Reforming Port Botany’s links with inland transport

Review of the Interface between the Land Transport Industries and the Stevedores at Port Botany

Other Industries—Draft Report
October 2007
Reforming Port Botany’s links with inland transport

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Other Industries — Draft Report
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Invitation for submissions

The Tribunal invites written comment on this document and encourages all interested parties to provide submissions addressing the matters discussed.

**Submissions are due by 26 November 2007.**

We would prefer to receive them by email <ipart@ipart.nsw.gov.au>.

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Review of the Interface between the Land Transport Industries and the Stevedores at Port Botany
Independent Pricing and Regulatory Tribunal
PO Box Q290
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1 Introduction and executive summary

Port Botany is the largest container port in NSW and plays a critical role in the state’s economy. It handles 95 per cent of the state’s container trade, and generates $1.5 billion in business activity each year. To cope with the forecast growth in container trade over the next 20 years, the NSW Government has approved plans to expand the port. However, to ensure that this investment delivers the intended benefits to the economy, all aspects of the port’s operations must be conducted as efficiently as possible.

Some stakeholders have expressed concerns about the landside operations at Port Botany. They have claimed that there are inefficiencies in the flow of containers into and out of the stevedores’ premises at the port, which are resulting in congestion, particularly for road transporters.

To help it form an effective response to these concerns and ensure Port Botany is as efficient as it can be, the NSW Government asked the Independent Pricing and Regulatory Tribunal of NSW (IPART) to review the interface between the stevedores and the land transporters and recommend options for improving its efficiency. The Terms of Reference for the review require IPART to examine the stevedores’ Vehicle Booking Systems (VBS), the rail access arrangements, and the provision of any other services to industry by or in connection with the stevedores’ businesses.

In conducting the review, IPART is to consider a wide range of matters including:
- the fees and penalties stevedores charge in relation to their services, and whether these are efficient and fair
- the costs of these services
- how relative road and rail charges and reliability affect the choice of transport mode for containers
- whether institutional changes can be made to improve the efficiency of the landside supply chain. (See Appendix A for the full Terms of Reference).

IPART has now completed the first stage of this review. This report sets out its draft findings and recommendations to the Minister for Ports and Waterways. IPART’s key recommendation is that the VBSs be fundamentally changed, so that ‘guaranteed’ VBS slots are allocated using a price mechanism, while ‘unguaranteed’ slots are allocated on the same basis as they currently are. IPART is confident that this change will quickly result in efficiency improvements, and encourage a significant shift in the timing of road access to the stevedores’ terminals, and greater use of rail for container traffic.
1.1 What are the problems?

The numbers of containers moved at Port Botany has grown rapidly over the last decade. On the whole, the containerised freight supply chain has dealt with this growth reasonably well. The stevedores have devoted sufficient resources to keep containers moving onto and off the wharves fairly quickly. The VBSs they introduced to allocate specific timeslots for individual trucks to collect or deliver containers have improved road transporters’ access to the port. The long truck queues that were almost an everyday occurrence before the introduction of the VBS are now much less frequent.

Nevertheless, road transporters still experience physical congestion at the stevedores’ terminals, as they attempt to gain access to collect and deliver containers. They also experience ‘virtual congestion’ as they attempt to book access via the VBS. Given that further significant growth in the container task is expected over the coming decades, changes need to be made now to reduce this congestion and improve the efficiency of the interface between the stevedores and the road transporters.

IPART identified a range of problems associated with this interface that need to be addressed. In particular:

- VBS slots are not necessarily allocated to the road transporters that value them most. They are allocated on a first-come-first-served basis.
- Importers and road transporters that need access to the stevedores’ terminals to collect a container at a particular time cannot be sure that this will occur.
- Waiting times for trucks can sometimes be unreasonably long. This is particularly likely to happen when a large number of containers are stored on the stevedore’s property.
- There are no clear rules that apply when delays at the terminals mean the stevedores are unable to serve trucks within the timeslot booked through the VBS. Therefore, trucks still have to turn up at the booked time and wait until they can be served.
- The stevedores are unable to measure the unmet demand from all road transporters who would like to use their facilities during peak periods. However, not all VBS slots are used at night or at weekends.
- There is an absence of publicly available information about the performance of the stevedores on the landside.
- The obligations that the stevedores and the road transporters owe to each other are unclear. This is important since these groups need to work closely together if the supply chain as a whole is to work well.
- The movement of trucks in and out of Port Botany contributes to traffic congestion on Sydney’s roads generally. The congestion problems go well beyond the stevedores’ facilities – they also affect the wider metropolitan road network, when trucks share the roads with commuters at peak times.
The use of rail to move containers in and out of Port Botany is limited by poor coordination and the absence of some needed investment. At present, the rail service is not sufficiently reliable to meet the needs of many importers and exporters.

1.2 Why do these problems arise?

As the number of containers moving through Port Botany increases, land for storing containers at the port is becoming increasingly scarce. This creates a strong incentive for the stevedores to run their landside operations efficiently, so that containers can be moved from their land quickly. However, the stevedores are unable to serve all the trucks that want access to their terminals to pick up or drop off containers during peak periods. In other words, demand for road access to the stevedores’ terminals is greater than supply during these periods, although the full extent of unmet peak demand is unknown.

It is not possible to pinpoint the precise causes of this market failure. It may be that the stevedores have ignored the landside elements of the supply chain in favour of the shipside, or underinvested in equipment and/or labour for their landside operations, or behaved in some other monopolistic way. But there is no systematic evidence available to prove any of these theories. IPART concluded that while the port-landside interface at Port Botany is not a perfectly competitive market, the stevedores have limited scope to exploit their monopoly power. This is because it is in their own best interests to move containers onto and off their land as quickly and efficiently as possible, so they can meet ship-driven volumes and maintain their own efficiency levels by reducing stack density.

Economic theory suggests that price should be used to allocate goods or services that are in short supply, such as road access to the stevedores’ terminals. This is because those people who place the highest value on those goods or services are usually willing to pay the highest price. Therefore, price mechanisms tend to allocate them to the most productive use.

At present, VBS slots are not priced. Rather, they are allocated to users on a first-come-first-served on-line basis: the road transporters that register their interest in the first minute or two of bookings opening on-line obtain the slots. The charges the stevedores levy are for access to the VBS, not for the slots themselves. As noted above, allocation by price is likely to result in a better, more efficient outcome.

1 Whilst the stevedores are technically a duopoly, once the containers are on the wharf, each stevedore becomes effectively a monopolist in the sense that the rail and road operator must deal with that stevedore if it is to take delivery of a particular container (stated in IPART’s May 2007 Issues Paper for this review, p 18).

2 IPART’s analysis set out in Chapter 3 establishes that the import containers arriving from the shipside and the number of containers in the stacks (stack density) drive the size and the complexity of the daily task. The analysis concludes that it is very hard for the stevedores to predict in advance what their daily landside task will be and that there is no clear relationship between the shipside task and landside congestion (measured by truck turnaround times and truck arrivals).
In addition, if slots were priced, the stevedores would need to guarantee to serve the purchasers within the specified timeframes, and clearly set out all terms and conditions. This would address some of the communication and coordination issues identified above. Further, a pricing mechanism for VBS slots should encourage some of the demand for road access in peak periods to move to off peak periods, or to shift to rail.

1.3 What does IPART propose?

IPART proposes the introduction of a two-tiered VBS, a number of measures to improve information flows and communication between the stevedores and the road transporters, and measures to improve operational coordination of and investment in the rail system. It also proposes that in the first instance the NSW Government encourage stakeholders to introduce these measures voluntarily, and only consider prescriptive regulation if this voluntary approach fails to achieve the desired outcomes.

1.3.1 Two-tiered vehicle booking system

IPART considers that the congestion at Port Botany is best addressed using price and market forces, which should be used to the maximum extent possible. In particular, because the port is a scarce resource, access to it should be priced in such a way that the user that values access the most will be allocated access.

IPART’s core recommendation (Recommendation 14) is that a two-tiered vehicle booking system for road access to the stevedores’ facilities should be established. Sydney Ports Corporation (SPC) should facilitate its independent introduction by the stevedores. IPART notes that only the stevedores have the detailed knowledge required to operate this system effectively.

Under this system, there would be two types of slots: firm slots and interruptible slots:

- The firm slots would carry a guarantee relating to the time of entry and the time of exit from the terminal.
- The interruptible slots would have the same features as current VBS slots, including the booking system, prices and penalties.
- Each stevedore would determine the number of firm and interruptible slots to be provided for each 24 hour day.
- The prices for firm slots would be determined by separate descending bid auctions for each stevedore.
Each stevedore would retain a portion of the proceeds from the auctions to enable them to recover their costs and earn sufficient profit to provide them with an incentive to provide and resource firm slots. The remainder of the proceeds could be used for infrastructure investment benefiting the containerised freight supply chain.

IPART’s proposal is most likely to be successful if it can be introduced on a voluntary basis. This is because the logistics of stevedoring are complex and it would be easy to make things worse. IPART would expect the stevedores to take an adaptive management approach and to increase over time the number of firm slots that they offer as their confidence increases in their ability to resource and meet the service requirements of firm slots.

However, IPART accepts that the NSW Government may need to intervene further if Port Botany’s problems are not addressed through voluntary action. Any such intervention would unavoidably be more interventionist than the voluntary approach outlined above. Before undertaking such action, the NSW Government should prepare and publish a regulatory impact statement to evaluate whether the benefit of such action will exceed the costs and to publish the outcome of this evaluation.

IPART recognises that this proposal represents a significant change from current access arrangements, and that it may require road transporters to make significantly higher payments than the current VBS fees. The proposal will also be complex to implement. However, it is IPART’s view that the proposal’s benefits outweigh the costs. It will address congestion by facilitating the smooth, efficient flow of container traffic into and out of Port Botany, spread over each day and away from peak hours, by road and increasingly by rail. It will provide benefits to all participants in the supply chain, and to trade in NSW.

1.3.2 Why is a two-tiered VBS for road access the right answer?

IPART is confident that the proposed two-tiered VBS will reduce congestion at Port Botany and facilitate the efficient flow of container traffic into and out of the port because it addresses nearly all the problems identified in section 1.1 above.

Under the proposal:

- The prices for firm slots will be set by supply and demand in the market. This will result in both a fairer and more efficient allocation of road access to the port, because it means that the supply chain participant who values a firm slot most will be able to obtain it.

- Road transporters will be able to book either a firm slot or an interruptible slot, thus choosing between certainty and flexibility. This choice is likely to be driven by their customers’ needs. If an importer needs to receive a container at a particular time, the road transporter will be able to buy a guaranteed slot that enables it to meet that need. Road transporters will also have considerably more
flexibility to respond to their clients’ needs through a secondary market for the firm slots.

- The stevedores will allocate all road access to their terminals through the VBS, based on clearly specified rules, and their compliance with these rules will be subject to regular independent audit. Making the results of these audits publicly available will increase confidence in the fairness of the allocation process.

- There will be a stronger commercial relationship between the stevedores and downstream participants in the supply chain. As a consequence, there will be more sense of obligation on both sides, and stronger incentives for the stevedores to improve their quality of service and for road transporters to arrive at the time for which they have booked.

- The stevedores will receive some of the auction proceeds, and will be penalised for poor performance. This will change their incentives to provide resources to their landside operations. It should improve their service to the landside transporters and likely lead to a higher number of VBS slots being offered in the hours of peak demand.

- Each firm slot will be long enough to enable a dual run. This will encourage this more efficient use of road access and, in time, will lessen the overall number of truck movements at Port Botany.

- The price of guaranteed VBS slots will make the comparative costs of rail and road freight more equal, which will encourage greater use of rail transport for containers.

The proposal will also encourage more efficient timing and size of stack runs by pricing them more appropriately, so that they compete on comparable terms with demand for other forms of road access.

In addition, the proposal will achieve many of the objectives of the proposed Freight Infrastructure Charge (FIC)\(^3\), without the problems associated with such a charge. For example, the proposed price mechanism would allow market forces to determine the price of firm slots, and the level of market demand to determine the premium price level. There would be no need for difficult estimates of the efficient level to set the FIC.

IPART recognises that introducing the proposed two-tiered VBS would involve some additional cost and complexity. However, it considers that the advantages of this system are sufficiently large to outweigh this. Moreover, IPART considers that it will not be possible to achieve a timing shift (that results in road transporters using the port facilities more evenly across 24 hours a day and seven days a week) or a modal shift (that results in greater use of rail to move containers to and from the port) without using a price based system for allocating access. While such timing and modal shifts might occur over time as a result of the goodwill of supply chain participants, there is far more likelihood they will happen if prices are used.

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\(^3\) Proposed by the Freight Infrastructure Advisory Board. Further comment is in Chapters 6 and 7.
Some outstanding issues which IPART intends to consider further in its final report, and which will need to be settled as part of the implementation process, include, but are not limited to: what would constitute non-performance and what should happen in the case of non-performance, how the auction proceeds should be distributed, and who should participate in the auction and the secondary market.

1.3.3 Measures to improve information flows and communication between the stevedores and the road transporters

In the course of its review, IPART observed significant communication difficulties between the road transport industry and the stevedores. Various actions can be taken to overcome these difficulties. The most important are actions to enable the stevedores to inform road transporters in advance when there are potential congestion problems at their terminals, and establish how they will deal with congestion that has occurred.

IPART’s Recommendations 1 to 11 (see Box 1.4 below) are intended to encourage a stronger and more productive working relationship between the stevedores and road transporters, and require them to communicate with each other more effectively. Most of these actions must be taken by the stevedores and road transporters themselves; however, some are actions that the NSW Government could take to facilitate improved efficiency of landside operations at the port.

1.3.4 Measures to improve operational coordination of and investment in the rail system

The NSW Government has already recognised that road congestion at Port Botany could be eased by increasing the use of rail to move containers. It has committed to doubling the proportion of containers moved by rail to 40 per cent. IPART agrees that there would be benefit in a far greater proportion of containers being moved by rail, and there are things that can be done to facilitate this.

Rail transporters face challenges with poor coordination of train paths, and difficulties in coordinating spending on infrastructure, leading to slow delivery. While there seems to be a willingness to invest in upgrades to the rail infrastructure, there is a need for better coordination of investment decisions and day-to-day rail operations.

IPART recommends several initiatives that the NSW Government should take to overcome impediments to the increased use of rail, including facilitating investment (Recommendation 12). IPART also recommends that a group along the lines of the Hunter Valley Coal Chain Logistics Team be formed and charged with finding ways to make rail operations more flexible, so that trains arrive at and leave the port facilities fully loaded (Recommendation 13). Systems integration will be a key issue in this task.
1.3.5 Regulation should be considered only if the voluntary approach fails

IPART considers that if the supply chain participants are convinced that the initiatives outlined above will result in an efficiently operating supply chain – and that this is in all their best interests – they will implement them voluntarily. They may need assistance in negotiating and coordinating operations and investment decisions, and there is a role for NSW Government, through SPC, in doing this.

However, IPART considers that the Minister should consider introducing a light-handed form of regulation that requires the stevedores to collect and provide data about their outputs and some inputs (Recommendation 15). Initially, this data could be used to monitor the performance of and investment in landside activities at Port Botany. Eventually, it could be used to establish a regime that imposed penalties on the stevedores if they failed to meet specified key performance indicators.

IPART also recognises that if proposed changes are not made voluntarily and current market failure persists, there may need to be government intervention in the future. If this is the case, it recommends (Recommendation 16) that more prescriptive regulation be considered.

1.4 IPART’s recommendations

IPART’s recommendations are:

1. That each stevedore provides real-time information about the size of the truck queue at its terminal, and an estimate of the time that trucks with booked VBS slots will need to wait after their slot to enter the terminal.

2. That road transporters invest in the communication devices they need to receive the stevedores’ real time communications and act accordingly.

3. That stakeholders consider adopting a non-discretionary set of communication rules that establish how the stevedores will adjust the number of VBS slots when delays occur in their landside service.

4. To foster goodwill, that the stevedores consider making basic amenities such as toilets and cold drinking water available to truck drivers who are required to queue to gain access to the stevedores’ terminals.

5. That each of the stevedores ensures that its carrier access agreement specifies, in clearly expressed terms, how it operates its VBS, the complete terms and conditions of access to this system, and what a holder of a booking in this system is entitled to.

6. That the stevedores each engage an independent auditor to conduct regular audits of their compliance with their carrier access agreements.

7. That the NSW Government request the Roads and Traffic Authority to review whether ‘super B-double’ trucks can be permitted to access Port Botany along selected routes at selected hours in consultation with relevant local councils.
8. That Sydney Ports Corporation investigates, in consultation with the stevedores, the creation of a VBS that encourages two-way loading, covering the wider port precinct, taking into account the principles set out above. Sydney Ports Corporation should also take into account the views of the road transport operators to the extent that they relate to the construction of a joint VBS.

9. That the NSW Government take up the matters related to the work of the Australian Customs Service discussed in Chapter 4 with the Australian Government.

10. That the road transporters invest in the technology needed to fully automate the gate processing for trucks.

11. That the stevedores use container numbers that have been provided in advance to do more housekeeping to reduce truck turnaround time.

12. That the NSW Government continue to undertake the following non-price initiatives to overcome impediments to increased use of rail to transport containers to and from Port Botany:
   - assist ARTC to secure AusLink funding for necessary improvements to Botany Yard
   - require DP World to lengthen its sidings
   - fund further dedicated freight access across the Sydney passenger network (beyond the current Southern Sydney Freight Line).

13. That a Port Botany Logistics Team (PBLT), modelled loosely on the successful Hunter Valley Coal Chain Logistics Team (HVCCLT), should be adopted to improve rail system performance at Port Botany relative to current arrangements. Given the distinctive differences between the Port Botany container chain and the Hunter Valley coal chain, a successful PBLT would need to embody the following design characteristics:
   - the objective should be to minimise total supply chain costs while meeting shipper demands for overall throughput and quality of service
   - members’ adherence to PBLT decisions on investment should be voluntary, and the PBLT should have no power to compel members to do anything
   - members should include stevedores DP World and Patrick, track proprietor ARTC, Sydney Ports Corporation, and any of the train operators that wish to join
   - Sydney Ports Corporation’s role should not be a leadership role, but should be limited to matters in which it has a commercial stake
   - membership should not be available to road transport operators, freight forwarders, importers or exporters, but their views could be taken into account through the equivalent of the HVCCLT Industry Reference Group
   - industry peak bodies should not be represented, either on the Steering Committee or the Industry Reference Group
   - RailCorp, Australian Quarantine Inspection Service, and Australian Customs Service should not be represented, but could be part of the Industry Reference Group
   - as many members compete with each other, ACCC authorisation should be sought as soon as the constitution is established
   - the PBLT should be staffed by secondees of member organisations, and the management of the team should be independent of all members
   - system performance KPIs should be established, monitored regularly, and high level summaries reported publicly.
14. That the Minister request Sydney Ports Corporation to facilitate and each of the stevedores to independently implement a two-tiered system for booking access to each of the stevedores’ facilities, as set out in Chapters 7 and 8. Essential features of this system would be:

- each firm slot would carry with it a guaranteed service level relating to time of entry to and time of exit from the terminal
- each firm slot would carry the right to a dual run
- the interruptible slots would have the same features as currently exist, including the booking system, prices, and penalties
- each stevedore would determine the number of firm and interruptible slots to be issued in each 24 hour day
- all slots would go through the vehicle booking system (for each stevedore), which will be computerised, and there would be clearly stated rules about when and how slots were made available
- the system would be independently audited
- prices for firm slots would be set through descending bid auctions separately for each stevedore
- there would be penalties on both the stevedores and the road transporters for not meeting firm slot requirements, linked to the price paid for the slot
- there would be an unrestricted secondary market for the firm slots
- there would be no restriction on the number of firm slots any one party is entitled to acquire through the auction
- each stevedore would receive a portion of the proceeds, to cover the costs incurred in offering firm slots plus an appropriate profit.

The issues to be considered for implementation of the proposed two-tiered system would include, but not be limited to:

- the precise service levels attached to the firm slots
- how a missed firm slot might be converted into an interruptible slot
- the precise penalties imposed on both the stevedores and the road transporters for not meeting firm slot requirements
- the timing requirements for providing container numbers for firm and interruptible slots, and the incentives for not changing them (or the penalties for changing them)
- who would participate in the auctions for firm slots
- the dismantling of existing priority schemes
- the mechanics of how the auction would run – in what order slots would be auctioned, how far ahead they would be auctioned, what would happen to unsold firm slots, and the starting price and bid increments
- the amount of the proceeds to be paid to the stevedores, and the allocation of proceeds in excess of those paid to the stevedores
- how the auction proceeds should be collected, held and distributed.
15. That the Minister consider implementing light-handed regulation that enables the collection by Sydney Ports Corporation of information for the purposes of monitoring performance and investment in landside activities at the port. The data should be disaggregated by stevedore, and the stevedore named. The data should be published regularly.

16. That further economic regulation of the Port Botany containerised freight supply chain only be considered if:
   - voluntary cooperation has been insufficient to achieve the expected improvement in performance, and
   - the benefits from more intrusive regulatory intervention are greater than the costs, a conclusion that should be supported by a rigorous assessment of the costs and benefits, with public input to the process and public scrutiny of the reasons for the conclusion, and
   - if this more stringent regulation is imposed, it is consistent with the key principles of good regulation and is incentive-based, taking into account the commercial interests of the regulated entities.

1.5 How did IPART approach its task?

The Terms of Reference for this review focus on the interface between the land transport industries and the stevedores, in particular the VBS operated at both terminals. IPART was required to undertake a thorough analysis of the VBS – including the costs, the structure of charges and penalties, and the impact of the VBS on road transport movements — and to assess rail charges and the impact of road and rail charging on the choice of transport mode. However, IPART has not looked at these issues in isolation; it also considered the impact of its recommendations further along the containerised freight supply chain to facilitate an improvement in efficiency.

IPART’s overriding objectives in making its recommendations are that they should be ones that the Government can implement to improve the efficiency of the containerised freight supply chain, and are likely to enhance NSW’s competitive position.

As a matter of regulatory best practice, IPART considers that, where possible, market forces should be allowed to dictate the outcome and regulatory micro-management should be avoided. Further, its recommendations should be feasible and simple, there should be a clear match between the recommendations and the identified market failures, and that the recommendations should be proportionate with the problem.

IPART and its Secretariat have had many discussions with stakeholders, who have patiently explained the intricacies of the system. IPART is grateful for the assistance provided by all parties it has spoken to in connection with this review.
As is its usual practice, IPART has called for and received many stakeholder submissions, which it has reviewed, and taken into account in making the recommendations in this report. IPART would like to thank all the stakeholders who took part in this review, and contributed their ideas on improving the efficiency of the landside interface at Port Botany.

IPART would also like to thank its consultant, Mr Mike Smart of CRA International, for his considerable input to this review.

**Box 1.1 IPART’s review process**

IPART undertook this review in accordance with section 9(1)b of the *Independent Pricing and Regulatory Tribunal Act 1992* and its Terms of Reference.

As part of this process, IPART:

- Published an issues paper on 9 May 2007.
- Advertised the review on 9 May 2007 and invited the stakeholders to provide submissions detailing their responses to the issues raised in the Issues Paper and any other matters relevant to the review. Twenty-one responses were received, of which two were confidential in their entirety. The non-confidential submissions were published on IPART’s website. A list of respondents is provided in Appendix D.
- Held a Roundtable discussion with invited stakeholders on 18 July 2007 to discuss the key issues of the review. A list of participants is provided in Appendix D.
- Held face-to-face meetings with many key stakeholders.
- Visited both stevedores’ premises at Port Botany and two metropolitan intermodal terminals.

IPART then considered all comments and contributions made by stakeholders, including five submissions received after the Roundtable and other correspondence, and each matter in the Terms of Reference. Appendix B lists where within this report each matter is discussed.

### 1.6 Submissions

IPART now invites submissions on its draft recommendations. **The closing date for submissions is 26 November 2007.**

Information on how to make a submission can be found at the front of this report. IPART will consider these submissions prior to making its final recommendations to the Minister for Ports and Waterways in February 2008.

It is most useful to IPART when submissions:

- provide detailed reasons for a view that is expressed, backed so far as possible with examples or data that can be independently verified or calculated
- move beyond identifying problems to suggesting solutions.
2 Context and background

Port Botany is the largest container port in NSW, and handles 95 per cent of the state’s containerised freight trade. The volume of containers moving through the port is growing rapidly, and this growth is forecast to continue for the next 20 years. In response to the forecast growth, the NSW Government has approved plans by Sydney Ports Corporation to expand Port Botany terminal facilities to provide a new container terminal with a further five berthing facilities.

However, the capacity at the existing terminal facilities also needs to be used more efficiently to cope with the expected growth. Capacity at port facilities is determined by:

- The quay length and the equipment employed by the stevedores to load and unload containers from ships, and how efficiently these resources are used.
- The land area available to temporarily store containers, and how efficiently it is used.
- The landside clearance area and the interface between the stevedores and the road and rail transporters that are collecting import containers and dropping off export containers, and how efficiently this area is used.

It is this last determinant of capacity – particularly the interface between the stevedores and road and rail transporters – that is the focus of this review. Port Botany appears to be hitting landside capacity constraints in peak periods, which is causing inefficiencies and higher costs in the downstream containerised freight supply chain.

To help explain the context of the review, the sections below set out the key features of the environment within which the landside participants in the supply chain operate. These features include:

- Rapidly increasing container throughput.
- Multiple supply chain participants, most of which are privately owned firms motivated by profit.
- Contractual relationships between the stevedores and shipping lines.
- Vehicle Booking Systems for allocating specific timeslots to road transporters for accessing the stevedores’ terminals.
- Other initiatives being undertaken to relieve congestion at Port Botany.
The final section in this chapter explains IPART’s understanding of the key concepts referred to in the Terms of Reference for this review – including transparency and fairness, congestion and efficiency.

2.1 Rising container throughput

One of the main challenges facing the containerised freight supply chain at Port Botany is the rapidly increasing container throughput. The Bureau of Transport and Regional Economics (BTRE) has forecast annual average growth of 5 per cent in this throughput over the next 20 years.\footnote{BTRE, *Container and ship movements through Australian Ports 2004/05 to 2024/25*, Working Paper 65. http://www.btre.gov.au/publications/41/Files/wp65.pdf} This level of growth will more than double the port’s total annual throughput – taking it from 1.38 million twenty-foot equivalent units\footnote{The international standard measure of container vessel capacity and port throughput capacity is twenty-foot container equivalent units (TEUs).} (TEUs) in 2004/05 to 3.63 million TEUs in 2024/25 (Figure 2.1).

However, it is possible that actual growth will be higher than the BTRE’s forecast. IPART notes that Port Botany’s actual throughput for 2005/06 (1.45 million TEUs) was very close to the BTRE forecast for that year (1.42 million TEUs); however, the actual throughput for 2006/07 exceeded the forecast by 7 per cent, taking Port Botany’s throughput to record levels.\footnote{For 2005/06 containerised trade figures, see Sydney Ports Corporation, *Logistics Review 2005/06*, p 4. Sydney Ports Corporation Media release on 19 July 2007 reported that container trade through Sydney’s ports has hit an all-time high with preliminary trade figures for 2006/07 showing a 12.0 per cent increase over the previous year to over 1.619 million TEUs: http://www.sydneyports.com.au/__data/assets/pdf_file/0006/3858/190707_End_of_year_trade_figures.pdf} Given recent rapid growth and the fact that containerised trade has increased annually by 6.2 per cent in the five years to 2004/05, it may be expected that the BTRE forecast will prove to be conservative.

But whatever the precise growth rate is, volumes at Port Botany are growing significantly. Using the BTRE’s growth assumptions,\footnote{Chapter 3 of BTRE’s *Container and ship movements through Australian Ports 2004/05 to 2024/25* outlines the assumptions and modelling data used to develop the forecasts of container and ship movements. Assumptions on macroeconomic variables included population and economic growth rates for Australia, USA and Japan, exchange rates, the proportion of 40-ft containers and vessel size.} Port Botany’s containerised freight task will at least double in the next 20 years. Port activities will need to match this growth by increasing the capability to process containers in two ways – by increasing stevedoring facilities, and by improving the efficiency of those facilities.
2.2 Multiple supply chain participants

There are thousands of participants in the containerised freight supply chain that are affected by or influence the interface between the stevedores and land transporters at Port Botany. Most are privately owned businesses with shareholder expectations that profits will be maximised.

The following sections outline the key types of participant – including shipping lines; stevedores; rail infrastructure providers; rail operators; intermodal terminals; road transporters; importers, exporters and freight forwarders and customs brokers; and regulatory authorities.

2.2.1 Shipping lines

Around 20 shipping lines and consortia service Port Botany regularly. Each has contractual arrangements with one of the two stevedores, and a few have contractual arrangements with both. All are part of large companies that service many trade routes around the world. The routes to Australia generally fit into a worldwide network of operations; and no ships visit only Port Botany when they travel to Australia. Therefore, the shipping lines that derive income from their activities at Port Botany are a part of much more extensive operations throughout Australia and the world.
2.2.2 Stevedores

Two stevedores currently service Port Botany’s containerised freight trade. DP World and Patrick Terminals compete for trade from the shipping lines, with neither having significantly more market share (measured by TEUs) than the other, although the share does vary from time to time.

Both stevedores derive most of their revenue from their contracts with the shipping lines and consortia. The services covered by the contracts include landside activities and are discussed in more detail in section 2.3.

Across Australian ports in 2005/06:
- The vast majority of stevedores’ revenue – 84.5 per cent – was derived from stevedoring functions.
- The other 15.5 per cent of their revenue was derived from break bulk; berth hire; container storage and repositioning; penalties and services provided to the Australian Customs Service as part of the customs examination facility program; and Vehicle Booking System (VBS) service fees.
- Container storage revenue comprised 30.9 per cent of other revenue (4.8 per cent of total revenue).
- VBS fees comprised 6.6 per cent of other revenue (1.0 per cent of total revenue) and, as the Australian Competition and Consumer Commission (ACCC) has concluded, “is therefore not a significant component of total revenues in the industry.”

DP World (formerly P&O Ports) is part of a Dubai Government-owned business that is the fourth largest port operator in the world. This business purchased the P&O group in early 2006. At the time of purchase, the P&O group included P&O Trans, a business that provides a range of non-stevedoring services in the container supply chain (including metropolitan transportation of full and empty containers by road and rail; container bonding and fumigation; container survey, repair and storage; container pack/unpack; and freight station operations). In early 2007, Kaplan Funds Management purchased 50 per cent of P&O Trans from DP World.

