABARE Research Report 06.10, Canberra, 45pp.

128. Nair, R., McDonald, D., Chen. M., Gunasekera, D. and Fisher, B.S. (2006), The Cairns Group: Catalyst for Agricultural Trade Reform, ABARE Research Report 06.11, Canberra, 27pp.

129. Fisher, B. and Matysek, A. (2007), 'Where global policy is heading after Kyoto', in CEDA (The Committee for Economic Development of Australia), Growth 59: Climate Change – Getting it Right, Melbourne, November, pp.42-51.

CONFERENCE PROCEEDINGS

130. Fisher, B.S., Kirby, M.G. and Blyth, M.J. (1985), 'An economic approach to land use', in D.R. de Kantzow and P.G. Williams (eds), Agricultural Ecology: The Search for a Sustainable System, Proceedings of the Australian Institute of Agricultural Science Golden Jubilee Symposium, AIAS Occasional Publication No. 21, pp.66-77.

131. Fisher, B.S. (1986), 'Instability in agricultural markets - discussion opening II', in A. Maunder and U. Renborg (eds), Agriculture in a Turbulent World Economy, Proceedings of the 19th International Conference of Agricultural Economists, Malaga, Spain, 26 August - 4 September 1985, International Association of Agricultural Economists, pp.606-9.

132. Fisher, B.S. (1988), 'Cereal exports in the 1990s - prospects for Australia', in Proceedings of the 38th Australian Cereal Chemistry Conference, Bronte Inn, Bronte, 25-30 September, The Royal Australian Chemical Institute Cereal Chemistry Division.

133. Gerardi, W., McMillan, R. and Fisher, B. (1989), 'Emerging world market opportunities for Australian agricultural commodities', in Proceedings of the 5th Australian Agronomy Conference, Perth, 24-29 September, The Australian Society of Agronomy, pp.324-37.

134. Fisher, B., Riethmuller, P., Tie, G. and Bowen, B. (1989), 'Economic implications of a changing world for agriculture: an Australian perspective', in Proceedings of the 66th USDA Outlook Conference, Washington DC, 28-30 November, United States Department of Agriculture, pp.548-62.

135. Tie, G.H., Bowen, B., Gunasekera, H.D.B.H. and Fisher, B.S. (1990), 'Proposed strategies for international trade reform', in D.D. Chadee and A.N. Rae (eds), Toward Freer Trade: Strategies and Experiences in Pacific Agricultural Reform, Proceedings and papers for the Fourth Workshop of the Agricultural, Trade and Development Task Force of the PECC, Bangkok, 4-6 June 1990, Centre for Agricultural Policy Studies, Massey University, pp.1-12.

136. Barry, G., Topp, V. and Fisher, B. (1990), 'The economic viability of dairy farming in Australia', Proceedings of the Dairy Research Foundation Symposium, Camden, 11-12 July, Dairy Research Foundation, pp.25-37.

137. Fisher, B. (1990), 'A competitor's view of US farm programs', in Proceedings of the 67th USDA Annual Agricultural Outlook Conference, Washington DC, 27-29 November, United States Department of Agriculture, pp.106-12.

138. Fisher, B.S. and Wallace, N. (1991), 'The changing face of grain marketing', in L. Copeland and F. Ahmadi (eds) Proceedings of the Grains Research Symposium 1991, Faculty of Agriculture, University of Sydney, September, pp.1-12.

139. Vanzetti, D., Andrews, N., Garner, B. and Fisher, B.S. (1991), 'World grain trade prospects: an Australian perspective', in Proceedings of the 68th USDA Annual Agricultural Outlook Conference, Washington DC, 3-5 December, United States Department of Agriculture, pp.201-14.

140. Strachan, S. and Fisher, B.S. (1992), 'Future of the Australian dairy industry', in Dairy Symposium Proceedings 1992, Dairy Research Foundation, University of Sydney, Camden, 16-17 July, pp.78-89.

141. Fisher, B.S., Low, J. and Thorpe, S. (1992), 'Sustainable energy issues in the Asia Pacific region', in Wijarso and Y. Purnomo (eds) Proceedings of the 3rd Jakarta International Energy Conference'92 - Investment Challenges in the Energy Industry towards the Change of the Century: Global and Regional Constraints, Jakarta, 6-8 October, pp.39-69.

142. Lembit, M.J. and Fisher, B.S. (1992), 'The economic implications of an outbreak of foot and mouth disease for Australian broadacre agriculture', in M.J. Nunn and P.M. Thornber (eds) Proceedings of the National Symposium on Foot-and-Mouth Disease, Canberra, 8-10 September 1992, AGPS, Canberra, 1993, pp.83-90.

