Submission to Productivity Commission April 2012

Barriers to effective climate change adaptation

1. Introduction

Eureka Funds Management (Eureka) welcomes and commends the work completed and the achievements to date of the Australian Government Productivity Commission. Eureka is happy to participate in the opportunity to submit a submission regarding the barriers to effective climate change adaptation.

Eureka currently manages $3.6 billion of assets on behalf of wholesale investors, predominantly Australian Superannuation funds. Of Eureka's 10 managed investment schemes, two are development funds which consist of both real estate and infrastructure assets. A key asset amongst the two portfolio's is the planned Bromelton intermodal logistics hub, located in the Bromelton State Development Area, south-east Queensland. Please visit – www.eurekafm.com.au/funds/bromelton.pdf for further information

This submission will focus on how adaption to climate change can be made through appropriate investment in infrastructure, more specifically **rail freight infrastructure** and the various factors that inhibit adaptation by way of infrastructure investment.

2. Executive Summary

The expected impacts of climate change on the Australian economy and society will require adaptation through various means in order to ensure the Nation's economic productivity and well being are protected. The Australian Federal Government and many private sector institutions have acknowledged the vital part infrastructure investment and planning will play in facilitating effective adaption to climate change. As an example, rail infrastructure and the development of intermodal freight centres is a strategically important network of infrastructure which requires further investment and development. However, there are several barriers which currently exist such as market failures and the need for greater Government cooperation, which inhibit Australia's ability to adapt to climate change through infrastructure investment. These barriers can be neutralised through appropriate legislative change, policy change and improved education and public awareness.

3. Infrastructure investment as an effective and necessary way to adapt to climate change

" Economic modelling for the Garnaut Climate Change Review in 2008 estimated that the negative impacts of unmitigated climate change may reduce Australia's gross national product by around 2 per cent by 2050 and by around 7 per cent by 2100. Most of this would be due to reduced performance or failure of infrastructure. This estimate is conservative..." [1]

Strategic investment in infrastructure has already been identified as one of six key action areas for climate change adaptation by the Australian Government. Others include; Coastal Management, Water, Agriculture, Natural Systems of Significance and Prevention of Natural Disasters.[2] In fact, it could be said that strategic infrastructure improvement is applicable to all of the other categories to some degree.

The benefits of modern and effective infrastructure are far reaching and are experienced over a long period of time. Given that the potential environmental and social impacts of climate change will have very long term consequences, adapting via changes or improvements to infrastructure would be absolutely necessary in order for Australia's economy, and society, to remain functioning as efficiently as possible for as long as possible.

The consequences of not sufficiently investing in infrastructure would be highly detrimental to the Australian economy and society. Some of these adversities could include:

- Loss of economic output
- Loss of jobs
- Increased pollution
- Increased congestion
- Increased costs spent on redundant and obsolete infrastructure
- Reduced productivity
- Loss of efficiencies

As explored in this submission, there are various layers to infrastructure adaptation and numerous barriers which must be overcome in order for Australian society and the Australian economy to effectively use investment into infrastructure as a way of adapting to a changing climate.

[1] Garnaut Climate Change Review 2008 (www.garnautreview.org.au)
[2] Adapting to Climate Change in Australia, The Australian Government 2010

4. Climate change drivers for adaptation through infrastructure

A changing climate will place significant demands on many broad, macro sectors of the Australian geography, economy and society.

4.1 Increase in energy prices

As energy resources become scarcer and with Governments increasing taxes and tariffs on fossil fuels to mitigate climate change and pollution, energy prices, in particular oil prices, are forecast to continue to rise. Markets will re-act to these price signals en masse and will look for cheaper alternatives. This will have the effect of stimulating the emergence of new technologies which use fuels more efficiency and have lower carbon emissions, creation of new types of fuels and also a user shift in transport mode, e.g. road to rail.

Increases in the scarcity and price of oil will profoundly affect the costs of our current transport patterns and the relative price and competitiveness of different fuels, vehicle technologies and modes of transport.