Patrick Terminals was recently purchased by Asciano, an Australian Stock Exchange-listed company that also owns all of Pacific National (an Australian freight rail operator) plus Patrick PortLink and Patrick Port Services. Patrick PortLink operates rail services to Port Botany and the rail intermodal facilities at Yennora and Camellia. Patrick Port Services provides a range of non-stevedoring services in the container supply chain (including transportation between container parks and terminal operators and importer/exporter warehouses by road; container storage and handling; container pack/unpack; container repairs; warehousing and bonding; and quarantine inspection and fumigation services).

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9 In June 2007.
Both stevedores must treat these affiliated businesses on arm’s length terms, in order to meet the requirements of the Trade Practices Act 1974. The Terms of Reference for this review do not require IPART to assess whether there have been any breaches of the Trade Practices Act, including whether windfall profits have been generated, or whether market power has been used to benefit the stevedores’ affiliates – that is clearly a matter for the ACCC. However, there are issues of transparency and fairness in relation to transactions with affiliates, which IPART has addressed in its analysis and recommendations later in this report.

2.2.3 Rail infrastructure providers

There are effectively two track providers, both of which are government-owned corporations. RailCorp, owned by the NSW Government, currently owns and operates the Metropolitan Freight Line, including Botany Yard. Australian Rail Track Corporation (ARTC), owned by the Commonwealth Government, has agreed to lease these assets and take over operations once the Southern Sydney Freight Line (SSFL) is completed, which is expected to be in 2009. RailCorp also operates the Metropolitan Passenger Network, which is used for some freight rail transportation.

Although RailCorp is still the owner and operator of the freight-specific rail assets, ARTC has already started planning infrastructure upgrades and considering operational issues, in preparation for when it assumes the lease of the assets. RailCorp is cooperating in this transitional process.

2.2.4 Rail operators

Four rail operators service both stevedores’ terminals at Port Botany:

- Patrick PortLink is owned by Asciano, as described above
- Southern and Silverton is also privately owned, with rail operations across Australia
- Independent Rail of Australia (IR)\(^\text{10}\) is owned by the group that also owns Macarthur Intermodal Shipping Terminal (MIST) and the road transporter, Bowport Allroads Transport
- Australian Railroad Group is owned by Queensland Government-owned Queensland Rail.

Pacific National, which is owned by Asciano and thus an associate of Patrick, moves freight interstate and to inland terminals, including the Cooks River, but does not travel to Port Botany.

\(^{10}\) Formerly Lachlan Valley Rail Freight.
2.2.5 **Intermodal terminals**

Intermodal terminals facilitate the transfer of containers between transport modes, allowing the most appropriate transport mode to be selected for different segments of the transport task.

There are currently six metropolitan intermodal terminals, and a further seventeen regional intermodal terminals in NSW. A range of privately owned intermodal companies, some of which are associated with the two stevedores, operate all intermodal terminals as set out in Appendix E.

The NSW Government supports the establishment of several new intermodal terminals in the Sydney metropolitan area, including one at Enfield that received planning approval in September 2007.\(^{11}\) It is expected that these terminals would also be privately operated.

2.2.6 **Road transporters**

Around 250 road transporters subscribe to the two stevedores’ VBS at Port Botany, and therefore use the port facilities relatively frequently. However, data obtained from the stevedores suggests that a further 100 road transporters collect or drop off containers irregularly.

None has a position of significant market share, either with the stevedores or with importers and exporters. Roughly, the largest 25 undertake half the business at the port and the smallest 100 carry 4 per cent of the container task. As outlined above, two of the larger road transporters – P&O Trans and Patrick Port Services – are affiliated with the two stevedores.

Given the large number of road transporters, it is desirable that peak bodies exist to advocate on their behalf and provide a representative and allied view to other players in the container supply chain in order to achieve a collective outcome for the industry. Two peak bodies representing the NSW road transport industry made submissions to this review – the Australian Trucking Association of NSW (ATA NSW) and the Container Logistics Action Group (CLAG). ATA NSW states that it represents road operators, although IPART does not know how many of the road transporters attending Port Botany are members of and represented by ATA NSW. CLAG represents 26 container carriers, freight forwarders, and customs brokers. Both claim the current terminal access arrangements and charges at Port Botany are administered in a non-transparent and unfair manner by the stevedores, and have

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submitted a wide array of detailed operational issues that they consider need to be resolved with the stevedores.\textsuperscript{12}

In addition to the submissions from stakeholders responding to the Issues Paper, IPART has received documentation from several individual road transporters outlining their frustrating experiences at the Port Botany container terminals. These case studies illustrate the issues set out in the peak bodies’ submissions, and have assisted IPART by highlighting instances where some operational changes could usefully be made in stevedore and road transporter practices.

\subsection*{2.2.7 Importers, exporters and freight forwarders and customs brokers}

Hundreds of importers and exporters in NSW and other states ship containers through Port Botany, using direct contracts either with the shipping lines or with freight forwarders and customs brokers. These latter participants market container space and act as agents for exporters and importers, reserving space on shipping vessels, organising container pick ups and deliveries, and arranging for the return of empty containers to terminals in the timeframe required by the shipping lines.

\subsection*{2.2.8 Regulatory authorities}

Three key regulatory authorities influence the movement of containers at Port Botany. Australian Customs Service (ACS) manages the security and integrity of Australia’s borders, facilitate the movement of legitimate travellers and goods across the border and collect border-related duties and taxes. Australian Quarantine Inspection Service (AQIS) provides quarantine inspection for internationalised cargo arriving in Australia and certification for some agricultural exports. Both these regulatory authorities are Commonwealth Government agencies. All supply chain participants must communicate with them from time to time regarding import and export container contents, and their requirements for the physical movement of containers must be complied with by supply chain participants.

Sydney Ports Corporation (SPC) is the NSW Government-owned corporation that owns most of the land at Port Botany and leases it to the stevedores and other entities. Its role is discussed later in this report.

\textsuperscript{12} To the extent it considers necessary in addressing its Terms of Reference, IPART has investigated the individual complaints raised in submissions. IPART notes that its role is not to arbitrate between the various parties in the containerised freight supply chain, but rather, is to provide recommendations that will increase efficiencies in the supply chain and thereby assist in reducing these complaints in future. The recommendations in this report are aimed at making structural changes to the processes for moving containers to and from the wharves and to provide incentives to all parties in the supply chain to work efficiently to move containers, rather than tinkering with the processes to address each individual claim.
2.3 Contractual relationships between the stevedores and shipping lines

There are many variations in the individual contractual arrangements between the two stevedores and the 20 or so shipping lines that regularly visit Port Botany. However, IPART understands that some key features relevant to this review are standard ones.

The two stevedores that operate at Port Botany also operate at most other ports in Australia. Each stevedore typically enters into a single contract with a shipping line or consortium, covering any or all of the five mainland ports plus one in Tasmania. The contract period could vary from one to five years.

The services to be provided by the stevedore under the contract include the shipside activities of discharging, loading and re-stowing containers, and providing an access facility for electronic messaging in UN/EDIFACT format for both import and export containers.

These services also include landside activities, namely the receival and delivery of containers to road transporters (using a VBS) and rail operators (using rail windows).

Terms in the contracts relevant to issues considered in this review include:

- A requirement for the stevedores to be open for business on the shipside 24 hours a day, seven days a week, with the exception that the stevedore may not open on some defined days. These days are voluntary days (Picnic Day, Good Friday, Anzac Day and NSW Labour Day) and closed port days (from the end of the day shift on Christmas Eve 24 December to commencement of day shift on Boxing Day 26 December and evening and midnight shifts on New Year’s Eve 31 December).

- Specification that the stevedores provide a free storage period of five days for export containers and three days for import containers, including the first day they are available for collection.

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13 Fisherman Islands in Brisbane, Port Botany in Sydney, and the Swanson Docks in Melbourne, and either Burnie or Bell Bay in Tasmania.

14 United Nations/Electronic Data Interchange For Administration, Commerce, and Transport, which provides a set of syntax rules to structure data, an interactive exchange protocol, and standard messages allowing multi-country and multi-industry exchange.

The shipping line is charged for a range of services provided by the stevedore on the ships, including discharge, loading, restowing, transhipment, lashing and unlashing etc. The shipping line is also charged for a number of landside services provided by the stevedores, including:

- **delivery and reception** of containers (linked with discharge and loading on the ships)
- **yard services**, which is for additional yard handling made at the agent’s request, or required by a statutory authority such as AQIS or ACS, or where a container is received but not shipped on the scheduled ship (either because it is returned to the exporter or put onto a subsequent vessel)
- **storage** for containers that remain on the stevedore’s premises in excess of the free storage period, with the exception of full import containers (in which the road or rail transporter is charged)
- **other ancillary charges**, which generally relate to providing facilities for compliance with statutory requirements, ranging from laying salt to treat potential snail infestation to providing facilities for quarantine inspections.

The contracts require the stevedores to provide berthing facilities in accordance with a specified sailing schedule (which can be amended with certain notification requirements.) The contracts also require immediate provision of sufficient cranes, labour and other equipment, once a ship has berthed. The contract sets out productivity requirements that the stevedore is required to meet on the ships, expressed as exchanges during certain periods.

The contracts place many obligations on the shipping line, including an obligation to provide the vessel ‘on window’, in compliance with MO32\(^\text{16}\), and to provide the stevedore with certain information relating to export and import containers to facilitate the stevedore’s yard and ship work planning.

IPART considers that the contracts between the shipping lines and stevedores are conducted at arm’s length within a functioning market, and the contracts represent a rational commercial outcome. IPART does not recommend that there should be any regulatory intervention in the processes through which these contracts are negotiated nor in the outcomes.

It seems reasonable to IPART for the stevedore to pass onto the landside obligations imposed on it by the ships. Back-to-back contracts are common in many areas of commerce, as an effective strategy to manage risk. In the case of the stevedores, the back-to-back arrangements include operational arrangements questioned by stakeholders, particularly the number of free days before storage fees apply and the definition of working days. Given that the contracts between the stevedores and the shipping lines represent rational commercial outcomes, it can be expected that these requirements are of benefit to those parties. The effect of the contractual

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\(^{16}\) Marine Orders part 32, issued by the Australian Marine Safety Authority, regarding safe use of cargo handling equipment, available at http://www.comlaw.gov.au
requirements on the stevedores’ operations, and how that affects the road transporters, is discussed further in Chapter 3.

The two stevedores at Port Botany provide a platform to bring together the shipside and landside transporters of containers. They provide the infrastructure and the rules that facilitate the two group’s transactions. There is a distinct group of users on both sides and costs on both sides. However, this is not currently a two-sided network, where the economic literature indicates that consideration should be given to appropriately charging each side. In this case, it is the shipping lines’ relationship with importers, exporters and freight forwarders that drives value to each stevedore. The road and rail transporters, despite being one side of the stevedores’ operations, do not have a role in generating demand and adding revenue to the stevedores’ businesses. There is no benefit to the shipping lines to have an increasing number of road or rail transporters; the benefit is derived from the shipping lines’ relationships with players further down the chain – in particular the importers and exporters.

Thus from an economic perspective, the significant revenue derived on the shipping side for the stevedores and the relatively small ‘only recovery of cost’ revenue amount on the land transport side seems appropriate given the current contractual arrangements and requirements on the stevedores for landside performance.

IPART has been advised that this arrangement, where the vast majority of the stevedores’ revenues are earned on the shipside with only a relatively small amount earned on the landside, applies in 90 per cent of ports around the world.

Perversely, poor performance on the landside adds to the costs of the stevedores, and tension will be created when costs are incurred due to actions of landside transporters outside the influence of stevedores. The stevedore’s only influence on landside behaviour is through non-price mechanisms such as access conditions.

CLAG sees problems in the relationship between the stevedores and shipping lines, saying:

The stevedores regard the shipping companies as their only contracted clients. They have based their stevedoring strategy upon manning up and providing sufficient Lift assets to meet the ship discharge and loading volumes.

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18 CLAG submission, p 6.
IPART’s view is that the stevedores are not subsidising the landside by charging the shipside, rather they are recognising that volumes and therefore margins are created by the shipside. IPART considers that the stevedores have a profit margin incentive to reduce the costs imposed by the interface with the landside, and also have an incentive to clear containers from their terminals to create space to handle further volumes generated by the shipping lines.

2.4 Vehicle Booking Systems

Most landside transport of containers to and from Port Botany is by road. Until the late 1990s, trucks were admitted to Port Botany facilities on a ‘first come first served’ basis by the stevedores and long truck queues commonly extended out past port entry. This congestion slowed the distribution of freight into and out of the port, affecting the NSW economy, and also disrupted normal traffic flows on the roads outside the port entry.

In response, the stevedores introduced Vehicle Booking Systems (VBS) to allocate specific timeslots for individual trucks to collect their freight from the port. But a booked timeslot does not carry a guarantee that the stevedore will be able to service the road transporter in that slot. Rather, the booking systems simply aim to reduce the physical congestion caused by truck queues, by allowing trucks to arrive at the port close to their allocated timeslot. The systems also allow better planning, which is intended to result in more efficient movements of containers to and from importers and exporters.

Both stevedores charge fees to access their VBS. Both also charge penalty fees for ‘no shows’ and late arrivals to discourage over-booking and waste of their resources, but sometimes waive these fees at their discretion. In addition, both charge storage fees for containers that have been on the wharf for longer than the free storage period, to encourage turnover of containers within the limited space available at the wharf.

Road transporters have raised concerns about delays and costs in delivering and collecting containers at Port Botany, caused by the lack of availability of VBS timeslots at certain times and a lack of certainty about fees to be charged and circumstances in which fees would be waived.

2.5 Other initiatives being undertaken to relieve congestion at Port Botany

Several other initiatives are already in train to relieve the current and forecast congestion at Port Botany, including the expansion plans of SPC and rail infrastructure developments relating to the NSW Government’s target that 40 per cent of containerised freight at the port be moved by rail. These initiatives are not the subject of this review, but will impact on aspects of IPART’s consideration of the issues set out in the Terms of Reference.
The key component of SPC’s expansion project is infrastructure for a new container terminal to provide 1,850m of extra berth length (five berths) through the reclamation of about 60 hectares of land and a dedicated road and rail access. SPC expects trade operations to commence by 2011. The NSW Government has indicated that its preferred option is for a new third stevedore to operate the new terminal facility at Port Botany.

In November 2006, the NSW Minister for Ports and Waterways announced a taskforce to provide strategic advice to the Government on a range of freight logistics issues including port operations, road and rail freight operations, container parks, planning and regulation. The taskforce is to assist the NSW Government determine how best to manage freight expansion at Port Botany. The commissioning of this IPART review is a recommendation from the taskforce’s first meeting.

The NSW Government has endorsed the recommendations of the Freight Infrastructure Advisory Board (FIAB) relating to plans to establish new freight terminals at Enfield and Moorebank (the latter subject to discussions with the Commonwealth Government). It has set up an Enfield-Port Botany Logistics Steering Committee, which has the task of making recommendations during 2007 on the business model and operational concepts for the Enfield Intermodal Logistics Centre.

The work being undertaken by these groups and the decisions already made by the NSW Government to address congestion at Port Botany have been taken into account in the preparation of this report.

### 2.6 Explanation of key concepts referred to in the Terms of Reference

The Terms of Reference for this review refer to some concepts, including transparency and fairness, congestion and efficiency. IPART considers it useful to explain these concepts, and how it has interpreted them in its review.
2.6.1 Transparency and fairness

The Terms of Reference refer to the stevedores providing “a transparent and fair allocation of access and provision of services in connection with the terminals.”

Stakeholders have also referred to the need for transparency, saying:

- The major issue in relation to the VBS is the absence of transparency in the system. The erratic number of slots available in each time period suggests that there must be a level of discretion being exercised by the stevedores for a number of slots. There may be some valid purposes for the discretion, but we are not aware of them. It is important in circumstances where peoples businesses depend upon equity of treatment that there should be no potential for bias.24

- There is no publicly available rationale for the number of time slots issued for the road landside function. At the time that the ACCC complaint began to be investigated there was survey evidence (collected by the NSWRTA and submitted to the ACCC in October 2004) that P&O Trans (then Smith Bros) trucks were receiving a disproportionate number of time slots at 7:00 am and anecdotal evidence that affiliate trucks were permitted to jump the queue outside the terminal gates. The affiliates now collect containers at night in areas away from the general port Lift areas. There is no evidence that they use or pay for the VBS.25

- There are however many outstanding issues affecting the efficiency of customs brokers, freight forwarders and transport operators such as . . . rail transport processes including capacity, booking arrangements and transparency.26

The Customs Brokers and Forwarders Council of Australia (CBFCA) stated that it “is of the view that accountability and transparency be provided by stevedores to justify the structure of existing storage charging regimes.”27 It also suggested that “independent management of a VBS would provide transparency in slot allocation and availability of slots and costs.”28

Transparency relates to openness and impartiality in the design, administration and enforcement of a system. There should be procedures that are clearly articulated and understandable by all participants in the system, and that are publicly available. Any changes that are required from time to time should be communicated clearly in a timely and efficient way with adequate time for implementation.

The Terms of Reference link transparency with fairness. ‘Fairness’ is not an economic concept. Rather it involves a concept of social justice in which equal treatment of different persons or organisations in similar circumstances is mandated. The ambiguity inherent in a broad concept such as fairness inevitably leads some parties to interpret it in such a way that it may run counter to economic efficiency. For example, on one view it would be ‘fairer’ to charge peak and off-peak electricity

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24 CLAG submission, p 37.
25 CLAG submission, p 41.
26 CBFCA submission, p 4.
27 CBFCA submission, p 17.
28 CBFCA submission, p 18.
users the same price, but doing so would be inefficient because the demand management benefits of a price system would be lost.

Some forms of price discrimination are efficient, yet a plain-text reading of the fairness requirement might appear to rule them out. It would be absurd if the pursuit of ‘fairness’ resulted in some customers paying far less than they were willing to pay for a product, while others were unable to buy the product at all, even though their willingness to pay was greater than the marginal cost. In this context, fairness is inextricably linked with the concept of efficiency, which is addressed in the next section of this report.

This problem exists not just with discriminatory pricing, but also with price as a means of allocating scarce resources. It might seem fairer to allocate scarce tickets to a sporting event or concert by lottery than to raise the price until only the wealthy could afford them, yet the lottery approach invites ticket scalping, which is also objectionable on fairness grounds. The efficiency problems with the lottery approach are that in the first instance, tickets are not allocated to those that value them most highly, and in the second instance, resources must be expended policing and punishing scalpers.

Given these tensions between some concepts of fairness and economic efficiency, it is useful to emphasise the efficiency-based rationale for fairness. Monopolisation could be considered an unfair practice, but the economic reason to object to it is that it leads to an artificial restriction on supply and a deadweight loss of social welfare. Suppliers that favour their own affiliated firms over other customers would arguably be violating a fairness standard, but the larger problem with this type of behaviour would be the potential harm to competition among these customers.

In light of these issues, IPART’s approach in this review has been to identify fairness with rules and allocation methods that are both economically efficient and promote competition. To the extent that the concept of fairness extends beyond the concept of social welfare, IPART considers that it requires that parties in similar circumstances not be discriminated against purely on the basis of their identity. Of course, where costs of serving different parties differ, ‘fairness’ should not prevent charging them different prices. Thus, the goal of fairness requires the system to be non-discriminatory between road transporters on the basis of who they are, and with whom they are affiliated. It does not exclude some degree of discrimination where distributional efficiency would be affected; for example, it would not preclude recognition that there may be scale economies to the stevedores for providing access for a bulk run of 50 containers compared with a road transporter seeking access in relation to one or two containers at a time.

Perceptions of fairness also have a bearing on the efficiency of particular arrangements. A system that is seen as transparent and fair to participants is likely to instil confidence, which may lead to improved market efficiency and increased activity and investment. Conversely, a lack of trust between participants will lead to
wasteful strategic behaviour: resources will be expended seeking to exploit hold-up opportunities or trying to prevent opportunism.

IPART’s view is that transparency and fairness of the systems for allocation of VBS slots to road transporters refers to the ability of road participants to see and know how decisions are made, so that they are comfortable that due process is being followed and that they are not being discriminated against because they are not affiliated with the stevedores or because of personal biases of individual staff. It does not extend into any third party, including the road or rail transporters, having any say in the operational decisions made by the stevedores about how they allocate resources or operate the system for access to port facilities.

As well as benefiting the road transporters, a fair and transparent allocation system should also benefit the stevedores, in that they will have greater certainty about the interface with the road transporters and less administrative time will be spent in dealing with disputes. That said, a system that is more rigidly applied will offer less flexibility, and this disadvantage needs to be balanced against the benefits of a more transparent system.

It is important that any changes to the allocation system, including information provided about allocations, be applied only for the legitimate purpose of assisting the participants to have confidence that the system is transparent and fair. There is no implied entitlement to the road transporters to obtain commercially sensitive information about the way that the stevedores manage their resources to provide slots.

Changes required to achieve a more transparent and fair outcome are set out in subsequent chapters of this report.

2.6.2 Congestion

The Terms of Reference refer to the need to address truck congestion. Definitions of congestion focus on some aspect of network behaviour under high load.

Some degree of congestion exists at Port Botany from time to time. Recurrent congestion, occurring at regular times of the day, can be anticipated by those that normally use the system during those times. In the case of Port Botany, road transporters confront congestion every morning as they use the VBS to make bookings for slots. The road transporters contend with this congestion by dedicating office resources to the task at specific times, and by using the flexibility afforded by stevedores not requiring container numbers at the time of booking to ‘juggle’ priorities.

Non-recurrent congestion is unpredictable, and could be due to many things, including but not limited to equipment breakdown, unexpected labour shortages, bunching of ship arrivals due to other shipside delays, traffic conditions on the metropolitan road system, and delays on the metropolitan passenger rail network.
As CLAG’s submission noted, at Port Botany there “is no absolute solution to some spasmodic episodes of congestion at the ports. There is considerable scope for process improvement.”\textsuperscript{29} IPART agrees that processes need to change in order to adequately address congestion.

IPART considers congestion to exist where the number of trucks and/or trains arriving exceeds the ability of the port facilities to service them immediately or within a ‘reasonable’ time, being the timeframes nominated by the stevedores through the VBS. The service timeframe is determined by the volume of containers on the wharf that have been unloaded, the equipment and labour provided to move the containers, and the clearance by road and rail. A bottleneck leading to delays may arise when any of these three is not in balance. Delays can cause trains to leave empty, or trucks to miss subsequent slots, increasing the load on the bottleneck. This feedback leads to a rapidly deteriorating situation where effective throughput rapidly diminishes as new trucks meeting later slots may not be allowed to enter the facilities. There is no exact point at which the port’s landside facilities can be said to be congested – it is a sliding situation that may reverse itself through the good management or flexibility of the stevedores and/or road transporters, or may escalate to the point where a shock needs to be administered.

Congestion depends on a user’s perspective. A user who demands little from the facility can tolerate a loss in performance much better than a more demanding user. For example, a road transporter who uses the Port Botany container terminals irregularly may accept a delay that is unacceptable for a road transporter whose entire business is carting containers to and from the port.

As noted in section 2.2 above, most players in the supply chain are private sector businesses, driven by profits, and to some degree exposed to market competition. In these conditions, the appearance of market failure in the form of congestion or bottlenecks may indicate the need for a price rise, or some structural change in the supply chain that will occur “naturally” as a result of market forces. That is, the necessary change may be inevitable and it may be simply a matter of waiting until equilibrium returns. Alternatively, a ‘shock’ may need to be administered either to effect a faster response to the market failure, or to contend with the market failure itself.

IPART considers that a shock may be needed to reduce congestion at Port Botany, for several reasons:

- The stevedores do not bear all the costs of congestion – some are borne by downstream participants in the supply chain – and consequently a structural change would be necessary for the price signals to be felt at the right point.
- The demand for containerised trade at Port Botany from NSW importers and exporters is growing so rapidly that there is not time to wait for market forces to occur.

\textsuperscript{29} CLAG submission, p 23.
There is some degree of dysfunction in market interactions at present, leading to poor coordination of operational planning and investment decisions. The NSW Government has a role in supporting better coordination, which would support more efficient market transactions.

In addition, the fact that the shipping lines and consortia have worldwide or Australia-wide contracts with the stevedores (see section 2.2.1) suggests that the specific landside arrangements for containers at Port Botany are unlikely to register as a large factor in their incentives to sign with one or other of the stevedores. These arrangements are likely to be a little more important in influencing the decisions of importers, exporters and freight forwarders about which shipping lines they will use to move containers (and hence which stevedore’s terminal they will need to interface with). However, IPART understands that price, route, timing, and availability are of greater significance.

2.6.3 Efficiency

The Terms of Reference refer to efficiency several times, requiring IPART to look at the efficiency of the port-land transport interface, the efficiency of the landside logistics chain, efficient allocation of space/movement of trucks, issues specifically related to the efficiency of the interface between stevedores and land transport operators, and institutional changes that could be made to improve the efficiency of the landside logistics chain.

Recognising that economic efficiency is achieved when the cost of producing a given output is as low as possible, the economic principle for determining efficient prices relate to three aspects of efficiency:

- Allocative efficiency, which is achieved when the price paid by any consumer reflects the costs incurred in meeting their demand
- Productive efficiency, which means meeting demand at the lowest possible costs, including minimising transaction costs, and
- Dynamic efficiency, which means maintaining allocative and productive efficiency over time.

In a competitive market, in which a number of providers of goods or services compete, the forces of demand and supply ensure that through time, the appropriate levels and qualities of good and services are produced (or supplied) at least cost, with optimal levels of consumption and production (or supply) brought about by prices reflecting marginal costs.\(^\text{30}\)

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\(^{30}\) Marginal cost means the additional or incremental cost incurred in providing an additional unit of a good or service. Short-run marginal costs are the additional costs of providing one extra unit, given existing infrastructure capacity. Long-run marginal costs include the additional capital costs of meeting additional demand. Short-run marginal costs and long run marginal costs are equal when capacity is optimal.
Achieving the highest-valued use of resources requires prices to equal the short run marginal cost, thus ensuring that there is optimal level of demand and supply. In competitive markets, in the absence of externalities and other distortions and with constant or increasing average costs, pricing at the short run marginal cost also ensures that total costs are covered over time. This ensures that efficient producers will receive a ‘normal’ rate of return on their investment, including an appropriate margin for risk. Consequently producers have an incentive to invest efficiently over time.

The service provided by the stevedores on the landside does not operate in a competitive market, in that once the containers are on the wharf, each stevedore effectively becomes a monopolist – the rail and road transporter must deal with that stevedore if it is to take delivery of a particular container. Therefore, there is no effective mechanism to ensure that costs and prices do not substantially deviate from efficient levels, ie, marginal costs.

However, IPART recognises that it is not always possible to identify all cost drivers as the costs of gathering information, monitoring use and other related tasks may, at some point, simply outweigh the benefits of attempting to make prices yet more cost reflective. In the event, the status quo may be ‘efficient’, in the sense of being the best that is achievable and workable given the constraints.
3 Current landside arrangements and sources of inefficiencies

IPART examined the current landside arrangements for moving containers at Port Botany. These arrangements include the institutional, structural and pricing frameworks within which the stevedores and the land transporters at the port work.

IPART found that the stevedores’ shipside task - particularly unloading import containers from ships - has a major influence on their landside task. IPART’s analysis shows that, over a number of days, the stevedores make sufficient resources available to deal with the landside task, but problems can occur on particular days. The number and timing of ship arrivals at the port are highly variable and unpredictable. When a large number of ships arrive at the same time, the size of the stevedores’ shipside task is much bigger, and this contributes significantly to non-recurrent congestion on the landside. The stevedores appear to use several strategies to balance their shipside and landside tasks; however, to a large degree this source of congestion is outside their control.

And while the variation in the size of the shipside task is important, IPART’s analysis indicates that it explains only a minor portion of landside congestion. Several other factors potentially explain the remainder, and some of these are also outside the control of the stevedores and the road and rail transporters. However, IPART’s examination of the arrangements for providing these transporters with access to the stevedores’ terminals identified four factors that lead to inefficiency that are controllable. These are:

1. The number of opportunities for trucks to gain access to the terminals via the stevedores’ VBS is often less than the demand for these VBS slots, and there is no mechanism for measuring the level of unmet demand.

2. Access to the available VBS slots is allocated to road transporters without regard to the value of the slots to those transporters, which means that the slots do not necessarily go to the transporters who value them most.

3. The stevedores work on a 24/7 basis, whereas road transporters mostly work weekdays between 8am and 6pm. This mismatch in their hours of operation results in excess demand for VBS slots during weekday business hours and inefficient utilisation outside these hours.

4. There is no formal mechanism for reducing the impact of uncontrollable delays at the stevedores’ terminals on road transporters, for example by providing them with timely estimates of the length of the delay and the action being taken to adjust VBS slots in response to the delay.
The sections below discuss the current landside arrangements at Port Botany and the impact of these arrangements on the efficiency of the landside task in detail:

- Section 3.1 explores the relationship between the shipside and landside tasks, and analyses the impact of the shipside task on congestion on the landside.
- Section 3.2 examines the arrangements for access to the stevedores’ terminals and the inefficiencies associated with these arrangements.
- Sections 3.3 and 3.4 discuss the prices stevedores charge for access and the costs of providing this access.
- Sections 3.5 and 3.6 discuss the availability and cost to road transporters of empty container parks, and the impact of inefficiencies in the landside task on importers and exporters.

### 3.1 Relationship between the shipside task and the landside task

The stevedores’ task on both the shipside and landside is highly complex, and is strongly influenced by a range of factors outside their control. One of the stevedores’ main shipside tasks is to ensure that containers are loaded onto and off ships in line with the key performance standards set by their contracts with shipping lines (see section 2.3 for information about these contracts). This task is made more difficult by the fact that container ships vary widely in capacity (from 5,000 gross tonnes to over 55,000) and their arrival time is unpredictable (less than half arrive on schedule). As a result the size of the shipside task varies widely from day to day in ways that can be difficult to predict.

To illustrate the variability in the size of the shipside task, SPC data indicates that in 2006/07, container ships arrived at Port Botany with import containers on all but two days of the year, and left with export containers on all but nine days of the year. If the stevedores had unloaded all the import containers on the day of ship arrival and loaded all the export containers on the day of ship departure, the number of TEUs they moved per day would have varied between 648 and 9,237. However, on average ships stay in port for more than one day, so it may be more accurate to illustrate this variability by looking at the two-day rolling average of the daily number of TEUs moved shipside over 2006/07, as shown in Figure 3.1. This figure shows that daily two-day average varied from 1,718 TEUs (in April) to 7,238 TEUs (in November).

31 These contractual arrangements are the reason why many ships berth one day and leave the next.
32 In the busy December quarter, in 2006, only one third of ships arrived within an hour of the time advised to SPC 24 hours earlier, see BTRE Waterline 42 July 2007, Table 12, p 21.
33 The shipside task is stated this way because the data provided by SPC records all import TEUs on the day of ship arrival and all export TEUs on the day of ship departure. For interest, the low was recorded on Boxing Day (a Tuesday) and the high on Sunday 31 December.
34 If a single number is used to approximate the daily shipside task at Port Botany, a two-day average of the SPC data is a better approximation given that the average stay in port is over a day.
Current landside arrangements and sources of inefficiencies

Figure 3.1 Daily shipside TEU task at Port Botany 2006/07

Source: IPART analysis of data provided by Sydney Ports Corporation.