143. Tie, G., Kottege, J. and Fisher, B.S. (1993), 'Policy developments and trade prospects for grassland based products', in Proceedings of the XVII International Grassland Congress, Palmerston North, Hamilton and Lincoln (New Zealand) and Rockhampton (Australia), 8-21 February, Vol.1, pp.967-72. (Reprinted in M.J. Baker (ed) (1994), Grasslands for our World, SIR Publishing, Wellington, NZ, pp. 294-99.)

144. Fisher, B.S., Tulpule, V. and Bowen, B. (1993), 'Sustainable development and exploration', paper presented to the 1993 Australian Petroleum Exploration Association Conference, APEA Journal 1993, pp.401-10.

145. Love, G.C. and Fisher, B.S. (1993), 'Future markets for Australian agricultural produce', in G.K. McDonald and W.D. Bellotti (eds) Proceedings of the 7th Australian Agronomy Conference, The Australian Society of Agronomy, University of Adelaide, Adelaide, 19-24 September, pp.16-22.

146. Love, G., Warr, S., Hester, S., Tie, G., Dlugosz, J., O'Mara, P. and Fisher, B.S. (1994), 'Commodity overview', in ABARE, World Commodity Markets and Trade, Proceedings of OUTLOOK 94, Canberra, 1-3 February, Vol. 1, pp.3-24.

147. Thorpe, S., Peng, Z-Y., Dickson, A., Stuart, R. and Fisher, B.S. (1994), 'The least cost principle and the distribution of greenhouse control costs', in ABARE, Natural Resources, Proceedings of OUTLOOK 94, Canberra, 1-3 February, Vol. 2, pp.3-24.

148. Treadwell, R., Thorpe, S. and Fisher, B.S. (1994), 'Should we have second thoughts about "no regrets"? in OECD/IEA', The Economics of Climate Change, Proceedings of an OECD/IEA Conference, Paris, pp.255-72.

149. Fisher, B. S. (1994), 'Scope of the work on policy instruments', in A. Amano, B. Fisher, M. Kuroda, T. Morita and S. Nishioka (eds), Climate Change: Policy Instruments and their Implications, Proceedings of the Tsukuba Workshop of IPCC Working Group III, Tsukuba, Japan, 17-20 January, p.8.

150. Hinchy, M., Hanslow, K. and Fisher, B.S. (1994), 'A dynamic game approach to greenhouse policy: some numerical results', in A. Amano, B. Fisher, M. Kuroda, T. Morita and S. Nishioka (eds), Climate Change: Policy Instruments and their Implications, Proceedings of the Tsukuba Workshop of IPCC Working Group III, Tsukuba, Japan, 17-20 January, pp.117-31.

151. Amano, A., Bohm, P., Fisher, B., Lee, H. and Mintzer, I. (1994), 'Round table talk on the Tsukuba Workshop of IPCC Working Group III', in H. Ohkawa and M. Kobayashi (eds), Center for Global Environmental Research, National Institute for Environmental Studies, Environment Agency of Japan, Tsukuba, Japan, 19 January, 46pp.

152. Hanslow, K., Hinchy, M. and Fisher, B.S. (1995), 'The MEGABARE model', in Commonwealth Department of the Environment, Sports and Territories, The Role of Economic Analysis in Assessing Greenhouse Impacts and Responses, Proceedings of a workshop, National Convention Centre, Canberra, 25 October 1994, pp.25-32.

153. Love, G., Hogan, L., Bell, R., Penm, J. and Fisher, B.S. (1995), 'Commodity overview', in ABARE, Commodity Markets and Natural Resources, Proceedings of OUTLOOK 95, Canberra, 7-9 February, Vol. 1, pp.3-26.

154. Hinchy, M., Hanslow, K., Tormey, J. and Fisher, B.S. (1995), 'Climate change – major policy issues and optimal policies', in ABARE, Commodity Markets and Natural Resources, Proceedings of OUTLOOK 95, Canberra, 7-9 February, Vol. 1, pp.123-32.

155. Hanslow, K., Hinchy, M., Small, J., Fisher, B.S. and Gunasekera, D. (1995), 'Trade and welfare effects of policies to address climate change', in WMO/UNEP, Equity and Social Considerations Related to Climate Change, Proceedings of an IPCC Working Group III Workshop, Nairobi, Kenya, 18-22 July, pp.313-30.

