

MARITIME UNION OF AUSTRALIA (MUA)

**SUBMISSION TO INFRASTRUCTURE
AUSTRALIA AND THE NATIONAL TRANSPORT
COMMISSION**

**RESPONSE TO PROPOSED NATIONAL PORTS
STRATEGY – MAY 2010**

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Introduction

The Australian Transport Unions Federation (ATUF) made two submissions to Infrastructure Australia (IA) and the National Transport Commission (NTC) in the lead up to release of the Proposed National Ports Strategy (NPS) in May 2010.

The Maritime Union of Australia (MUA) wishes to identify in this response two key elements of those previous submissions which, regrettably in our view, are not addressed in the proposed NPS. These two issues are firstly, the lack of any serious reference to shipping and the sea side of the supply chain and its interface with ports and secondly, the labour relations issues. No strategy which purports to have efficiency and productivity as an objective can ignore the role and contribution of labour to efficiency and productivity, in our view.

The result of these omissions, in the assessment of the MUA, is that the proposed NPS is too narrow in its scope and is an opportunity missed for Australia to adopt a genuinely multi-modal supply chain approach to port and transport infrastructure reform and strategic development. We believe the NPS is considerably diminished in its utility because of these omissions. We hope that IA will address these omissions before seeking COAG sign off on the NPS.

Shipping and ports – the significance of the linkage

No policy maker would conclude that just because there is a rail spur or a freight class road entering a port precinct that the rail and road interface with the port is therefore operable, efficient, productive and capable of meeting the landside capacity requirements and standards of performance to ensure the relationship is effective now and into the future.

Policy makers and regulators alike are in a constant dialogue and processes of engagement about the road and rail interface – addressing the regulatory issues, the access issues, the pricing issues, the capacity issues, the productivity issues, the competition issues, the contractual issues, the trade facilitation issues, the externality issues etc. And rightly so.

We therefore pose this question: Why do policy makers assume that just because there is water on the seaside of the port that the sea-port interface is and will into the indefinite future operate efficiently, productively and will be capable of addressing the trade facilitation and freight supply chain objectives of the nation and can therefore continue to be ignored?

This was the state of play in Australian transport policy, planning and resource allocation for the last 14 years, but given Rudd Government policy announcements and the public policy debate on the future of Australian shipping, in both its domestic freight and international freight roles, in its role in tourism, in its role as complementing the defence and security requirements of the nation, in its emission reducing capabilities relative to other modes and its role in supporting the offshore oil and gas industry, this can surely no longer be the position.

It is our submission that a ports strategy should address the port and shipping interface because:

- The port requirements of domestic shipping, in all freight markets, differs from those of international or export shipping;
- The freight transport growth predictions for Australia, combined with the imperatives for addressing urban congestion and the limitations that poses for concomitant growth in rail and road corridors and therefore capacity, will necessitate a new role for shipping in the domestic freight task (particularly in the containerised, break bulk and agricultural markets) which will impact on ports, their configuration, their relative throughputs and location:
 - We note that 13% of port throughput in Australia is already domestic freight related, much of which is related to domestic manufacturing supply chains. The future potential role of Australian domestic shipping is succinctly argued in a recent article that appeared in the March 2010 issue of the National Economic Review entitled *Australian Coastal Shipping: Its Future Role* (attached to this submission). This article reports on research undertaken by the National Institute of Economic and Industry Research and addresses the role of coastal shipping in Australian manufacturing supply chains.
 - ❖ The research identifies a range of port related initiatives that are available to support and foster domestic shipping, all of which will need to be considered in the context of an impending Government announcement on a shipping reform package.
- There is a direct connection between port infrastructure capacity and therefore resource allocation and shipping in bulk commodity ports. If one objective of the NPS is to improve the productivity and utilisation of existing port assets, then there is an urgent imperative to provide a new architecture for international shipping which interfaces with Australian ports to ensure that ship productivity and ship asset utilisation can better match the port productivity objectives.
 - The elements of this new architecture for Australian international shipping are under consideration by the Government as part of its response to the report of the Parliamentary Inquiry into Australian shipping policy and regulation entitled *Rebuilding Australia's Coastal Shipping Industry*. The key elements of the policy package that have as their rationale the creation of opportunities to increase Australian participation in international shipping revolve around measures such as introduction of a Tonnage Tax option as an alternative to the current corporate tax obligation, tax concessions for seafarers operating in international shipping which, combined with a proposal advanced by many in the shipping industry, the creation of an international ships register, providing for modified crew employment and labour relations arrangements on vessels in the international register, would ensure that commodity and energy exporters have an alternative shipping option that would dramatically impact on their freight rates and therefore on their international competitiveness.
 - If such a package comes to fruition, no longer would those exporters be dependent on the price gouging of the international shipping market, and would be able to stabilise their freight rates and negotiate stable

- price contracts with their buyers. Shipping would be provided on terms other than FOB, such as DES and CIF, where the seller controls the shipping (as already occurs in the NWS LNG market).
- Such a policy combination would significantly support those miners/shippers such as Rio Tinto who are already ship owners (and in the case of a number of major Australian bulk commodity port users, have a substantial number of bulk carriers on order).
 - Moreover, the ability of commodity exporters to own and or operate their own ships and sell commodities on other than FOB shipping terms, giving them a considerable competitive advantage, would also improve the efficiency of Australian export ports, and reduce costly shipping queues that results in a leakage of demurrage payments directly to foreign shipowners, thereby diminishing Australian resource export profitability.
 - By controlling the shipping, exporters have the capacity to control ship utilisation and to maximise the use of these high value capital assets by deploying them in a more efficient trading pattern. This opportunity has the capacity to reduce the land side costs of port infrastructure and apply efficiencies along the whole of the export supply chain.

Labour relations – critical to port productivity and efficiency

Despite the huge capital requirements of ports, they remain relatively labour intensive, particularly when considering the supply chain elements of ports i.e. the road and rail interface, and remain classic examples of businesses where labour utilisation is critical in optimising the productivity of the capital equipment and capital assets.

In that regard, a National Ports Strategy should in our view address labour relations issues, and in particular the need to have in place robust processes that could provide better harmonisation of, and best practice, enterprise agreement provisions that will smooth the way for capital utilisation strategies and logistics processes aimed at achieving an improved interface between the transport labour force and the port labour force. The operating hours issue along the supply chain is one example.