A third way to illustrate the variability in the size of the shipside task is to look at the cumulative daily number of TEUs moved shipside, from the day of the lowest TEUs to the day of the highest, as shown in Figure 3.2.

Figure 3.2 Daily shipside TEU task at Port Botany 2006/07: cumulative distribution

Source: IPART analysis of data provided by Sydney Ports Corporation.
This figure indicates that:

- most of the daily tasks were within one standard deviation of the mean of 4,450 TEUs per day (ie, they were between 3,400 and 5,500 TEUs per day in 2006/07) and
- for 54 days of the year, the daily task exceeded 5,500 TEUs.

The days when 5,500 or more TEUs need to be moved are presumably the days of greatest potential operational difficulty for the stevedores. This difficulty is likely to be heightened if one 5,500+ TEU day is followed by another, or when two occur in a three-day period. The latter happened on 16 occasions in 2006/07.35

In the two previous years, the number of days when 5,500 or more TEUs were moved was much fewer – 10 in 2004/05 and 15 in 2005/06. And these 5,500+ days occurred on two of three consecutive days only once and twice per year respectively. Perhaps the much higher numbers of 5,500 days in 2006/07 were abnormal, but it is likely that higher numbers will become increasingly the norm as volumes through the port increase over the next 20 years.

Most industry participants believe that the variability in the size of the shipside task is an important determinant of the congestion at the port and the efficiency of the landside task. To better understand how this variability impacts on the efficiency of the landside task, the extent of these impacts, how they are currently managed and whether they could be better managed, IPART looked at:

- the relationships between each stevedore’s shipside task and truck turnaround times
- whether the required number of truck entries on a specific day, and the number of VBS slots per hour, can be accurately predicted
- the relationship between truck turnaround times and total truck waiting times
- how the stevedores seek to balance their shipside and landside tasks
- the role of on-port storage in achieving this balance
- the relative likelihood of congestion at each stevedore’s terminal
- the extent of this congestion.

35 All but four were in the September to January period with the greatest concentration in the weeks either side of Christmas. There was no consistent association between one day of 5,500+ TEUs arriving on the shipside and the same day’s or the following day’s average truck turnaround times for either stevedore.
3.1.1 Relationships between each stevedore’s shipside task and truck turnaround times

IPART compared the daily shipside task of each stevedore with the number of truck entries to each terminal (a measure of the landside task) and average truck turnaround times (TTT) for the terminal (a measure of the efficiency of that task). More specifically, recognising that there are time-lags involved in the sequence of events that link the shipside task to the landside task, IPART:

- compared each of the previous seven days’ import and export TEUs with the daily number of truck entries
- compared the daily number of truck entries with average daily TTTs, and
- compared each of the previous seven days’ import and export TEUs with average daily TTTs.

For each of these analyses, IPART relied on data supplied by SPC and the stevedores.

The first analysis showed there is a close relationship between the daily number of truck entries at each terminal and the inflow of import TEUs over the preceding seven days. Most of the variation in the number of daily truck entries at each stevedore (87 per cent at Patrick and 96 per cent at DP World) was associated with variations in the inflow of import TEUs in the preceding seven days (after allowing for low truck entries on Saturday, Sunday and public holidays that are related to work practices in the downstream supply chain rather than the inflow of TEUs). However, there was little relationship between the daily number of truck entries and the outflow of export TEUs.

Based on this analysis, IPART concluded that:

- The size of each stevedore’s shipside task – measured as the number of import TEUs unloaded over the previous seven days and the number of export TEUs to be loaded over the coming seven days – is the crucial driver of the size of the landside task, measured as the daily number of truck entries into the stevedores’ terminals.

- The number of import TEUs has a much greater effect on daily truck entries than the number of export containers. This result confirms the widely held view that the landside task at Port Botany is driven primarily by import traffic, due to the fact that half of all export containers are empty and therefore not time-critical.

When linked with the relatively small proportion of containers that are at the stevedores’ terminals for a time protracted enough to attract storage fees (see section 3.3.3), the close relationship between the daily number of truck entries at each terminal and the inflow of import TEUs over the preceding seven days also suggests that the stevedores are devoting sufficient resources to the landside task. Containers are moving on and off the wharf in a manner that meets the stevedores’ obligations under the contracts with the shipping lines for delivery and receival of containers, linked with discharge and loading on the shipside (see section 2.3).
The second analysis identified a much weaker relationship between the number of truck entries and average daily TTTs. Less than a quarter of the total variation in TTTs (16 per cent at Patrick and 22 per cent at DP World) was associated with the variation in the number of truck entries.

Given the modest strength of the relationship between average daily TTTs and the number of truck entries, it is not surprising that the direct relationship between the shipside task and TTTs was also weak. About one third of the total variation in TTTs (34 per cent at Patrick and 31 per cent at DP World) was associated with the variation in the previous seven days’ inflow of import TEUs (allowing for separate Saturday, Sunday and public holiday effects).  

Based on these findings in relation to TTTs, IPART concluded that:
- Variation in the size of the shipside task accounts for around 30 per cent of the variation in average daily TTTs for either stevedore. The remaining 70 per cent of that variation must be explained by other factors. The stevedores indicated that one important factor is how densely containers are stacked on the wharf. Patrick provided some confidential analysis of average stack density information over a 12-month period, which IPART used to assess the impact of increasing the number of days free storage at port (see Appendix H). This analysis confirmed the importance of stack density in explaining variations in TTTs. Other factors might include:
  - the stevedore’s equipment being out of service (either because of breakdowns or planned maintenance)
  - the stevedore experiencing temporary manning shortages
  - adverse weather conditions (although it is difficult to say how important each of these factors might be).
- The performance of the two stevedores, in terms of managing the impact of variations in the size of their shipside task on their TTTs, was very similar.

### 3.1.2 Predicting required truck entries and VBS slots per hour

The fact that there is a close relationship between the daily number of truck entries at the stevedores’ terminals and the inflow of import TEUs over the preceding seven days suggests that it might be possible to predict how many truck entries are likely to be required on a specific day, and therefore the number of VBS slots required per hour, using the import TEU data. If this were possible, the predictions could be used to guide the stevedores’ landside resource planning, and thus improve the efficiency of their landside task.

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36 IPART does not intend to publish detailed results that pertain to individual stevedores. However, regression analysis on data that combines the stevedores’ activities shows that the relative strength of these relationships was preserved in the combined analysis. Around 94 per cent of the variation in truck entries and around 30 per cent of the variation in average daily TTTs were associated with the previous seven days’ import TEU inflows, allowing for Saturday, Sunday and public holiday effects (details in Appendix G).
However, IPART considers that it would be very difficult for the stevedores to make such predictions with a reasonable degree of accuracy for three reasons. The first is limitations of the statistical analysis itself. For example, IPART undertook regression analysis of the relationships between both stevedores’ shipside and landside tasks (discussed in Appendix G). The aggregate results of this analysis indicate that, broadly, stevedores could use regression analysis to distinguish between the level of resourcing they need for Sundays and public holidays, Saturdays, and weekdays. But this analysis would not enable them to predict with adequate certainty the total number of truck entries required on any individual weekday. Figure 3.3, which plots the actual daily truck entries in 2006/07 against the number that would be predicted using the regression relationship, illustrates this point.

Figure 3.3 Scatter plot of actual and predicted (fitted) truck entries – weekdays only, for 2006/07

The second reason is that the stevedores are unlikely to have access to necessary data in sufficient time. VBS slots on a particular day are offered to road transporters three days in advance of collection. At the time the analysis needs to be done to predict the number of truck entries and the number of VBS slots per hour to be offered, some of the ships whose containers will use those slots have not yet berthed. This means that the number of import TEUs would have to be estimated, and such estimation is likely to be highly uncertain because the timing of ship arrivals is known to be unpredictable.

The third reason is that for this kind of prediction to be useful for resource planning purposes, the stevedores would actually need to predict the number of truck entries required per hour (or at least per shift), rather than just the total number of entries per day. However, the exact timing of truck arrivals during the day depends on

Source: IPART analysis of data provided by DP World and Patrick.
range of factors, including the choices made by importers, exporters, and road transporters, all of which are outside the stevedores’ control. Therefore, even if it were possible to predict the daily total number of truck entries with a reasonable degree of precision, predicting the hourly pattern would present considerably greater difficulty.

IPART considers that the difficulty of predicting the size of the landside task, and thus the likely demand for VBS slots per hour, is one of several reasons why it would be extremely difficult for a party other than the stevedores to operate the VBS. The issue of independent ownership or operation of the VBS is discussed further in Chapter 4.

3.1.3 Relationship between truck turnaround and total waiting times

TTTs measure how long it takes a truck, once it enters the stevedore’s terminal gate, to be served by the stevedore and leave the gate. But trucks often have wait on the roads around the port, and on stevedore driveways, before they can enter the terminal gate. Therefore, the most appropriate measure of congestion at the port is total truck waiting times. Unfortunately, truck waiting times at Port Botany are not generally measured.

However, the Sydney Ports Cargo Facilitation Committee (SPCFC) periodically conducts a one-week survey of total waiting times of trucks arriving at Port Botany. In 2007, the week was 21-28 May. The results of the survey (excluding Saturday and Sunday) are shown in Table 3.1.

The week of the survey did not involve an episode when the shipside task was particularly large (the size of the aggregate shipside task is shown as Shipside TEUs 2-day averages in the table). And only around 80 per cent of actual truck entries from Tuesday through Friday were surveyed (comparing the ‘number of trucks surveyed as entering’ with the number of ‘truck entries’ recorded by the stevedores). Keeping these limitations in mind, the survey indicates that:

- TTTs rose either before the weekend (Patrick) when the shipside task got close to 5,500 TEUs or immediately after it (DP World)
- additional truck waiting times also rose either before the weekend (Patrick) or after it (DP World)
- therefore, overall truck waiting times rose before the weekend (Patrick) or after it (DP World)
- additional waiting time varied between nine per cent and 50 per cent of average daily TTTs, but was 16 per cent or lower for two-thirds of the days during the survey period.

The survey is independently conducted by Sydney Ports Corporation and reports to the industry through the Sydney Ports Cargo Facilitation Committee every 15-18 months (Sydney Ports Corporation submission, p 13).
IPART considers that for most of the days of the survey, additional truck waiting times did not seem to be inordinately long. It also notes that the higher TEUs moved on the shipside on 24 and 25 May may not have been the main contributor to the rise of truck waiting times: DP World reported that a rubber tyred gantry (RTG) had broken down on Monday 28 May and Patrick was doing surface repaving that shrank the size and efficiency of container storage areas during the survey period.38

### Table 3.1 Daily average truck turnaround and waiting times, late May 2007

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**Average daily TTTs (minutes)**
- SPCFC survey - DP World: 35.4, 41.8, 38.5, 45.1, 39.7, 67.5
- SPCFC survey – Patrick: 32.1, 55.2, 61.4, 79.6, 60.6, 30.0

**Number of trucks surveyed as entering:**
- into DP World: 192, 646, 1015, 990, 843, 334
- into Patrick: 276, 691, 611, 592, 752, 380

**Additional truck waiting times (minutes)**
- Friendship Rd waiting area to DP World in-gate: 3.8, 11.8, 7.8, 4.7, 4.2, 17.7
- Simblist Rd waiting area to DP World in-gate: 44.7, 33.5, 44.7, 32.0, 37.3, 45.2
- Patrick queue: 3.3, 5.7, 9.9, 33.6, 17.6, 9.4

**Number of trucks surveyed as waiting:**
- Friendship Rd: 56, 216, 533, 234, 241, 263
- Simblist Rd: 13, 53, 49, 109, 73, 30
- Patrick queue: 246, 588, 419, 702, 701, 341

**Total, weighted average per truck (minutes)**
- DP World: 39.5, 48.5, 44.8, 49.7, 44.1, 85.5
- Patrick: 35.0, 60.1, 68.2, 119.4, 77.0, 38.4

**Extra waiting time as % of TTTs**
- DP World: 12%, 16%, 16%, 10%, 11%, 27%
- Patrick: 9%, 9%, 11%, 50%, 27%, 28%

**Shipside TEUs 2-day averages**
- 4,808, 4,271, 4,315, 5,417, 5,343, 3,999

**No. of daily truck entries**
- 1,777, 1,616, 2,044, 1,961, 2,029, 1,685

**Note:** * from 2pm   # until 2pm for SPCFC survey

**Source:** Sydney Ports Cargo Facilitation Committee, Sydney Ports Corporation, Patrick and DP World communications to IPART, August 2007.

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3.1.4 How the stevedores seek to balance their shipside and landside tasks

Conceptually, the stevedores seek to match their total resources to the size of the daily task, and to allocate those resources between their shipside and landside activities. The shipside performance and landside performance are inter-related, with a buffer between them provided by the inventory of containers held within the stevedores’ terminals. Depending on how close a terminal is working to full inventory capacity, any concentration of resources on the shipside may cause import containers to build up in the stevedore’s terminal. This congestion in the terminal has knock-on disruptive effects to the landside task.

Decisions on resource allocation made by the stevedores are based on their assessment of the required equipment and labour that is commercially viable to use. Research reported in the literature on the decision-making required to achieve efficient resource allocation in stevedoring shows it to be a complex and ongoing process. Efficient stevedoring resource allocation decisions are driven by commercial imperatives.

When the ship berths are full, the stevedores say that they concentrate their resources on unloading/loading the ships. IPART’s analysis of DP World data for 2006/07 suggests that DP World does not reduce the total number of daily VBS slots offered in response to the inflow of import TEUs. However, that stevedore does appear to reduce the number of VBS slots offered during the hours of peak demand on a particular day in response to import TEUs on that and the previous day. It then boosts substantially the number of VBS slots offered in the peak hours a few days later (presumably to clear the backlog).

When berthed ship numbers fall, the stevedores have greater capacity to switch more resources to the landside to reduce any build-up of containers (and trucks queued on the road outside the entry gate or inside the terminals), and to redress any imbalance between the numbers of import and export containers in the terminal. How quickly a build-up is reduced or balance is restored depends, in part, on the amount and timing of access to the terminal offered by the stevedores.

3.1.5 The role of on-port storage in achieving this balance

The rate at which container stock levels are reduced or the export/import balance is restored also depends on the extent to which land transporters take up the stevedores’ offers of access to their terminals.

39 See, for example, Froyland G, Koch T, Megow N, Duane E and Wren H, “Optimizing the Landside Operation of a Container Terminal” in Konrad-Zuse-Zentrum fur Informationstechnik Berlin (ZIB) Report 06-06, November 2006, which is a case study of the logistics problems to be solved in relation to optimal operations based around the installation of five rail mounted gantries at Patrick’s Port Botany Terminal.
40 IPART does not intend to publish the detailed regression results that underpin the statements in this paragraph.
The stevedores reduce the chance that a large daily shipside task will translate into an equally large daily landside task by allowing the land transporters three days to remove import containers and five days to provide export containers. To illustrate this effect, IPART applied 3-day rolling averages to the data underlying Figure 3.2 (which shows cumulative daily number of TEUs moved shipside, from the day of the lowest TEUs to the day of the highest, for 2006/07). Three-day averages were chosen because this corresponds with the three-day free on-port storage period currently provided by the stevedores and required in their contracts with the shipping lines.41 The results of this analysis are shown in Figure 3.4.

**Figure 3.4 Daily shipside TEU task smoothed to 3-day and 5-day averages, 2006/07**

![Graph showing daily shipside TEU task smoothed to 3-day and 5-day averages, 2006/07.](image)

*Source: IPART analysis of data provided by Sydney Ports Corporation.*

This figure illustrates the smoothing effect created by the three free days of on-port storage. It shows that this effect should result in a less peaky daily pattern of truck entries, as the number of days on which the daily landside task exceeded 5,500 TEUs was reduced, and there were almost no days when the daily landside task was less than 2,500 TEUs.

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41 Export containers are allowed five free days, but half enter the terminals as empties, many via stack runs. Therefore, since empties often enter with a day or less to go before loading, a three-day rolling average for all export containers seems a reasonable approximation to reality.
During this review, the road transporters, especially CLAG, argued for an increase in the free on-port storage period. For example, CLAG submitted that:

The rationale for free storage is port efficiency. If there were no period of free storage then every carrier would be competing to pick up all containers on the first day of availability. The more days of free availability the less congestion and the greater operational efficiency throughout the supply chain. Port Botany is a conduit and any measures that shorten the number of days of free availability may reduce costs to the shipping companies but they add more than commensurate costs to the rest of the cross border supply chain.42

To test this view, IPART also applied 5-day rolling averages to the data underlying Figure 3.2 (as shown in Figure 3.4). This analysis suggests that further free days on-port storage would further smooth the daily pattern of truck entries so that there would be fewer extremely busy landside days.

However, additional analysis conducted by IPART (described in Appendix H) shows that the overall impact of this further smoothing on port congestion would be detrimental. Through the effect of the number of daily truck entries on TTT, this smoothing would likely have some moderating influence over the range of TTTs. But it would have no effect on the annual average TTT. However, it would substantially increase the average stack density at the port, and this is likely to increase TTTs.

It is estimated that increasing the free on-port storage period from three to five days would lead directly to a 50 per cent increase in the average number of import containers held at the terminal. If this were the case, stack densities at the Patrick terminal, for example, would exceed two containers per ground slot on average for the entire year. At such high densities, the number of containers requiring rehandling would increase more than proportionally, and this would severely impede both the landside and shipside operations of the stevedore.

The impact on the road transporters would also be adverse. IPART’s analysis shows there is a reliable statistical relationship between TTTs and two driving factors: truck entries and stack density. Although increasing the free on-port storage period from three to five days would reduce the standard deviation of daily truck entries (mitigating peak road access days), it would substantially increase the average container density on the port.

It is estimated that the net effect of these factors would be a 50 per cent increase in TTTs. Quantitative analysis shows that the stack density effect far outweighs the smoothing effect on truck entries. Intuitively, this result arises because the smoothing effect on truck entries is only important on a small number of days of the year, and has no effect at all on the average daily truck entries, whereas the density effect on container rehandling is experienced every day of the year. And a rise in density unambiguously increases average TTTs.

42 CLAG submission, p 63. Other references may be found on pp 11, 21-22, 45, 52 and 58.
Based on this analysis, IPART concludes that the impact of increasing the free on-
port storage period would be to worsen supply chain performance of all participants,
including the road transporters themselves, who would suffer a substantial increase
in TTTs as a direct result of this increase.

3.1.6 The relative likelihood of congestion at each stevedore’s terminal

Some stakeholders expressed the view that episodes of serious congestion are more
frequent at the Patrick terminal than at the DP World terminal. Anecdotally,
stevedore terminals are believed to reach a state of ‘distressed’ operation once the
number of TEUs handled exceeds some threshold.\(^{43}\) One measure of such a
threshold might be stevedore-specific, say when daily TEUs handled are greater than
one standard deviation above the average for the terminal. However, IPART does
not know what level of TEU/day would lead to a level congestion that causes
‘distress’, or even whether the same threshold would apply to both stevedores.

However, IPART does know that there is a strong correlation between shipside
activity and the number of truck entries (see section 3.1.1). To analyse the relative
likelihood of episodes of serious congestion at each terminal in 2006/07, IPART
assumed that each stevedore’s ‘distress’ is related to the size of the landside task,
which is strongly correlated to the shipside task. It defined the shipside task as a
3-day average of import TEUs (today, yesterday, and the day before yesterday) plus
a 3-day average of export TEUs (today, tomorrow, and the day after tomorrow). For
import containers, it chose three days because that is the length of the free storage
period. For export containers there is a five-day free storage period, but as empty
export containers tend to arrive ‘just in time’ it does not seem implausible that the
average wait for an export container is also around three days. It then plotted the
3-day smoothed number of TEUs for the year ended 30 June 2007 for each terminal.

The results of this analysis are shown on Figure 3.5. The values on the vertical axis
are not shown to maintain confidentiality. Again, the daily three-day average
numbers of TEUs have been arranged in increasing order so that the curves represent
a type of cumulative frequency distribution.

This figure indicates that if the same level of shipside task were the threshold of
‘distress’ for both stevedores, then Patrick would have experienced considerably
more ‘distressed’ days of operation than DP World in 2006/07, simply because
Patrick handled more shipside TEUs than DP World.\(^{44}\)

\(^{43}\) Symptoms of distress days would include an inability to remove import containers from the terminal
as quickly as they arrive, higher than optimal container density in the stacks, the need for excessive
double-handling of containers in order to pick the container needed by the land transport operator,
and an inability to handle the expected level of landside activity within normal truck queuing and
turnaround time parameters.

\(^{44}\) This observation may explain why road transport industry complaints about Patrick’s landside
service seem to be more frequent than those about DP World.
Current landside arrangements and sources of inefficiencies

3.1.7 The extent of congestion at the stevedores’ terminals

Despite the smoothing effected by the free days of storage, the stevedores’ terminals at Port Botany suffer periods of non-recurrent landside congestion, sometimes severely so. For example, anecdotal evidence on truck waiting times and average daily TTTs during a recent period of congestion (August 2007) is contained in Appendix F.

At those times, for whatever reason, there are delays in the stevedores’ landside operation that can have knock-on effects for road transporters. IPART did not receive much data on the extent of these delays. However, the SPCFC survey described in section 3.1.3 recorded both average TTTs and the 95th percentile of TTTs (that is, the time in which 95 per cent of trucks that entered had left the terminal). In general, this time was at least twice the size of the average TTT, which indicates that individual trucks experienced a wide range of TTTs.

Of course, some minor truck queuing is efficient to the extent that it means that a stevedore’s landside activity is not retarded by waiting.45 As the stevedores’ capital investment is large relative to that of a road transporter, it is more efficient for trucks to face short waits at the stevedores, and not vice versa. However, if the truck queue lengthens inordinately and exists constantly, then there is a potentially significant cost to the economy in the form of idle trucks and drivers. The stevedores are likely

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45 Optimal queuing is akin to optimal inventory control. Too little inventory causes delays in a manufacturing production process or consumer dissatisfaction at a retail outlet while too much needlessly ties up working capital. Too short a queue at the local bank means that tellers can be idle at times, too long a queue means that customers are poorly served.
to be relatively insensitive to this cost since it is not borne by them. IPART recognises that whatever queuing exists now, if nothing is done, in five or ten years time queuing will certainly be unacceptably long and extensive.

3.2 Arrangements for access to the stevedores’ terminals and sources of inefficiency

To facilitate their landside activities, the stevedores have each put in place arrangements for offering land transporters access to their terminals. The rail operators are offered access via rail windows; road transporters may enter the terminals by booking a timeslot via each stevedores’ VBS, or being accepted in a bulk or ‘stack’ run (whereby repeated entry by several trucks may bring in, or take out, 50 or more containers without booking VBS slots) or, in the case of DP World, also via the standby queue.

The stevedores determine the number of rail windows and truck entries offered per day. Data from DP World indicates that at its terminal for every 100 VBS slots, there are 12 truck entries via the standby queue and 32 stack runs.\footnote{Data provided by DP World for 2006/07.}

The likelihood of gaining road access depends on the access method used. Access via the standby queue is obviously highly variable, depending on the size of the queue and conditions at the terminal. Access via stack runs is usually reliable, because they are pre-arranged. Access via a VBS booking is uncertain because having a VBS slot does not guarantee access into the terminal during that timeslot. If the stevedore is running behind the VBS schedule, trucks with VBS timeslots simply have to wait until they are let in.

To better understand the access arrangements, and identify how they might be improved to increase the efficiency of the port-landside interface at Port Botany, IPART examined the available measures of the efficiency of road access, the basis on which the stevedores allocate road access via the VBS, the stevedores’ Carrier Access Agreements for the VBS, and allegations of bias in this allocation. The sections below discuss IPART’s findings, and set outs the four main sources of inefficiency associated with the access arrangements.

3.2.1 Measures of the efficiency of road access

In the past, almost no measures of landside efficiency were publicly available. However, the BTRE has recently started to publish data for a limited number of indicators of road access efficiency (Table 3.2).
3 Current landside arrangements and sources of inefficiencies

Table 3.2  Indicators of road access efficiency

<table>
<thead>
<tr>
<th></th>
<th>Sep - 06</th>
<th>Dec - 06</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Average number of containers per truck</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>2 Average TEUs per truck</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>3 Average container turnaround time (minutes)</td>
<td>30.9</td>
<td>32.5</td>
</tr>
<tr>
<td>4 Average truck turnaround time (minutes)</td>
<td>40.5</td>
<td>42.8</td>
</tr>
</tbody>
</table>

Source: BTRE Waterline 42 July 2007 Table 1, p 9. The data is reported for “Sydney ports”, which may include some container performance indicators relating to smaller facilities other than at Port Botany.

A rise in the first two indicators would signal improved landside road efficiency because more containers/TEUs are being moved per truck entry, either because trucks are getting bigger or because more dual runs are occurring, or both. A fall in the last two indicators would signal improved efficiency, either because trucks are moving through the terminals more quickly (average TTTs are falling) or because the number of containers per truck are rising, or both. Until more data are available, no inferences about present trends can be drawn.

Other measures not published by the BTRE that are particularly significant to road transporters include total truck turnaround times and total truck waiting times, and any variation in these times across the hours of the day (these measures are considered in Appendix G).

3.2.2 Basis on which stevedores allocate road access via the VBS

Each stevedore’s VBS was established as a tool for coordinating road access to its terminals. The total number of VBS timeslots offered in each hour of the week is constrained by the size of the terminal land, the operating and safety procedures at the terminal, and the other resources that the stevedore devotes to the landside task.

Of the overall total number of VBS slots, the stevedores allocate a quota per road transporter on two different bases:

- Patrick allocates timeslots according to the road transporter’s size, where size refers to the amount of container business that transporter undertook with the stevedore in the previous financial year
- DP World allocates timeslots according to which of the three classes of subscription to its VBS the road transporter holds.

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47 The third indicator is derived by dividing TTTs (the fourth indicator) by containers per truck (the first). The first two measures are based largely on VBS data. The BTRE seeks to exclude bulk runs and ACS runs which would distort the measures.

48 Prior to the VBSs, road transporters were served on a first-come-first served basis and the result was long queues outside the stevedores’ terminals. The queues produced congestion and pollution in the Botany area and idle drivers and trucks. None of the current participants at Port Botany has expressed a desire to return to this ‘system’, even if it were permissible.

49 The subscription rates are set out in section 3.3
Most road transporters seek terminal access via the VBS. Both stevedores release the timeslots for a particular day three days in advance. The releases are made via the internet at pre-arranged early morning times. Based on data provided by DP World, it appears that all the timeslots offered through its VBS in the hours between 8am and 4pm are fully booked up within minutes of release.50 Unfilled slots are then re-offered later in the day. An informal secondary market where road transporters offer redundant slots also exists.

3.2.3 Carrier Access Agreements for access to the VBS

DP World and Patrick each have in place a standard agreement with road transporters for access to their VBS. The standard agreements are publicly available, and IPART understands that the same conditions apply to all road transporters seeking access to each of the Port Botany terminals.51 Most road transporters subscribe to both the Patrick and the DP World VBS.

It’s important to note that the current agreements only entitle the road transporters to access each VBS – however, a booking via the VBS does not entitle the holder to access to the stevedores’ terminals within the booked timeslot. Indeed, IPART notes that currently the contractual arrangement between the stevedores and the road transporters is very limited.

The fees applicable under these agreements are set out in section 3.4. The stevedores have advised IPART that these fees aim to cover some of the administrative costs of setting up and running the VBS, and that they do not consider their VBS to be profit centres.

All road transporters are subject to the standard terms of access under the VBS, and cannot negotiate their own individual terms of access. However, the stevedores exercise considerable discretion in applying some terms and conditions (for example, those related to penalties for ‘no shows’ and ‘wrong zone’). In addition, some of their operational arrangements are not documented in the agreements. (For example, Patrick offers as standard a lengthy ‘grace period’ during which a truck can turn up after its booked timeslot and not be penalised. This period is not mentioned in its agreement).

Given the number of road transporters, and the level of competition between the road transporters, IPART considers that standard agreements are appropriate. However, the terms and conditions should all be clearly documented and made

50 IPART has been led to believe that timeslots are often fully booked well outside the period 8am to 4pm. The comment in the text simply reflects the aggregated nature of the data. IPART also notes that each carrier is restricted to a certain low number of slots in the ‘opening round’. It is difficult to reconcile an allocation that appears to be made per business with the basis of volume of business cited by the stevedores.

publicly available. The current situation creates inefficiencies in the market, when time is spent arguing over whether a fee is applicable and whether the stevedore should exercise discretion. It also encourages perceptions of bias in the stevedores’ treatment of different transporters.

3.2.4 Allegations of bias in allocating road access and VBS slots

Some stakeholders have claimed that the stevedores give preferential access to their terminals to land transport operators affiliated with the stevedores, constituting unfair processes under their Carrier Access Agreements.\(^{52}\) Three of the land transport operators working at Port Botany are affiliated with the stevedore firms. DP World owns 50 per cent of P&O Trans (a road transporter) and Patrick’s subsidiary companies include Patrick PortLink (a rail operator) and Patrick Port Services (a road transporter).

ATA NSW provided IPART with details of a 2004 survey conducted by the now-defunct NSWRTA, which ATA NSW contends provides evidence that DP World gave preferential access to its affiliate, P&O Trans.\(^{53}\) The data shows that 13 P&O Trans trucks entered DP World’s (then P&O Ports’) terminal in a 7am timeslot. Both ATA NSW and CLAG claim that no B-Class carrier could have achieved that number of slots at 7am on a weekday because the VBS limits bookings to four slots in any hour.\(^{54}\)

The stevedores deny that their affiliates have been or are being given preferential access. Patrick noted that, in the year to March 2007, less than 1.5 per cent of the truck movements into its terminal were by its affiliate.\(^{55}\) DP World indicated that historically P&O Trans has moved bulk volumes in off-peak periods and that, in the light of the separation and restructuring of P&O Trans, DP World would continue to explore means of encouraging the carrier to do so.\(^{56}\)

IPART notes that the 2004 survey data described above do not distinguish between trucks that entered the terminal via a VBS booking and trucks that entered via bulk runs. Therefore, it cannot conclude that there was bias. However, IPART considers that the VBS allocation system could be better structured to lessen the possibility of bias occurring and to promote a more transparent and fair allocation of access to the terminals.

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\(^{52}\) CLAG submission, p 41, ATA NSW submission, pp 16 and 34. IPART notes that the ACCC is separately investigating allegations of historic self-favouritism by the stevedores.