156. Fisher, B.S. (1995), 'Climate change: the economic debate', in Australian Academy of Technological Sciences and Engineering, Greenhouse Abatement Measures: No Regrets Action Now, Proceedings of the 1995 Invitation Symposium, Melbourne, 17-18 October, pp.49-58.

157. Curtotti, R., Roberts, I. and Fisher, B.S. (1996), 'Investment requirements for steaming coal supplies in APEC member economies', in Asia-Pacific Economic Cooperation Energy Working Group, Proceedings of the Third APEC Coal Flow Seminar; Coal and Investment: Regional Investment Strategies for Coal, Power Infrastructure and Technology Transfer, Crowne Plaza Hotel, Terrigal, NSW, 26-28 November. (Reprinted in New Energy and Industrial Technology Development Organisation, Coal in Asia-Pacific, 9(1), pp.10-33).

158. Woffenden, K., Penm, J., Sheales, T. and Fisher, B. (1997), 'Commodities sector outlook and issues to 2001-02', in ABARE, Commodity Markets and Resource Management , Proceedings of OUTLOOK 97, Canberra, 4-6 February, Vol. 1, pp.3-35.

159. Fisher, B. (1997), 'International climate change policy: economic implications for Australia', in Harris, S. et al. (eds), The Challenge for Australia on Global Climate Change, Summary of Proceedings of the National Academies Forum, 29-30 April, Canberra, pp.98-106.

160. Fisher, B.S. and Brown, S. (1997), 'The economic impact of uniform emission abatement', in The Australian APEC Study Centre, Managing Climate Change - Key Issues, Papers from the conference, Countdown to Kyoto: the Consequences of Mandatory CO2 Emission Reductions, National Convention Centre, Canberra, 19-21 August, pp.45-57.

161. Graham, B., Hinchy, M., Fisher, B. and Tulpule, V. (1998), 'Climate change negotiations - the Kyoto Protocol', in ABARE, Commodity Markets and Resource Management, Proceedings of OUTLOOK 98, Canberra, 3-5 February, Vol. 1, pp.67-75.

162. Beil, S, Fisher, B.S. and Hinchy, M. (1998), 'The economics of international trading in greenhouse gas emissions: some post-Kyoto issues', in ABARE, Emissions Trading: Proceedings of the International Conference on Greenhouse Gas Emissions Trading, Wentworth Hotel, Sydney, 21-22 May, pp.11-23. Also reprinted in Energy and the Environment, 10(3), pp.231-44.

163. Tulpule, V., Brown, S., Lim, J., Polidano, C. Pant, H. and Fisher, B.S. (1998), 'An economic assessment of the Kyoto Protocol using the Global Trade and Environment Model', in OECD, Economic Modelling of Climate Change: OECD Workshop Report, OECD, Paris, 17-18 September, pp.99-121.

164. Jotzo, F., Heyhoe, E., Woffenden, K., Brown, S. and Fisher, B.S. (2000), 'The Kyoto Protocol - impact on developing countries and some implications for the Kyoto mechanisms' in Walker, C.E., Bloomfield, M.A. and Thorning, M. (eds), The Kyoto Commitments: Can Nations Meet them with the Help of Technology, Proceedings of a Symposium sponsored by the American Council for Capital Formation, Center for Policy Research, Washington DC, 13 October, 1999, pp.75-107.

165. Polidano, C., Heyhoe, E., Hester, S., Fisher, B.S., Woffenden, K. and Jakeman, G. (2001), 'The Kyoto Protocol: the state of the negotiations and implications for the Australian economy', in ABARE, Natural Resources, Proceedings of OUTLOOK 2001, Canberra, 27 February - 1 March, Vol. 1, pp.47-63.

166. Fisher, Brian (2002), 'Constructing an Australia that can deal with uncertainty: an energy perspective', in Australian Academy of Science, Living with Climate Change: A National Conference on Climate Change Impacts and Adaptation, Proceedings, 18-19 December, pp.147-52.

PUBLIC LECTURES

167. Fisher, B.S. (1995), 'Global climate change policy: implications for Australia and Australian agriculture', Text of the 1994 Farrer Memorial Lecture, University of Sydney, in NSW Agriculture (1995), Annual Report 1994/95, Sydney, pp. 120-9.

168. Fisher, B.S. (1998), 'International climate policy: Kyoto and beyond', Julius Kruttschnitt Lecture, The Australasian Institute of Mining and Metallurgy, Parkroyal Hotel, Brisbane, 28 July.