As part of the focus on labour relations, we submit that far greater attention must be paid to workforce planning, skills and training and that this element of labour relations should have been addressed in the NPS. Workforce planning, skills and training at Australian ports is poor and is way behind international standards. Unless this issue is acknowledged and systematically addressed, the scope for improved productivity at Australian ports will be retarded. We believe it must be one of the key elements of a National Ports Strategy. The 2009/10 review of the Transport and Logistics Training Package and the establishment of industry responses to address deficiencies in training provide a foundation for creative solutions to address this serious deficiency.

Similarly, we believe that the NPS must address the safety issue associated with port planning and operations. Stevedoring and freight transport are high risk occupations as demonstrated by the number of deaths and serious injuries.

The initiatives taken by Safe Work Australia in nationalising waterfront safety guidance material for container and steel loading/discharge; the initiative by the Australian Maritime Safety Authority (AMSA) to review Marine Orders Part 32 (Cargo handling) and putting in place Memorandums of Understanding between AMSA and State/NT OHS agencies, the roll out of the MUA National Safety Code and the decision by Safe Work Australia to establish a stevedoring group to identify new stevedoring safety regulation as part of the national OHS harmonisation process are all indicative of the high importance placed on safety at ports. The union submits that the National Ports Strategy should provide a mechanism such as establishment of a National Ports Safety Consultative Council, to be funded by a levy on containers, to drive continuous improvement in port safety.

In relation to road transport, the nation's ports are serviced by the hyper-competitive road freight industry. This industry saw 287 deaths from heavy vehicle-related crashes in 2008/09 and was the subject of a National Transport Commission (NTC) inquiry that called for the implementation of a system of safe rates and conditions.

As key users of the road transport industry ports have an obligation to support the implementation of a safe rates and conditions system. The union believes that only companies who have such a system should be accredited for access to ports, and be brought under the umbrella of this system when introduced by the Federal Government.

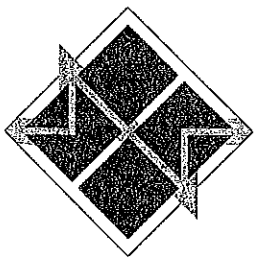
In Los Angeles the port authorities have mandated the rates paid to truck drivers to allow them to upgrade their vehicles to less polluting vehicles. This type of access regulation should be considered by the strategy.

Ports are also affected by chain of responsibility (CoR) legislation that requires consignors and receivers of freight to take responsibility for the safe shipment of goods by road. Though this legislation is flawed in the MUAs opinion, nevertheless, a national ports strategy should take this legislation into account when being formulated.

The union notes that there are strong relationships between the safety priorities of the NTC in road transport in particular and the safety priorities of the shipping industry. For example, the chain of responsibility approach being addressed in road transport contains many of the characteristics of the global Flag of Convenience (FOC) campaign in the shipping industry, where both high standard shipping employers and the maritime unions are jointly seeking to impose responsibility for maintenance of standards on the beneficial shipping owner in the complex corporate chain of shipping ownership, control and management.

We note that the NPS has addressed the use of contemporary technologies in only a cursory fashion. The union acknowledges that there are many technological solutions that will help drive improved productivity. The key issue for the ports sector is the way in which new technologies are assessed and once accepted, the way they are introduced and their impact on the labour force. Technologies that have a negative impact on the labour force can be counter productive. We submit that the National Ports Strategy provide for appropriate mechanisms to address the potential introduction of new technologies with the underlying principle that they do not undermine the Australian Government commitments to International Labour Organisation (ILO) Convention No 137 of 1973 (Dock Work Convention) and ILO Recommendation No 145 of 1973 (Dock Work Recommendation).

If port infrastructure is properly integrated with shipping requirements, both international and domestic, the opportunity for both capital and labour productivity enhancement (and therefore total factor productivity improvement) is available.



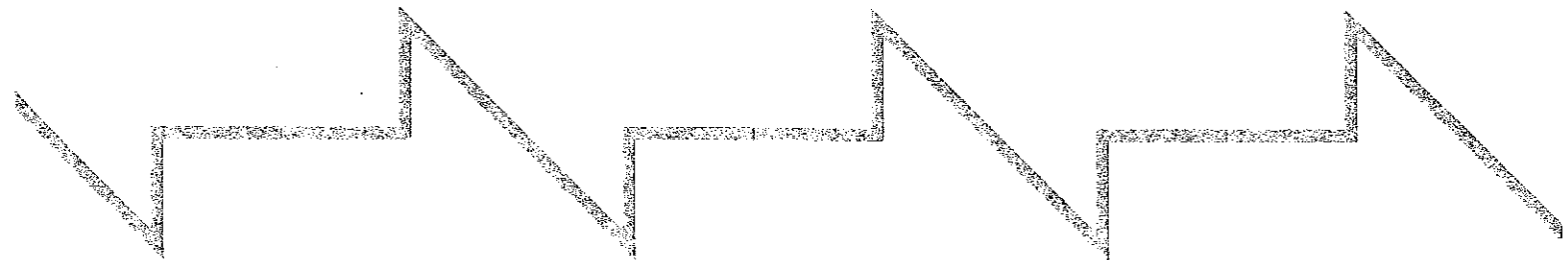
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Australian coastal shipping: Its future role

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Abstract

A report was prepared by NIEIR for the Maritime Union of Australia on the future role of Australia's coastal shipping. In the report, the opportunities for coastal shipping to compete with land transport and the opportunity to integrate bulk shipping into manufacturing supply chains are discussed. The policies affecting competition between land and sea transport, between domestic sea transport and foreign ships operating on the Australian under permit are reviewed and key policies responses are proposed.

Finally, a model is developed to measure the effect on the national economy of a proposal to increase investment in Australian shipping, using government funds essentially as a transfer of funds that would otherwise be invested in land transport infrastructure. It is found that, for selected opportunities, investment in shipping rather than land transport has potential to yield a significant dividend in terms of enhanced gross domestic product.

Introduction

Coastal shipping carries a little under one-third of Australian domestic freight, measured in tonne-kilometres. As a freight carrier, it therefore ranks with road and rail transport, each of which, similarly, is responsible for approximately one-third of the Australian freight transport task (BTRE, 2006). However, coastal shipping performs its task with commendable efficiency. Shipping as a whole, of which coastal shipping is but part, employs no more than 3 per cent of the transport workforce, incurs no more than 3 per cent of transport industry fatalities, and is responsible for approximately 2 per cent of transport-sector greenhouse gas emissions. These are but small costs for nearly one-third of the load.