4.2 Emissions Trading Scheme and Carbon Tax

Recently, the Australian Government has passed legislation to enforce a carbon tax on major emitters of carbon dioxide. Coinciding with this, it is proposed to introduce an Emissions Trading Scheme (ETS) which will provide a market for companies to trade in carbon emissions. The goal of these policies is to reduce carbon emissions through promoting alternative, lower carbon practises by placing a price on carbon emissions and by using the proceeds of the taxes to invest in various carbon reducing or offsetting initiatives. These two policies, which themselves are a direct response to and, an attempt to mitigate climate change, will also prompt and require adaptation by various parties.

For example, the ETS will shift demand from high emissions forms of transport such as cars and trucks to other modes of transport with lower emissions by way of making the higher emissions forms of transport more expensive.

Carbon intensive users who wish to mitigate their liability from the tax by adapting less carbon intensive practises will need to have cost effective opportunities available in which to facilitate this adaptation. For example, a land freight user currently using road logistics to transport their goods may consider switching to rail due to the high carbon emissions resulting from the

numerous trucks on the road and also the increase cost in fuel. However, sufficient rail infrastructure needs to exist in order for such an adaptation to be a viable option for the land freight user.

4.3 Change in weather patterns

It is widely accepted that climate change will cause future weather patterns to differ materially from historical trends. The degree of these changes will depend on a global ability to reduce carbon emissions; however, the potential adverse impacts of these changes will also depend on the populations' ability to adapt to the changing climate.

A major shift in the current weather patterns may have the potential to change where Australia's agricultural output comes from and also where it is distributed to. This could also cause movements of populations in certain areas. For example, the Murray Darling Basins' irrigated agricultural output could fall as much as 92%[3] (without any climate change mitigation) causing a movement in population to other regions of Australia which would continue to support agricultural output such as Queensland. In aggregate, it is expected that Australia's rainfall will reduce as a result of climate change, however some regions will experience the change more so than others. For example the reduction in rainfall in Queensland is expected to be less severe than that in NSW.

Highly efficient and reliable freight and passenger transport networks would allow such population movements to occur in such a way that mitigates any potential economic loss.

4.4 Extreme weather events

An increase in the frequency of severe weather events will place significant strain on existing infrastructure and may create the need for additional infrastructure which is able to operate in these extreme conditions. Droughts, extreme heat, flooding, cyclones, bush fires and hurricanes are all anticipated to increase in frequency.

More extreme heat days will damage both existing roads and rail lines. The expected increase and magnitude of extreme heat resulting from climate change would not likely have been given appropriate consideration in the past when developing the technology and materials used in constructing our current roads and rail lines. Severe rains and flooding can equally damage the nation's transport networks, particularly in areas which are low lying and are already prone to

[3] Garnaut Climate Change Review 2008 (www.garnautreview.org.au)

flooding. An increase in the severity of floods may place certain road and rail lines at risk which are currently not prone to flood damage.

Failure of key transport infrastructure during and post extreme weather events can have potentially dire consequences on those populations which have been affected by such events. The need for food and supplies to continue to reach communities after a natural disaster is critical in minimising the humanitarian impact and certainly our roads and rail play an important role in that respect.

4.5 Business costs

The above climate change impacts, and others, have the potential to significantly increase business interruptions. Those businesses that rely on freight transport may be more exposed to these risks from adverse weather conditions than others. Consider the impacts and costs involved for a company relying on the shipment of non-bulk freight from inter-state in the scenario where the relevant transport corridor is incapacitated due to floods, extreme heat or even the pure inability for the existing infrastructure to handle the current volumes of freight. That business would be vulnerable to additional storage costs, loss of income, loss of perishable goods etc.

There is a real and substantial threat to business profitability, productivity and growth due to failure of transport infrastructure from extreme weather events.

5. Adaptation to climate change through infrastructure

Anticipate shifts in transport use and develop appropriate infrastructure to accommodate and facilitate these shifts accordingly.

As explored above, there are various drivers which are fuelling the growth in demand for rail freight versus road freight. In some cases the shift in transport mode is a necessity. Higher oil prices and taxes on carbon intensive fuels are causing demand for rail to increase relative to that of road amongst land freight users. Opportunity exists to transfer a significant portion of non-bulk freight off the road transport system and onto rail. An increase in extreme adverse weather events will require further investment in both rail and road infrastructure, however, there may be both short and long term costs benefits in building a rail transport corridor that is resilient to flooding rather than road.