REPORTS OF PUBLIC INQUIRIES

169. Byron, N., Fisher, B.S. and Musgrave, W. (2004), Impacts of Native Vegetation and Biodiversity Regulations, Productivity Commission report No. 29, Melbourne.

170. Fisher, B., Moore-Wilton, M. and Ergas, H. (2005), Australia's Export Infrastructure: Report to the Prime Minister by the Exports and Infrastructure Taskforce, Commonwealth of Australia, Canberra, 76pp.

CONFERENCE PAPERS AND OTHER MATERIAL

171. Fisher, B.S. (1977), An analysis of the export market for Australian wheat. Paper presented at the 21st Annual Conference of the Australian Agricultural Economics Society, Brisbane, February.

172. Fisher, B.S. (1978), A Submission on the Future of Australian Wheat Marketing, Wheat Marketing Reform Committee, Moree, NSW.

173. Fisher, B.S. (1978), 'An analysis of the incidence of the change in marketing costs' in Prices Justification Tribunal, Beef Marketing and Processing, Commonwealth Government Printer, Appendix C.

174. Rattigan C.J. and Fisher, B.S. (1981), Modelling the major Australian livestock industries: some implications of simultaneous equations bias. Paper presented at the 25th annual conference of the Australian Agricultural Economics Society, Christchurch, New Zealand, February.

175. Fisher, B.S. (1983), Commodity modelling and rational expectations: An econometric study of the Australian wool market. Paper presented at the 27th Annual Conference of the Australian Agricultural Economics Society, Brisbane, February.

176. Fisher, B.S. (1983), Submission to the Industries Assistance Commission Draft Hearings on the Wheat Industry, July.

177. Fisher, B.S. (1983) 'Marketing the Australian wheat crop', Bulk Wheat 17, p.16.

178. Fisher, B.S. and Hanslow, K.J. (1984), The impact of risk on agricultural supply response: implications of rational expectations. Paper presented at the 28th Annual Conference of the Australian Agricultural Economics Society, Sydney, February.

179. Hinchy, M. and Fisher, B. (1985), An assessment of the producer gains from wool price stabilisation. Paper presented at the 29th Annual Conference of the Australian Agricultural Economics Society, Armidale, February 12-14.

180. Fisher, B.S. (1985), Agricultural economic research in the BAE: a selection and overview of major projects. Paper presented at the 14th Conference of Economists Workshop on Australian Agricultural Policy, University of New South Wales, May 17.

181. Fisher, B.S. and Hinchy, M. (1985), Assessing the producer gains from price stabilisation: some further issues. Paper presented at the 19th International Conference of Economists, Malaga, Spain, August 26 - September 4.

182. Fisher, B.S. (1987), Information needs of bulk handling authorities: a review. Paper presented to the Wheat Marketing and Economics Workshop, Australian Wheat Board, 28 May.

183. Piggott R.R. and Fisher, B.S. (1987), North-South grain policy and international trade: Australia country paper. Paper presented at the Workshop on North-South Grain Policies and International Trade, Kellogg International Fellowship in Food Systems, Ithaca, New York, September 14-18.

184. Fisher, B.S. (1987), Food and agriculture in the Australian economy: prospects for the medium term. Keynote Address to the 7th Australian Poultry and Feed Convention, Sydney Hilton Hotel, October 18-22.

185. Quiggin, J. and Fisher, B.S. (1987), Submission to the Industries Assistance Commission Draft Report Hearings on the Wheat Industry, Policy Paper 1, Department of Agricultural Economics, University of Sydney.

186. Fisher, B.S. (1988), The future - what is the long term market for products of the region? Paper presented at 'Pastures for the Nineties', A seminar sponsored by the School of Crop Sciences, University of Sydney, Australian Institute of Agricultural Science and the NSW Department of Agriculture and Fisheries, Moree Civic Centre, 28 September.

187. Wallace, N. and Fisher, B.S. (1989), 'Managing change for a prosperous future', Closing Address to the National Agricultural Outlook Conference, Canberra, 17-19 January.

188. Fisher, B.S. (1989), 'The long term outlook for resource exports' Paper presented to the National Minerals and Energy Outlook Conference, Canberra, 15-16 March.

189. Soe, U Tin and Fisher, B.S. (1989), 'Burmese rice price policies - an economic analysis of developments since independence' Paper presented to the 33rd Annual Conference of the Australian Agricultural Economics Society, Christchurch, New Zealand, 6-9 February.

190. Quiggin, J. and Fisher, B.S. (1989), 'Generalised utility theories - implications for stabilisation policy, Invited paper presented to the 33rd Annual Conference of the Australian Agricultural Economics Society, Christchurch, New Zealand, 6-9 February.