The trades in which coastal shipping is engaged are commonly classified into trades for which there is no direct competition, and trades in which ships compete with land transport. The trades in which there is no direct competition comprise the island trades, particularly to and from Tasmania, plus movements of bulk commodities where shipping costs are so far below those of land transport that the commodity either goes by ship or does not go at all. In addition to current bulk cargoes, coastal shipping has important

opportunities in niche markets such as heavy lift and bulky cargoes, and in servicing offshore oil and gas. Even more important are the opportunities to integrate bulk shipping into manufacturing supply chains.

In this paper, the current role of coastal shipping is considered, followed by an examination of possible opportunities to improve the competitiveness of coastal shipping and a brief discussion on cabotage. A range of key policies responses are outlined and a model is developed to measure the effect on the national economy of a proposal to increase investment in Australian shipping.

Cost and service characteristics of road, rail, sea and air

Relative freight rates and service characteristics determine the role of the four major transport modes in the total Australian transport system. There are obvious differences between modes in route availability and in speed (although the old story about the tortoise and the hare often applies to comparisons between shipping and land transport). As well as speed, shippers value reliability. Shipments should arrive on time, and should not be pilfered or damaged. Shippers also value

frequent, on-demand service over infrequent, unpredictable service. However, they also value low freight rates. Each mode has its own combination of valuable characteristics, typical shortcomings and freight rates. Except for perishable freight that has to be delivered within time deadlines or it loses all value, combinations of freight rates and service characteristics can be converted into generalised freight rates by adding an allowance for additional stock in transit by the slower modes, and an allowance for additional stock held in precautionary warehousing for the less reliable modes. Both of these allowances depend on the unit value of the freight, which explains why high-value freight tends to be shipped using the faster modes. This said, shippers do not always bother to obtain the latest data on service times and reliability, and not all of them are aware of the considerable improvements that have taken place in the capabilities of coastal shipping over the past decade.

Transport service providers are well aware of the characteristics valued by shippers, and endeavour to create service/cost packages that will attract profitable business. Their capacity to do this is limited by shippers' willingness to pay, by the fundamental technical constraints and virtues of their mode, and by government policies. Underlying cost characteristics and government support characteristics accordingly determine the services offered by each mode. At a broad level, the costs incurred in moving freight by each of the four modes of transport – sea, road, rail and air – comprise equipment-related, safety-related, infrastructure and environmental costs.

In general, outside the cities, capacity utilisation is low for both railways and roads, which means that marginal cost is less than average (i.e. more traffic could be handled without having to amplify the road or railway). This characteristic has been used to justify less than full cost recovery, which in turn means that neither road nor rail transport is fully commercial. Neither fully covers infrastructure costs.

Where there is less than full cost recovery, a service can only be kept going if part of its expenses are borne by third parties: in the case of road and rail, by governments. Because governments pay for them, they make the major road and rail line-haul infrastructure investment decisions. Cost recovery for line-haul infrastructure is not modally neutral, and neither are investment decisions. This has consequences not only for the modes depending on line-haul infrastructure, but for their competitors, particularly coastal shipping.

To a lesser degree, the costing of intermodal infrastructure is also contentious, particularly as regards the treatment of land costs. This again might affect competitive balance.

Economies of scale in operating equipment

Reflecting the importance of intermodal costs relative to the costs of movement, costs per tonne-kilometre decline with distance for sea and air transport. This is so for sea transport even when the source and destination of the traffic is on the wharf: the harbour facilities still have to be paid for. In the air case, the effect is magnified by the fuel costs incurred in take-off.

Rail exhibits moderate economies of distance, and road relatively low economies. Road transport therefore tends to be most competitive over short distances.

Because ship operating costs rise only gently with vessel size and hardly at all with vessel loading, sea transport per tonne-kilometre falls in cost as vessel size increases. At the other extreme, road and air transport are limited to small payloads. These differences have an important indirect effect. For any given traffic flow, services by the high-capacity modes will be less frequent than those by the low-capacity modes. Greater frequency of service gives air and trucks an advantage over sea transport, an advantage that has strengthened with the popularity of 'just in time' logistics. This, in turn, is affected by the costs of warehousing and working capital: the lower these costs, the better the competitive position of shipping.

Consider a freight flow of 750 TEU/day. Carried on B-doubles this equates to a departure every 6 minutes; carried on ships there is more likely to be a departure every 2 days. Double the flow and there are likely to be daily shipping departures, a considerable improvement. By contrast, a road departure every 3 minutes provides much the same frequent service as a departure every 6 minutes. For shipping, this is an example of the Mohring effect, where an increase in patronage brings improvements in the quality of service and, hence, benefits for existing shippers.

On the Australian coast, where trade volumes are quite low compared to the European or American coasts, the challenge to shipping is to capture sufficient volume of trade to justify reasonably frequent service.

Comparison of freight modes

The characteristics of the freight modes are summarised in Table 1.

Our expectations on patterns of cost are set out in Table 2. The table is designed to be read across, and relates to costs incurred at the least-cost payloads specified in Table 1, and for distances of 1,000 kilometres or more. Given these assumptions, we expect sea to be a low-cost mode, but not over short distances for small payloads involving modal transfer.

This comparison has major implications for the competitive position of coastal shipping. Briefly,

shipping is able to offer competitive service/cost packages where:

- freight origins and destinations are right on the wharf (e.g. the Adelaide Brighton limestone shipments) or, where this ideal condition is not met, intermodal costs are low; and
- flows are of the order of several thousand tonnes a day or, for more moderate flows, frequency of service is not important, so that the flow can be interrupted while loading builds up to shiploads.

This last attribute is characteristic of bulk commodities of low value per tonne, because stockholding costs for such commodities are relatively low.

	Sea	Rail	Road	Air
Least-cost payload (TEU)	1,500+	200+	3	2
Economies of distance	High	Moderate	Low	Very high
Route availability	Sea only, port to port	Land only, restricted routes	Land only, go anywhere	Go anywhere, port to port
Speed (km/h)	25	80	90	800
Scheduling restrictions	Port slots	Timetable paths	Nil, subject to congestion	Airport slots

Source: Summary of NIEIR views.