\(^{53}\) NSWRTA conducted a survey in 2004 to observe any discrepancies in operating practice between DP World (then P&O Ports) affiliated trucks and other road transporters accessing the DP World terminal.

\(^{54}\) CLAG submission, p 17. According to DP World’s VBS rules, B-Class carriers can only book a maximum of four slots an hour and 96 slots in any 24 hour period. Each carrier can make further bookings if, after the exclusive booking period, there are unfilled slots.

\(^{55}\) Patrick submission, p 60.

\(^{56}\) DP World submission, p 37 at para 29.b.1 and also comment at para 29.c.
3.2.5 Four sources of inefficiency associated with access arrangements

Based on its examination of the arrangements associated with access to the stevedores’ terminals, IPART identified four sources of inefficiency in the port-landside interface. These are:

1. The number of opportunities for trucks to gain access to the terminals via the stevedores’ VBS is often less than the demand for these VBS slots, and there is no mechanism for measuring the level of unmet demand.

2. Access to the available VBS slots is allocated to road transporters without regard to the value of the slots to those transporters, which means that the slots do not necessarily go to the transporters who value them most.

3. The stevedores work on a 24/7 basis, whereas road transporters mostly work weekdays between 8am and 6pm. This mismatch in their hours of operation results in excess demand for VBS slots during weekday business hours and underutilisation/inefficient utilisation outside these hours.

4. There is no mechanism for reducing the impact of uncontrollable delays at the stevedores’ terminals on road transporters, for example by providing them with timely estimates of the length of the delay and the action being taken to adjust VBS slots in response to the delay.

Inefficiency 1: Supply of VBS slots often less than demand, but no mechanism for measuring unmet demand

IPART received evidence that, at times, there are no unfilled VBS slots available to road transporters at any time, day or night, except on Sundays. It can be particularly difficult to get VBS slots during the daytime on weekdays.

The stevedores monitor the proportion of VBS slots that are unfilled and note how frequently this proportion hits zero, and centrally record individual emails and phone calls from road transporters requesting slots. However, there seems to be no mechanism for systematically measuring the extent of any unmet demand for slots at different times of the day or night.

That the stevedores do not know the extent of the excess demand may make their allocation of resources to the landside inefficient. If they have no measure of unmet demand, then they cannot forecast what would happen if they did add resources to the landside operations.

Inefficiency 2: Access to available VBS slots is allocated to road transporters without regard to the value of the slots to the transporters

In effect, the present VBS allocates access on a first-come-first-served basis. Each VBS is opened to accept bids for particular slots on a day three days ahead, at predetermined times each day. The road transporters who are the fastest to get their bids in get the most desired peak period slots. Superimposed on this lottery is a...
Current landside arrangements and sources of inefficiencies

Individual road transporters are prevented from acquiring more than a set number of VBS slots in a given peak period when they are first made available.

Economic theory suggests that a price-based allocation system would result in more allocatively efficient outcomes than this first-come-first-served/quota system. With a price-based system, the available VBS slots could be allocated to those road transporters who value them most highly. It follows that these will also be the road transporters who can make the most productive use of these slots.

Inefficiency 3: Mismatch in hours of operation results in excess demand for VBS slots during weekday business hours

The extent to which the offers of access are taken up by the road transporters is partly determined by the day of the week and time of day in which access is offered. Currently, the stevedores operate on a 24/7 basis, which reflects the nature of ship arrivals. However, the road transporters mostly work more typical business hours, which reflects their clients’ (importers and exporters) normal opening hours.

This mismatch in operating hours is one cause of excess demand for daytime weekday VBS slots. This excess demand occurs because road transporters seek to make several cycles of same-day deliveries to importers and return to the stevedores’ terminals via empty container parks. Same day cycles are the cheapest way to conduct road transport businesses. But most importers and empty container parks only open during normal business hours so that, if a road transporter fails to deliver to the importer or to the empty container park in time, it must incur overnight unloading/loading and storage costs.

Whenever delays occur in the supply chain, they tend to cause less proportionate disruption to an operation that is working 24/7 than they do to one that is working an eight, ten or twelve hour day. Although IPART’s analysis suggests that over a period of a few days the stevedores are devoting sufficient resources to the landside task to keep containers moving through their terminals, resources are likely to be switched from the landside away from the road transporters at particular times when the stevedores face a large shipside task. An around-the-clock operation on both the shipside and the landside will allow episodes of unexpected congestion to be cleared relatively quickly.

From the road transporters’ perspective, it is most efficient to use the port facilities during the day. From the stevedores’ perspective, it is most efficient if the facilities are used at all times when they are available, that is, continuously around-the-clock. Recognising that the port facilities are a scarce resource, it would be most efficient if all available slots at night-time and on weekends were used more consistently.

The mismatch in operating hours is primarily seen in road transportation of containers. The rail side is not constrained to working normal business hours because import containers must be unloaded at inter-modal terminals before they can be delivered to importers in any case.
Inefficiency 4: No mechanism for reducing the impact of uncontrollable delays at stevedore terminals on road transporters

As discussed earlier in this chapter, variations in the size of their shipside task can result in the stevedores reaching a state of ‘distressed’ operation. When this occurs, there can be significant delays at their terminals, and a road transporter with a VBS slot may not gain access to the terminal until a significant time after that timeslot.

Because a VBS booking stipulates that a truck needs to arrive during a particular window of time, that truck needs to be in the queue at that time or risk a wrong-zone or no-show penalty. This means that truck drivers are effectively forced to join inefficiently long queues.

In addition, the road transporters affected by the delay may also need to make major adjustments to their planned activities for that day and perhaps for several days after. These knock-on effects may mean that trucks are not able to return to the port in time to fill VBS slots the road transporter booked two days earlier, which further reduces their efficiency.

Currently, there is no mechanism to reduce the impact of delays at the terminals on road transporters. For example, the stevedores do not provide real-time information about the delay that would allow road transporters to adjust their own plans to minimise the impact of delays on their efficiency.

3.3 Access prices

Each stevedore charges fees and penalties related to access to its terminal by road, and fees related to access by rail. Each also charges on-port storage fees after the free storage period has elapsed.

3.3.1 Road access fees

DP World charges different annual subscription fees to access its VBS, and various penalties for not meeting the VBS timeslot. These fees and penalties are shown in Table 3.3. Separate arrangements apply to stack runs, and there is no charge for access via the standby queue.

<table>
<thead>
<tr>
<th>Carrier Class</th>
<th>No. of Carriers (as at February 2006)</th>
<th>Annual Charge a</th>
<th>Penalties (per timeslot) b</th>
</tr>
</thead>
<tbody>
<tr>
<td>B Carrier</td>
<td>28</td>
<td>$29,221.50</td>
<td>No show $100</td>
</tr>
<tr>
<td>A Carrier</td>
<td>162</td>
<td>$1,334.00</td>
<td>Wrong zone $50</td>
</tr>
<tr>
<td>AB Carrier</td>
<td>39</td>
<td>$667.60</td>
<td></td>
</tr>
</tbody>
</table>

\[ a \] includes GST  \[ b \] plus GST

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The B Carrier subscription is intended for large road transporters, and those with this subscription get the lion’s share of access to the VBS via the internet. The A Carrier subscription is intended for standard sized road transporters, and provides more limited online access. The AB Carrier subscription is for standard road transporters who book VBS slots by telephone. Road transporters elect to subscribe to the subscription that makes most economic sense based on the volume they carry.

Road transporters incur ‘no show’ penalties when a truck does not arrive for a booked timeslot. They incur ‘wrong zone’ penalties when a truck arrives outside its hour-long VBS slot.\(^{57}\) DP World submitted that its staff are regularly requested to waive these penalties, especially when carriers believe that the penalties have been incurred unfairly.\(^{58}\)

Patrick charges a monthly fee and a small uniform fee per VBS timeslot. Patrick’s charges and penalties in relation to the VBS are shown in Table 3.4.

Table 3.4  Patrick’s VBS charges and penalties at Port Botany

<table>
<thead>
<tr>
<th>Charges</th>
<th>Penalties</th>
</tr>
</thead>
<tbody>
<tr>
<td>$4.00 per timeslot a</td>
<td>No Show $50 b</td>
</tr>
<tr>
<td>$10 monthly access fee b</td>
<td></td>
</tr>
<tr>
<td>$770 pa annual national subscription fee to 1-Stop a</td>
<td>plus GST</td>
</tr>
</tbody>
</table>

\(\text{a includes GST} \quad \text{b plus GST}\)


Patrick’s VBS is operated through 1-Stop, a company established in 2003 as a joint venture between Patrick and DP World in order to standardise VBS platforms. In addition, 1-Stop charges carriers an annual national subscription fee.\(^{59}\)

DP World suspended the roll-out of its VBS through 1-Stop at its ports across Australia, including Port Botany, due to concerns about how lawful it would be for it to standardise its charges considering section 45 of the Trade Practices Act.\(^{60}\) Patrick has also stated that it may not be possible for the stevedores to standardise their VBS charges under current regulatory environment.\(^{61}\) IPART understands that there is an on-going ACCC investigation into the proposed joint VBS.\(^{62}\)

\(^{57}\) DP World submission, p 21.
\(^{58}\) DP World submission, p 21.
\(^{59}\) Patrick submission, pp 22-23.
\(^{60}\) DP World submission, p 28.
\(^{61}\) Patrick submission, p 26.
\(^{62}\) DP World submission (pp 32-33) refers to “…recent actions by Government regulators have unfortunately further hindered efforts to progress VBS and other carrier access issues at DP World Sydney.” Notwithstanding, DP World has suggested that consideration be given to a single VBS platform.
3.3.2 Rail access

Rail operators access each stevedore’s rail sidings via an assigned rail window. The timing, duration and size (number of lifts) of the window is negotiated with the stevedore. The rail operator seeks to align the window to the train path acquired into Botany Rail Yard from RailCorp.

DP World charges $360 per hour for a rail window, during which it guarantees to load/unload 30 containers.63

Patrick’s charges are based on the length of the window and the number of lifts, which are charged at $10 per lift. In principle, the length and cost of the window depends on the number of lifts required. However, Independent Group states that the window fee at Patrick is payable in full even if the actual number of lifts is less than the negotiated rate, but additional lifts are charged if actual lifts exceed the number agreed.64 Further, one container moved off or on to a train may require several ‘lifts’, including what are called ‘consolidation moves’.

Prices to access rail windows are examined in detail in Chapter 5.

3.3.3 On-port storage after the free storage period has elapsed

As discussed earlier, both stevedores provide three working days65 of free on-port storage for import containers, and five working days of free on-port storage days for export containers.66 After the free storage period expires, storage charges apply (Table 3.5).

Table 3.5 On-port storage charges for import containers at Port Botany (applicable after three free day period expires)

<table>
<thead>
<tr>
<th></th>
<th>20ft container</th>
<th>40ft container</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PATRICK</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 days</td>
<td>$52.66</td>
<td>$105.32</td>
</tr>
<tr>
<td>&gt;3 days</td>
<td>$128.77</td>
<td>$257.54</td>
</tr>
<tr>
<td>Yard handling fee a</td>
<td>$76.12</td>
<td>$76.12</td>
</tr>
<tr>
<td><strong>DP WORLD</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-3 days</td>
<td>$48.00</td>
<td>$96.00</td>
</tr>
<tr>
<td>&gt;4 days</td>
<td>$120.00</td>
<td>$240.00</td>
</tr>
<tr>
<td>Yard handling fee a</td>
<td>$66.00</td>
<td>$66.00</td>
</tr>
</tbody>
</table>

Note: storage rates are exclusive of GST

a Yard handling fees (per container) are for consolidating containers in various stack positions until collected.

Source: Stevedore storage rates from Patrick Import Storage Tariff Notice, effective 1 July 2007 and DP World Import Storage Notice effective 1 September 2007.

63 DP World submission, p 34.
64 Independent Group submission, p 12.
65 Currently, both Patrick and DP World classify Monday to Saturday as working days. Patrick does not count Sundays and Public Holidays as working days (Patrick submission, p 37). DP World appears to count some Public Holidays as working days. Evidence cited by the CBFCA shows that over the 2007 Easter holiday period, Good Friday (6 April 2007) and Sunday (8 April 2007) were the only days declared to be not working days. Easter Monday was a working day (CBFCA submission, p 15).
66 These terms mirror those typically found in the stevedores’ contracts with the shipping lines, as discussed in section 2.3 of this report.
3 Current landside arrangements and sources of inefficiencies

DP World submitted that in 2006, 93 per cent of its containers were collected within the three free days, but half its storage revenue was attributed to containers staying at the port for longer than six days after the free storage period.\(^{67}\) Patrick noted in its submission that 79 per cent of its storage revenue is generated from containers not collected after two days beyond the free storage period.\(^{68}\)

Based on the storage rates shown in Table 3.5, a 20ft container dwelling for 6 days after the free storage period would cost $570 at DP World terminal ($1,074 for a 40ft). A 20ft container dwelling at Patrick for 6 days after free days would cost $696.50 in storage ($1,316.90 for a 40ft).

3.4 Access costs

The stevedores incur costs to operate their VBS, including:

- IT development and maintenance costs, and
- management and administration costs.\(^{69}\)

In its Issues Paper for this review, IPART asked whether a wider range of costs could be attributed to the VBS, but the stakeholders expressed the view that this limited range is appropriate.

IPART has not been provided with any detailed information on the quantum of these costs and therefore is not able to precisely ascertain the cost base underpinning the stevedores’ VBS. However, as noted above, both stevedores submitted that they view their VBS as a tool to assist them in moving containers between ships and landside transporters, and not as a profit centre. Consequently, prices are unlikely to be above the costs of running the booking systems and to that extent, the current charges seem to neither under nor over recover costs.

Further, IPART understands that direct VBS costs and the VBS revenues generated are both only a small proportion of the costs incurred by the stevedores to service the landside transporters.

When containers are left in the stevedores’ terminals beyond the free storage period, the stevedore incurs costs to manage and store them. These costs include an implicit rental for the space occupied and the number of consolidation moves or rehandles required (both of which will vary with the stack density of the yard). No estimate of these costs is available to IPART.

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\(^{67}\) DP World submission, p 36.

\(^{68}\) Patrick submission, p 37. Further, Patrick states that “only 2.2 per cent of containers incurred storage charges in the prior 12 months” (p 3).

\(^{69}\) DP World submission, p 18.
3.5 Access to empty container parks

The final stage in an import container’s journey is its return to the empty container park nominated by the shipping line on the import delivery order. Shipping lines allow 7 to 10 days from date of availability at the port to return (or ‘de-hire’) to their nominated sites. Because shipping lines often want quick access to empty containers for loading, most empty container parks are near the port. Almost all are only accessible by road.

Rising land values around the port are increasing the opportunity cost of using land for storage. The returns on investment in empty container parks also appears to be being squeezed because the fees paid by the shipping lines for storing their empty containers are low - $0.75 a day plus a yard lift fee of $10.70.

Low returns may be one reason why most do not open on weekends or after 4pm or 5pm. It may also be that some of those around the port precinct in Botany, Banksmeadow and Marrickville may have restricted opening hours imposed by local councils.

Such limited opening hours act as a constraint on the way road transporters function. At worst, a missed de-hiring means that the loaded trucks become storage platforms and not transport vehicles. In response, road transporters can either:

- accept that the trucks are tied up and park the trailers overnight, either along Foreshore Road or elsewhere,71 or
- pay for after-hours access to staging yards (costing around $120).

Either way, another consequence is that they may end up paying “container detention charges” to the shipping lines for making late returns. These charges vary from $30 to $100 per day.72

3.6 Impact of inefficiencies on importers and exporters

It is hard to measure the extent of impact of the inefficiencies from queuing delays on the importers and exporters. The terms of dealing entered into by these players in the supply chain may range from ‘ex-works’, where the buyer pays all transportation costs from the seller’s premises, through to ‘delivered duty paid’ where the seller pays for all transportation costs and duties. In between these two extremes, the commonly used ‘free on board’ terms of dealing require that the seller loads the goods on board the ship nominated by the buyer, so that the buyer pays all transportation costs for shipping and for land transport to its premises. Regardless of the terms of dealing entered into by the importer or exporter, a transporter may decide not to pass on costs in order to retain a particular customer.

70 ATA NSW submission, p 13.
71 For example, on a trip to the port in the afternoon of 7 August 2007, IPART counted 7 loaded truck trailers (and 60 empty truck trailers) parked along Foreshore Road.
72 ATA NSW submission, p 39.
Reforming Port Botany’s links with inland transport
4 Modifying the current system to enhance efficiency

Taking account of the current port-road transport arrangements and their inefficiencies (discussed in Chapter 3), IPART considered how these arrangements could be modified to increase efficiency. The aims of this modification include reducing congestion in the vehicle booking systems, the stevedores’ terminals and the surrounding suburbs, and altering the way the landside road task is performed to make it more efficient.

During the review, stakeholders suggested various options for achieving these aims, including:

- that the stevedores offer more VBS slots at times of peak demand
- that the stevedores provide road transporters with real-time information about delays at their terminals and the action being taken to adjust VBS timeslots
- that the VBS be owned or operated by independent third parties, rather than the stevedores
- that road transporters move more towards 24/7 operations
- that road transporters increase their container density per truck and/or make more dual runs, and
- a range of other improvements, including the road transporters arriving at the terminals on time, having their paperwork in order and adopting technology to enable the automation of paperwork; the stevedores doing more ‘housekeeping’ prior to the road transporters arriving at the terminal; and the establishment of a single, effective peak body to represent road transporters.

IPART examined each option and the associated issues. It concluded that in the short-term, action to address some of these issues is likely to help reduce congestion and increase efficiency at the port-road transport interface – particularly providing real-time information about delays at the stevedores’ terminals; adjusting the VBS in response to these delays and to encourage two-way loading; and taking steps to improve the transparency of the VBS slots allocation process and assure road transporters that this process complies with established rules.

However, in the medium term, as the growth in container trade continues to add to the size and complexity of the landside task, change that is much more substantial will be required to the VBS to ensure the smooth, efficient flow of container traffic.
into and out of Port Botany. IPART’s proposal for this change is discussed in Chapters 7 and 8.

The sections below discuss each of the options listed above, and IPART’s considerations and recommendations in relation to them.

4.1 Stevedores offer more VBS slots in times of peak demand

Various road transporters suggested that congestion in the VBS could be reduced by the stevedores offering more VBS timeslots during the periods when road access is most in demand – roughly between 5am and 5pm, Monday to Friday. They also suggested this could be achieved by:

- the stevedores undertaking all stack run activities outside the hours of peak demand
- the stevedores allocating more resources to their landside operations.

In relation to undertaking stack runs outside peak hours, Patrick submitted that stack runs of large numbers of empty containers “at times when the terminal is less busy, such as the evening and night shifts” are one of the tools it uses to allocate capacity. However, shipping lines often require empty stack runs during the day when the cost is lowest and empty container parks are open. In short, the timing of stack runs is heavily influenced by the shipping contracts and that means stack runs occur during peak periods as well as off-peak periods. Further, given that ship movements occur at any time of day or night, this suggests there is little scope to change the timing of stack runs at this stage.

DP World informed IPART that it performs more than 90 per cent of its stack runs between 6am and 10pm, but did not indicate how much of this activity occurs outside peak hours (ie, between 5pm and 10pm). DP World states that stack runs may be arranged at its discretion.

At present, Patrick does not charge for stack runs of empty containers, and DP World only charges a separate fee for stack runs by carriers without B Class subscriptions. Without pricing signals, there seems to be little incentive for the stevedores to alter their present use of stack runs. In particular, there may be disadvantages to their terminal management if all stack runs were to be switched to off-peak hours. It is probably more efficient to address the timing and size of stack runs by pricing them

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73 Sydney Ports Corporation, Logistics Review 2005/06, Figure 5 p 11 indicates most truck entries occur during this period.
74 Patrick submission, p 18.
75 DP World submission, p 4.
76 DP World 2007/08 Carrier Access Arrangement Port Botany Terminal, p 6 (attached to DP World submission).
77 DP World 2007/08 Carrier Access Arrangement Port Botany Terminal, p 6 (attached to DP World submission).
more appropriately so that they compete on comparable terms with demand for other forms of road access. A specific proposal is considered in Chapter 8.

In general, there seems little immediate scope for reducing congestion in the VBS by requiring all stack runs to be made during off-peak hours.

In relation to allocating more resources to the landside operations, the limited evidence available to IPART suggests that the stevedores at Port Botany already increase resource levels in their landside operations in response to demand. For example, DP World data for 2006 show that the stevedore offered a greater number of VBS slots in the period between 8am and 4pm in the third and fourth quarters of the year, when the port was busier due to increased trade over the Christmas/New Year and Chinese New Year periods (see Figure 4.1). It also follows from the regression results shown in Appendix G.

**Figure 4.1 Number of VBS slots offered by DP World at Port Botany in 2006**

![Figure 4.1](image-url)

*Source:* DP World VBS daily data 0800 to 1600 hours aggregated by IPART.

However, the supply of VBS slots appears to differ widely between terminals in different ports. For example, DP World offers a significantly larger number of VBS slots in the period between 8am and 4pm in Melbourne than it does in Sydney. In its submission, DP World explained that this is because:

- the total number of containers it moves is larger in Melbourne
- it has to move containers through the VBS to the off-terminal rail link in Melbourne, which is not required in Sydney because the rail link is on-port
- a higher percentage of the containers it moves in Melbourne are full export containers (which are far less likely done in stack runs like empty containers).
According to DP World, these differences mean that a higher number of VBS slots per quarter are required in Melbourne to do essentially the same job as it does in fewer slots in Sydney.\(^{78}\)

Whatever the reason, the fact remains that DP World offers many more VBS slots during the hours of peak demand in Melbourne than it does in Sydney, and presumably allocates more resources to its landside operations to do so. Based on this example, IPART infers that the stevedores could offer more VBS slots in the 5am to 5pm period at Port Botany if they chose. IPART also infers that the reason the stevedores do not is that under the present pricing/incentive arrangements, it is not cost-efficient for them to do so. If implemented, IPART’s proposed two-tier VBS (discussed in Chapters 7 and 8) is intended to change these incentives, and so lead to a higher number of VBS slots being offered in the hours of peak demand.

Even so, IPART does not consider that pressing the stevedores to increase the number of VBS slots they offer in the hours of peak demand is a practical and effective way to reduce congestion. Currently, IPART does not have information on the feasible maximum storage and throughput capacities of the stevedores’ terminals, or systematic and comprehensive evidence on the extent of unsatisfied demand for peak-time VBS slots by road transporters. Nor are we able to accurately forecast the demand for these slots because, as Chapter 3 discussed, it is difficult to predict accurately the number of truck entries on any day, let alone each hour.

In addition, IPART notes that most containers clear the terminals within the three free day storage period provided by the stevedores. This suggests that the current demand-supply balance is reasonable. In its submission, DP World argued that it provides sufficient VBS slots within that period:

> What determines the number of slots made available are resource levels provided at the container terminal. DP World Sydney provides more than sufficient resource levels to enable all containers to be delivered as required to road within the three free day period, even accepting the industry’s current limited use of the available 24/7 terminal operation. It is acknowledged that resource levels provided to road operations may be varied day to day as resources may need to be directed to ship operations but this follows from running the terminal as an integrated operation which is ultimately most efficient.\(^{79}\)

Finally, while increasing the number of VBS slots during the hours of peak demand could help reduce congestion in the short term, it would not be a sufficient solution to the problem of congestion in the medium-term. Any recommendation that ends simply with the idea of more 5am to 5pm VBS slots will fail to do justice to the magnitude of the task that faces both the shipside and the landside in coming years.

\(^{78}\) Appendix I contains an analysis of the DP World data.

\(^{79}\) DP World submission, p 3.
4.2 Stevedores forewarn road transporters of terminal delays and remedial actions

As Chapter 2 discussed, some degree of congestion occurs at Port Botany every day at predictable times of the day (recurrent congestion). But there are also more severe and less predictable periods of congestion, caused by a range of factors such as equipment failures and unexpected labour shortages at the stevedores’ terminals, and unexpected bunching of ship arrivals (non recurrent congestion).

IPART has no data on the way the stevedores manage their resources when faced with unexpected ship arrivals. They will certainly put more resources into the shipside task, but it is not clear whether they will consistently put more or less resources into the landside side and to what extent they do so. If a stevedore were to switch workers and equipment from the landside, the effectiveness of the VBS would be much more significantly impaired than if the stevedore left the landside allocation unchanged (and employed whatever extra resources that were hired to the shipside).

Non recurrent congestion causes long delays for road transporters, even for those who have VBS slots. One way to reduce these delays – and the frustration, inconvenience and costs for road transporters they impose – is for the stevedores to provide real-time information about the conditions at each terminal, particularly about delays, and introduce rules that establish what action the stevedores will take to readjust the VBS slots when delays occur. In addition, given that some delays are inevitable, the stevedores should also consider providing basic amenities for truck drivers who are required to queue.

4.2.1 Provide information about delays in real time

Various stakeholders suggested that the truck queues that form as a result of problems at the stevedores’ terminals could be alleviated if the stevedores provided real-time information to road transporters about the size of the queue at each terminal, and an estimate of the time that trucks with booked VBS slots will need to wait after their slot to enter the terminal. This would enable the road transporters to deploy their trucks elsewhere when the queues are long.

For example, the Port of Auckland in New Zealand uses a combination of live feed webcams at its entry gates and email bulletins to keep road transporters informed of any slowdowns or disruptions in stevedore operations. The NSW road transporters’ industry peak bodies have suggested installing webcams at Port Botany. Other possibilities include establishing an internet bulletin board or email alert system managed by either the stevedores through the VBS or by the SPC.

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80 Port of Auckland in New Zealand uses a combination of live feed webcams at entry gates and email bulletins to keep the road transporters informed of any slowdowns or disruptions in operations (see http://www.poal.co.nz/).
To enable this kind of real-time communication between the stevedores and the road transporters, many transporters will need to change the way they operate. In particular, they will need to ensure that they have the necessary electronic communication devices.

Recommendation

1. That each stevedore provides real-time information about the size of the truck queue at its terminal, and an estimate of the time that trucks with booked VBS slots will need to wait after their slot to enter the terminal.

2. That road transporters invest in the communication devices they need to receive the stevedores' real time communications and act accordingly.

4.2.2 Introduce rules to establish the action stevedores will take to readjust the VBS slots when delays occur

While access to real-time information about delays would be an improvement, it would not be sufficient to solve the problems caused by delays at the stevedores’ terminals. The design of the VBS would also need to change. Currently, because a VBS booking stipulates that a truck needs to arrive during a particular window of time, that truck needs to be in the queue at that time or risk a wrong-zone or no-show penalty. This means that truck drivers are effectively forced to join inefficiently long queues.

IPART considers that, as a minimum, the existing VBS rules should be complemented with additional rules that establish what a stevedore will do when there is a delay at its landside operations. When delays occur, the number of VBS slot holders exceeds the number of trucks that can physically be served within that shift or that day. Therefore, there should be a set of rules for fairly readjusting the number of slot entitlements to match the number of trucks that can physically be served.

It will not be easy to establish rules for readjusting the number of slots that satisfy all parties, because readjustment will mean that some truck drivers who have legitimate slot entitlements will lose them. However, in IPART’s view, failing to readjust the number of slots will lead to a worse outcome: no more trucks will be served in a given timeframe, and a large number will unnecessarily incur waiting costs in the queue. Readjusting the number of slots in an ad hoc way or at the stevedore’s discretion is also undesirable, because it is likely to lead to the kind of suspicions about favouritism that has prompted CLAG’s complaints about the VBS to the ACCC.
IPART has identified three possible approaches for a rule-based readjustment of VBS slot when delays at a stevedore’s terminal occur:

1. Based on the estimated length of the delay, the stevedore could revise the time windows of all booked slots by adding a specified number of hours to them (for example, if the estimated length of the delay was four hours, a 2pm slot would become a 6pm slot, a 3pm slot would become a 7pm slot, and so on).

2. When the delay exceeds a specified limit, say two hours, the stevedore could cancel the next two hours of VBS slots so that the trucks with slots in the following hours can be served at the booked time.

3. When the delay exceeds a specified limit, the stevedore could cancel all slots for the rest of the day, and reopen the VBS for new bids based on a downwardly revised number of slots.

IPART prefers the first two options, both of which are relatively simple, and would mean that stevedores provide real-time information to enable the road transporters to know (in general terms) when there is a delay at a stevedore’s terminal, how long the delay is expected to be, and what will be done to minimise the impact of the delay to holders of VBS slots. The third approach is less attractive, because it would necessitate a new round of VBS slot bidding at short notice.

The second approach has an additional advantage over the first, in that it would confine the impact of the delay to a limited number of truck drivers – those whose booked slots were during the hours that slots were cancelled. All other slot holders would be served on time. This approach would disadvantage the holders of cancelled slots, but over a year, you could expect the disadvantage to be roughly shared across all road transporters in proportion to their usage of the port. To help stakeholders consider and comment on the first two options outlined above, these options are presented in a more specific form in Box 4.1.
Modifying the current system to enhance efficiency

Box 4.1 Options for readjusting the VBS timeslots when delays occur

Option 1: Convert existing VBS slots into virtual queue, provide information about length of delay, and waive wrong-zone penalties

Under this option, the stevedore, through the VBS message board, would notify:

- *That delays of X hours are expected to occur (or are occurring) at the terminal, and when on-time access is expected to resume.*
- *The reason(s) for the delay.*
- *The action to be taken –* ie, all VBS timeslots commencing with Zone A today (or tomorrow or next day etc) and ending with Zone K today (or tomorrow or next day etc) will have X hours added to them.
- *When the next notice will be posted,* updating the information above.

Option 2: When delay exceeds specified limit, cancel all VBS slots in a specified time window

Under this option, the stevedore, through the VBS message board, would notify that:

- *That delays of X hours are expected to occur (or are occurring) at the terminal, and when on-time access is expected to resume.*
- *The reason(s) for the delay.*
- *The action to be taken –* ie, all VBS timeslots commencing with Zone A and ending with Zone K will be cancelled, the holders of those timeslots will need to re-book through the VBS, and the stevedore will do its best to accommodate them.
- *When the next notice will be posted,* updating the information above.

IPART also proposes more substantial changes to the VBS, including creating some VBS slots to which access is guaranteed and for which a higher price would be charged. These changes are discussed in Chapters 7 and 8.

In addition, IPART considers that, when there are no delays at their terminals, the stevedores should not provide such lenient ‘grace periods’ – that is, the time period after a booked timeslot in which the stevedore grants access to the holder of that timeslot without penalty. This would help to improve efficiency by discouraging road transporters from arriving later than their booked time, as this can slow down the process for those who do arrive on time.