191. Wallace, N. and Fisher, B.S. (1989), Sustaining prosperity in the rural sector, Paper presented to the Australian Rural Industries Conference, The Regent, Sydney, 16-17 March.

192. Breckling, J., and Fisher, B. and Wallace, N. (1989), 'An analysis of farm level income variation in the Australian wool industry', Paper presented to the Australasian Meeting of the Econometric Society, University of New England, Armidale, 13-15 July.

193. Gerardi, W., Curran, W., McMillan, R. and Fisher, B. (1989), 'Price outlook and changing international markets for rural commodities', Paper presented at 'Marketing Rural Products: Domestic and International Strategies', convened by Australian Investment Conferences, The Regent, Sydney, 23-24 August.

194. Curran, W., Murtough, G., Andrews, N., McMillan, R., O'Mara, P. and Fisher, B. (1990), 'Prospects and issues for primary industries', Paper presented at the National Agricultural and Resources Outlook Conference, Canberra, 30 January - 1 February.

195. Murtough, G., Matthews, L. and Fisher, B. (1990), 'Developing markets in Europe and Asia for Australian agricultural commodities', Paper presented at the Corporate Investment in Australia Rural Industries Conference, convened by Australian Investment Conferences, Sheraton Wentworth Hotel Sydney, 11-12 April.

196. Fisher, B. and Geldard, J. (1990), 'Economic challenges facing the Australian rural sector', in Cattle Council of Australia, Cattle Council Yearbook, Canberra, pp.29-34.

197. Haynes, J. and Fisher, B. (1990), 'Economics and the environment: the greenhouse effect - a case study', Paper presented at the 'Economics and the Environment', Economics Society (Victorian Branch) Conference, Melbourne, 21 June.

198. Bowen, B., Harris, J. and Fisher, B. (1990), 'Australia's agricultural trading prospects in the 1990s', Paper presented at the Western Plains Outlook Conference, Lake Cargelligo, 19 July.

199. Fisher, B. (1990), 'Minerals commodities trading, with particular emphasis on coal and the screen trading system', Paper presented at the 'Minerals Commodities Trading: Making Profits above the Ground' conference, Securities Institute of Australia, Sydney, 20 July.

200. Harris, J., Kirby, M. and Fisher, B. (1991), 'Markets for Australian commodities – overview', Paper presented at the National Agricultural and Resources Outlook Conference, Canberra, 29-31 January.

201. Fisher, B.S., Anthony, G., Beck, T. and Bowen, B. (1991), 'Toward strengthening Pacific energy co-operation', Keynote speech at the 5th Symposium on Pacific Energy Cooperation - Towards Strengthening Pacific Energy Cooperation, Tokyo Prince Hotel, Tokyo, 27-28 February.

202. Gunasekera, H.D.B.H. and Fisher, B.S. (1991), 'Buffer stock schemes in Australia: a case study of wool', Paper presented at the XXIst International Conference of Agricultural Economists, Tokyo, 22-29 August.

203. Hinchy, M., Fisher, B.S. and Bowen, B. (1991), 'Global carbon dioxide emission trading: a possible way to encourage the use of clean coal technologies?', ABARE paper presented to the International Conference on Policy Issues and Options for Environmentally Sound Coal Technologies, Beijing, 1-6 December.

204. Fisher, B.S., Tulpule, V. and Beare, S.C. (1992), 'Sustainability and intergenerational equity', ABARE paper presented to the Circum-Pacific Council for Energy and Mineral Resources Symposium on Sustainable Development, Queen Sirikit National Convention Centre, Bangkok, Thailand, 9-12 March.

205. Kear, D., Fisher, B.S. and Rutland, R. (1992), 'The meaning of sustainable supply for mineral and energy resources', paper presented to the Circum-Pacific Council for Energy and Mineral Resources Symposium on Sustainable Development, Queen Sirikit National Convention Centre, Bangkok, Thailand, 9-12 March.

206. Hinchy, M., Thorpe, S and Fisher, B.S. (1992), Quantifying a tradable emissions scheme. ABARE paper presented at the International Association of Energy Economists Conference, Tours, France, 18-20 May.

207. Tie, G., Kottege, J. and Fisher, B. (1992), Australia: Post Uruguay round. ABARE paper presented at the Agribusiness Association of Australia and New Zealand Conference 'Trading with Asia', Regent Hotel, Melbourne, 22-24 July.