Cost area (per tonne-km)	Sea	Rail	Road	Air
Operating labour	Low	Moderate	High	High
Fuel	Low	Moderate	High	Very high
Equipment	Moderate	Moderate	High	Very high
Safeworking	Low	High	Low	Moderate
Crash/wreck/insurance	Low	Low	High	Low
Line-haul infrastructure	Nil	High	High	Nil
Intermodal	High	Moderate	Low	High
Pollution/noise	Low	Moderate	High	Moderate
Overall	Low	Moderate	High	Very high

Note: Expectations refer to costs incurred for least-cost payloads and distances.

Source: Summary of NIEIR views.

At the opposite extreme, road transport has two major advantages:

- on land, it can go virtually from anywhere to anywhere; and
- it can provide frequent and generally reliable service.

The major disadvantage of trucking vis-à-vis coastal shipping is the converse of its advantages. Due mainly to the relatively small operating units, trucking costs per tonne-kilometre tend to be high, relative to coastal shipping, for large traffic flows and over long distances. Given that the advantage of shipping is primarily a cost advantage, it is important that costs should be reflected in freight rates, so that shippers pay fully for the convenience of road transport, and can benefit fully from the lower costs of sea transport.

Rail transport occupies an intermediate position between road and sea: a trainload is much more than a truckload but generally a good deal smaller than a shipload. Where a rail line exists in competition with coastal shipping, loads are likely to transfer between shipping and the rail line, rather than between shipping and road transport over the same route. Only where there is no railway, as between Fremantle and north-west Western Australia, is there likely to be direct competition between coastal shipping and road transport. However, as a result of technical change and major government investment in roads, road is now the dominant land transport mode, and cannot be written off as a competitor for coastal shipping. Indeed, as the Productivity Commission has found in respect of Australia and Booz Allen Hamilton in respect of New Zealand, the main determinant of rail freight rates is road freight rates. So long as they can cover train operating costs, rail administrations tend to set their freight rates to maintain or increase market share vis-à-vis road. This being the case, any shortcoming in road transport pricing will affect the terms of competition between rail and sea.

Opportunity for growth/competition

Australian coastal shipping has three main competitors:

- land transport is a potential competitor to coastal shipping for all bar the island trades;

- indirect competition occurs when supply chains that use international shipping to connect a mixture of Australian and overseas production sites compete with supply chains that use coastal shipping to connect Australian production sites; and
- foreign shipping admitted to the Australian coast under permit.

Land transport competition

The main trade in which coastal shipping competes directly with land transport is containerised general cargo. The competitiveness of sea with land transport is affected by several factors:

- Shipping costs per container carried fall rapidly with size of vessel. This means that shipping is most competitive for large freight flows. The corresponding handicap is that, for any given trade flow, services are relatively infrequent.
- Provided the containers are carried on a fully-loaded vessel of reasonable size, sea transport costs per tonne-kilometre are well below competing modes. This applies to labour costs, energy costs, capital costs, safety costs and environmental costs. However, shipping is slower than competing land transport, translating into additional stockholding costs. Except for very high value cargoes, these additional costs do not negate the other cost advantages.
- The major cost handicap of coastal shipping lies in intermodal transfer (port) costs, which are a high proportion of total costs for Australian coastal voyages. Because of these high terminal costs, shipping is most highly competitive with land transport for long journeys.
- An important advantage of coastal shipping is that, like the airways, it incurs no capital or maintenance costs for line-haul infrastructure. In this it contrasts strongly with roads and railways. Its competitive advantage over these modes is compromised when line-haul infrastructure competitive with sea routes is subsidised.

Line-haul infrastructure and intermodal competition

Investment in roads and railways has affected the competitive position of coastal shipping in two main ways:

- It has reduced land transit times. In the mid-nineteenth century sea transit times were less than land on all significant Australian routes; they are now longer.
- Land transport costs per tonne-kilometre, which were once way above sea (Melbourne to Bendigo cost more than London to Melbourne) have been brought down, reducing the gap between land and sea freight rates.

Because shipping has no line-haul infrastructure, there have not been any opportunities to improve shipping services by similar investments. This is not to deny that shipping has improved: vessels have become faster, and costs have been reduced so that shipping still turns in the lowest costs per tonne-kilometre, the problem being that these costs are not always low enough to offset port costs.

It is often claimed that technological change has favoured trucking (e.g. BTRE, 2006). However, much of the evolution towards longer trucks with heavier axle loads has reflected regulatory change, which in turn has been made possible by investments in better roads.

A further change, noticeable in the past two decades, has been the effect of high real interest rates coupled with high land costs. This has encouraged the streamlining of production, with an emphasis on stock reductions. 'Just in time' supply chains trade the greater costs of frequent transport of small loads against the cost savings of lower inventories. Given the cost structure of shipping, this has reduced the competitiveness of shipping (and also of rail, vis-à-vis road).

Because of these factors, the competitive position of shipping has gradually declined. Land transport has been able to offer faster and more frequent service and falling freight rates on routes competing with shipping. However, it is possible for shipping to fight back. Its competitive position will improve the better the service offered by the ports, the lower the port costs, the better the service offered by complementary land transport,

and the more costs rise for competing land transport: the most likely driver being rising fuel prices (whether due to 'peak oil' or carbon emissions).

Arguments underlying the debate on road and rail infrastructure pricing

Sea transport requires no line-haul infrastructure, whereas land transport cannot do without it. Sea transport is accordingly placed at an artificial competitive disadvantage if land freight rates do not recover line-haul infrastructure costs. In this section we will assume that land transport capital costs are under-recovered. Despite under-recovery being a departure from competitive neutrality, in this paper we do not argue that there should be full recovery of transport infrastructure costs. Rather, we argue that the under-recovery of land line-haul infrastructure costs competitive with coastal shipping should be taken into account when investing in line-haul infrastructure, and be compensated by equivalent under-recovery of shipping costs.

There are three major arguments for under-recovery of transport infrastructure costs.

- A long-standing argument is based on marginal costs. The premise of the argument is that the capital costs of infrastructure are sunk. Up to the point where capacity has to be augmented, additional users do not add to capital costs, so why not encourage them to use the infrastructure by changing no more than the marginal costs they occasion? This would result in their being charged the additional maintenance and other costs directly traceable to their use of the infrastructure, but no more. The aim is to build up traffic and increase capacity utilisation, spreading the benefits of the sunk capital investment over as wide a range of users as possible.
- A second argument is that low transport costs contribute to economic development. The classic case was that of the nineteenth century Australian railways and ports. The colonial governments adopted a policy of fees and freight rates that covered operating costs but under-recovered infrastructure capital costs. For this they were more than fully compensated by the increased tax yields from the resulting economic growth. There are those who think that the mature state of Australia's transport

infrastructure means that this argument no longer applies, but work by NIEIR on the returns to transport infrastructure investment indicates that subsidisation of transport infrastructure still yields growth dividends (see, in particular, the study for the Australian Council for Infrastructure Development and Association of Australian Ports and Marine Authorities, 2002).