Due to the current state of both the inter-state road and rail infrastructure, and the nature of non-bulk freight, approximately 75% of non-bulk freight is moved by road transport. However, with increased Government investment into the rail system, in particular the north-south line servicing Brisbane, Sydney and Melbourne and the increase in road transport costs, opportunity exists to transfer a significant portion of non-bulk freight from the road transport system to rail.

To achieve this however, additional investment into a rail freight network with greater capacity and also a network of intermodal freight handling sites which will facilitate this shift in freight usage are required.

Infrastructure Australia has already identified the need for such a "National Land Freight Network Strategy" in its February 2011 discussion paper. The paper states that such a strategy should aim to increase the interoperability between rail and road freight logistics with the "introduction of dedicated road freight infrastructure" and "intermodal terminal/freight cluster sites". [4]

[4] National Land Freight Strategy Discussion Paper, Infrastructure Australia, February 2011

Infrastructure Australia's promotion of and the subsequent implementation of such a National Land Freight Network Strategy is critically important in securing a national infrastructure system and framework which operates efficiently and allows for effective adaptation to climate change. The objectives of such a strategy are consistent with those of climate change mitigation and adaptation. These include:

- The development of efficient and sustainable freight logistics.
- Mitigate the negative externalities associated with freight movements, such as pollution, congestions, carbon emissions etc.
- Improve the quality of life of the Australian public
- Improve road safety
- Hedge the economy against extreme weather events
- Solutions with a long term view.

In addition to the investment in physical rail infrastructure and the implementation of a national freight strategy, new and more advanced rail technology must be given due consideration to compliment the other "hard" investments. Building a rail network which performs well and accommodates the increased demand in average weather conditions is not successful if it is unable to cope under the stress of severe heat or flooding. For example, the development of superior heat resistant tracks. Technological investment is required for future proofing our nation's rail infrastructure network and it is also required to obtain the best return from investment into our rail freight networks.

The need for investment into rail freight networks and inter-modal freight logistics centres already exists regardless of the need to adapt to climate change. Also, the benefits of such investment and strategy stretch beyond those that are applicable to an adaptation to climate change.

The next 10-15 years alone are forecast to see freight volumes more than double. An environmentally sustainable solution to improve the efficiency of the rail freight system is essential to being able to accommodate this increase in volumes.

Currently, approximately 20% of freight is moved by rail between Brisbane and Melbourne, and only 5% between Brisbane/Sydney and Sydney/Melbourne. The north-south road freight corridor can not maintain such a large portion of the freight task over the next 10 years as volumes double. The disproportionate weighting towards road must be corrected. The

Government has acknowledged this and have committed to invest approximately $3 billion in the Brisbane to Melbourne rail corridor, and a further $1.1 billion between Sydney and Newcastle through the Australian Rail Track Corporation (ARTC). These track upgrade works are nearing completion and upon which the freight transit times and reliability by rail will be comparable with road.

The opportunity to significantly increase rail's share of the freight task creates considerable scope to reduce carbon emissions and congestion on our roads. It has been estimated that on a per tonne-kilometre basis, road freight emits seven times more carbon pollution than rail freight.[5] It will also improve the functionality of the nation's road system by relieving congestion and heavy vehicles

However, a National Land Freight Network will require the development of modern, inter-modal freight logistic sites in order to:

- Obtain the greatest efficiency and return out of ARTC's $4.1 billion total investment
- Ensure the rail network is a competitive or superior alternative to road
- Cater for the increase in rail users and volumes
- Maximise economic efficiency of users

[5] The True Value of Rail, Deloitte Access Economics, October 2011

6. Barriers to effective adaptation through infrastructure

The barriers to infrastructure investment can be placed into two broad categories, market failures and the need for Government co-operation.