208. Winton, J.N., Tie, G.H. and Fisher, B.S. (1992), Impediments to trade in East Asian food and fibre markets: an Australian perspective. ABARE paper presented at PECC IX: Conference on 'Open Regionalism: A Pacific Model for Global Economic Cooperation', San Francisco, 23-29 September.

209. Fisher, B. and Lembit, M. (1992), The outlook for the Northern Territory beef and veal industry. ABARE paper presented at the Northwest Pastoral Conference, Northern Territory Rural College, Katherine, 27-28 October.

210. Love, G. and Fisher B.S. (1992), Agriculture beyond 2000: a vision for education. ABARE paper presented at the Royal Agricultural Society Agricultural Educators' Foundation Conference, Burswood Hotel, Perth, 10-11 November.

211. Fisher, B.S. and Love, G.C. (1993), Outlook for farming. ABARE paper presented at the New South Wales Rural Outlook Conference, Forbes, 4 March.

212. Curran, B., Hartland, K. and Fisher, B.S. (1993), Research and development strategies to raise the quality of policy decisions. ABARE paper presented at 'Developing, Managing Implementing and Evaluating Government Policy: The Quest for Quality', Sydney, 17-18 May.

213. Bartley, S., Bell, R., Goesch, T. and Fisher, B. (1993), Macroeconomic developments and prospects in Australia and overseas. ABARE paper presented at the Western Australian Rural Outlook Conference, The Kings Hotel, Perth, 24 August.

214. Gleeson, T. and Fisher, B.S. (1993), Prospects for the wool industry in Western Australia. ABARE paper presented at the Western Australian Rural Outlook Conference, The Kings Hotel, Perth, 24 August.

215. Kokic, P., Tulpule, V., Beare, S. and Fisher, B.S. (1993), Assessment of undiscovered mineral resources. ABARE paper presented at the Minerals and Energy Economics Symposium, 22nd Conference of Economists, Murdock University, Perth, 29 September.

216. Hester, S.M. and Fisher, B.S. (1993), Recent developments in the Uruguay Round: Implications for Argentina and Australia. ABARE paper presented at the International Seminar on the 'Competitiveness and Restructuring of the Rural Sector', Buenos Aires, Argentina, 14-15 October.

217. Love, G., Tie, G., Bartley, S., O'Mara, L.P., and Fisher, B.S. (1994), Outlook for farming. ABARE paper presented at the NSW Rural Outlook Conference, Forbes, NSW, 3 March.

218. Hinchy, M., Hanslow, K. and Fisher, B.S. (1994), A dynamic game approach to greenhouse policy: more numerical results. ABARE paper presented at the Tasman Institute Conference, 'Environmental Health and Economic Wealth: Conflict or Concord?', Canberra, 15-16 March.

219. Doyle, S. A., Andrews, N. and Fisher, B. S. (1994), World agriculture in a post-GATT environment: An Australian perspective. ABARE paper presented at an International Conference on World Agriculture in a Post-GATT Environment, University of Saskatchewan, Saskatoon, Canada, 13-15 June.

220. Love, G. and Fisher, B.S. (1994), The outlook for Queensland's commodity industries. ABARE paper presented at the Committee for Economic Development of Australia 'Windows of Opportunity' Conference, Brisbane, 22 July.

221. Knopke, P., Bell, R., Roper, H. and Fisher, B.S. (1994), Agricultural outlook: Key trade and resource issues. ABARE paper presented at the Northern Australian Regional Outlook Conference, Darwin, 11 August.

222. Holmes, L., Naughten, B., Noble, K. and Fisher, B.S. (1994), Prospects for natural gas in Australia - some long term issues. ABARE paper presented to the Australian Gas Association's 30th Annual Conference, Hyatt Regency Perth, 11-13 September.

223. Love, G., Penm, J. and Fisher, B.S. (1994), Commodity outlook: overview. ABARE paper presented to the South Australian Rural Outlook Conference, Adelaide, 27 September.

224. Murtough, G., Yin, H.M., Zheng, S., Vanzetti, D. and Fisher, B.S. (1994), Gains to Australia from trade liberalisation: APEC and GATT. ABARE paper presented to the AAES/Arthur Andersen Conference on 'The Uruguay Round: A New Era? A Forum on the GATT', The Tower, Melbourne, 18 October.

225. Love, G., Penm, J. and Fisher, B.S. (1994), Commodity outlook: overview. ABARE paper presented to the Queensland Rural Outlook Conference, Toowoomba, 8 November.

226. Beare, S. and Fisher, B.S. (1995), Property rights, information and physical transformation. ABARE paper presented to the 39th Annual Conference of the Australian Agricultural Economics Society, Perth, 14-16 February.