- Finally, there is the practical argument that under-recovery of land transport infrastructure costs is so deeply embedded in the Australian economy that a shift to full cost recovery would be extremely disruptive.

A policy of under-recovery of costs, however justifiable, gives rise to two problems.

- There is a financial problem, because revenue from user charges falls short of costs. This means that the infrastructure cannot be financed on ordinary business principles. It requires tax finance.
- There is an investment allocation problem, because the usual investment criterion of potential profitability does not apply. It is all too easy for investment to be carried out at political whim, or according to hoary rules of thumb (e.g. a sealed road to every farmer's gate). However, cost-benefit analysis provides a tool that, at least in principle, extends market rationality to investments where costs are not to be recovered in full from user charges.

Serious problems of economic efficiency can also arise when the policy of under-recovery of costs is not applied evenly across competing transport modes. For example, consider a transport service for which costs are under-recovered (call it land transport) that competes with a service with no line-haul infrastructure costs (call it sea transport). The economic inefficiency arises in two ways.

- Under-recovery reduces land-transport freight rates vis-à-vis sea, thus diverting trade. Land transport will accordingly end up with a greater share of the traffic than it would under full cost recovery, and total transport costs will be higher. To avoid this effect, the subsidising government must either restrict the capacity of subsidised land transport, or extend countervailing subsidies to sea.

- More seriously, under-recovery of costs can be associated with overinvestment in land transport, or with underinvestment in sea. Shippers choose modes taking into account speed and reliability in addition to freight rates, and investment programs are the main determinant of the speed/reliability comparison. Include Mohring effects, and the subsidised mode is likely to be gaining in modal share. This can be used as an argument for further investment, even when total costs would be reduced by rebalancing investment towards the unsubsidised mode.

Transport infrastructure is unusual in that, as a consequence of the lack of cost-recovering user charges, nearly all investment is in the public (or quasi-public) sector. Governments decide how much is to be invested in what. Until recently, Australian transport investment policies were primarily unimodal, with budgets being allocated to road, rail, air and sea transport. As a result of the investments made, the speed and reliability of road transport has been substantially improved and it has gained trade at the expense of rail and coastal shipping, although without any cost-benefit analysis as to whether the shift has made economic sense. The Commonwealth transport investment budget has been concentrated on roads: a typical year would be 1988–1989, in which over 95 per cent of Commonwealth expenditure on transport infrastructure (capital and maintenance) went to roads (and less than 1 per cent to ports and shipping). This, of course, is not the whole story – the states have also invested – but there is a prima facie case that road investment has pushed ahead without any consideration of its effect on land-sea competition. In fairness, we should add that AusLink now provides for joint appraisal of land transport investments on the major inter-capital routes, although the appraisal has yet to be formally extended to the sea alternative.

At this point we should allow for two complicating factors.

- Although sea transport does not require line-haul infrastructure, it depends heavily on port infrastructure. Application to ports of similar cost under-recovery and investment policies as those applied to land transport would go a long way towards equalising the position of land and sea transport.
- Sea transport competes with land transport only on the long hauls between ports. It relies on

land transport for pick-up and delivery to and from the wharves. In assessing the effects of cost-recovery policies the relevant question is, therefore, whether under-recovery of costs (and related infrastructure investment) is diverting traffic from sea to land on the long hauls where competition occurs. Under-recovery on non-competing routes will have no serious efficiency effects.

A crucial premise of the argument thus far is that land transport infrastructure capital costs are under-recovered on routes competitive with coastal shipping, and that, as a result of this under-recovery and/or overinvestment in competing infrastructure, the competitive position of coastal shipping has been undermined.

Integration of manufacturing supply

Several shipping operations are integrated into Australian supply chains, among them the coastal bauxite, crude oil, petroleum product and iron ore trades. In all of these trades, an Australian manufacturing industry is involved, either receiving Australian raw materials or distributing to Australian customers. Several of the established bulk coastal trades, notably petroleum and iron/steel are subject to strong competition from supply chains involving overseas manufacture. The fortunes of coastal shipping that is tied into such supply chains thus depends strongly on continued Australian production in manufacturing industries involving bulk inputs and/or bulk outputs.

In a report for the Australian Manufacturing Workers Union (AMWU), NIEIR concludes that (see NIEIR for the AMWU, 2006):

- Australian manufacturing has been declining at a rate of 0.3 per cent a year;
- the share of manufacturing in GDP declined from nearly 20 per cent in 1979–1980 to just over 12 per cent in 2004–2005;
- the decline was spread over virtually all manufacturing industries;
- the export share of production of Australian manufacturing is among the lowest in the OECD;

- the ratio of R&D to value added in Australian manufacturing is low by OECD standards; and
- the ratio of investment to value added is likewise low by OECD standards.

With its chief customer in the doldrums, it is no wonder that coastal shipping has failed to thrive.

Policy for manufacturing industry

The proponents of Australian competition policy have argued that decline in manufacturing releases resources for more productive uses. Resources have indeed been released, but it is questionable whether the consumer services and executive rewards they have gone into are really more productive: NIEIR believes that they are more likely a bubble. The proponents also argue that it is fine for Australia to lose inefficient manufacturing industries, because the remaining manufacturers will be the more efficient ones. The problem is that knocking bits out of manufacturing supply chains tends to raise, not lower, costs for those bits that remain. Decline in manufacturing leads to a downward spiral, rather than to the emergence of a leaner and more efficient manufacturing sector.

Conversely, growth in manufacturing tends to beget further growth. Manufacturing is subject to very considerable economies of scale and scope, which means that Australian manufacturing can only prosper by integration into world supply chains serving world markets. This implies considerable specialisation, but also implies a richness of supply in the specialised sectors. The kick-starting of manufacturing expansion at the individual producer level is generally difficult, but once initial success is achieved, self-sustaining growth can be initiated as new suppliers join the cluster of achieving firms. This helps to explain why industry assistance measures can generate large long-term benefits.

In its report for the AMWU, NIEIR concludes that a strategic approach to manufacturing assistance policy is essential.