6.1 Market Failures

Australia's need for infrastructure investment over the coming decades is significant even before consideration is given to climate change adaptation. Due to the size of the required funds, public expenditure needs to be complimented with investment from the private sector. However, investments in major infrastructure assets are often outside the scope and understanding of private investors. Potential market failures creating barriers to private investment into infrastructure include:

6.1.1 Long Investment Horizons

The very nature of major infrastructure assets is that they are extremely capital intensive in the early years of the project and require a long time frame for which positive cash flow to be achieved and costs to start being recouped. Many private investors do not have the mandates to invest in such long dated assets. Thus, in this respect, there is minimal to no corporate incentive for private capital to be channelled into new, long-term infrastructure projects.

6.1.2 Lack of knowledge and expertise

Infrastructure, as an asset class, is not widely understood by the investment market relative to other asset classes such as bonds, equities and property. This shortage in expertise to manage and understand the risks associated with infrastructure ownership and development will continue to dampen the appetite from private investment.

In addition to this, the public and also different forms of Government are not in complete agreement on the actual economic and social costs of climate change. There are many people who do not have access to the information to form an informed opinion on climate change and its effects. This also works to impair the imperative for climate change mitigation and adaptation.

6.1.3 Misalignment of interests

Often, certain infrastructure projects will seemingly deliver more intangible benefits to society rather than a strong financial return to the projects owners. These intangible benefits are not relevant for a private investor to consider as their investment decisions are made solely on the

measurable, financial returns the project will provide. For example, a newly developed train line may significantly reduce travel times for commuters and offer an alternative to road transport, however the train line itself may not produce a positive return for many years. Local, State and Federal Government on the other hand are much more aligned to provide these beneficial services and assets to the population, regardless of whether there is a significant financial return or not. Thus there is a natural misalignment for private investors to fund such projects where, although implementing the project will deliver certain improvements to society, it does not make financial sense to invest.

6.1.4 Capital Intensiveness

As mentioned previously, there is a large amount of forward funding required for new infrastructure developments which may not produce a positive return for a long period of time. Many investors who may have the knowledge to develop and manage a large piece of infrastructure may not necessarily have all of the available capital to fully invest and develop the asset. In these circumstances private joint venture or public-private partnerships are required to progress the development.

6.2 Government Cooperation

6.2.1 Planning Approval Process

The amount of work involved in progressing a new infrastructure project through the various phases of planning approval, investment approval, fund raising, partnership agreements and finally implementation is immense. Throughout all of these phases, the projects owner will need to work with all three levels of Government, who in some instances may have conflicting views on development approvals and other planning strategy.

A uniform, streamlined planning approval process which promotes co-operation is required across all States and Territories. Removing unnecessary complications and delays in planning due to inefficient processes would be a positive contribution to improving the viability of many projects.

The promotion of a National Land Freight Strategy by Infrastructure Australia and its eventual implementation will aid in improving and streamlining the planning process around projects involving road and rail freight logistics. The acknowledgement by the Federal Government that the absence of such a strategy is impairing the Nation's infrastructure development is an important step in facilitating appropriate infrastructure development, however this strategy

needs to be promptly implemented and include improvements in the planning and approval process.

6.2.2 Financial Support

Many large scale infrastructure projects require multiple sources of funding, and thus the emergence of joint funding agreements which may or may not include Government participation. Many essential projects are unable to be progressed due to the unavailability of a funding partner. For private investment to help bridge the public funding gap for future required infrastructure spend, the Government must be prepared to partially support more key projects. The structuring of such partnerships must ensure there is fairness in allocation of risk and return amongst all investors.

7. Action required

The above barriers to entry can be neutralised through action on various fronts, however the primary driver which is going to promote and support adaptation to climate change through infrastructure investment is legislative reform and Government incentives.

7.1 Direct Investment

A Public-Private Partnership (PPP) between Federal Government and private investors has been used in the past as an attempt to bridge the public funding gap of major infrastructure projects. In theory PPP's should encourage investment from the private sector through the Government bearing certain costs and certain risks, thus reducing the uncertainty experienced by the private investor. They should also adopt structures and models that when implemented correctly, result in a fully transparent transaction that is sufficiently de-risked such that it is financially viable for the private party to invest.