Recommendation

3 That stakeholders consider adopting a non-discretionary set of communication rules that establish how the stevedores will adjust the number of VBS slots when delays occur in their landside service.
Provide basic amenities for truck drivers required to queue

Given that some delays are inevitable, and therefore some truck drivers will have to queue for long periods to gain access to the stevedores’ terminals, IPART considers that it is reasonable that the stevedores provide basic amenities (perhaps on terminal land), such as a toilet, cold drinking water and perhaps some vending machines. Ideally, access to these amenities should be freely available to all those involved in landside queuing.

Recommendation

4 To foster goodwill, that the stevedores consider making basic amenities such as toilets and cold drinking water available to truck drivers who are required to queue to gain access to the stevedores’ terminals.

4.3 The VBS be independently owned or operated

Several submissions put the view that the VBS should be owned or operated at least in part by a third party. For example:

- SPC suggested that “consideration be given to appoint an independent body to set VBS and associated fees”.81
- CBFCA argued that “an independent management of a VBS would provide transparency in slot allocation and availability of slots and costs”.82
- ATA NSW noted that “ownership and operation of the VBS should be separate from ownership and operation of a stevedoring, road transport, rail or shipping business”.83
- CLAG suggested that SPC “could operate the VBS as an independent operator interested only in port efficiency”.84

The main objectives of an independently operated VBS would appear to be twofold:

- To establish a more transparent and fairer system of slot allocation.
- To reduce the degree of discretion currently exercised in the slot allocation systems.

Independent operation that sets allocations in a transparent manner according to a pre-determined set of rules would help to dispel present suspicions that the VBSs are being operated to the advantage of the stevedores and/or their affiliates. However, as noted below, the same outcome might be achieved with stricter rules and periodic independent auditing of the present allocation systems.

81 Sydney Ports Corporation submission, p 24.
82 CBFCA submission, p 18.
83 ATA NSW submission, p 28.
84 CLAG submission, p 26.

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Given the variable nature of the shipside task and the difficulties of forecasting required VBS timeslots on an hourly basis (as discussed in Chapter 3), it is not obvious how an independently run VBS would involve any less discretion than the current system. Any independently managed VBS would be dependent on the stevedores for advice regarding the number of available slots and their timing. Otherwise, in IPART’s view, independent management of the VBS would interfere to unacceptable levels with the stevedores’ ability to move containers efficiently. The stevedores have specialised knowledge of the operation and capabilities of the lifting equipment on the wharves, and have commercial incentives to arrange their assets and staff to best move containers off their premises to make way for more containers. Therefore, the stevedores are in the best position to decide on the number of VBS slots to be put into the VBSs from time to time. An independent operator is simply likely to become the scapegoat that both the stevedores and road transporters blame for congestion.

In addition, independent ownership of the VBS would not provide any benefit if management remains with the stevedores. Rather, it would simply complicate the decision-making process required to keep containers moving through the terminals. It would also raise a fresh issue - to whom would the independent owner be accountable for performance and fairness?

Stakeholder submissions identified the objective of having an independently owned or operated VBS is to increase stakeholders’ confidence that the booking system is run in a fair and transparent manner – particularly that the available VBS slots are allocated fairly among competing road transporters. IPART has identified two other ways to achieve this objective that would not interfere with the efficiency of the stevedores’ operations. First, it considers that stevedores should clearly set out in their carrier access agreements how they operate the VBS, all the terms and conditions of access to the VBS, and what a holder of a booking in that system is entitled to. The stevedores should then enforce those arrangements.

IPART recognises that if the specified arrangements are enforced, the road transporters will have less operational flexibility. This needs to be weighed up against the greater transparency that will result from this proposal.

Recommendation

5 That each of the stevedores ensures that its carrier access agreement specifies, in clearly expressed terms, how it operates its VBS, the complete terms and conditions of access to this system, and what a holder of a booking in this system is entitled to.

Second, IPART considers that the stevedores should engage independent auditors to review their compliance with their carrier access agreements (discussed above). The combination of clearly specified rules and an independent audit of the application of those rules should minimise the discretion available to the stevedores in offering access through the VBS.
For these audits to be effective in providing assurance, they should be conducted at regular intervals, and should cover periods selected randomly by the auditor. They should also be conducted in compliance with Australian Standard Assurance Engagements ASAE 3000.85 The auditors’ reports should be made publicly available.

Recommendation
6 That the stevedores each engage an independent auditor to conduct regular audits of their compliance with their carrier access agreements.

4.4 Road transporters move more towards 24/7 operations

The stevedores have suggested that the road transporters should move towards 24/7 operations, to reduce the demand for weekday VBS slots during normal business hours and reduce traffic congestion in the Sydney metropolitan area during the morning and afternoon commuter peaks.

In recent years, the proportion of trucks that enter the stevedores’ terminals outside normal business hours on weekdays has increased, which suggests a shift towards 24/7 operations is already occurring (see Figure 4.2).86

Figure 4.2 Proportion of truck entries by time of day


86 Over the past four years, the proportion of trucks that accessed the DP World terminal between 2:30pm to 10:30pm and 10:30pm to 6:30am ranged between 53 and 58 per cent: see DP World submission, Table 4, p 23.
However, IPART found that there are some disincentives for road transporters to increase their off-peak use of the terminals. The key disincentive is that the price structure for storage makes off-peak pickup quite unattractive commercially.

Off-peak pickup from the terminal likely entails costs associated with overnight storage of the container in an off-port facility until it can be delivered. For containers that are still within the free on-port storage period there is no cash cost of waiting until the next day to pick up the container from the terminal. Even for containers that are past the free on-port storage period it may still be cheaper to pick up the container the next day than to pick it up sooner during the off-peak and incur off-port costs. This anomaly in the relative storage cost structures tends to deter greater off-peak use of the terminal.

Table 4.1 shows that off-port storage for a 20ft container costs $7.50 a day. On the face of it, this appears to be much cheaper than on-port storage of $48 or $53 per day (applicable after the three free day period has elapsed) shown in Table 3.5 in Chapter 3. However, there are also additional costs related to placing the container at the facility. ATA NSW estimates that these additional costs for a full container include $100 in transport costs (based on extra truck time of 1.25 hours at $80 per hour) plus $20 in extra operational and administrative tasks.

Based on the data in Tables 3.5 and 4.1, the comparison between on-port and off-port storage charges, including relevant transport and administrative costs, is shown in Figures 4.3 and 4.4 for a 20ft container and a 40ft container respectively.

The figures demonstrate that on-port storage is cheaper for the cargo owner than off-port storage until a 20ft container is three days or more, and a 40ft container is two days or more, past the free storage period. Given this pricing incentive, off-peak

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Table 4.1 Indicative off-port storage and transport charges

<table>
<thead>
<tr>
<th></th>
<th>20ft container</th>
<th>40ft container</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicative off-port yard rates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage fee per day</td>
<td>$7.50</td>
<td>$15.00</td>
</tr>
<tr>
<td>Yard handling fee³ – per lift</td>
<td>$30.00</td>
<td>$45.00</td>
</tr>
<tr>
<td><strong>Transport and administrative costs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truck hours - 1.25, $80 per hour</td>
<td>$100.00</td>
<td>$100.00</td>
</tr>
<tr>
<td>Administrative – 0.25 truck hours equivalent</td>
<td>$20.00</td>
<td>$20.00</td>
</tr>
</tbody>
</table>

**Note:**³ Yard handling fees (per container) are for lifting containers off the truck for storing and on again upon re-collection for delivery to importers’ premises. The $30 per lift agrees with the Sea Freight Council minimum figure quoted in Chapter 5. The $45 lift fee for 40 ft containers is slightly higher than the maximum figure cited by the Sea Freight Council.

**Source:** CBFCA communication to IPART, 4 July 2007; ATANSW submission p 12 Table 2.

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87 ATA NSW submission, p 12 and J.J. Lawson, private communication to IPART, 5 July 2007. The extra $20 is based on 0.25 hours at $80 per hour truck time (as the driver gains entry and processes paperwork at the staging depot). The same costs are incurred again if the road transporter cannot gain access to an empty container park on the inward journey to the port.
pickup is quite unattractive commercially. In other words, the price structure for storage drives cargo owners to prefer peak operation.

Figure 4.3 Costs of on-port and off-port storage – 20ft container

Source: IPART analysis based on data presented in Tables 3.5 and 4.1.

Figure 4.4 Costs of on-port and off-port storage – 40ft container

Source: IPART analysis based on data presented in Table 3.5 and 4.1.
Other disincentives to road transporters moving more towards 24/7 operations exist in the form of council requirements that constrain the operating hours of some warehouses, and council curfews on the use of local roads by container trucks.\(^88\) Transport and planning matters relating to local councils would best be taken up at a government-to-government level where interests of local residents could be balanced against supply chain efficiency.

Given the above, IPART considers that weekday congestion at Port Botany could be alleviated by more off-peak activity by road transporters and by more off-port storage. However, to remove the current disincentives for overnight or even two-night off-port storage,\(^89\) changes to the relative prices of on-port and off-port storage are required.

Some stakeholders have suggested that IPART consider a peak/off-peak price structure for VBS access. In such a structure, a much higher price would be charged for access during the ‘peak’ hours on Monday to Friday and a rebate would be paid to road transporters for each slot accessed outside those hours. IPART considers that this approach would not be simple, because the stevedores have very different VBS pricing arrangements (Patrick charges per entry, while DP World charges by annual subscription). However, it would be possible. IPART prefers and recommends an alternative approach, which is explained in Chapters 7 and 8.

### 4.5 Road transporters increase container density per truck or make more dual runs

Currently, most VBS timeslots are booked for a single run – that is, to either pick up or drop off a single container. Some stakeholders suggested that congestion in the VBS could be reduced if the road transporters used the existing VBS slots more productively, by increasing the container density per truck and/or making more dual runs. (A dual run is where a truck drops off an export container then picks up an import container before leaving the terminal.)

#### 4.5.1 Increase container density per truck

Table 4.2 shows that Sydney has the lowest container density per truck across Australia, both at DP World terminals and overall.

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\(^{88}\) These constraints differ, depending on the council and the particular stipulations of the development consent.

\(^{89}\) The same disincentive applies when empty containers do not get returned to an empty container park in normal business hours. This disincentive may also explain why loaded truck trailers are parked along Foreshore Road.
Table 4.2  Container density rates per truck

<table>
<thead>
<tr>
<th>Port</th>
<th>DP World Average (January 2006 to April 2007)</th>
<th>All Stevedores (July to December 2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brisbane</td>
<td>1.43</td>
<td>1.65</td>
</tr>
<tr>
<td>Sydney</td>
<td>1.16</td>
<td>1.30</td>
</tr>
<tr>
<td>Melbourne</td>
<td>1.59</td>
<td>1.55</td>
</tr>
<tr>
<td>Adelaide</td>
<td>1.67</td>
<td>1.50</td>
</tr>
<tr>
<td>Fremantle</td>
<td>1.34</td>
<td>1.50</td>
</tr>
</tbody>
</table>


One explanation for Sydney’s low container density may be that, of the 250 road transporters in the city, many serve many small “LCL” importers. If this is the case, some form of information exchange arrangement would be needed to encourage higher container densities per truck.

Another explanation may be that the size of the trucks in Sydney’s road transporters’ fleets is smaller than elsewhere. For example, in Melbourne, almost all containers are moved by articulated and B-double trucks that can carry 2-3 containers, and some are moved by “super B-doubles” that can carry 4 containers. Super B-doubles are currently prohibited in Sydney.

IPART concludes that to increase container density, Sydney’s road transporters may need to replace their current fleets with larger trucks over time. However, local councils may have restrictions on the size of trucks and their on-road hours.

Recommendation

7  That the NSW Government request the Roads and Traffic Authority to review whether ‘super B-double’ trucks can be permitted to access Port Botany along selected routes at selected hours in consultation with relevant local councils.

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90 LCL is “Less than full container load”, where a container has more than one importer’s cargo. FCL is “Full container load”, where a container has only one importer’s cargo.
4.5.2 Conduct more dual runs

IPART did not receive any data on the proportion of dual runs compared to single runs. However, there appears to be some impediments to dual runs. Currently, DP World allows B-Carrier subscribers to conduct dual runs without prior notification, but other carriers must use the VBS to book two runs in sequence. Patrick requires all multiple-container trucks wishing to conduct dual runs to book multiple slots in sequence, which might discourage such runs. However, Patrick has stated its willingness to improve its VBS to encourage dual runs.

IPART has identified several changes that could be made to increase the number of dual runs. One is to introduce a new approach to pricing VBS slots that would give those road transporters who are willing to pay access to “firm” VBS slots that are long enough in duration for a dual run. This recommendation is discussed in Chapter 8.

Another change is to create a VBS that covers the wider port precinct – ie, including the two current stevedores’ terminals, the empty container parks, the staging facilities of the large road transporters, and eventually the third stevedore’s terminal. In IPART’s view, enabling the road transporters to access a booking system that covers the wider port precinct in a coordinated way would generate significant operational benefits, including encouraging more dual runs and thus increasing the efficiency of the landside container task. This would also have a public benefit that extends over the wider NSW economy.

IPART is aware that the ACCC has expressed concern that the proposed joint VBS 1-Stop would breach the requirements of the Trade Practices Act that prohibit fixing, maintaining or controlling prices in a way that may substantially lessen competition. However, IPART considers that it should be possible to construct a wider booking system that complies with the Trade Practices Act, taking into account the following principles:

- the objective of the system should be clearly stated as increasing the volume and proportion of dual runs
- access principles should be clearly articulated, and be transparent and fair (as discussed in Chapter 2)
- fees and key performance indicators for services applicable to the different classes of user should not discriminate between road transporters once a certain subscription is paid

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91 According to DP World’s submission, “All B Class carriers are allowed to engage in a process called “export tagging”. Export tagging involves a carrier booking an import timeslot in ePorts which will give them access to the terminal. A carrier is then able to bring an export container on the truck that is arriving to collect the import container without booking a slot for that export container (during most timeslots in the day). The purpose of this flexibility to carriers is to increase two-way running which reduces costs to carriers and decreases the number of trucks in the port community” (p 12).

92 Patrick submission, p 32.
the parties should develop protocols for dealing with each other that comply with, rather than risk breaches of, the Trade Practices Act.

Because the consideration of a wider booking system involves port-wide concerns, the port community might be best served by a party with a whole-of-port perspective, namely SPC, to lead an investigation into the feasibility of such a system.

Recommendation

8 That Sydney Ports Corporation investigates, in consultation with the stevedores, the creation of a VBS that encourages two-way loading, covering the wider port precinct, taking into account the principles set out above. Sydney Ports Corporation should also take into account the views of the road transport operators to the extent that they relate to the construction of a joint VBS.

4.6 Other possible improvements

Other suggestions for reducing delays at the stevedores’ terminals include that:

- the road transporters ‘arrive’ at the terminals ‘on time’
- the road transporters have their paperwork in order before they arrive (including customs duty paid)
- the road transporters adopt technology to enable the automation of paperwork
- the stevedores undertake housekeeping as a matter of course and that road transporters provide container numbers early in the booking process to facilitate such housekeeping
- the establishment of a single, effective peak body to represent road transporters.

4.6.1 Road transporters arrive on time

Both stevedores commented that road transporters in Sydney are often late for their booked slots. Table 4.3 shows data submitted by Patrick, which indicates that many trucks don’t arrive on time to take up their VBS slot. In the first three quarters of 2007, 45.6 per cent of trucks arrived after the zone time expired (last column), and only 33.2 per cent arrived on time (second last column).
Modifying the current system to enhance efficiency

Table 4.3 Truck ‘arrivals’ by time zone entry, January to 18 September, 2007

<table>
<thead>
<tr>
<th>Date</th>
<th>Trucks arriving before zone (1)</th>
<th>Trucks arriving in zone (2)</th>
<th>Trucks arriving after zone (3)</th>
<th>Total trucks (4)</th>
<th>% Trucks arriving in zone = (2)/(4)</th>
<th>% Trucks arriving after zone = (3)/(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>4,581</td>
<td>6,910</td>
<td>9,721</td>
<td>21,212</td>
<td>32.6%</td>
<td>45.8%</td>
</tr>
<tr>
<td>Feb</td>
<td>4,522</td>
<td>6,673</td>
<td>8,607</td>
<td>19,802</td>
<td>33.7%</td>
<td>43.5%</td>
</tr>
<tr>
<td>Mar</td>
<td>4,920</td>
<td>7,085</td>
<td>8,577</td>
<td>20,582</td>
<td>34.4%</td>
<td>41.7%</td>
</tr>
<tr>
<td>Apr</td>
<td>4,057</td>
<td>6,499</td>
<td>9,800</td>
<td>20,356</td>
<td>31.9%</td>
<td>48.1%</td>
</tr>
<tr>
<td>May</td>
<td>4,661</td>
<td>8,495</td>
<td>10,098</td>
<td>23,254</td>
<td>36.5%</td>
<td>43.4%</td>
</tr>
<tr>
<td>Jun</td>
<td>3,967</td>
<td>6,924</td>
<td>8,529</td>
<td>19,420</td>
<td>35.7%</td>
<td>43.9%</td>
</tr>
<tr>
<td>Jul</td>
<td>4,782</td>
<td>7,746</td>
<td>9,845</td>
<td>22,373</td>
<td>34.6%</td>
<td>44.0%</td>
</tr>
<tr>
<td>Aug</td>
<td>4,876</td>
<td>7,093</td>
<td>11,198</td>
<td>23,167</td>
<td>30.6%</td>
<td>48.3%</td>
</tr>
<tr>
<td>Sep</td>
<td>2,293</td>
<td>3,251</td>
<td>5,878</td>
<td>11,422</td>
<td>28.5%</td>
<td>51.5%</td>
</tr>
<tr>
<td>Total</td>
<td>38,659</td>
<td>60,676</td>
<td>82,253</td>
<td>181,588</td>
<td>33.2%</td>
<td>45.6%</td>
</tr>
</tbody>
</table>

Source: Patrick, private communication to IPART 21 September 2007.

However, Patrick only records the time that a truck enters its terminal’s in-gate. This means that the data in the table above does not distinguish between trucks that arrive at Port Botany on time but are not able to get into the terminal on time, and those that are genuinely late in arriving to the Port Botany area. In August, when landside conditions at Patrick were particularly congested, a much higher than average proportion of trucks did not enter ‘on time’.

There are many reasons why trucks may enter the terminal gates after their VBS slot has expired, some of which road transporters can control and others that they cannot. These reasons include:

- specific actions by the stevedores – for example, if a stevedore has delayed the truck in question earlier in the day
- events within the control of road transporters – for example, inefficient planning/scheduling or a truck breakdown or associated equipment
- actions of importers or exporters – for example, failure to have a container available for collection at the designated time, or to be available to unload a container at a pre-arranged time
- wider systemic problems, such as unexpected congestion on Sydney’s road network (road transporters’ planning takes account of expected congestion)
- a combination of any of the above.

IPART has observed that the stevedores are quite flexible in terms of letting trucks into their terminal after their booked timeslot has passed. For example, Patrick effectively offers three-hour slots, because its policy is to allow trucks in up to two hours after their booked slot finished without penalty. If the stevedores provide the road transporters with real-time communications about delays at their terminals,
there is less justification for such long “grace” periods and IPART has recommended that the stevedores stop offering these periods as a matter of course (see section 4.2). This should also help encourage road transporters to arrive on time, where this is in their control. It does mean that the road transporters may lose some flexibility, but this should be balanced against the benefits of greater certainty about the time that will be spent at the port.

### 4.6.2 Road transporters have paperwork in order

Sometimes, import containers cannot be released because the road transporter does not have the necessary paperwork, including a receipt showing that the customs duty has been paid. This causes a bottleneck, which DP World suggested could be removed if ACS allowed containers to be released to road transporters if they presented their invoice for duty. IPART notes that this would be in line with standard business practice.

On a related matter, ACS currently operates a day and evening shift to X-ray both random and targeted containers before they are available for collection. When container throughput is large, a backlog of containers for X-ray can occur. Such a backlog not only causes a bottleneck, it also eats into the free days before storage charges apply. If ACS moved more towards 24/7 operations it would reduce the potential for such bottlenecks. In addition, if the three free days of storage started from the time containers are returned from the ACS X-ray facility, it would alleviate the pressure the X-ray process places on road transporters.

**Recommendation**

9. That the NSW Government take up the matters related to the work of the Australian Customs Service discussed in Chapter 4 with the Australian Government.

### 4.6.3 Road transporters adopt technology to enable the automation of paperwork

Currently, most truck drivers hand the paperwork needed to pickup a container to the stevedore after entering the terminal gate. Some stakeholders suggested that this process adds up to 14 minutes to the TTT. This time could be reduced by fully automating gate processing for trucks.

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93 For example, Port of Felixstowe’s 2007 introduction of a VBS is partly to solve delays caused by driver rejections (15 per cent) at the gate for incorrect/incomplete data entered prior to arrival. For more information see http://www.portoffelixstowe.co.uk/vbs

94 DP World submission, p 11.

95 DP World submission, p 9.

96 Under pressure, operators may engage in speculative and pre-emptive VBS bookings which then incur penalties if the pre-emption is incorrect. CBFCA have tried to minimise time pressures problem by negotiating with the stevedores to allow an extra free day of storage if containers are returned within 24 hours of the last day of free storage (CBFCA submission, p 16).

97 CLAG submission, p 78.
Automation would require the road transporters to provide electronically the stevedore with all the necessary information, before the truck arrives at the gate. Trucks would also need to be fitted with a transponder (or equivalent) to activate this information on entry.98

Automating paperwork is part of a broader recommendation that the landside operators adopt whatever technologies are necessary to be in real-time communications with the stevedores’ terminals, as discussed above in section 4.2.

**Recommendation**

10 That the road transporters invest in the technology needed to fully automate the gate processing for trucks.

### 4.6.4 Stevedores undertake housekeeping

Another way to reduce TTT is for the stevedores to obtain the container numbers to be collected early in the booking process, and rearrange the stacks before the truck arrives so that these containers are easily accessible. Currently, stevedores do not appear to do much of this ‘housekeeping’. Often, they don’t obtain container numbers until shortly before the road transporter arrives at the terminal. This means that upon arrival, the stevedore collects the desired container from wherever it was placed when it was unloaded from the ship (notwithstanding repositioning due to consolidation moves). In a yard randomly stacked two high, the probability that the desired container will be on the bottom of the stack is 50 per cent.

IPART recognises that providing container numbers in advance would give less operational flexibility to the road transporters. There is a trade-off between the rigidity resulting from locking in container numbers some time in advance and the benefit of less time spent waiting at the stevedores’ premises.

However, once a stevedore is in possession of a container number, that information should be used by it to facilitate a quicker service to the relevant road transporter.

**Recommendation**

11 That the stevedores use container numbers that have been provided in advance to do more housekeeping to reduce truck turnaround time.

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98 Transponders are used by 25 per cent of the trucks entering the DP World terminal. DP World currently supplies transponder units for $120.50 per unit (see DP World submission, pp 17-18).
4.6.5 Need for more effective communication between road transporters and stevedores

Typically, supply chains require a high degree of co-operation and communication. At Port Botany, there appears to be room for improvement.

During the course of this review, it has become clear that the interactions between the stevedores and the two organisations representing road transporters tend to be adversarial.

The stevedores submitted that currently there is no effective industry body representing the road transporters in NSW with whom they can work effectively.99 They noted that the situation is very different in Melbourne, where road transporters are represented the Victorian Road Transport Association (VTA). The NSW Road Transport Association was recently declared insolvent and some of its staff joined the ATA NSW. However, the ATA NSW sees itself as a peak body that represents truck operators in general. CLAG represents some participants on the road side of the container freight industry, but does not appear to have an effective relationship with the stevedores.

Neither body speaks for, and to all or even the majority of road transporters servicing Port Botany. As a result, the issues of concern to the road transporters are not being discussed and prioritised among themselves, so that the most important issues can be taken to the stevedores by their appointed representatives to be discussed and solved. In addition, agreed solutions are not being reported back to and actioned by the road transporters.

IPART considers that it is important that the road transporters work effectively with the stevedores to further the interests of all of them. As a first step, the road transporters need to develop a shorter, prioritised list of the key operational changes to be negotiated with the stevedores. They then need to work with the stevedores in a more cooperative and constructive manner to resolve those specific operational issues.

It is IPART’s view that key changes need to be made through cooperative action by the stakeholders, working to improve efficiency for the benefit of all players. To some extent, the ‘goodwill’ of all participants in the supply chain will be required to achieve a more efficient outcome.

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99 This was not always the case. For example, DP World submits that the Carrier Access Arrangements governing terms and conditions for VBS access to its terminal were originally drafted six years ago in consultation with the (now defunct) NSW Road Transport Association, see DP World submission, p 33.
Reforming Port Botany’s links with inland transport
Another approach to reducing congestion at the stevedores’ terminals and on the roads around Port Botany is to increase the use of rail for transporting containers. Recent analyses of container movements into and out of Port Botany indicate that although a high proportion of full export containers from rural NSW are transported to the port by rail, the majority of empty export containers and import containers – most of which remain within the Sydney metropolitan area – are transported by road. As import containers and empty export containers represent approximately 75 per cent of all container traffic at Port Botany, rail would have to capture a significant share of one or both of these categories to meet the NSW Government’s target of 40 per cent of all containers to be moved by rail.

As part of its review, IPART considered what can be done to increase rail’s share of container traffic, including considering the impact of pricing on the choice between road and rail. In particular, it examined:

- why rail doesn’t presently carry more freight into and out of Port Botany
- what needs to be done to overcome the current impediments to increased rail container traffic, and
- which of these necessary measures requires some form of government intervention.

Stakeholders suggested a range of reasons for rail’s failure to capture a larger share of container traffic (see Box 5.1). However, IPART found that the most important reasons are the poor quality of the service provided by rail, and the inferior cost position of rail. In relation to poor service quality, a range of specific causes has been identified. Most of these causes are addressable and some are already the subject of initiatives by ARTC, RailCorp and the stevedores. However, in many cases, government intervention is necessary, or would help, to ensure timely implementation.

In relation to the inferior cost position of rail, IPART found that several factors contribute to rail’s higher costs per comparable container movement, including inefficiencies caused by the service quality issues noted above, additional costs incurred by stevedores, and additional costs related to the fact that rail can’t transport containers for their entire journey and so they must be transferred to or from a truck at some stage. In addition, rail is disadvantaged because a series of market failures have resulted in the prices of container movement by both rail and

100 ARTC submission, Table 2, p 7.
road not reflecting the true costs involved, and this distorts the choice of mode. To help identify how best to address these issues, IPART undertook a quantitative assessment of the road-rail cost differential.

The sections below discuss IPART’s findings and conclusions in detail. Section 5.1 explores rail’s service quality issues, including their causes, potential solutions and whether or not government intervention is needed to facilitate or expedite these solutions. Section 5.2 focuses on rail’s cost position: it describes in general terms why the cost of container transport by rail is higher than the cost by road, then looks at the road-rail cost differential in detail, and what can be done to improve rail’s cost position.

**Box 5.1 Stakeholder views on reasons for rail’s low share of container traffic**

Stakeholders suggested two main reasons for rail’s failure to capture significant empty export traffic:

- the empty container parks, from which this traffic mostly originates, are located too close to port to make rail cost-competitive with road
- rail is presently insufficiently reliable for the “just-in-time” requirements of empty export logistics.

It may also be that rail is presently unable to deliver sufficient capacity for the empty export logistics task.\(^{101}\)

For rail’s failure to capture significant import container traffic, stakeholders suggested the following reasons:

- poor service quality, including poor reliability and the fact that it is not able to give priority treatment to urgent containers
- an inferior cost position relative to road transport.

Stakeholders also expressed doubts over rail’s ability to handle greatly increased volumes.

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\(^{101}\) At the Roundtable, Mr Wright of MCS Cooks River stated, “I don’t believe that rail at its current volume can handle the volumes of empties that need to go back to the port for repositioning. We can have ships that come in and take 4,000 [or] 5,000 TEUs, and the only way you can do that is by road, short-haul road” (see transcript, p 25). There was no substantive disagreement with Mr Wright’s proposition expressed at the roundtable.
5.1 Service quality issues

The poor quality of service provided by rail, particularly the poor reliability, is central to shippers’ choice of mode. For example, CBFCA observed:

Our customers are predominantly the importers as well as exporters, but the use of rail is something that we hardly consider because of the uncertainty of a rail moving containers out to a railhead for then a truck to pick it up from there. There is a lack of visibility and a general uncertainty within the importing community about the use of rail.102

In any sequential chain of activity, delays tend to cascade and become amplified when the system is operating near its capacity. The rail service to Port Botany is a classic example of this: a problem at any stage in the chain causes knock-on effects further down the chain which then further exacerbate the problem.

In contrast, the road transport logistics chain involves a higher degree of parallel activity. The atomistic nature of trucks and the multiple road links serving Port Botany mean the road transport service can adapt and bypass potential choke points, making it far more reliable.

It would not be inaccurate to describe the Port Botany rail system as a sequence of bottlenecks. Rail freight capacity is squeezed at the point where freight trains must cross or share suburban passenger lines, at the Botany Yard, and at the stevedores’ sidings, particularly the DP World siding. The fact that trains must leave by the same route as they enter means that a train faces not three but five separate bottlenecks on a round-trip journey.

At each of these bottlenecks, a given train is assigned a time-limited window or train path. The stevedoring windows are barely long enough to permit a train to fully unload and reload, assuming everything goes well.103 There is no slack time between windows to permit the system to recover from a delay. As a consequence, there is a high probability that a delay to a single train will disrupt all further train services to Port Botany that day. The result is that containers inevitably fail to be delivered as promised, trains and their crews spend large amounts of time unproductively employed, and stevedore resources dedicated to serving the rail interface are underutilised.

5.1.1 Specific causes

IPART considers that the specific causes of rail’s service quality problem include:

- the inadequate configuration of Botany Yard, which makes it a bottleneck
- the inefficient length of the DP World rail siding, which necessitates extra time-consuming marshalling and shunting associated with the need to split trains

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102 Roundtable transcript, pp 13-14.
103 See for example, RailCorp submission, p 13, Independent Group submission, pp 9 and 12 and DP World submission, p 8.
the slow train strip and reload rates currently achieved by both stevedores, which limits the number of containers that can be handled in a rail window

- coordination problems among the various rail entities involved in the movement of trains leading to unnecessary delays and a failure to capture opportunities for optimisation of rail logistics

- the unavailability of freight paths through the suburban passenger network during peak hours, which creates further bottlenecks.

5.1.2 Potential solutions

Stakeholders expressed a high degree of consensus on the need for a modified configuration of Botany Yard and the extension to DP World’s rail sidings. Specific investment plans for these measures have already been agreed by all parties. In the case of Botany Yard, action awaits funding, which ARTC intends to seek from AusLink. In the case of the DP World sidings, action appears to be awaiting finalisation of DP World’s lease extension. There is no apparent impediment to that extension being granted.