Manufacturing industry assistance policy is only successful if it assists in creating sustainable and competitive industry. To do this, the core policy objective must be to sustain product and process innovation across manufacturing industries. In addition, it is necessary to promote scale, industry clustering, connectivity to world markets and skills

availability, the latter linked to positive expectations of a future for Australian manufacturing. Without these conditions, innovation potential will not translate into commercialisation that lifts output and productivity. This means that any effective assistance package for manufacturing must contain a range of instruments that can be combined to ensure success for promising firms, industries and supply chains.

The recommended policy package includes measures designed to alleviate obstacles that hinder Australian manufacturers from reaching their full potential. It includes an investment allowance, assistance for R&D, increased export market development grants, assistance for technology transfer, incentives for foreign investment in small and medium sized manufacturing businesses and strategies to attract and train highly skilled labour. All of this has to be targeted at firms, industries and supply chains with proven prospects of success. As a result of the land boom, Australia currently has a bloated financial sector, and it should be possible to use the resources of this sector to ensure that funds (including tax expenditures) are distributed for maximum effect.

Role of coastal shipping in the revival of manufacturing

In such a program of recovery, what are the opportunities for coastal shipping? The changes that a burgeoning manufacturing sector would bring to Australia are so considerable that the opportunities are difficult to imagine, but the key will probably lie in the importance of economies of scale, particularly at the plant level.

Shipping that is part of an Australian manufacturing supply chain should be eligible for a package of measures targeted to develop manufacturing, including investment allowances, assistance for R&D, assistance for technology transfer and assistance for the development of labour skills. The primary purpose of these measures would be to reverse the current decline of the manufacturing sector, the process generating shipping opportunities, particularly in manufacturing based on agricultural and forest raw materials and minerals. At the very least, shipping needs to be considered as a potential transport mode in all industry planning. Judging by the existing trades, there should be opportunities as follows.

- Bulk transport of mineral raw materials for processing at centralised locations. An example

could be the expansion of one or two of Australia's existing sea-accessible smelters to process materials drawn from a wider range of locations.

- Bulk transport of agricultural raw materials for processing at centralised locations. Australia's current system of port-focussed railways could be used to bring materials to the ports for shipment to one or two world-scale processing facilities, located strategically on tidewater. This could apply to traditional products, like flour, but also to new products, such as biofuels. Unlike the smelters, these would have to be new investments.
- Bulk transport of forest raw materials. Because Australia's forests are located close to the coast, it might be possible to load at various currently underutilised ports. The forest industries currently rely largely on road transport, but because forest products are heavy it might be more cost effective to invest in rail transport complementary to sea. As with agricultural processing, Australia could support only a very few world-scale plants, which would again have to be new investments located on tidewater.
- With world-scale plants, particularly in minerals processing, there would be scope for sea transport to major distribution centres elsewhere in the country. However, much of the product would be exported, and the potential flows should not be overestimated. If the products are specialised, there may be considerable potential for coastal container transport to an Australian container hub, should such a port develop.

Specific requirements to service these opportunities would include the following.

Plant sites

Sites are required for the large-scale processing plants. Not many sites would be required, and in some cases, particularly in minerals processing area, existing sites can be further developed provided there is room. In all cases, the requirements include:

- a port accessible to world-scale shipping;
- tidewater sites accessible to coastal shipping, and preferably to world-scale shipping (or, at a minimum, low-cost transfer facilities from the

plant site to the international shipping, possibly provided by in-harbour shipping); and

- a local workforce with all the skills required to operate and manage such a plant, including taking full advantage of the opportunities for process and product innovation.

It is envisaged that the pro-manufacturing policies listed above will provide opportunities to finance industry developments of this kind.

Outports

Ports for originating materials are as important a part of the supply chain as the ports serving the major processing facilities. There is likely to be a need to invest in these ports, and in their inland connections.

Investment in outports is not strictly investment in manufacturing industry, but it is proposed that such investment should be eligible for assistance under the same terms as other parts of the manufacturing supply chain.

Vessels

Each trade is likely to require specialised vessels. However, in putting together supply chains a fundamental fact is that it costs approximately the same to propel an empty vessel as a full one. It is important, therefore, that vessels should be adaptable to more than one bulk trade, and that bulk trades be arranged, as far as possible, for balanced loading. This will take a great deal of careful inter-industry planning. Currently, back loading is left to the market. This is very costly because it takes time for industry to respond to flow imbalances and to relocate plants to take advantage of back loading rates.

Doubly-specialised vessels suitable for these trades will be a substantial investment need. It is proposed that this investment should be encouraged by similar means to the means proposed to encourage investment in agricultural and manufacturing generally, essentially by an investment allowance, which need not be specifically for shipping. Instead, investment in ships would be put on a par with investment in other crucial links in agricultural and manufacturing supply chains (see NIEIR for the AMWU, 2006).

Cost control

We come finally to operating costs. The relevant costs are the total through the supply chain, recognising that costs on each link of the chain depend on costs elsewhere: hence the need for total planning. Operating costs are also very much inbuilt into the equipment purchased.

Looking ahead

Coastal bulk shipping is integrated into the supply chains of Australian manufacturing industries. With technical change constantly taking place, and with free trade opportunities constantly changing world trading patterns, it is inevitable that particular plants, firms and industries will decline. This has occurred in Australia, the reason for concern being that firm, plant and industry closures have not been balanced by new capacity in growing industries. This failure can be traced to unhelpful and short-sighted Commonwealth policies. The failure to invest in new manufacturing industry is expected to limit Australia's ability to maintain incomes and employment. The parlous state of Australian manufacturing has fed through to coastal shipping.

Policies to revive manufacturing will involve government expenditure as well as reduced reliance on debt-financed consumption to maintain aggregate demand. These policies should be extended to coastal shipping, where shipping is an integral part of a promising new supply chain. For competitive neutrality, these manufacturing support policies should also be extended to other specialised transport that is integrated into manufacturing supply chains. However, they should not be extended to manufacturers' use of transport equipment and infrastructure that is shared with other users, or that is readily transferable to other users. For this, we require the incorporation of coastal shipping into general freight transport policy.

Opportunities for competition

Balancing these factors, container shipping is strongly competitive with land transport on the long haul between the east and west coasts of Australia. On the thousand-kilometre runs between the east coast capitals shipping is not currently competitive, but any one of the following events could easily precipitate a change.