227. Stevenson, A., Lintong Feng, Hanslow, K. and Fisher, B.S. (1996), Policy directions in the greenhouse debate. ABARE paper presented at an International Energy Agency Conference, Paris, 30-31 May.

228. Vanzetti, D., Pakravan, P., Lintong Feng, and Fisher, B.S. (1996), Equity considerations in climate change negotiations. ABARE paper presented at the Workshop on 'Differentiation in Climate Change' Chatham House, London, 6-7 June.

229. Hinchy, M., Hanslow, K. and Fisher, B.S. (1996), International efficiency comparisons in agriculture. ABARE paper presented at the Global Agricultural Science Policy for the Twenty-first Century Conference, Melbourne, 26-28 August.

230. Lintong Feng, Schneider, K., Tulpule, V. and Fisher, B.S. (1996), Outlook for energy in APEC: the role of China. ABARE paper presented at the Specialist Group Meeting on Energy Policy, Pacific Economic Cooperation Council Minerals and Energy Forum, Hotel Inter-Continental, Sydney, 26-27 August.

231. Brown, S., Lintong Feng, Kennedy, D. and Fisher, B. (1997), The economic implications of international climate change policy. ABARE paper presented at the Australian Petroleum Production and Exploration Association Conference, World Congress Centre, Melbourne, 13-16 April.

232. Matthewson, M., Tulpule, V. and Fisher, B.S. (1997), The economic implications for Canada and the United States of international climate change policies. ABARE paper presented at the 1997 Canadian Energy Research Institute 'Environment - Energy Modelling Forum', Ottawa, 15-16 October.

233. Kennedy, D., Polidano, C., Lim. J., and Fisher, B.S. (1998), Climate change policy and the economic impact of the Kyoto Protocol. ABARE paper presented at the South Australian Office of Energy Policy, 'Opportunities out of Kyoto: A Conference on Greenhouse Targets and the South Australian Economy, Hilton Hotel, Adelaide, 1 September.

234. Tulpule, V., Brown, S., Lim, J., Polidano, C., Pant, H., and Fisher, B. (1998), An assessment of the Kyoto Protocol using the Global Trade and Environment Model. ABARE paper presented at the 27th Conference of Economists, University of Sydney, 28 September - 1 October.

235. Penm, J., Roberts, I., Sheales, T. and Fisher, B.S. (1998), Economic upheavals and agricultural commodity markets: An Australian perspective. ABARE paper presented to the 5th International Conference on the Outlook for Agricultural Industries, Montevideo, Uruguay, 30 October.

236. Kennedy, D., Brown, S., Graham, B., and Fisher, B.S. (1998), Assessing the economic impacts of the Kyoto Protocol: Implications of accounting for the three major greenhouse gases. ABARE information paper prepared to coincide with the 4th Conference of the Parties to the Framework Convention on Climate Change, Buenos Aires, 2-13 November.

237. Fisher, B.S., and Beil, S. (1998), Emissions trading: the next futures frontier? Futures Forum, Issue 3, pp.22-5.

238. Fisher, B.S. and Penm, J. (1998), World trade with Japan in recession. Business Bulletin, August.

239. Fisher, B.S. (1999), The economic impacts of the Kyoto Protocol: accounting for the three major greenhouse gases. ABARE Technical Paper prepared for the UNFCCC Technical Workshop on Mechanisms, Bonn, 9-15 April.

240. Brown, S., Jotzo, F. and Fisher, B.S. (1999), Assessing the impacts of the Kyoto Protocol: implications for the Australian aluminium industry. ABARE paper presented to the Australasian Aluminium and Alumina Summit, the Mercure Hotel, Sydney, 21-22 April.

241. Roberts, I., Podbury, T., Andrews, N., Penm, J., O'Rourke, C. and Fisher, B.S. (1999), Agricultural policies and trade on the eve of a new millennium. ABARE paper presented at Expo Prado 99, Uruguay XXI, Montevideo, 6-9 September.

242. Roberts, I., Podbury, T., Andrews, N. and Fisher, B.S. (1999), The dynamics of multilateral agricultural policy reform. ABARE paper presented at the Argentine Institute of International Affairs workshop 'The next Round of negotiations at the World Trade Organisation', Buenos Aires, 8 September.

243. Podbury, T., Roberts, I., Vanzetti, D. and Fisher, B.S. (2000), Increasing benefits to Australia from WTO agricultural trade liberalisation. ABARE paper presented at the 44th Annual Conference of the Australian Agricultural and Resource Economics Society, University of Sydney, 23-25 January.