In relation to the slow train strip and reload rates, IPART considers that these rates at Patrick’s terminal will be substantially improved with the commissioning of Rail Mounted Gantries (RMG) that are already physically installed, and progressively being handed over by the manufacturer to Patrick. It is not likely that a similar degree of improvement will be achieved at DP World. However, the planned extension of the rail siding will help increase train strip and reload rates. In addition, DP World has indicated that it plans to acquire additional rail loading equipment (in the form of forklifts and reach stackers) that will also increase its train strip and reload rates.

In relation to coordination problems, stakeholders indicated strong support for the introduction of a Port Botany Logistics Team (PBLT), modelled on the Hunter Valley Coal Chain Logistics Team (HVCCLT). This issue is discussed in Chapter 6.

In relation to the unavailability of freight paths through the suburban network during peak hours, IPART considers that there is little prospect of addressing this problem in the foreseeable future. While the soon-to-be-completed SSFL will create some dedicated freight access for trains from the southwest of Sydney, it is likely to become a bottleneck itself soon after it is commissioned. It is a single line railway 36 km in length. The MIST facility is located on the wrong side of the suburban line to access the SSFL without intersecting passenger trains. In fact, there is some danger that demographic pressures may motivate CityRail to attempt to run passenger trains on some lines that are currently dedicated to freight.

104 See Roundtable transcript for Patrick’s agreement at p 6, DP World’s at p 7, ARTC and RailCorp’s at pp 7 – 10, and the Independent Group’s agreement at p 11. In the discussion that followed from p 11, SPC did not disagree with the specific plans on what to build, but raised some additional issues concerning funding, timing, and protocols.

105 RailCorp private communication to IPART, 27 June 2007.
5.1.3 What interventions are needed to facilitate these solutions?

IPART considered whether government intervention is necessary, or would be helpful, to facilitate the solutions identified above, or whether the market forces will be sufficient. Where it found intervention was required, it considered what form that intervention should take. Its considerations and conclusions are summarised below.

Modifying the configuration of Botany Yard

Based on confidential information provided by RailCorp, access charges and other commercial income from metropolitan rail freight infrastructure barely covers its direct costs and do not appear to generate a positive return on investments. As this infrastructure is a necessary catalyst for improved rail performance, government intervention in the form of grant funding for capital works would be required to meet the rail share target.

Extending the DP World siding

It is not clear that DP World is committed to extending the siding at its lease. Both it and its predecessor have failed to take action to address this problem for a long time, which indicates that rail transport is a relatively low priority investment for that stevedore. The fact that some of the logistical inconvenience of DP World’s short sidings is borne by Patrick and the rail operators further supports that interpretation. IPART considers that government intervention, in the form of SPC’s imposition of a lease condition pertaining to the siding length, may be necessary to ensure timely action is taken.

Improving train strip and reload rates

Patrick has invested over $200 million since 2005 in new equipment, including five RMGs. Patrick believes that this investment, together with other investments, will enable it to meet its share of the 40 per cent rail target. It is important to note that Patrick has made this investment on a strictly commercial basis, without the need for government intervention.

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106 RailCorp has advised IPART that a 2006 strategic review of access prices commissioned by RailCorp indicated that access revenue for port related traffic traversing the dedicated Metropolitan Freight Network does not meet the floor test embodied within the NSW Rail Access Undertaking, and that access revenue from the Metropolitan Freight Network (where freight trains are the only users) does not meet the full incremental cost.

107 Rail operators bear the major costs of waiting, excessive shunting, and insufficient loading time that arise from the inefficient track configuration at DP World. Patrick is affected in two ways. First, as most export trains are split between Patrick and DP World, the train cannot be rejoined until both stevedores have finished unloading, so the Patrick half of the train must wait for the DP World half to be finished. Second, longer trains sometimes stick out beyond the end of the short DP World and POTA sidings, blocking the mainline access to Patrick’s sidings.

108 Patrick submission, p 16.

109 See Mr Schultz’ statement in the Roundtable transcript, p 28.
While DP World has not adopted the same future operating philosophy, it is consistent with workable competition for competitors to follow different investment strategies. There is no reason ex ante to believe that it would be inefficient for Patrick to specialise in rail while DP World specialised in road, as appears to be happening to some extent.

The current bottleneck caused by slow train strip and reload rates at the stevedore terminals appears therefore to be amenable to market solutions without intervention.

**Improving coordination between rail entities**

The HVCCLT model emerged in the Hunter Valley spontaneously from commercial discussions between participants without any government direction or interference. There appears to be preparedness among Port Botany rail users and providers to adopt a slightly modified logistics team model. This is considered further in Chapter 6.

**Creating more freight paths during the passenger peak**

The constraint on freight trains crossing the passenger network during peak hours is government-imposed. There appears to be little prospect of government reducing the priority given to passenger trains. The construction of more freight infrastructure represents the only realistic means of overcoming that bottleneck. As noted earlier, the uncommercial nature of metropolitan freight rail infrastructure means that government intervention through grant funding of capital works is needed.

RailCorp suggested that another possible solution to the passenger priority problem is to develop Enfield as a container staging facility—a form of capacity buffer for the port that would enable containers to be held somewhat further out until the passenger peak passes. The NSW Government has since endorsed the use of the Enfield site as an intermodal freight terminal, and planning approval was given in September 2007. In IPART’s view, a drawback of the proposal is that it requires double-handling of rail containers at Enfield, imposing a significant cost penalty on rail operators that are already struggling to compete on cost. However, it is likely to ease the strains on the network to some degree.

---

110 Freight rail operators seeking access to the Metropolitan Rail Network must apply for network access to RailCorp. RailCorp grants access subject to a number of conditions. The primary condition being Passenger Priority. Under RailCorp’s Standard Access Agreement, Passenger Priority is defined as “priority and certainty of access for railway passenger services as provided for in...Transport Administration Act. The word “Passenger Priority” is not specifically mentioned Transport Administration Act 1988, however section 5(2)(a) in referring to other objectives of RailCorp states that RailCorp is to “...maintain reasonable priority and certainty for access for railway passenger services.”

Recommendation

12 That the NSW Government continue to undertake the following non-price initiatives to overcome impediments to increased use of rail to transport containers to and from Port Botany:

- assist ARTC to secure AusLink funding for necessary improvements to Botany Yard
- require DP World to lengthen its sidings
- fund further dedicated freight access across the Sydney passenger network (beyond the current Southern Sydney Freight Line).

5.2 Inferior cost position

IPART found that rail struggles to compete with road on cost for a comparable container movement. The service quality and reliability problems discussed above lead directly to longer cycle times for train sets and crew. The consequence is that capital-intensive rolling stock (locomotives and rail wagons) hauls less freight than it could. Train crews spend large parts of their shift waiting for the train to receive permission to move. Expensive assets are underutilised, and the average per container cost of rail freight is higher than it would be under improved reliability.

Rail is further disadvantaged because stevedores incur costs to interface with trains that are additional to the costs they incur with trucks. Under the current operating procedures, both stevedores must make one extra lift and, in the case of DP World, one extra container movement for a rail container compared to a road container. Both stevedores have rail-specific staff rostered on for each shift in which a rail window occurs, and rail-specific equipment is currently required to load and unload trains (forklifts and reach stackers). The stevedores also incur some level of expense in maintaining their rail sidings.

To some extent, the high average costs per container on rail are a product of fixed costs at the stevedoring end. The relatively fixed costs of a dedicated rail gang, dedicated rail loading equipment and the dedicated rail siding would potentially become sources of scale economy under conditions of higher rail throughput. There is an element of ‘chicken and egg’ here: higher rail volumes would make the average cost of rail cheaper, which would attract still higher rail volumes, which would further reduce the average cost of rail, etc.

The fact that rail is incapable of transporting a container through its entire round-trip journey is another potential source of cost disadvantage. Road transport must be used for at least part of that journey. Split-mode journeys potentially lead to double-handling of containers as they are transferred from train to truck or vice versa. However, it is not clear how significant this road-rail cost differential is in practice. Many intermodal terminals tend to double-handle containers even when they are delivered from port by truck, as they are often transferred to another truck for final delivery.
When comparing the rail cost per container to the road benchmark, it is important to ensure that the latter represents a sustainable and cost-reflective price. There are several reasons to suspect that a benchmark based on currently quoted road freight rates into and out of Port Botany does not.

First, the road transport segment of the freight industry is highly fragmented in Sydney compared to other Australian ports, notably Melbourne. Road freight is known to be highly competitive, particularly among small carriers who are unable to exploit network externalities or provide value-added services that might maintain prices above marginal cost.

Second the intense trucking activity around Port Botany imposes social costs that are incurred by parties other than the road transporters that inflict them. These costs – which include road congestion that affects passenger cars to a greater extent than trucks, pollution, and increased risk of accidents – are not factored into the price of road freight, yet they clearly form part of the cost driven by that activity.

Third, other costs associated with road freight, such as the use of Foreshore Drive as a parking lot for trailers and empty containers, are potentially omitted from the freight rate. This illegal, but prevalent practice gives small trucking companies an inefficient competitive advantage over other trucking firms that incur costs to provide their own yards and empty container parks that must pay rent for the land they use for storage.

For these reasons, IPART considers that the cash costs of road container transport do not reflect well the marginal social costs of this mode. Ideally, any cost comparisons between road and rail should be made on a marginal social cost basis, but such a comparison is difficult to perform reliably.

112 The VTA notes in its submission that the top 25 transport operators in Melbourne wharf cartage have an aggregate market share of containerised trade through the Port of Melbourne of approximately 70 to 80 per cent (p 4). The VTA states, “It is our understanding that this is markedly different to the Sydney market, which is characterised as dissipate and fragmented from a market-share point of view.” ATA NSW notes in its submission that there are an estimated 250 operators moving containers to and from Port Botany (including the two stevedores and four rail operators). No single operator has more than a 15 per cent share of the market (ATA NSW submission, pp 3-4).

113 Mendigorin L, Peachman J and White R, “The collection of classified vehicle counts in an urban area – accuracy issues and results,” Transport Data Centre (DIPNR), 2003, tabulates average weekday vehicle counts on a number of urban roads (Table 3, p 14). According to this source, 80.8 per cent of vehicles on Foreshore Rd, Botany were cars. The car proportion was 86.8 per cent for Botany Rd, Botany and 91.2 per cent for General Holmes Dr, Botany. Paper available from: http://www.planning.nsw.gov.au/tpdc/pdfs/ATRF2003_CTS_paper.pdf , accessed 1 Aug 2007.

114 The inefficiency arises because the users of Foreshore Drive have an incentive to overuse this scarce, but unpriced resource. This ‘loophole’ in turn makes it more difficult for those truck operators that do pay the full marginal cost for yard facilities to compete, leading to underinvestment in trucking yards, excess demand for daytime VBS slots, and poor night time utilisation of stevedoring resources.
IPART also considers a range of market failures has contributed to the price of both road and rail freight services at Port Botany not reflecting the true costs of those services, on any standard of cost. Some important examples include:

- The stevedores can potentially use their market power to shift costs from themselves to other participants in the landside interface without any corresponding adjustment in prices. On the evidence available, IPART cannot conclude that they do in fact use their market power to do this, but agrees that it is possible.

- The rail window booking fee does not appear to be reflective of the costs of providing a rail window and associated services. The quantum of the rail window booking fee was originally determined on an ad hoc basis, and has not been adjusted to reflect vastly changed circumstances.

- It is likely that shipping lines do not face, through pricing arrangements with importers or exporters, the full cost consequences of their decisions on the location of empty container de-hiring facilities.

- As noted above, road transporters individually do not face, through pricing, the full cost consequences of their decisions. Costs associated with road congestion that is created by the collective decisions of trucking companies are partly borne by other road users, and affect individual truck operators disproportionately to their contribution to the problem.

- There appears to be no price feedback mechanism to RailCorp in its determination of the passenger train schedule. As a result, there is practically no ability to flex the passenger timetable in order to permit even high value freight access at the expense of a passenger service.

115 The ACCC’s *Container stevedoring - Monitoring report no. 8*, November 2006, recognises this possibility in theory: “If the organisation of logistics chains is left to individual firms it is likely that firms in the chain that have relatively greater market power will pursue their own commercial objectives, including greater profitability, which may come at the cost of overall chain efficiency” (p 37).

116 While its claims are not all substantiated and one was shown earlier in this report to be incorrect, CLAG asserts that the stevedores do use market power to shift costs from themselves to other supply chain participants. The assertion is contained in CLAG’s submission at pp 53-54 (the claim that the stevedores are a “duopoly” and that they use the VBS to promote their interests at the expense of the rest of the supply chain), pp 66-68 (linking the duopoly position of stevedores to the ability to impose undesirable hours of operation on other supply chain participants), and p 63 (concerning the desirability of extending the free storage period). It is the CLAG claim regarding the free storage period that is shown to be incorrect in Chapter 3.

117 See the discussion below under the heading “Stevedore rail-specific costs” for the calculations underpinning this observation.

118 CLAG submission, pp 52-53.

119 This view was implicit in the suggestion of Mr Schultz (transcript, p 76) and Mr Adam (transcript, p 77) that efficiencies could be achieved through a licensing scheme for road transporters serving Port Botany.

120 See RailCorp submission: “This anticipated growth in passenger demand with its legislated priority, and growth in domestic freight will increasingly constrain access for port related freight trains on the Sydney urban network” (p 15).
5.2.1 The road-rail cost differential

To understand and gauge the significance of the rail cost disadvantage, and help identify potential solutions to it, IPART undertook a quantitative assessment of the road-rail cost differential. The cost estimates presented below were derived substantially from public sources, including reports published by organisations such as the ACCC, BTRE, the Victorian Department of Infrastructure and the Sea Freight Council of NSW (SFC), as well as submissions to this review. In some cases, it was necessary for IPART to estimate costs by inference or by constructing simple cost models. Where that approach was taken the underlying assumptions have been set out.

Road freight

An hourly rate of between $80 and $85 is conventionally applied to cost port-based metropolitan road transport operations.\(^{121}\) That figure includes the driver’s wages, capital and maintenance costs for the prime mover and trailer, and fuel consumed. It does not depend to a great extent on whether the truck is waiting or moving. That unit cost has risen sharply since 2003, when it was closer to $60 per hour.\(^{122}\)

While it may not be strictly valid to account for variability in the capital costs of the vehicle in this way, converting these costs to an hourly rate is more appropriate than a distance basis, as time is the best proxy for the opportunity cost of that equipment. The lumpiness of capital costs for road vehicles may be ignored because road vehicles are highly fungible, there are active secondary and leasing markets for trucks, and the capacity of a single truck is nearly insignificantly small in relation to the whole road transport industry.

If these simplifying assumptions are reasonable – and they appear to be well accepted within the industry – the resource cost of a road freight movement is roughly proportional to the time it takes. Using this approximation, the SFC has estimated typical road freight costs for a Port Botany-centric container round trip to be around $460-$510. This total includes:

- $400-$450 to deliver a loaded import container to the warehouse and return empty to a container park
- $30 for container park handling of the container, and
- $30 to shuttle the empty container to port for evacuation.\(^{123}\)

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\(^{121}\) Sea Freight Council of NSW, *Sydney’s Intermodal System*, June 2007, p 22, notes at footnote 4: “Wharf cartage costs tend to average $80-85 per hour for driver, prime mover and trailer, and container cartage cycle time may vary from 3 to 6 hours”.

\(^{122}\) The time trend is presented in Sea Freight Council of NSW, *Sydney’s Intermodal System*, June 2007, Figure 4, p 22. The $60/hr rate is applied by Sinclair Knight Merz in its 2003 report for the Victorian Department of Infrastructure, *Melbourne Port Container Origin and Destination Process Mapping*; see Figure 3-1 “Transport related costs”.

This overall cost estimate is consistent with BTRE’s estimate of the road transport charge component of the Sydney port interface costs for ships of $432/TEU January-June 2006, and $435/TEU July-December 2006.124

**Rail linehaul**

Estimating the generic rail linehaul costs is somewhat more complex, given the prevalence of fixed costs in the rail system. These costs tend to be highly influenced by congestion effects, vehicle utilisation, cycle times, and other factors specific to a freight task. For this reason, IPART considered that the one-size-fits-all estimates contained in the SFC report were not helpful for this purpose.

Instead, IPART developed a simple train costing model tailored to the circumstances at Port Botany. It gratefully acknowledges the assistance provided by Patrick PortLink’s management in reviewing and suggesting improvements to this model.

The detailed inputs and outputs of the model are confidential. However, speaking generally, the locomotive and wagon lease costs are relatively fixed annual charges, whereas costs for fuel, track access, most rolling stock maintenance charges, and crew costs depend on the number of round trips. The fixed leasing costs create the opportunity for unit cost savings when the same train set can be used to do more round trips per day.

This calculation, while obviously assumption-dependent, serves to make several important points. First, the SFC estimate of rail costs to deliver a TEU from Port Botany to an intermodal terminal of $80 - $100125 sits within the range of average costs per TEU estimated by the train cost model under different loading scenarios. This similarity of estimates provides some comfort that the two cost bases may be comparable at a high level. Second, the effect on unit costs of the number of daily round trips per train set is profound. The extent of this difference in unit costs demonstrates the potential cost impact of reliability improvements for rail, if these result in a larger number of round trips per train set.

**Stevedore rail-specific costs**

Under the current operating philosophies of both stevedores, it takes one additional lift per container to put an import container onto a train compared to a truck. At Patrick’s terminal, one extra lift by either forklift or reach stacker is required to place a container on a train, compared to the placement of a container on a truck. In both cases, a straddle brings the container out of the stack area to the truck or train loading area. The straddle can load the container directly onto the truck, whereas it cannot directly load the train.

124 BTRE Waterline 42, July 2007, pp 16-17, Tables 6 and 7.
At the DP World terminal, trucks go into the stack area, where they can be loaded directly by the Rubber Tyred Gantries (RTG). Train loading involves an additional move by the Intra Terminal Vehicle (ITV) from the stack to the rail siding, then an additional lift by either forklift or reach stacker onto the train.

When Patrick’s RMGs are fully operational though, there will be no difference between the number of container lifts or movements for rail or road freight.

Figure 5.1 explains the differences in yard operations between the two stevedores under current and future operating modes.
Figure 5.1  DP World and Patrick yard operations at Port Botany

DP World -- road
3 lifts + 1 move

DP World -- rail
4 lifts + 2 moves

Patrick -- road, now
3 lifts + 2 moves

Patrick -- rail, now
4 lifts + 2 moves

Patrick -- road, future
4 lifts + 2 moves

Patrick -- rail, future
4 lifts + 2 moves
IPART did not have access to information on the lift costs faced by the stevedores, as they claimed this information was commercially sensitive (these costs are a significant determinant of their competitive price offers to shipping lines). Therefore, IPART had to estimate lift costs based on public data. The calculation, together with the data relied upon, is presented in Table 5.1. This admittedly rough estimate indicates that the additional cost to Patrick of transporting a container by rail would be the cost of one lift, or $30. For DP World, the additional cost of transporting a container by rail would be double this amount (one lift plus one movement), or $60.

### Table 5.1 Estimated Terminal lift costs

<table>
<thead>
<tr>
<th>Unit cost ($/TEU)</th>
<th>2005/06</th>
<th>Cost ($ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>21.78</td>
<td>31.5</td>
</tr>
<tr>
<td>Levy</td>
<td>7.05</td>
<td>10.2</td>
</tr>
<tr>
<td>Property</td>
<td>9.07</td>
<td>13.1</td>
</tr>
<tr>
<td>Equipment (incl fuel)</td>
<td>25.81</td>
<td>37.3</td>
</tr>
<tr>
<td>Labour</td>
<td>73.77</td>
<td>106.6</td>
</tr>
<tr>
<td>Total</td>
<td>$137.48</td>
<td>$198.72</td>
</tr>
</tbody>
</table>

### Sydney TEUs exchanged

<table>
<thead>
<tr>
<th></th>
<th>Jul-Dec 2005</th>
<th>Jan-Jun 2006</th>
<th>Total 2005/06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full imports</td>
<td>378,451</td>
<td>342,216</td>
<td>720,667</td>
</tr>
<tr>
<td>Empty imports</td>
<td>9,929</td>
<td>9,490</td>
<td>19,419</td>
</tr>
<tr>
<td>Full exports</td>
<td>171,320</td>
<td>173,932</td>
<td>345,252</td>
</tr>
<tr>
<td>Empty exports</td>
<td>191,297</td>
<td>168,830</td>
<td>360,127</td>
</tr>
<tr>
<td>Total</td>
<td>750,997</td>
<td>694,468</td>
<td>1,445,465</td>
</tr>
</tbody>
</table>

### No of activities a per container

<table>
<thead>
<tr>
<th></th>
<th>Road</th>
<th>Rail</th>
<th>Road</th>
<th>Rail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patrick</td>
<td>5</td>
<td>6</td>
<td>0.4</td>
<td>0.1</td>
</tr>
<tr>
<td>DP World</td>
<td>4</td>
<td>6</td>
<td>0.4</td>
<td>0.1</td>
</tr>
</tbody>
</table>

### Assumptions:

1. 50% of TEUs are handled by each stevedore
2. 20% of TEUs moved by rail at each stevedore
3. Weighted average no. of activities (lifts + moves) per container = 4.8
4. Average TEU per container b = 1.46

### Results – estimated average lift cost

<table>
<thead>
<tr>
<th></th>
<th>$ per TEU</th>
<th>$ per container</th>
<th>$ per lift or move</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment (incl fuel)</td>
<td>25.81</td>
<td>37.68</td>
<td>7.85</td>
</tr>
<tr>
<td>Labour</td>
<td>73.77</td>
<td>107.70</td>
<td>22.44</td>
</tr>
<tr>
<td>Total</td>
<td>$99.58</td>
<td>$145.39</td>
<td>$30.29</td>
</tr>
</tbody>
</table>

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* An activity is a lift or a move.  
B BTRE Waterline 42 notes in Table 1, p. 9, that the average number of TEU per truck in Sydney is 1.9, and that the average number of containers per truck in Sydney is 1.3, which leads to the conclusion that the average number of TEU per container is 1.46 (i.e., 1.9/1.3).

**Data source:** ACCC, *Container stevedoring - Monitoring report no. 6* Nov 2006 Figure 3-iv, and BTRE Waterline 42 July 2007, Table 11.
In IPART’s view, Patrick’s cost differential is likely to shrink once its RMGs are fully operational. Some cost differential may remain after that point because of an ongoing need for rail-specific terminal staff and the maintenance costs associated with the rail siding.

The Independent Group’s submission offers another perspective on the stevedores’ rail-specific costs. This submission provides information on actual rail window booking fees paid by its rail operator, Independent Railways of Australia (IR) to the two stevedores in 2005/06.126

Table 5.2 contains detailed information provided by IR in response to a request for clarification of the aggregate data presented its submission.

### Table 5.2 Rail Window costs for Independent Railways of Australia 2005/06

<table>
<thead>
<tr>
<th>Number of containers moved by IR in FY 05/06</th>
<th>DP World</th>
<th>Patrick</th>
<th>Total</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export</td>
<td>17,049</td>
<td>18,055</td>
<td>35,104</td>
<td>containers</td>
</tr>
<tr>
<td>Import</td>
<td>7,913</td>
<td>9,882</td>
<td>17,795</td>
<td>containers</td>
</tr>
<tr>
<td>Total no. containers</td>
<td>24,962</td>
<td>27,937</td>
<td>52,899</td>
<td>containers</td>
</tr>
<tr>
<td>Total window charges</td>
<td>549,953</td>
<td>402,858</td>
<td>952,811</td>
<td>$ per annum</td>
</tr>
<tr>
<td>Actual charge per container a</td>
<td>22.03</td>
<td>14.42</td>
<td>18.01</td>
<td>$ per container</td>
</tr>
</tbody>
</table>

*a* This is an average—i.e., total window charges/no. of containers.

**Source:** Data provided by Independent Railways of Australia, 9 August 2007.

A comparison between these actual rail window booking fees per container for IR and the stevedore lifting costs estimated in Table 5.1 suggests that the rail window booking fees may somewhat under-recover the stevedores’ costs for providing the rail service. However, any such conclusion must recognise the crudeness of the cost estimates.

**Intermodal terminal costs**

IPART received little information on container lifting, storage, and yard handling costs at intermodal terminals through submissions. However, one road transporter who maintains a storage facility away from the port indicated that its handling costs were approximately $25 per lift, based on the capital cost of a state-of-the-art $880,000 forklift capable of stacking either 20ft or 40ft containers four high.

In IPART’s view, container storage costs are likely to be related to land rental prices; however, it received very little information on comparative rental prices at different sites around Sydney.

The SFC estimates intermodal terminal handling costs to be between $60-$80 per container, assuming an average of two lifts through the terminal.127

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126 Independent Group submission, p 12.
Given the operating procedure at many intermodal terminals, such as MIST, for example, there is effectively no cost differential experienced by the terminal operator between containers that arrive from port via road or rail, with the exception of the costs of maintaining a rail siding at the terminal.

**Empty container handling costs**

The SFC estimates handling costs at an empty container park to be $30 per container. While storage prices may vary depending on location, information obtained by IPART indicates that $0.75 per day for a 20ft container, and $1.50 per day for a 40ft container is a typical storage rate per empty container in addition to the lift charges that make up the remaining cost.

**Summary of road-rail cost differential**

Assembling these pieces of information, IPART has estimated the comparative container round-trip costs of all-road and part-rail journeys. The scheme of this comparison is the one used in the SFC’s June 2007 report, *Sydney’s Intermodal System*, but some amendments to those figures have been made to take into account new information and to remove internal inconsistencies in the SFC report. For each scenario, a minimum and a maximum cost level are shown in Table 5.3.

The table shows that road’s cost structure is clearly superior to rail’s for road only journeys with no double-handling (ie, when the container is transported from the port directly to the importer). In this case, the cost per TEU round trip by road is $468 and $520, compared with $560 to $710 by rail. However, this superiority is greatly reduced if the road transporter incurs handling costs at an intermodal terminal, as would be the case with night-time and weekend pick-up from port. In this situation, the road-rail differential is much less significant, and is nearly all due to the differences in road and rail access costs incurred by the stevedores. The final two columns in the table illustrate the potential for rail cost reduction if empty container parks were co-located with intermodal terminals at a greater distance from port, permitting rail haulage both ways.

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128 Ibid.
129 ATA NSW submission, Table 3 p 13.
## Table 5.3 Road and rail costs per TEU in dollars $

<table>
<thead>
<tr>
<th>Activity</th>
<th>min</th>
<th>max</th>
<th>min</th>
<th>max</th>
<th>min</th>
<th>max</th>
<th>min</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stevedore loading window—pickup</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>30</td>
<td>60</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>Truck to importer premises</td>
<td>400</td>
<td>450</td>
<td>400</td>
<td>450</td>
<td>60</td>
<td>80</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Rail to intermodal terminal</td>
<td></td>
<td></td>
<td>80</td>
<td>100</td>
<td>80</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handling at intermodal terminal</td>
<td>60</td>
<td>80</td>
<td>60</td>
<td>80</td>
<td>60</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truck intermodal terminal-importer-empty park</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>300</td>
<td>350</td>
<td>100</td>
<td>180</td>
</tr>
<tr>
<td>Handling at empty park</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>(Road) shuttle from empty park to port</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rail empty from intermodal to port</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Stevedore loading window—drop off empty</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>30</td>
<td>60</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total cost ($)</strong> per TEU round trip</td>
<td>468</td>
<td>520</td>
<td>528</td>
<td>600</td>
<td>560</td>
<td>710</td>
<td>410</td>
<td>610</td>
</tr>
</tbody>
</table>

*Source: Sea Freight Council of NSW, Sydney’s Intermodal System, June 2007, p 24, and IPART estimates.*

It is important to note that the costs shown in Table 5.3 do not include externalities associated with congestion, pollution, or traffic accidents. The focus here is on cost factors that are taken into account by commercial decision-makers. That is not to deny the importance of externalities. In IPART’s view, it is possible that some form of intervention to internalise some of these externalities may be helpful. This issue is taken up further in section 6.2.1.

### 5.2.2 Potential solutions

In IPART’s view, for market solutions to deliver an allocatively efficient supply chain, certain standard conditions must be met, including cost-reflective pricing. The allocation of resources is most efficient, under assumptions of perfect competition, when all prices are set at their marginal costs. However, in industries such as stevedoring and rail transport, prices cannot be set equal to marginal cost—the significant fixed costs of these businesses would fail to be recovered and they would be unsustainable. This particular problem can be addressed through workable competition, or contestability, in which case prices would be sufficient to recover efficient average costs. Fixed costs would be recovered through Ramsey pricing,
which is minimally distorting to consumption decisions.\textsuperscript{130} Whether the standard is marginal cost (as it would be under perfect competition) or efficient average cost (as it would be under workable competition), prices must reflect the standard in order to induce efficient behaviour.

IPART’s analysis of the road-rail cost differential suggests several potential solutions to reduce rail’s cost disadvantage. These solutions, and IPART’s view on whether or not government intervention is required to facilitate them, are outlined below. IPART also believes that some of the sources of rail cost disadvantage will be reduced significantly as rail volumes increase, and when Patrick’s RMGs are fully operational.

**Reducing rail-specific costs at the stevedore terminals**

Patrick’s investment in RMGs will substantially neutralise the operating cost penalty associated with rail there. For this reason IPART believes that government intervention would be unnecessary to address this specific source of rail cost disadvantage.

**Addressing the high fixed costs of rail**

Rail freight is characterised by high fixed costs. This feature has the potential to act as a very substantial source of scale economy when rail volumes increase. Consequently, IPART considers that government intervention is not warranted at present to modify this cost structure.

However, IPART recognises that there is something of a ‘chicken and egg’ situation here, in that it may take a subsidy from the NSW Government to lock in an incremental volume, which over time would justify the subsidy being wound back.

**Addressing the cost of split-mode journeys**

If it were the case that the majority of import containers were delivered to the customer’s premises by the same truck that collected them from the port, then rail would suffer a cost disadvantage of approximately $50 per container, which represents the cost of double-handling at the intermodal terminal (one lift off the train and one onto the delivery truck at $25 each). This figure may overstate the true extent of any such rail disadvantage because double handling at intermodal terminals appears to be very common even for road-only journeys: one truck collects the container from the port, and a different truck delivers the container to the customer. Given the prevalence of this mode of operation, IPART does not see a clear indication that intervention is required to overcome this cost differential—which may not be financially significant on average.