- If international liner ships ceased calling at all Australian ports, but instead selected one or two ports, coastal shipping would be in a position to gain some of the resulting local trade, particularly if low-cost transfer between liner and coastal vessels could be arranged. The resulting increase in service frequency would then improve its competitiveness overall.
- The competitive position of coastal shipping would be improved if the ports reviewed their charging practices, removing monopoly elements and shifting elements of cost recovery from coastal shipping (which operates in a highly competitive market) to international shipping.
- The competitive position of coastal shipping would likewise be improved if cost recovery for competing land transport were increased. Although rail is most directly competitive on the east-west run, its freight rates are set to compete with the market leader, road transport. The Productivity Commission recently found that B-doubles are subsidised, these being the vehicles most likely to compete with rail and shipping. There is plentiful scope for increased cost recovery from road vehicles engaged in interstate trade, not only from B-doubles but from long-distance trucking in general. Increased cost recovery from trucks would then permit increased recovery from rail and improve the competitive position of shipping. However, the report does not advocate a move to full cost recovery for land transport infrastructure; rather, it advocates investment in shipping to level the playing field.
- Finally, any increase in fuel prices, whether due to 'peak oil' or to greenhouse concerns, would advantage shipping (and rail) over road transport.

An obvious source of lower costs is lower wage rates for foreign crews. These are especially salient when the vessels are old and labour-intensive. However, crew costs account for less than 10 per cent of freight rates for Australian vessels, so that resort to low-paid crews produces no more than a marginal cut in freight rates. This apparent saving has two major disadvantages for Australia.

- Experience at sea is essential for the development of ship-related skills. If Australia

fails to keep sufficient seafarers at sea, it faces difficulty staffing the port industries of pilotage, towage, bunkering, insurance and marine law and regulation, thereby increasing costs in all maritime trade, including overseas trade.

- In most countries, particularly the United States, employment of nationals is considered important for security reasons: both the supply of personnel (and shipping) to assist the navy in times of engagement, and the prevention of incidents involving dangerous cargoes.

Cabotage

Cabotage has long been a feature of Australian maritime policy, and indeed of the policy of the majority of maritime nations. The main arguments for it relate to security concerns: both economic and military security. The main argument against cabotage is that protected industries grow slack. However, this is a specious argument, given the intensity of competition provided by land transport. Again, the very considerable economies of scale in shipping mean that Australia has to build critical mass, or leave the industry. Such an exit would be very costly in terms of dependence on foreigners: not to speak of difficulties in staffing the ports Australia will still require if it is to engage in importing and exporting.

Along with the United States and the countries of Europe, Australia has cabotage legislation reserving coastal shipping for Australian vessels. This legislation provides that foreign vessels may carry domestic cargo if no suitable Australian vessel is available, and a permit is issued. Over the past 10 years, the conditions for permit issue have been relaxed, mainly on competition policy grounds. As a result, approximately one-third of coastal freight (by tonne-kilometres) is now carried under permit on foreign vessels (some of them rebadged Australian vessels). The ostensible benefit is lower costs.

An important source of lower costs includes regulations and tax treatments that favour foreign vessels. In particular, the Australian Government has failed to create a tax environment competitive with that of other maritime nations, thus raising costs for Australian-registered vessels. Short-term costs for Australian shipping are also increased by high safety requirements, which are not yet fully compensated by savings on insurance. This insistence on a high standard of safety should be taken into account in

assessing the full cost of Australian ships. Although wrecks and other maritime incidents are much rarer, per tonne-kilometre, than truck crashes, they can be devastating when they occur. Australia has so far been lucky in its experience with overseas-registered vessels (particularly flag of convenience vessels which tend to have the lowest safety standards), but good fortune cannot be guaranteed to continue. One incident could easily absorb all the cost savings that accrue from using relatively unsafe vessels.

Policy responses

The key policy responses advocated in the report include the following.

- Better integration of transport, including shipping, into bulk manufacturing and commodity processing supply chains. Bulk transport so integrated should be eligible for support on the same conditions as the manufacturing operations to which it relates. This would include not only shipping but ports, road and rail.
- Provision of capital relief for shipping investment, so that the Australian register again becomes tax-competitive. The capital relief could include registration reform, accelerated depreciation (as was successful in the past), a switch to a tonnage tax (as is fast becoming world maritime standard practice) and measures to reduce the risks of shipping investment: integration into manufacturing supply chains, retention of cabotage and level playing field policies being important elements.
- The artificial cost disadvantages of shipping relative to land transport should be addressed by increasing cost recovery for land transport line-haul infrastructure (particularly road) and by reducing port costs loaded onto coastal shipping.
- Cabotage has in the past been conditional on the coastal shipping industry giving good service. The industry has met past targets for productivity improvement, and can do so again if its risk environment is managed so that investment is justifiable. Being made cost effective through productivity improvements, cabotage will then yield spin-off benefits, including improved security, improved backup

for the navy, reduced environmental cost and a supply of skilled personnel to the maritime industries generally.

An important part of Australian coastal shipping is ancillary to manufacturing industry. As a result of neglect by the Commonwealth Government, both manufacturing and coastal shipping are in decline. It is urgent that these trends be reversed, and it would be highly productive if policy on manufacturing were extended to cover complete supply chains, including specialised transport links.

We have also noted that overseas vessels operating under permit on the Australian coast are often able to undercut freight rates quoted by Australian vessels due to tax advantages in their countries of registration and/or ownership, not to speak of tax concessions offered by Australia such as access to tax-free bunkers. Where the tax considerations are Australian, the advantage accruing to permit vessels should be removed pronto, either by applying the taxes to them or by relieving local vessels of the tax. Where the taxes are those imposed or remitted by overseas governments, Australia has three options:

- it can match the tax position of overseas vessels;
- it can work with overseas countries to reduce tax avoidance, if that is the problem; and
- it can regulate the competition from overseas shipping lines deemed to receive tax advantages.

Australia could, and should, match some of the investment incentives provided by overseas governments to their shipping industries by, for example, switching to the international norm of a tonnage tax or reactivating accelerated depreciation for investment in shipping. For shipping closely integrated into manufacturing supply chains, capital grants might also be made available on the same terms and conditions advocated for manufacturing industries in the report for the Australian Metal Workers Union (AMWU).

The case for support for capital costs is underpinned by the argument for countervailing assistance to coastal shipping to compensate for the under-recovery of land transport line-haul capital costs. This compensation could also take the form of reductions in port costs. Given that the land modes receive assistance with line-haul capital, an obvious counterpart for coastal shipping would be under-recovery of port capital costs.