Unfortunately, a number of high profile and high value infrastructure funding agreements between the private sector and Government have not succeeded. Failed projects such as the Lane Cove and Cross City tunnels which were jointly funded by public and private money have highlighted the issues which need to be addressed to correct the PPP model. These failed projects have caused a large amount of negative sentiment and caution in the private sector which has caused the appetite for investing in such projects to diminish. Faith and credibility needs to be restored to the initiative by action such as:

- *Removing those who have conflicting interests from the process*

  People who hold certain positions within Government will always have a vested interest in ensuring certain infrastructure projects proceed, regardless of the financial viability. The involvement of independent experts throughout the bid and costing processes will ensure the credibility and impartiality of forecasts provided.

- *Appropriately allocating certain risks to the party best able to manage those risks.*

  In the past, the majority, and in some cases all of the financial risk has been borne be private investors and has resulted in numerous financial failures. Deals need to be structured such that the Government bears certain risks so the private sector are not completely exposed to all the downside risk.

- *Reduction of bid costs*

  Currently, the monetary costs for competing for a tender through either a PPP or other project financing models has been estimated at 1% of the project value. When considering the size of major projects are often in excess of $1 billion, it is easy to see that this cost alone will act as a deterrent from investing. In addition to the complexity of the process, the time involved and the general difficulty of the process will act to reduce the number of private sector bidders. An improved and efficient process is required. This may involve partial funding of bid costs by the Government for superior, likely to proceed bidders and also the early identification of likely successful bidders. [6]

Example of how PPP's can enhance private funding of infrastructure projects:

Let us suppose there is need and demand for a new rail freight handling site. The upfront development costs and risks are too large for any private sector investor to take on individually and thus the future site does not attract any private funding. The Federal Government realises that the development of such a site could provide multiple, long lasting benefits to society such as reduced road traffic congestion, reduced road traffic pollution, job creation in sub-regional areas etc. A successful PPP could involve the Government partially funding the initial development costs such that a private party with the knowledge of developing and/or operating such a site would be attracted to developing out the whole site as it is now financially much more viable with Government support.

[6] The Role of Superannuation in Building Australia's Future, Infrastructure Partnerships Australia, April 2010

The future success of PPP's will be key in bringing important infrastructure projects to development and completion. Given that land freight logistics has been a network of infrastructure which has arguably received under investment in the past and the changing dynamic and demands of land freight, greater support and investment by way of PPP's is now required.

Infrastructure Australia's National Land Freight Network Strategy must be complimented with a greater allocation of funding towards land freight PPP's.

7.2 Government Incentives and Policy

7.2.1 Stimulating Demand

The use of incentives such as favourable taxation can promote large market shifts towards both the use of, and the investment in, certain infrastructure projects. For example, currently the carbon tax will not be applied to the trucking transport industry for the first two years for which it is in place. Removing this "grace" period will accelerate the inevitable shift in demand from road to rail freight. Alternatively, increased tolling of interstate freight road transit and restriction of certain freight from interstate transit would also reduce the burden on our roads and promote rail.

Improving the current rail network and supporting the development of inter-modal freight handling facilities will also increase the demand to use the rail network. The ability to progress such works is directly related with the potential to appropriately fund the works and to increase the supply of investment towards infrastructure projects.

Tax incentives can also be use to increase the *supply* in infrastructure funding not only to create *demand* for the assets.

7.2.2 Stimulating Supply (Infrastructure Funding)

The significant capital outlay necessary to develop infrastructure assets requires the availability of both debt and equity. The global financial crisis has had a significant impact on the availability of debt in the Australian marketplace. The decline of the debt securitisation industry and the retreat of many foreign bank lenders from the Australian marketplace has placed an overreliance on the sourcing of debt from the 'big 4' Australian banks, all of which have prudential limits, additional regulatory compliance and portfolio risk management issues to consider when allocating debt to the infrastructure sector. The Australian Prudential Regulatory Authority's (APRA) implementation of the

Basel III accords has placed further demands on the capital adequacy of major banks. This has contributed towards higher capital charges for longer dated, illiquid assets and shorter tenor financing.

The higher risks associated with infrastructure development, when compared to lending against established income producing infrastructure assets, has placed further constraints on the availability of debt for infrastructure development in the new post GFC, risk adverse climate.

Incentives are clearly necessary to attract debt capital to the infrastructure development sector. The proposed tax incentive applying to carried forward losses are of benefit to equity providers; however the provision of debt is an equally important consideration.