244. Fisher, B.S. (2001), The Kyoto Protocol: the state of the negotiations and implications for the Russian Federation. ABARE paper presented at a Workshop on Russia's Participation in Global Market Based Mechanisms under the Kyoto Protocol, Carbon Program of the Russian Environmental Congress, Moscow, 4-6 April. (Also available in Russian.)

245. Jakeman, G., Heyhoe, E., Pant, H., Woffenden, K. and Fisher, B.S. (2001), The Kyoto Protocol: economic impacts under the terms of the Bonn agreement. ABARE paper presented to the International Petroleum Industry Environmental Conservation Association conference, 'Long Term Carbon and Energy Management - Issues and Approaches', Cambridge, Massachusetts, 15-16 October.

246. Pant. H., Tulpule, V. and Fisher, B.S. (2002), The global trade and environment model: a projection of non-steady state data using intertemporal GTEM. ABARE paper presented to the 5 th Annual Conference on Global Economic Analysis, Grand Hotel, Taipei, 5-7 June.

247. Fisher, B., Fairhead, L. and Levantis, T. (2002), Recent developments in the world economy and commodity markets – implications for Papua New Guinea. Institute of National Affairs Speech Series No. 6, Aviat Club, Port Moresby, 18 October.

248. Gleeson, T. and Fisher, B.S. (2003), Agricultural Outlook for 2003-04 and farm performance estimates for Toowoomba. ABARE paper presented to the Queensland Regional Outlook Conference, Toowoomba, 21 May.

249. Andrews, N., Buetre, B., Davidson, A., McDonald, D., Jotzo, F. and Fisher, B.S. (2003), Agricultural trade reform: benefits for Australian broadacre agriculture. ABARE paper presented to the Queensland Regional Outlook Conference, Toowoomba, 21 May.

250. Pant, H., Fisher, B.S. and Tulpule, V. (2003), Feasible GTEM baselines of the world economy for the next 100 years. ABARE paper presented to the 6th Annual Conference on Global Economic Analysis, The Hague, 12-14 June.

251. Gleeson, T, Haine, I. and Fisher, B. (2003), Commodities outlook for 2003-04 and farm performance estimates for the Northern Territory. ABARE paper presented at the 10th Northern Territory Regional Outlook Conference, MGM Grand Hotel, Darwin, 19 November.

252. McDonald, D. and Fisher, B.S. (2004), Agriculture outlook for 2004-05 and farm performance estimates for Rockhampton. ABARE paper presented at the Queensland Regional Outlook Conference, Rockhampton, 5 May.

253. Pant, H.M. and Fisher, B.S. (2004), Assessing the role of energy technology in mitigating GHG emissions. ABARE paper presented at the Workshop on Climate Change and Energy Modeling, Sheraton Taipei Hotel, Taipei, Taiwan, 11-12 October.

254. Matysek, A., Ford, M., Hester, S., Fairhead, L. and Fisher, B.S. (2005), The nexus between climate, energy and technology. ABARE paper presented at the APEC Business and Climate Change Workshop, Seoul, Korea, 11-13 April.

255. Pant, H.M., Liangyue Cao and Fisher, B.S. (2005), The global economy, trade, environment and the climate system (GETEC) model and a reference case for climate policy analysis. ABARE paper presented at the 8th Annual Conference on Global Economic Analysis, Radisson SAS Senator Hotel, Lubeck, Germany, 9-11 June.

256. Podbury, T., Shaw, I., Nair, R., Jacenko, A., Gunasekera, D. and Fisher, B.S. (2005), Reducing barriers to farm trade. ABARE paper presented at the Ballarat regional Outlook Conference, Southern Cross University, 20 July.

257. Rose, S., Ahammad, H., Eickhout, B., Fisher, B., Kurosawa, A., Rao, S., Riaha, K. and van Vuuren, D. (2007), 'Land in climate stabilization modeling: initial observations', Energy Modeling Forum Report, Stanford University, January: http://www.stanford.edu/group/EMF/projects/group21/EMF21sinkspagenew.htm.

258. Fisher, B.S. and Matysek, A.L. (2007), International climate change: feasible policy and the role of technology, International Conference on Climate Change, Hong Kong Convention and Exhibition Centre, Hong Kong, 29-31 May.

259. Matysek, A. and Fisher, B. (2007), 'Policy options for mitigation in aviation'. Paper presented to the APEC Strategic Seminar on Measures to Manage Aviation Emissions, Singapore, 10-11 August.