\textsuperscript{130} Ramsey pricing is the practice of recovering fixed costs by charging each customer a mark-up on the marginal cost that is inversely proportion to that customer’s price elasticity. It is useful for ensuring recovery of fixed costs when marginal costs are below average costs. Among many possible schemes for recovery of fixed costs, Ramsey pricing is the least distorting of consumption decisions.
Providing specific price support for rail

Given all of the matters discussed above, FIAB’s suggestion that a Freight Infrastructure Charge (FIC) be imposed on daytime road transport to tilt the playing field toward rail warrants consideration. Specific price support for rail in the form of a FIC could be justified on externality grounds. The guiding principle would be that the marginal “cash” cost of road transport would be increased by an amount sufficient to equalise the road price to the marginal social cost, including externalities. Congestion-related externalities are potentially greatest during daytime. The marginal cash cost of rail transport would also need to be increased to reflect externalities, but the external costs per TEU would be lower on rail.

Clearly, there are specific causes of rail’s present disadvantage that could be addressed by government interventions of various kinds. While the introduction of a FIC would not directly address the reliability problems and may not catalyse the necessary investments, specific price support for rail would mitigate the cost disadvantage that rail currently faces. To the extent that the relative price positions of road and rail were better equalised (taking account of any quality differences), rail’s modal share would be likely to grow and the latent scale economies of rail would be able to come into play—as long as capacity constraints at the port, shared passenger network and intermodal terminals can be overcome.

In IPART’s view the FIC proposal has significant merit. However, effective implementation of this approach would need to surmount two practical problems. First, government-imposed surcharges of this type may create problems of credible commitment. Second, the success of a FIC in generating a modal shift depends on getting the price right, and in being readily able to adjust the FIC in order to achieve a market clearing.

IPART has proposed an alternative approach that would better equalise the comparative costs of rail and road freight and that overcomes these problems. This approach, which involves pricing of road vehicle access to the stevedores’ terminals during the hours of peak demand, is discussed in Chapters 7 and 8.

IPART believes that the NSW Government could also play a useful role in facilitating a two-tier VBS slot system in which a new class of firm VBS slot is sold for a premium price as discussed in Chapters 7 and 8. Correctly designed and implemented, such a scheme would achieve many of the objectives of the FIC, but would do so without invoking the same degree of sovereign risk, and could be structured so as to let market demand determine the premium price level.

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131 Freight Infrastructure Advisory Board Railing Port Botany’s Containers, July 2005, recommendation 22.
132 The credible commitment problem stems from the fact that what one government imposes by an act of will, another government can remove. One government is not credibly able to commit future governments to maintain the FIC at the initial level. Surcharges of this type create sovereign risk which could tend to discourage commercial players from making the long-term investments that are needed.
6 Improving the coordination of the supply chain

For any supply chain to function well, the activities at each of the functional stages in the chain must be coordinated. In vertically integrated supply chains, the command and control structure imposed by a corporation provides coordination. However, in a vertically separated supply chain like the container freight supply chain at Port Botany, market interactions shape the decisions participants take at each functional stage of the chain. Although something like Adam Smith’s famous “invisible hand”\textsuperscript{133} may help achieve some coordination through market interactions, this type of coordination can fail, especially when prices don’t reflect costs. When coordination does fail, supply chain costs are not minimised, resources are underutilised or lie idle, capacity mismatches at different stages can result in bottlenecks, and there is potential for a mismatch between system capacity and overall demand.

IPART considers that all these symptoms of failed coordination can be observed at Port Botany now, with the possible exception of the mismatch between system capacity and overall demand. However, given the forecast growth in container trade discussed in Chapter 2, such a mismatch is a distinct possibility in the future unless current constraints to growth are alleviated.

IPART considered the coordination issues that currently exist at the rail interface, and at the road interface. In relation to the rail interface, IPART explored in detail the suggestion by stakeholders that a logistics team similar to the successful HVCCLT be established to improve coordination. It found that there are important differences between the Hunter Valley coal chain and the Port Botany container chain, but that a Port Botany Logistic Team (PBLT) modelled loosely on the HVCCLT and designed to suit the specific circumstances of the rail container chain should be established.

In relation to the road interface, IPART found that the highly fragmented nature of the road transport industry at Port Botany creates coordination challenges. In particular, it imposes external costs in the form of congestion at the stevedores’ terminals and transaction costs for stevedores. In addition, the current terminal access arrangements mean that the stevedores have no incentive to mitigate the impact of congestion on road transporters. IPART concluded that changes to the VBS recommended in Chapters 4, 7 and 8 would address these issues. Alternatively, it might be feasible to introduce a system of key performance indicators associated with financial rewards and penalties for the stevedores’ landside operations, to

\textsuperscript{133} Adam Smith suggested that an unseen force drives open market economies, so each participant pursuing his or her own private interest theoretically benefits all participants.
provide them with incentives to reduce truck waiting times – this is explored in Chapter 9.

The sections below discuss IPART’s considerations, conclusions and recommendations on coordination issues in detail. Section 6.1 focuses on the port-rail container chain. It explains the HVCCLT model, the suitability of this model for Port Botany, and sets out what it considers to be the key characteristics of rail-specific PBLT. Section 6.2 explores the challenges facing the port-road container chain, and the potential approaches for improving the coordination of this supply chain. Section 6.3 discusses the potential role of SPC in improving the coordination of the supply chain.

6.1 Improving coordination of the port-rail container chain

As noted above, several stakeholders suggested that the HVCCLT provides a good model for improving the coordination of the port-rail container chain. At IPART’s Roundtable discussion, the prevailing view among stakeholders was that establishing something similar at Port Botany would be beneficial.

The HVCCLT is responsible for coordinating the logistics of moving export coal through the Port of Newcastle. It was established in 2003 and formalised in 2005 with the signing of a Memorandum of Understanding. The HVCCLT is staffed by secondees from its constituent organisations:

- Port Waratah Coal Services (terminal operator)
- Pacific National (train operator)
- Queensland Rail (train operator)
- Australian Rail Track Corporation (rail infrastructure lessee)
- RailCorp (rail infrastructure owner)\(^{134}\)
- Newcastle Port Corporation\(^{135}\)

The new coal terminal, the Newcastle Coal Infrastructure Group, is also expected to join in due course.

A broader group of stakeholders with an interest in the movement of coal (buyers and sellers of coal, miners, and other transporters of coal) participates in the HVCCLT through an Industry Working Group. The group provides feedback and advice to the HVCCLT.

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\(^{134}\) And the previous owner, Rail Infrastructure Corporation

\(^{135}\) The Newcastle Port Corporation is a member holding equal status to all other members. In particular, the Newcastle Port Corporation’s main contribution to the HVCCLT is in regard to its expertise in the sea-side operations, rather than as a facilitator of land-side logistics issues.
The HVCCLT provides two types of coordination services to the coal chain. First, it manages daily train planning and scheduling, with the aim of maximising system coal throughput. Second, it provides a forum for the Chief Executive Officers of each of its constituent organisations to discuss and commit to capital investments that will maximise the long-term benefit to system users.

To date, no competition issues have arisen concerning the HVCCLT, and no authorisation from the ACCC has been sought in relation to its operations. However, competition concerns may arise in the future. Two of its members – Pacific National and Queensland Rail – are competitors, so both are involved in making decisions about how scarce business inputs (train paths, unloading windows at port, etc) are to be shared between them. Similarly, the involvement of competitors Port Waratah Coal Services and Newcastle Coal Infrastructure Group on the logistics team may create concerns around the sharing of information on capacity expansion plans.

The HVCCLT is generally seen as a successful model.\textsuperscript{136} In the view of its members, its success is due to the philosophy that the Hunter Valley coal chain should attempt to mimic the optimisation that would be achievable in a vertically integrated supply chain, notwithstanding the fact that the different functional layers are separately owned. The objectives of the HVCCLT\textsuperscript{137} include maximising throughput at minimum total logistics costs, within the constraints of the Hunter Valley coal chain and having regard to the contractual obligations of each member.

However, unlike a vertically integrated system, membership of the HVCCLT is open to any affected party that meets the eligibility criteria\textsuperscript{138} and wishes to join, and members have the right to opt out of any HVCCLT initiative or decision they disagree with. The non-compulsory nature of the HVCCLT is seen as essential for ensuring the continuing goodwill of its members. This feature facilitates consensus-based decision-making. With side-payments being at least theoretically possible, this type of organisation should be capable of identifying and implementing Pareto-optimal solutions.\textsuperscript{139}

\textsuperscript{136} The May 2005 Report to the Prime Minister by the Exports and Infrastructure Taskforce noted that the HVCCLT was one of the success stories of consultative logistics chain operations (p 34), available at http://www.infrastructure.gov.au/

\textsuperscript{137} As set out in clause 2.3 of its Memorandum of Understanding.

\textsuperscript{138} The membership eligibility requirements are set out in clause 2.1 of Schedule 2 to the MoU. In addition to the foundation members as listed earlier in the briefing, eligible parties are any rail infrastructure provider, companies that provide logistics for coal movement where that activity is its main business, companies that operate coal terminals and companies that deliver coal by road or rail to export terminals. Related parties of members may not join.

\textsuperscript{139} The point about Coasian side payments facilitating achievement of a Pareto optimum overlooks a number of potentially important complications, such as asymmetric information, transaction costs, incentive incompatibility, opportunism and associated hold-up risks. Further, some forms of side payment may be illegal (such as transfers between direct competitors) or impractical. The relative performance of command-and-control supply chains (as one has in vertical integration), market-based vertical relationships, and supply chains based on long-term contracts between independent entities has been considered at length in the literature on industrial organisation. A landmark paper, Oliver Williamson, “Comparative Economic Organization: The Analysis of Discrete Structural Alternatives”, Administrative Science Quarterly, Vol. 36 (1991), pp 269-296, shows that the factors determining the ideal choice of organisational form are the degree of asset specificity to particular transactions, and the frequency of disturbances to demand, costs or trading patterns.
Improving the coordination of the supply chain

In 2004 and 2005, when shipping queues off Newcastle became an acute problem for the export coal industry, there were concerns over whether the Hunter Valley coal chain embodied sufficient commonality of purpose and resolve to make the capacity investments that were needed to meet the mining companies’ growth targets. Since that time, significant investments have been made or committed by ARTC, Port Waratah Coal Services, Pacific National and Queensland Rail under the auspices of the HVCCLT. ARTC has spent $110 million on crossings at Sandgate, train control consolidation, and loops, and has advised IPART that there are significant additional projects due to be delivered in the next three years. Port Waratah Coal Services has committed $148 million for a new storage pad, new stacker and conveyor stream. Pacific National has ordered 9 new locomotives and 328 new wagons.140

6.1.1 Is the HVCCLT model suitable for Port Botany?

In IPART’s view, there are two main issues to consider in assessing whether the HVCCLT model is suitable for improving the coordination of the port-rail container chain at Port Botany:

1. How similar or different are the circumstances of the Hunter Valley coal chain and the Port Botany container chain?

2. In what ways would the HVCCLT approach differ from what is already being done at Port Botany?

Comparing the circumstances of the Hunter Valley coal chain and the port-rail container chain

Both the Hunter Valley coal chain and the Port Botany rail container chain have a common need to optimise the performance of the system by coordinating the activities of organisations that have a strong degree of vertical separation. Theoretically, they should try to match the performance that a vertically integrated system is capable of achieving, but they need to pursue this aim without the use of compulsion.

However, IPART considers that there is an important difference between the objectives of the HVCCLT and those that would be relevant to a PBLT. In the Hunter Valley, the paramount aim is to maximise throughput at minimum total logistics cost. In contrast, in Port Botany the primary aim would be to minimise total logistics cost while meeting throughput requirements of importers and exporters.

140 Verbal advice from Denise McMillan-Hall, current Chair of the HVCCLT Steering Committee.
There are also several differences in the characteristics of the Port Botany rail container chain that may be significant for the design of any PBLT. As well as the obvious point that containerised freight is very different to free-flowing bulk coal, IPART considers that Port Botany has the following features that are not found in the Hunter Valley coal chain:

- highly fragmented road transport as alternative to rail
- a high degree of horizontal separation (for example, two stevedores instead of a single terminal operator, four train operators instead of two), and some supply chain participants that have vertical linkages to other functional stages
- a high degree of interaction between rail freight and passenger services
- numerous and diverse importers and exporters
- both import and export traffic must be accommodated
- AQIS and ACS constraints apply, particularly to imports.

These differences raise six challenges for the design of any PBLT. First, the tensions between road and rail operators, not to mention within the road transport industry itself, would likely make any logistics team that includes road unworkable. On the other hand, the exclusion of road transporters has the potential to raise competition concerns.

Second, the extent of horizontal competition between participants would likely lead to serious antitrust concerns with a PBLT. For example, a sharing agreement between four train operators for train paths and terminal windows could well be construed as anticompetitive. These concerns would be heightened by the existence of vertical linkages. ACCC authorisation, if obtainable, may be required to overcome these concerns.

Third, the passenger rail curfew in Sydney is one of the most crippling constraints to Port Botany rail freight, yet the PBLT would have no realistic prospect of reducing that constraint by influencing the scheduling of suburban passenger services, whether RailCorp was part of the PBLT or not.

Fourth, the number of importers and exporters using Port Botany is so large that it may not be feasible to replicate the HVCCLT’s Industry Reference Group for Port Botany.

Fifth, the logistical complexity of the Port Botany rail interface is heightened considerably by the need to accommodate both import and export traffic and by the dispersed nature of final delivery points for containers. This complexity raises the

141 Salient examples of these linkages are the overlapping ownership between DP World and POTA, and between Patrick stevedores and Patrick PortLink. Allegations have already been made of stevedore favouritism toward affiliated road transporters.

142 In the HVCCLT Memorandum of Understanding, the Industry Reference Group is the venue for export coal mines to have input to the HVCCLT Rules Committee. Membership of the HVCCLT Steering Committee is not open to coal miners.
possibility that the quantitative work needed to underpin near-optimal systemic decisions may prove inordinately difficult. If so, this could result in suboptimal decisions, calling into question the value of the logistics team.

Finally, AQIS and ACS requirements are a particular feature of importing. They certainly complicate the land transport interface, but in ways that are unlikely to be amenable to optimisation by negotiation within the PBLT, whether or not AQIS and ACS are members of the logistics team.

Comparing the HVCCCLT with what is done now at Port Botany

Several coordination forums already exist – including the Joint Working Group (JWG), the Sydney Ports Cargo Facilitations Committee (SPCFC) and the Sydney Ports User Consultative Group (SPUCG) – and most of the prospective operational roles of a PBLT are currently performed by one of these forums or another. IPART has considered the membership, aims, activities and performance of these existing organisations in order to ensure that a PBLT would actually add value, and to better understand how it might do so.

The JWG comprises ARTC, Patrick and DP World. It was formed through a Memorandum of Understanding in November 2005 for the purpose of identifying potential improvements in infrastructure and operating practices to optimise the rail interface at Port Botany.

The JWG has examined potential rail infrastructure improvements at Botany Yard, which have been embodied in infrastructure development proposals currently being advanced by ARTC. The JWG is also examining potential improvements to interface coordination practices to apply after ARTC has taken up its lease of the Metropolitan Freight Network.

The JWG is not currently a real-time operational or coordination body. However, ARTC has indicated that the JWG could form the genesis of a broader group along the lines of the HVCCCLT (which includes rail operators and other stakeholders) that could perform real-time interface coordination in future.

IPART considers that unquestionably, the JWG fulfils some significant parts of the role intended for a rail focused PBLT. However, its scope of activity may be too narrow to be effective. For example, JWG’s activity is confined to the Botany rail precinct. This narrow geographic scope may not be optimal for rail system coordination. For example, Patrick noted:

…the coordination of rail paths and operations in the Botany area is one issue and is an important issue, but it’s a wider issue than that. It is the paths through the Sydney network that must also be coordinated in order for rail to work more reliably and more effectively.143

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143 Roundtable transcript, p 19, lines 12-17.
The responsibility for real-time train control decisions is split between RailCorp and ARTC, which are each the proprietors of complementary pieces of track. Coordination of the various separate parts of a train journey (i.e., port access, metropolitan freight line, suburban shared network and regional shared network) currently relies on best efforts by RailCorp, ARTC, train operators and stevedores through a mixture of formal, informal and at times ad hoc channels of communication. IPART has been provided with anecdotal evidence of numerous breakdowns in this communication chain, which have left trains waiting unnecessarily to depart or enter the port.

In relation to the other two forums – SPCFC and SPUCG – there appears to be consensus among stakeholders that these provide a useful venue for information exchange, but are not capable of facilitating logistics coordination across the supply chain. CBFCA summed up the problem as:

The chairman does a great job of keeping order and keeping us all talking, which is a great thing. Having said that, ultimately Sydney Ports cannot make the decisions. Decisions have to be made between the various parties and links in the chain.144

IPART considers that in light of current arrangements for coordination of rail at Port Botany, a rail-focused PBLT could add value by incorporating train operators into the decision-making process, taking responsibility for real-time train control and prioritisation decisions (or at least for daily train path planning and service disruption protocols, if train control must remain with RailCorp and ARTC). A rail-focused PBLT could also add value by embracing a more metropolitan-wide approach to train scheduling issues, by including RailCorp in its membership.

6.1.2 The characteristics of a rail-specific Port Botany logistics team solution

In IPART’s view, there is a strong case for a greater degree of coordination of rail activities in and around Port Botany, to make rail a credible alternative for the majority of importers and exporters — many of whom do not have it on their radar.145 However, while greater coordination should improve rail’s share of container traffic into and out of the port, it is unlikely that it will be sufficient to meet the NSW Government’s 40 per cent share target for rail.146

IPART has considered the specific form of coordination that would be most likely to help Port Botany to achieve growth potential at minimum overall cost. In particular, it considered what the objective of a PBLT should be, whether or not it should have coercive powers, whether it should supplement or replace the JWG, and which organisations should be members. It also considered the likely anti-competitive

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144 Roundtable transcript, p 80, lines 33-35.
145 Roundtable transcript, pp 13-14. This point was made at the Roundtable by CBFCA.
146 In response to a direct question from IPART at the roundtable, ARTC emphasised the necessity, in of price initiatives to complement coordination efforts (transcript, p 17). DP World also expressed reservations as to whether coordination alone would suffice to reach the 40 per cent rail target (transcript, p 19).
Improving the coordination of the supply chain

6.1.3 What should be the objective of a PBLT?

As noted above, the HVCCLT’s aim is to maximise throughput while minimising total logistics costs. The emphasis on throughput arose when Port Waratah Coal Services became a bottleneck in 2004 and 2005, when there was a largely unanticipated surge in Chinese demand for Australian coal. Because significant lead times are involved in expanding the capacity of rail and port facilities, there was a period of intense discomfort as shippers were physically unable to push through that bottleneck the amount of coal they were capable of mining and selling. In these circumstances, cost minimisation became secondary to maintaining Newcastle’s world market share.

In contrast, the landside interface at Port Botany does not currently appear to be a bottleneck. While there are concerns about Port Botany’s ability to meet the projected demand growth, they don’t appear to be sufficiently serious to cause participants to eschew cost minimisation. IPART considers that the most likely mission statement for any PBLT would be to minimise total logistics costs subject to two constraints: that the overall level of container traffic as determined by importers and exporters must be serviced; and that shipper’s requirements for quality of service are met.

One of many important differences between Newcastle’s coal terminal and Port Botany’s container terminal is that there is currently sufficient stevedoring capacity at Botany to serve ships on arrival, whereas this is not the case in Newcastle, thus necessitating a ship queue. One reason for this difference may be that Australia is the world’s leading exporter of coal—so customers may be prepared to accept the costs of queuing—but it is not such a globally significant destination for containerised freight—so customers are less prepared to accept queuing costs.

147 DP World stated at the Roundtable that, “Under the existing model, without the types of changes we are talking about, the stevedores will continue to operate and incrementally change their current systems which are, at this stage, we believe, adequate and will continue to be adequate” (transcript, p 78, lines 5-9). Echoing this sentiment, the Prime Minister’s taskforce stated, “The taskforce considers that detailed analysis is required to determine whether some of these landside connections to major metropolitan ports will become major constraints to growth over the next ten years”, Report to the Prime Minister by the Exports and Infrastructure Taskforce available at http://www.infrastructure.gov.au/ (p 31). By implication, there is no unambiguous evidence of a current bottleneck.

148 Among the other important differences is the fact that coal ships tend to operate point-to-point shuttle services between coal ports and power stations or steel mills, whereas container ships undertake more circuitous routings, loading and unloading at many ports in a given cycle. The JIT requirements for container freight are much more stringent than for coal, given the significant stockpiles maintained by customers.
6.1.4 Should the PBLT have coercive powers?

In its submission, SPC proposed the establishment of a new body – the Botany Rail Corridor Governance Council – to plan, schedule and control all train movements in the Botany corridor.\textsuperscript{149} It also proposed the establishment of a parallel Botany Road Container Governance Council, to develop and enforce operating protocols aimed at ensuring efficiency and equity of access to the terminals, to guide strategic planning, and to recommend new road infrastructure for the precinct.\textsuperscript{150} These proposals, especially the Botany Rail Corridor Governance Council, involve the creation of a coordinating body that bears certain similarities to a PBLT.

Where SPC’s proposals diverge most significantly from the HVCCLT example is in the coercive powers that would be vested in the SPC’s proposed Councils. At the Roundtable discussion, SPC explained the motivation for this difference in approach as follows:

We have looked hard at the Hunter Valley coal model over a number of years. As ARTC mentioned, there are definitely some points to pick up there, but there are also some quite key differences. We do believe, given this is probably a more multi-party arrangement here, it may be that any sort of [governance] structure needs to have a bit more clout than just everyone agreeing. The reality is that not everyone can agree on every point here, but it is a common infrastructure that unless you have a clearly articulated operating plan and stick to it, you won’t get the full benefit.\textsuperscript{151}

SPC also proposed that it be appointed chair of both road and rail Councils due to its independence in terms of road and rail operations.

At the Roundtable discussion, some stakeholders considered the SPC’s proposal to be controversial – particularly the coercive powers of the councils and SPC’s chairmanship of them. ARTC noted:

[The HVCCLT] is a cooperative planning organisation; an unincorporated joint venture. There is an MOU between the parties, but it is not binding. It is effectively a statement of commitment between the parties. The clear reason it works is that there’s a close alignment of commercial interests between all the parties in the coal chain to maximise coal throughput through the port. The logistics team is not an enforcer….At the end of the day, it’s actually the track owner and the stevedore who are really the central owners in that. Clearly, rail operators have a key interest, but it is ultimately the asset owners. They’re the ones who have got their commercial dollars on the line, their track assets, the port terminal assets or rail assets, so actually the logistics chain is largely about deploying those assets in the most effective manner.\textsuperscript{152}

\textsuperscript{149} Sydney Ports Corporation submission, recommendation 3.2.2.
\textsuperscript{150} Sydney Ports Corporation submission, recommendation 4.1.
\textsuperscript{151} Roundtable transcript, p 21.
\textsuperscript{152} Roundtable transcript, pp 15 and 17.
Patrick supported this view:

We think the Hunter Valley coal chain model has potential for management of the Botany yard as it exists, but we do share ARTC’s concern that a modified model with a somewhat more interventionist approach would perhaps not be in the best interests of the efficient working of the rail.153

Given the strongly held views of asset owners that they do not wish to grant durable rights of control over their own assets to third parties, IPART believes that the coercive or interventionist approach proposed by SPC would likely be unsuccessful. Given SPC’s lack of experience with operational management of rail systems and the fact that it has no commercial “skin in the game,” the merit of granting SPC the central role it seeks in any PBLT is also questionable. In IPART’s view, granting SPC such a role would represent a marked departure from the HVCCLT approach, as the Newcastle Port Corporation has no corresponding powers.

6.1.5 Is it necessary to go beyond the JWG to a full PBLT?

Within its intended scope of operation, Port Botany’s JWG is perceived by its members to be valuable. However, the fact that at least two of its three members, ARTC and Patrick, see merit in expanding the scope of the group’s activities to something approximating the HVCCLT suggests that there is a need to move beyond the JWG. RailCorp was sufficiently impressed with the utility of the HVCCLT model for Port Botany that section 5 of its submission was devoted to a detailed explanation of how a PBLT might work. Significantly, no stakeholder has spoken against the adoption of a PBLT or expressed the view that it would duplicate coordination processes that are already in place.

6.1.6 Which organisations should be members of the PBLT?

If the HVCCLT approach to membership were used, the following organisations would be included in the PBLT: the stevedores, ARTC and RailCorp, the four train operators, and SPC. IPART supports the inclusion of most of these organisations. However, it considers that RailCorp should be excluded because its own decision-making processes are exogenous to the performance of the Port Botany rail system. In particular, it bases its passenger timetabling decisions on a range of considerations in which freight commands very little weight.154

In addition, IPART considers that SPC’s inclusion role should be restricted to matters in which its own operating assets (other than land that is leased to others) are deployed, rather the leadership role it proposed. However, to the extent SPC may have “skin in the game,” in the form of opportunity costs of assets that could be

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153 Roundtable transcript, p 19.
154 For example, at the Roundtable RailCorp noted, “Obviously, RailCorp’s primary responsibility is running the passenger network and as an organisation the resources are devoted to maintaining and operating the passenger network...” (transcript, p 10) and “…during the daytime off-peak period, freight services have to be run between the passenger services...” (transcript, p 18).
deployed otherwise, it has a legitimate right to be involved and would probably have the expertise to contribute meaningfully.

In IPART’s view, no other organisations should be included, as a larger group would likely prove unworkable. For example, the inclusion of non-operational or non-rail-oriented organisations would be likely to impede the smooth working of the group, without adding expertise. In particular, IPART considers that road transporters and shippers (meaning importers and exporters, rather than the shipping lines), should be excluded from membership for the following reasons:

- they are too numerous and disparate to facilitate consensus solutions
- they lack rail-oriented expertise
- they are not directly affected by rail’s performance, and
- they may be strongly inclined to employ hold-up tactics.155

While there might be a case for including these groups’ industry peak bodies, IPART does not support the inclusion of peak bodies for two reasons. First, it may prove difficult to identify a peak body that is truly representative of the diverse viewpoints and priorities of road transporters. For example, both ATA NSW and CLAG have been strongly criticised for their perceived inability to present a unified industry point of view or to work constructively with other supply chain participants.156 Second, peak bodies are not themselves logistics operators and therefore have no relevant assets or “skin in the game.” In other words, the peak bodies themselves have little to lose through any failure of the PBLT to reach consensus. IPART notes that industry peak bodies would not be eligible to become members of the HVCCLT or the Industry Reference Group.157

IPART also considers that AQIS and ACS should be excluded because, like RailCorp, their own decision processes are exogenous to the performance of the Port Botany rail system. The impediments that organisations such as RailCorp, AQIS and ACS may create include, inter alia, injecting irrelevant considerations into the discussion and expanding the number of parties among whom consensus must be reached.

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155 Collective decision systems that require unanimity are particularly vulnerable to opportunistic behaviour. The HVCCLT does require unanimity. At the Roundtable, ARTC stressed that a prerequisite for the HVCCLT’s success is “a close alignment of the commercial interests between all the parties” (transcript, p 15).

156 Roundtable transcript, p 83.

157 Schedule 2 to the HVCCLT Memorandum of Understanding sets out membership eligibility requirements in clause 2.1. Clause 9.2 sets out eligibility criteria for the Industry Reference Group. That clause notes that membership is open to any corporate entity that is able to demonstrate a commercial interest in the coal chain with respect to:
  - Being a buyer or seller of coal;
  - The transport or handling of coal;
  - Being a miner of coal;
  - Being an agent of any of the above parties.
It appears clear that an industry peak body or lobby group would not meet any of these criteria.
Whilst ACS, AQIS and RailCorp should not be members of the PBLT, they could participate in an advisory capacity through an equivalent to the HVCCLT Industry Reference Group.

### 6.1.7 Anti-competitive issues

FIAB’s recommendation 21 recognises the possibility that ACCC authorisation may be required for the establishment of their proposed Logistics Chain Team. In its submission, RailCorp noted that:

… despite there being precedence for such logistic chain coordination efforts, including the Port of Melbourne and the Hunter Valley Coal Network, the ACCC during its review of the operations of Sydney Ports specifically prevented Sydney Ports Corporation and the Stevedores from exploring such coordination efforts. The success of such a model needs not only the approval of the appropriate regulatory bodies such as the ACCC but their active support of these arrangements.158

Proponents of a cooperative joint venture between competitors can seek authorisation from the ACCC. To achieve authorisation, they would need to demonstrate, to the ACCC’s satisfaction, that the efficiency benefits of the venture would outweigh the detriments arising from any reduction in competitive vigour.

The ACCC has indicated a preparedness to consider applications for authorisation of this type. For example, ACCC in its *Container stevedoring - Monitoring report no. 8* noted:

> It is foreseeable that the organisation of logistics chains may involve discussions amongst potential competitors which may give rise to concerns regarding anti-competitive conduct proscribed by the Trade Practices Act. However, where arrangements or proposals promote supply chain efficiency, they can give rise to public benefits. Where such arrangements generate a benefit to the public which outweighs any public detriment, including from a lessening of competition, they can be authorised by the ACCC under Part VII of the Trade Practices Act.159

The relevant precedent material is encouraging. In an analogous case pertaining to the grain industry on 15 April 2005, the ACCC granted authorisation to Export Grain Logistics (EGL). EGL is a joint venture between AWB and GrainCorp, who compete in grain storage and marketing, to coordinate movement of export grain from silo to port.

Although the ACCC may need to scrutinise some arrangements for a group that is set up to coordinate the landside activities at Port Botany, IPART considers that this should not prevent such a group being set up and operating effectively.

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158 RailCorp submission, p 18.
6.1.8 Resource issues

Like the HVCCLT, the PBLT could be staffed from secondees of the member organisations. This approach is practical because the decision-makers have both relevant expertise and the confidence of their organisations. It is important that management of the PBLT remain independent of any one member organisation.

6.1.9 Information disclosure

The HVCCLT maintains a website on which it publishes a range of public information about its charter, history, membership and current operations. An important element of that information is a collection of high-level KPIs for coal chain system performance. Publication of this information is helpful to other parties with interests in the supply chain. It aids transparency and confidence in the decision-making process. IPART considers that a PBLT should emulate this example.

Recommendation

13 That a Port Botany Logistics Team (PBLT), modelled loosely on the successful Hunter Valley Coal Chain Logistics Team (HVCCLT), should be adopted to improve rail system performance at Port Botany relative to current arrangements. Given the distinctive differences between the Port Botany container chain and the Hunter Valley coal chain, a successful PBLT would need to embody the following design characteristics:

- the objective should be to minimise total supply chain costs while meeting shipper demands for overall throughput and quality of service
- members’ adherence to PBLT decisions on investment should be voluntary, and the PBLT should have no power to compel members to do anything
- members should include stevedores DP World and Patrick, track proprietor ARTC, Sydney Ports Corporation, and any of the train operators that wish to join
- Sydney Ports Corporation’s role should not be a leadership role, but should be limited to matters in which it has a commercial stake
- membership should not be available to road transport operators, freight forwarders, importers or exporters, but their views could be taken into account through the equivalent of the HVCCLT Industry Reference Group
- industry peak bodies should not be represented, either on the Steering Committee or the Industry Reference Group
- RailCorp, Australian Quarantine Inspection Service, and Australian Customs Service should not be represented, but could be part of the Industry Reference Group
- as many members compete with each other, ACCC authorisation should be sought as soon as the constitution is established

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160 See www.hvcclt.com.au
the PBLT should be staffed by secondees of member organisations, and the management of the team should be independent of all members

– system performance KPIs should be established, monitored regularly, and high level summaries reported publicly.