Potential ways to encourage debt funding to infrastructure projects:

- *Government guarantees over interest payments*
- *Government guarantees over principal amounts*
- *Government funding of additional return over and above interest payments*

Tax loss incentives

Evaluation of the strategic worth of proposed infrastructure is important to ensure that future investment optimises Australia's productivity. The initial project planning and evaluation phase is invariably extensive and hence costly.

Sunk costs incurred during this early 'green field' phase have the highest risk of generating a return and therefore are the least likely to attract investment. To assist in attracting investment in infrastructure planning and evaluation significant incentives are required to mitigate these issues. Whilst we are in favour of the escalation principle proposed to compensate for the often long lead time prior to the generation of income, additional taxation amendments that could provide a more significant incentive include;

- the ability to carry forward unused losses incurred prior to the asset being declared as a designated infrastructure project; and
- allowing losses to be deducted from income generated by unrelated activities.

Example of how Tax Incentives can be use to enhance private funding of infrastructure projects:

Suppose the Federal Government has identified the need for more land freight to be transported by rail rather than road due to constraints on the capacity of the road system to cater for the expected growth in land freight and the expected increase in negative externalities (road accidents, pollution, congestion etc). This is a general strategy which stretches over many states and various industries. Incentivising rail freight transport by way of favourable taxation versus road use would encourage users of land freight to shift from road to rail. This in itself would stimulate demand and the need for further rail infrastructure to accommodate the increased freight volumes. This increased demand would also increase financial feasibility of many potential rail related infrastructure projects.

7.3 Education and Public Awareness

Promoting education and increasing the number of people with qualifications in infrastructure management, finance and development will improve the private investment market's ability to understand and manage an increasing number and type of projects.

Also, an increase in general public awareness of the potential impacts on the nation's infrastructure from climate change will empower the users and potential users of the nation's infrastructure to make informed decisions on how they will adapt to a changing climate.

Although most of the population would be aware that climate change is a reality, the numerous ways in which it will actual impact on society and the economy are generally not fully appreciated by the wider public and thus their ability to make adaptation decisions is impaired.

The work to date by Infrastructure Australia has been successful in raising the profile of the need for further investment in Australia's infrastructure networks and facilitating public discussion on the matter. However, more works needs to be done in educating the public on the specific potential consequences of climate change on various parts of Australia's economy, society and infrastructure.

Example of how education and public awareness can promote infrastructure as a way to adapt to climate change:

Users of road freight transport need to understand the potential benefits, costs and other incentives in switching to rail freight transport. Increasing fuel prices, the carbon tax etc are results of and adaptations to climate change and will impact the road freight user. If the user understands these issues, is aware of any public or private investment into rail infrastructure that may make the transition more feasible etc, then they will be able to act on this and make their own adaptation to climate change.

About Eureka Funds Management

Eureka Funds Managements Limited (Eureka) is a wholesale real estate funds management organisation that caters predominantly to Australian Superannuation Funds. Eureka has a strong track record in raising institutional capital, and currently manages $3.6 billion of assets in its capacity as responsible entity, trustee/manager or investment manager for 10 managed investment schemes and unit trusts.

Eureka was established in January 2004 on a platform of independence, high transparency, corporate governance and the personal relationships of Eureka's management with many of Australia's largest superannuation funds. Eureka is owned by its founders and staff and has a strong focus and emphasis on ethical behaviour and appropriate alignment of interest in all of its dealings with investors.

Bromelton Intermodal Logistics Hub

Eureka currently manages two development funds comprising of both real estate and infrastructure assets. A key asset amongst the two portfolios is a planned Bromelton intermodal logistics hub, located in the Bromelton State Development Area, south-east Queensland.

The Bromelton State Development Area has been created by the Queensland Government to fast-track intermodal hub development and address the critical shortage of strategically located intermodal facilities in Australia's national freight network. Bromelton is ideal for industrial uses and logistics operations and is the only area available for large scale future industrial development in South East Queensland currently with access to the national standard gauge and the Queensland narrow gauge rail networks.

Please visit – www.eurekafm.com.au/funds/bromelton.pdf, for further information on the planned Bromelton intermodal logistics hub.

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