This need not affect port finances, because it would be an application of the Ramsay pricing that is endemic in the transport industries.

Given that transport modes compete more on quality of service than price, and that quality of service depends on capital investment, the most important consideration is to take under-recovery of capital costs into account when assessing major transport investments. In the following section, we subject a proposal for investment in shipping to a simple cost-benefit test appropriate for such proposals, and find that it passes with considerable leeway.

An excessively high and/or fluctuating exchange rate has hindered investment in Australian shipping (and, likewise, in Australian trade-exposed industry generally). In the absence of management of the exchange rate to levels that will bring about a sustainable balance of payments, industry policies are required as a second-best approach. They might also be first-best in cases where the market ignores or for other institutional reasons fails to invest in infrastructure and related services. Many of the required industry policies involving shipping will be parts of total management of one or other supply chain, or else reflect transport investment strategies.

Overseas-based shipping can also gain cost advantages by skimping on safety. This calls for strict enforcement of Australian environmental and safety standards, and for ensuring that overseas ships are fully insured at rates that reflect the threat that they pose to the Australian environment.

There can be no Australian shipping without skilled seafarers, and people will not be forthcoming to gain the required skills if the industry is considered to have no prospects. To persuade people to invest in maritime skills, it is important for governments to maintain confidence in the industry. The above measures for ensuring its competitiveness will contribute considerably to this confidence.

Economic evaluation of an expansion in coastal shipping capacity

The objective of this section is to evaluate the economics and the economy-wide impacts of an expansion of coastal shipping capacity. The scenario envisages the introduction of a weekly general freight service between the east coast and Fremantle. Other scenarios could be built around an increase in bulk or

containerised manufacturing inputs, but are harder to specify because it would be necessary to deal with the manufacturing elements in addition to the shipping component.

In the envisaged scenario, the ships have 1,700 TEU capacity. Each week a service would leave Fremantle calling in at Adelaide, Melbourne, Sydney and Brisbane, so providing a weekly return service to Fremantle. The ships should be able to operate at 75 per cent capacity. The service would be commercial operation, although there may be some form of government support to compensate for the high risk inherent in the initial investment in ships.

In terms of direct transport capital costs, the three ships are assumed to displace 111 trucks and three train sets with half the expansion coming from displacement of foreign ships operating under permits. From Table 3, the net result is a 1.2 million tonne per annum expansion in domestic shipping general cargo loaded. It is assumed that the approximately 0.4 million tonnes of non-general cargo is loaded in containers to provide backload from the west.

Table 3 Expansion of coastal shipping: Freight impact

		East coast-west coast
Total tonnes		
Total	Million tonnes	1.2
Road	Million tonnes	-0.2
Rail	Million tonnes	-0.4
Foreign ships	Million tonnes	-0.6
Domestic ships	Million tonnes	1.2
Capital cost		
Total		62
Ships	\$ million	162
Trucks	\$ million	-40
Rail	\$ million	-60

Note: Dollars at constant 2006 values.

In view of its already weak performance in the east-west trade, the road freight industry will only be expected to lose 0.2 million tonnes under this strategy.

Coastal shipping expansion: Direct economic impacts

Table 4 reveals the total direct cost impact. The cost savings in road transport will be \$41.8 million, while the cost increases for domestic shipping will be \$55.6 million. Because of the savings in rail cost, the net reduction in overall freight costs will be \$23 million. The savings in line-haul infrastructure maintenance and capital costs will be \$78.7 million. The positive element for foreign shipping reflects the lower average costs of foreign ships displaced.

Coastal shipping expansion: Macroeconomic impacts

Two effects must be evaluated, namely:

- the transport cost saving impact; and
- the infrastructure cost saving impact.

To do this the same model was used as that which evaluated the industry policy package in 'The State of Australian Manufacturing: 2006' AMWU study.

The transport cost saving macroeconomic impact is given in Table 5. Because of long lags in industry adjustments to lower freight costs, the first year impact on national GDP is small at \$3 million. However, because of the cumulative causation mechanism outlined in the AMWU study, the effect builds up over time so that, by year 30, national GDP increases by \$81 million over the GDP level that otherwise would have prevailed in year 30, or by \$424 million in cumulative terms using an 8 per cent discount rate.

Governments can use the line-haul infrastructure capital cost savings in two ways. One polar extreme would be to use the annual cost savings to reduce income taxes. This would have a limited impact on the economy. The other polar extreme would be to use the cost savings to fund an industry policy program as outlined in the AMWU study. This would have a small impact on the economy in the short run, but a large long-run impact.

Table 4 Expansion of coastal shipping: direct cost impact (2006 \$m)

	Road	Rail	Sea	Foreign ships	Total
Direct customer freight costs	-41.8	-39.2	55.6	2.2	-23.2
Line-haul infrastructure maintenance costs	-7.6	-4.7	1.6	0.0	-10.7
Line-haul infrastructure capital costs	-56.6	-11.4	0.0	0.0	-68.0
Total	-106.0	-55.3	57.2	2.2	-101.9

Table 5 Expansion of coastal shipping: Transport cost saving macroeconomic impact (2006 \$m)

	Year				Cumulative discounted to year 30 (8% discount rate)
	1	10	20	30	
Household consumption	1	20	39	48	240
Government consumption	0	7	13	16	80
Equipment investment	1	6	9	11	67
Construction investment	1	6	8	10	63
Exports of goods and services	0	5	8	10	56
Imports of goods and services	1	12	21	26	137
Gross domestic product	3	37	65	81	424

Model: Summary

In this section we have considered an example of enhanced investment in coastal shipping. It is not the only possible example. Other examples would include investment complementary to particular supply chains and investment to improve the competitiveness of coastal shipping on the east coast. However, it has the advantage of being fairly simple to specify, in that it is not necessary to describe how the investment is integrated into industry policy, and shipping is already marginally competitive for general freight.

The point of the example is to show that, in this case, investment in shipping passes the cost-benefit test with flying colours. By reducing freight rates it benefits shippers with lower costs, and by reducing capital costs it generates funds which governments can spend to better effect than by amplifying land transport capacity. An investment of \$62 million in ships is expected to yield a discounted GDP return, over 30 years, of \$2,800 million, provided the infrastructure investment savings are wisely spent. We do not argue that this is a precise rate of return – many assumptions are involved – but it indicates that selective investment in coastal shipping is likely to be in the national interest.

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