6.2 Challenges related to coordinating the port-road container chain

The road transport industry at Port Botany includes more than 200 separate firms. IPART does not have detailed information about the size distribution of these firms, but ATA NSW submitted that the largest has only 15 per cent market share.\textsuperscript{161} According to the VTA, the road transport industry at Port Botany is “dissipate and fragmented”.\textsuperscript{162} In addition, the barriers to entry to this industry are currently very low.

These structural characteristics suggest that the industry is highly competitive, and that road transport prices may be at or near marginal costs. But this does not necessarily mean that the port-road container chain operates at minimum possible cost. In particular, the highly fragmented character of the industry suggests that any available scale economies are not being captured. This means that, as a result of coordination failure, the overall costs of the supply chain are unlikely to be minimised. The highly fragmented character of the industry also imposes external costs, which can be another symptom of coordination failure.

The following sections discuss these external costs, and the failure to capture scale economies in more detail. The subsequent section discusses the potential approaches for improving coordination of the port-road container chain.

6.2.1 External costs

External costs are a manifestation of coordination failure. They arise essentially because those that bear these costs are external to the transaction that gives rise to them and so have limited ability to influence them. The failure lies in the lack of coordination between the parties inflicting the cost and those bearing it.

One external cost imposed by the fragmented character of the road transport industry at Port Botany is congestion – evidenced by the truck queues that form at the stevedore terminals when the stevedore is unable to meet the planned VBS slots (discussed in Chapter 3) and in the clogged roads around Port Botany due to the high number of trucks entering and leaving the port. This congestion is exacerbated by the random arrival character of truck movements, which would likely be less pronounced if there were fewer road transporters, each capable of orchestrating movements within their own fleets. While the VBS does mitigate the random arrival

\footnotesize{\textsuperscript{161} ATA NSW submission, pp 3-4.  
\textsuperscript{162} VTA submission, p 4.}
problem at the stevedore’s gate, it does not do so when the stevedores cannot keep up with the planned slots, and it does not do so for road congestion.

Further, it seems likely that it is in the stevedores’ commercial interests, narrowly construed, to have a queue of trucks at the gate. The truck queue guarantees that an import container can be moved off the terminal with minimum delay to the stevedore when the stevedore is ready to deploy its own resources for that task. As the truck queuing costs are mostly not borne by the stevedore, there is little incentive for the stevedore to alter this arrangement. In other words, the queuing costs are external to the stevedore. Some form of commercial relationship between stevedores and road transporters would alter that dynamic—in a sense making the truck queue the stevedore’s problem too, and internalising that cost.

Another external cost caused by the fragmented character of the road transport industry is the transaction costs faced by stevedores. While these costs are difficult to quantify, it is clear that the stevedores devote significant management time to liaising with the more than 200 road transporters about late arrivals and no-shows, the consequent penalties and arguments over the waiver of penalties. Potentially, many of these inefficiencies could be mitigated if, through some coordination mechanism, the externalities could be internalised.

6.2.2 Scale economies

One of the benefits of coordination within a supply chain is that it enables a group of separate agents to act in a manner that permits them to capture and enjoy scale economies. However, the extent of this benefit depends on the potential for scale economies to be realised in the particular supply chain.

In the road container supply chain at Port Botany, scale economies might arise in several ways. First, the fixed administrative costs of running the business can be spread over a larger volume of traffic as the road transporter’s scale increases. However, this effect may not be very pronounced, given the relatively simple administrative requirements of this type of business.

Second, a road transporter with a larger customer base is more likely to be able to match an inbound container movement with an outbound one so that the truck can be loaded in both directions. When such a dual run can be achieved, there is potentially a significant improvement to the importers’ and exporters’ economics. However, it is important not to overstate the gains that are potentially achievable through this mechanism. If a freight forwarder does the matching, then the size of the road transporter is not necessarily important to achieving the economic benefits of dual runs.

Third, a road transporter with a larger fleet has a degree of schedule flexibility that a small road transporter with one or two trucks does not. This flexibility means that the large road transporter does not have to turn down work as often due to vehicle unavailability. The larger road transporter can better match the truck type to the
nature of the journey or task. It can redeploy trucks more easily to the DP World terminal when the queue is long at Patrick and vice versa. The importance of this type of flexibility is undeniable, but it is difficult to quantify. The value of flexibility depends on the specific circumstances prevailing each day.

Given the above, an important question arises: if scale economies are important in the road container supply chain, why doesn’t the industry simply rationalise itself? In other words, why don’t the larger road transporters exploit their scale advantages to out-compete the smaller ones and gradually displace them? The answer to this question is not readily apparent, even to the industry participants themselves, but IPART considers there are two possibilities:

▼ First, the extent of the scale economies available to road transporters may not be great, so the scale effect may be weak.

▼ Second, trucks and their drivers spend a great deal of time waiting to load and unload containers at Port Botany, even when they use the VBS. This waiting time translates into reduced profitability for the road transporter. An owner-driver or a driver in a family business may absorb this loss as an effective reduction in his or her hourly wage. In contrast, a larger scale road transporter that must pay drivers wages and vehicle leasing costs cannot tolerate these long unproductive hours every week.

Therefore, it seems that the case for better coordination between road transporters to capture scale economies is not compelling. Instead, focusing on coordination between road transporters and other parts of the supply chain, particularly the stevedores, should be the priority. There are undoubtedly inefficiencies associated with the fact the road transport industry is fragmented, but this fragmentation does not reflect any market failure and so it is not the role of this review to solve those particular problems. Instead, IPART focuses on those coordination problems that can be addressed through market mechanisms.

### 6.2.3 Potential coordination approaches for road

Several discussion forums involving road transporters and other port players have already been established to facilitate better coordination (see Appendix J). However, the fact that coordination problems continue to exist suggests these forums are not a sufficient response to the problem, however useful they may be for disseminating information and maintaining relationships between the players.

The VBS was introduced as a tool for improving coordination. It provides a mechanism whereby road transporters and stevedores can bring resources to bear simultaneously to effect an efficient transfer of containers from wharf to truck or vice versa, and do so with sufficient lead-time to allow both parties to plan for resource availability. But while the VBS has undoubtedly improved the level of coordination, there is clearly scope to improve its effectiveness.
As section 6.1.6 discussed, IPART does not consider it appropriate for road transporters to be included in the PBLT recommended for improving the coordination of the rail container supply chain. Establishing a similar organisation would not work for the road interface at Port Botany. The necessary alignment of interests and cooperative spirit between all the parties is evidently absent. The antagonistic atmosphere surrounding CLAG’s complaint to the ACCC about the VBS, and the stark differences in view between the ATA NSW and its Victorian counterpart provide evidence of this misalignment of interests.\textsuperscript{163}

The number of participants in the Port Botany road transport industry and the fact that peak organisations such as the ATA NSW and CLAG do not speak for the entire industry\textsuperscript{164} make the prospects of coordination by agreement or committee appear bleak. Road transporters frequently lament their perceived inability to participate in a consultative process or to be better informed about stevedore decisions that directly affect them. However, it is difficult to see how such consultation could be achieved in any practical sense with a large, disparate group of road transporters who lack a single representative peak body.

If a logistics team approach like the HVCCCLT is not a realistic option for better coordinating the road interface, what approaches are feasible? IPART has considered three possibilities suggested by stakeholders:

- restricting the number of road transporters at Port Botany through licensing
- modifying the VBS allocation system
- creating incentives for the stevedores to reduce truck waiting times.

Each of these options and IPART’s conclusions are discussed below.

6.2.4 Restricting the number of road transporters through licensing

The stevedores suggested that road transporters be required to hold a licence to operate on the wharf that imposes some form of minimum service requirements on them, and that some efficiency advantages might be obtained by restricting the number of licenses available.\textsuperscript{165}

This approach could improve coordination because, as noted earlier in this chapter, it seems likely that some of the road transporters at Port Botany are too small to realise the available scale economies and that the fragmentation of the industry leads to excessive external costs. Therefore restricting the number of road transporters via

\textsuperscript{163} See Roundtable transcript, pp 82-83, for an indication of the depth of frustration felt by the VTA towards its NSW counterpart.

\textsuperscript{164} Sydney Ports Corporation noted at the Roundtable, “Going along with this and to be balanced in it, we do also need to recognise that the trucking industry in recent years has not been particularly coherent in what it wants out of the system and therefore, the net result was you had a boxing match rather than a collaborative way forward” (transcript, p 56).

\textsuperscript{165} At the Roundtable, Mr Adam of DP World discussed the possibility of a port license arrangement (transcript, p 77). Mr Schultz of Patrick also discussed it (transcript, p 76).
licensing might assist in the minimisation of overall supply chain costs. In addition, IPART considers that a significant reduction in the number of road transporters would not have any practical effect on the level of competition in the industry.\textsuperscript{166}

However, it is not clear precisely what number of road transporters would be ideal. More importantly, legal precedent suggests that any attempt to impose an artificial restriction on the number of road transporters at Port Botany is likely to be challenged on competition grounds. For example, the Australian Competition Tribunal (ACT) recently heard a case concerning ramp handlers at Sydney Airport that has some parallels to the situation with road transport operators and Port Botany (see Box 6.1).

The clear implication of this case is that any attempt by the stevedores to impose an artificial restriction on the number of road transporters at Port Botany would leave them open to challenge on competition grounds—potentially inviting a Part IIIA declaration of the container terminals under the Trade Practices Act. If market forces are not rationalising the road transport industry, it may be because there are subtle efficiency benefits associated with the current structure at Port Botany. The ability of small firms to fill particular niches based on specialised services, particular bundles of services, or levels of customer care may be part of the reason that rationalisation has not occurred so far.

On the other hand, if the lack of progress on ostensibly efficient rationalisation is the result of market failure, then that failure should be addressed directly at its root cause—not through a licensed quota system for road transporters. In either case, IPART believes that the strategy of limiting the number of road transporter licenses appears destined to fail on competition grounds, and possibly also on efficiency grounds.

\textsuperscript{166} Oligopoly power in an industry such as trucking (with low barriers to entry) is unlikely to be any more of a problem when there are, for example, 20 fairly equal-sized players, than when there are 200.
Box 6.1 Artificial restrictions on competition: Sydney Airport case study

Recently, Sydney Airport Corporation Limited (SACL) applied unsuccessfully to the ACT to reverse a ministerial decision to declare certain services provided through the use of the freight aprons and hard stands to load and unload international aircraft at Sydney International Airport, and through the use of an area at the airport to store equipment used to load and unload aircraft.

The origin of the declaration was an application from Australian Cargo Terminal Operators Pty Ltd (ACTO) to the National Competition Council. ACTO made this application after it unsuccessfully tendered to become one of the four licensed ramp handlers at Sydney Airport. Sydney Airport’s strategy had been to exercise control over the cargo terminal operators and ramp handlers by contract rather than regulation. The contractual mechanism was established by limiting the number of permitted operators, calling for tenders, and having successful tenderers enter into a license agreement that imposes performance conditions.

Sydney Airport’s defence of its exclusion of ACTO was that ACTO was unsuccessful in a legitimate tender process. In the end, that defence did not prevent the ACT from declaring the Sydney Airport—effectively giving access seekers a right to negotiate over access with the facility owner and to seek binding arbitration by the ACCC in the event that access terms were unsatisfactory or agreement could not be reached.

One of the most important points made by the ACT in its judgment was that the market, and not Sydney Airport, should decide how many ramp handlers served the airport:

SACL relies on the evidence that the market will only support four operators at the most for the proposition that increased access to the services will not promote competition. It submitted that with four incumbents no other operator will be able to survive. The Tribunal does not accept this proposition, having regard to the manner in which it has approached the concept of the promotion of competition. The Tribunal considers that the determination of whether any more than four operators can survive should be worked out by market forces and not by edict of SACL. In particular, the Tribunal considers that the determination of the nature and number of ramp handlers should be not be insulated from the airlines. (Sydney International Airport [2000] ACompT 1.)

6.2.5 Modifying the VBS slot allocation system

As noted above, the VBS was introduced as a tool to improve coordination between the stevedores and the road transporters. However, IPART considers that it has two main faults that limit its effectiveness:

- it allocates slots on a basis that takes no account of the value placed on them by the road transporters or their customers (i.e., the importers or exporters)
- it fails to prevent excessive queuing and truck idle time when the stevedore is unable to meet the planned slots.

IPART considers that the problems associated with poor coordination of the port-road container chain, and the general efficiency of the landside task, could be addressed by changing the VBS so the stevedores offer some slots to road transporters at a price that reflects their value to the transporters. This would effectively create a commercial relationship between the two parties, and thus create incentives for the stevedores to improve their quality of service. This approach is discussed in detail in Chapters 7 and 8.

The introduction of the VBS has led to marked reductions in truck queues at the port, but there are still times when one or both of the stevedores is unable to service the landside quickly enough to prevent long truck queues from forming. For example, these delays may be caused by equipment breakdowns, unusually high demand for shipside activity, or high container density in the yard, necessitating additional housekeeping moves to get to the right container. Potential solutions to this problem have been considered in Chapter 4.

### 6.2.6 Creating incentives for stevedores to reduce truck waiting times

As section 6.2.1 noted, the stevedores are currently insulated from the cost consequences of long truck queues, which means they have no commercial incentive to mitigate the impact of queues on road transporters. Chapter 4 recommended that stakeholders consider establishing a set of rules that the stevedores will use to adjust the VBS when delays occur. IPART considers that this approach will be effective in mitigating this impact. Alternatively, it may be feasible to create some commercial incentive for the stevedore to be more active in reducing queue lengths.

The policy options range from “carrots to sticks”, but before rewards or punishments can be seriously considered, IPART believes it is necessary to establish the basis on which the stevedores’ landside performance would be judged. There is clearly scope to introduce landside Key Performance Indicators (KPIs) for the stevedores upon which financial rewards and punishments could be based. This is discussed further in chapter 9.

The detailed design of any KPIs should involve both the stevedores and road transporters, as well as the importers and exporters whose logistical performance is affected. It is particularly important that the KPIs established are output-based measures. IPART has received suggestions, notably from the road transport industry, that extremely detailed input-based KPIs be applied. However, IPART considers that such KPIs would be inefficient, as they would involve second-guessing the stevedores’ commercial decisions potentially by parties that are not knowledgeable about the efficient running of a stevedoring operation. IPART has suggested some appropriate KPIs in chapter 9.

There may be merit in having a phase-in period during which KPIs are measured and reported but no financial penalties or rewards are paid. This would permit problems to be identified and resolved before they invoke financial consequences.
Some care is necessary in the design of these KPIs, since the failure of a truck to meet a VBS timeslot may be due either to problems at the stevedore or the road transporter. Any penalties should reflect fault, so there cannot be any ambiguity over the question of fault.

Potentially, SPC could play a valuable role in establishing and monitoring these KPIs. SPC’s unique whole-of-port perspective and intimate knowledge of the landside interface issues at Port Botany mean it is well placed to undertake this important task. The role of SPC is discussed further in the section below.

Ultimately, though, it must be recognised that the stevedores are likely to oppose the introduction of a system involving greater accountability on their own part, and governmental powers may need to be invoked to overcome that resistance. Using regulation to effect greater accountability is discussed in Chapter 9.

6.3 The role of Sydney Ports Corporation

Given SPC’s prominence in the port community, and the suggestions from many stakeholders that it assume an expanded role relating to landside congestion issues, IPART sought comments on the role of SPC in its Issues Paper. Comments received were mixed. Some stakeholders suggested that SPC take a leadership role in facilitating communication and resolving operational issues. However, other industry representative bodies were sceptical about this proposal. ATA NSW also submitted that SPC’s involvement in trying to resolve the road transport industry’s dispute with the stevedores has not been productive.

The current coordination and consultation groups at Port Botany have arisen because SPC took the initiative in leading discussions on improving efficiency, particularly at the operational level through facilitating discussion among members of the SPCFC. While most supply chain participants appear to agree that these groups have provided a useful venue for information exchange, the groups were not seen as being capable of facilitating logistics coordination across the whole supply chain (as noted above in 6.1.1). A key defect appears to be that there is no decision-making body or mechanism within these groups that can be implemented at both the strategic and an operational level of coordination. For example, meeting minutes for the SPCFC indicate that issues are identified and noted by members but there is limited scope of securing any consensus and implementing long-term changes in a collaborative way.

Despite goodwill and genuine intentions among members, ultimately, individual commercial interests minimise scope for altering inefficient practices in the longer term. Without the ability to mandate any formal commitment from participants in improving operational efficiency, any involvement by SPC must be solely based on cooperative working relationships between participants.

168 CBFCA submission, p 7.
169 For example, see ATA NSW submission, pp 14-15.
170 ATA NSW submission, p 39.
As discussed in 6.1.4, SPC has proposed in its submission that it establish and chair two ‘Governance Councils’ to co-ordinate and manage the supply chain similar in structure and coordination framework to the HVCLT. As noted in that section, IPART believes that the interventionist approach proposed by SPC is likely to be unsuccessful because of the unwillingness of the asset owners to grant durable rights of control over their own assets to third parties. This unwillingness is understandable – without having its own money at risk, SPC’s incentives will not be aligned with those of the asset owners and operators and consequently SPC would not be in a position to make operational or investment decisions. IPART does not support SPC’s role in the operational aspects of port activities.

IPART concurs with the view expressed in the ACCC’s *Container stevedoring - Monitoring report no. 8*, that port managers may need “… a more proactive approach to the management of certain land-side logistics arrangements to ensure that the port-land side interface does not emerge as a transport bottleneck” and that “[t]he role of port managers in managing land-side connections would appear to be important in achieving efficient logistics chains.”171 That SPC has started to address the emerging limits at Port Botany by its initiatives at Enfield is praiseworthy.

There is a significant role for SPC in development of the Enfield and other internal ports connected to the long-term development of the port, including setting strategies for moving more volume from road to rail. (SPC’s current role is described in more detail in Appendix I). IPART supports SPC’s role in strategic initiatives for this publicly owned scarce resource that requires development. SPC should implement public policy initiatives that have been set by the NSW Government.

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Using a price mechanism to allocate VBS slots

As Chapter 3 discussed, IPART has identified a range of inefficiencies associated the current landside arrangements at Port Botany, many of which relate to the provision of road access to the stevedores’ terminals via their vehicle booking systems. In particular, there is often excess demand for the available VBS slots, especially during weekday daylight hours. In addition, VBS slots are allocated to road transporters without regard to their value to those transporters, which means they don’t necessarily go to those who value them most. Further, there is no commercial relationship between the stevedores and the road transporters, which means the stevedores have little incentive to minimise the congestion costs faced by the road transporters.

Although the recommendations discussed in Chapters 4, 5 and 6 will go some way to reducing some of these inefficiencies in the short term, IPART believes that further, a more fundamental change is necessary if Port Botany is to cope efficiently with the significant growth in containerised freight trade forecast for the next two decades. Specifically, IPART considers that:

- The existing approach to allocating VBS slots needs fundamental change.
- A price mechanism is the preferred approach for allocating VBS slots, as it will lead to the most allocatively efficient outcomes.
- VBS slots would need to be guaranteed if they were to be sold on the market.
- A two-tier VBS – that includes guaranteed or ‘firm’ slots to be sold on the market, and unguaranteed or ‘interruptible’ slots to be allocated on the same basis that all VBS slots currently are – is needed to ensure that stevedores can manage the risks associated with offering firm slots without constraining the total number of slots offered.
- The most efficient price mechanism for firm slots is an auction – and while minimum and maximum price limits could be imposed in the transitional phase, such limits are probably unnecessary and certainly undesirable in the long term.
- The stevedores should be allowed to retain some of the revenue raised by the sale of firm VBS slots – sufficient to cover their incremental costs in establishing and operating the system, plus a market rate of return, and to maintain service standards. Any additional revenue should be used to fund road and rail infrastructure investments that will further the NSW Government’s policy objective of ensuring the efficient flow of container traffic at Port Botany.
IPART considers that this approach would both ration demand for peak VBS slots and provide funding for increased provision of peak slots. This rationing would be based on the value each road transporter or its customer places on a slot, which means that the most urgent freight would get priority. Road transporters and their customers would be able to choose to obtain priority access where it is commercially justified or off-peak access where it is not. In all these respects, this approach would substantially improve on the current arrangements for road access, to the benefit of road transporters, their customers, and all other participants in the supply chain.

IPART acknowledges that stakeholders who attended its Roundtable discussion expressed some reservations about the use of an auction to price VBS slots. Nevertheless, it considers the potential efficiency benefits of this pricing mechanism are sufficiently great to justify a fuller exploration of the possibility. It seems likely that many of the concerns expressed about this mechanism could be dealt with through careful design of the auction.

IPART also notes that the CBFCA’s submission to this review expressed support for some aspects of IPART’s proposed approach. For example, the CBFCA saw merit in a peak pricing/charging regime with rebate for rail and off-peak road containers. It acknowledged that the suggested $30 FIC may not be a sufficient incentive to change operational practices. It noted that, despite initial resistance, the similar PierPASS approach adopted in Los Angeles has led to behavioural changes that have provided efficiencies to all stakeholders. The CBFCA supported further review into this concept for Port Botany, noting that if a charge is to be introduced it should be administered by SPC or the NSW Government with appropriate use of revenue to support initiatives directly related to improving supply chain efficiency.

The sections below discuss IPART’s general proposal to use a price mechanism to allocate VBS slots in detail. Chapter 8 outlines IPART’s more specific proposal on pricing road access.

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172 At the Roundtable, CLAG expressed concern about manipulation of an auction (transcript, p 70). However, CBFCA noted in principle agreement and an interest in exploring the auction concept further (transcript, p 71). DP World expressed concern that the auction might raise revenue without altering behaviour in the desired direction, while potentially inducing peculiar behaviours (transcript, p 72). CBFCA further noted that it was concerned that large price differentials might emerge between stevedores under an auction approach (transcript, pp 72-73).

173 CBFCA submission, p 14.

174 CBFCA submission, p 14.
7.1 The existing approach to allocating VBS slots needs fundamental change

Nearly all the stakeholders who participated in this review identified problems with the current system for allocating road access to the stevedores’ terminals. The road transport peak bodies, ATA NSW and CLAG, claimed that the existing VBS has a large number of deficiencies.\(^{175}\) For example, ATA NSW put the view that:

…the fact that operators engage in a free for all to get time slots is a blunt and obstructive process.\(^{176}\)

The CBFCA also identified weaknesses in the VBS and the processes that surround it.\(^{177}\) For their part, the stevedores noted that truck queuing was worse before the introduction of the VBS, but acknowledged that there is room for improvement.\(^{178}\)

It is undoubtedly true that the introduction of the VBS improved efficiency at Port Botany by replacing the physical queue that regularly arose when trucks arrived randomly at the port with a ‘virtual queue’ of internet bookings. A great deal of fuel, truck driver time, and vehicle availability has been saved by this move. Knock-on problems caused when the truck queue extended onto public roads around the port (often blocking the entrances to other industrial premises) have also been substantially mitigated. The VBS created the opportunity (admittedly not always fully exploited) for the stevedores to plan resources to meet demand on the landside and to shift the pre-booked containers to the top of the stacks to facilitate efficient truck loading.

Nevertheless, road transporters still frequently make two types of complaints about the operation of the VBS:

\(^{\text{▼}}\) First, they find it very difficult to get the most desirable daytime weekday slots, as demand for these premium slots far outstrips supply.

\(^{\text{▼}}\) Second, the stevedores are sometimes unable to service trucks within their booked timeslots, due to congestion in the terminal or to some other unexpected disruption to normal service (ie, non-recurrent congestion).\(^{179}\) When these delays occur, actual truck queues can become inordinately long and total truck waiting times can soar to levels that are plainly inefficient.\(^{180}\)

\(^{175}\) See, for example, CLAG submission, p 7, and Roundtable transcript, p 31.

\(^{176}\) ATA NSW submission, p 26.

\(^{177}\) See CBFCA submission: “The CBFCA concerns in relation to the VBS applications are not so much in relation to the technical architecture but in the underlying pricing policies and associated business rules” (p 18).

\(^{178}\) See Roundtable transcript, pp. 37-42 (DP World) and pp 42-47 (Patrick).

\(^{179}\) The issue of congestion is introduced in section 2.6.2 of this report, where a distinction is made between predictable, or “recurrent congestion,” and unpredictable “non-recurrent congestion.”

\(^{180}\) A third complaint, about historical anticompetitive stevedore self-favouritism, is being investigated separately by the ACCC and will not be canvassed in this report, except to say that IPART has been provided with no concrete evidence that such favouritism occurs.
IPART considers that these problems are closely linked to the approach currently used to allocate VBS slots. The first is symptomatic of any situation where a scarce commodity is allocated among competing acquirers in a way that does not reflect the importance or value that each acquirer places on that commodity.

As Chapter 3 described, the present VBS is a first-come-first-served system, and obtaining the slots you want involves quite an element of luck. Anecdotally, it is the road transporters with the most vigilant clerical staff or the fastest typists that win the race for the most desired slots. Superimposed on this system is a quota. Individual road transporters are prevented from acquiring more than a set number of VBS slots in a given peak time period when they are first made available.

The second problem is, to some degree, inevitable due to the highly complex nature of stevedoring activities. However, it also symptomatic of the fact that there is limited contractual and no commercial relationship between the stevedores and the road transporters. As Chapter 3 identified, the current carrier access agreements entitle road transporters to access to the VBS – but booking a timeslot through this system does not provide an entitlement to access to the terminal within that timeslot. In addition, the small fees associated with the VBS cover only the costs of operating the booking systems themselves – they do not relate to access to the terminal, which is provided at no charge. This means that the stevedores have little incentive to minimise the impact of delays at the terminal on road transporters, and the road transporters have no right to seek redress for this impact.

IPART considers that the approach for allocating VBS slots needs a fundamental change to overcome these problems and achieve long-term improvements in efficiency levels at the port.

### 7.2 A price mechanism is the preferred approach for allocating VBS slots

There is a range of options for allocating a scarce commodity, such as the available VBS slots at Port Botany, among those parties that wish to acquire it. Economic theory suggests that a price-based system would perform more efficiently than the current approach. However, it might also be possible to share the commodity by equal division, or to limit the class of parties who are eligible to acquire the commodity. Or it might make sense to retain the current approach, under which VBS slots are allocated on a first-come-first-served basis.

IPART considered each of these options and concluded that a pricing mechanism is the preferred option for allocating VBS slots, because it is both more efficient and more practical than the alternatives. In particular, sharing by equal division is not practical in the circumstances at Port Botany, where there are more than 200 road transporters of unequal size. Any rule that allocated an equal number of slots to each road transporter would inefficiently disadvantage the larger firms, and would strongly discourage efficient amalgamations of road transporters. However, any rule
that allocated slots in proportion to the current size of each road transporter would also be inefficient. It would serve to entrench current business sizes irrespective of their efficiency. In effect, it would retard the process by which more efficient businesses displace less efficient ones.

Limiting the class of parties who would be eligible to acquire VBS slots would also be highly problematic. As section 6.2.4 highlighted, any attempt by the stevedores or SPC to artificially restrict the class of persons eligible to acquire road access to Port Botany may not comply with Australia’s competition laws. The power to make economic foreclosure decisions of this type should not rest with private firms or government businesses. Furthermore, it is undesirable to place such decisions in the hands of parties that do not possess a deep understanding of the competitive dynamics of the road freight industry.

Allocating VBS slots on a first-come-first-served basis, as is currently the case, has some characteristics of a lottery. It does not suffer from the competition law problems that arise with exclusionary schemes. Arguably, though, it does not perform much better than an equal division scheme. In effect, the current system is a statistically based equal division scheme in which the slots are allocated, on average, in proportion to the number of containers each road transporter needs to move. That basis of division is better than current firm size because it takes account of each road transporter’s ability to attract the business of importers and exporters. This ability may be a better indicator of relative efficiency than the firm’s size.

However, a significant flaw in the first-come-first-served approach is that it does not allocate the scarce objects to those parties that value them most highly. In that sense it is not allocatively efficient.\textsuperscript{181} In fact, once the allocation is concluded, it would be possible for both winners and losers to make themselves better off by trading. Road transporters will place different values on a slot (for example, based on the urgency of their clients’ need for delivery). Therefore, there is likely to be some price between its (relatively low) value to a winner and its (relatively high) value to a loser at which both would be happy to trade.

After all trades that are possible have been made, the allocation of slots is likely to be similar to the allocation that would have resulted from an auction, and thus be as allocatively efficient as an auction. However, it is a much slower and less certain way to obtain that result. In addition, the original seller would have received none of the value that was created, and the winners in the allocation would have received a windfall either by reselling, or by obtaining the ability to use a valuable slot at no cost.

\textsuperscript{181} In Chapter 2 (section 2.6.3) the various types of efficiency are distinguished, viz: allocative, productive, and dynamic.
In summary, once the exclusion and arbitrary division approaches are ruled out, the main alternative allocation methods are a price mechanism or allocation on a first-come-first-served basis. A pure random allocation in which resale is prohibited would be allocatively inefficient, since the scarce objects would not generally be allocated to their highest-valued end-uses. If resale were allowed, then the allocation process would take on characteristics of a price mechanism, thus tending to overcome the allocative inefficiency problem. However, if a price mechanism is chosen for reasons of allocative efficiency, then the most efficient price mechanism should be preferred. Some form of auction would be more productively efficient than allocation on a first-come-first-served basis that is followed by (possibly covert) bilateral trading, and more likely to result in an efficient allocation.

7.3 VBS slots need to be guaranteed if they are to be sold on the market

To sell a good or service for a non-trivial price, the product characteristics must be clearly specified. In addition, when there is a time delay between the sale transaction and fulfilment, the buyer must have confidence that the product will be delivered and will meet the specification. Contracts that specify the rights of the customer against the supplier in the event of non-delivery or inadequate delivery are commonly used to provide this confidence.

It is important to understand that the currently available VBS slots do not meet these minimum requirements. As Chapter 3 discussed, the fees associated with the VBS are for access to the booking system only, and do not entitle the holder of a booking to access to the stevedore’s terminal in the booked timeslot. In the relatively common event of disruption to service at the terminal, some VBS slots may not be delivered to the road transporter that booked them at the appointed time. When this non-delivery occurs, the road transporter has no recourse against the stevedore. Current VBS slots are provided on a reasonable endeavours basis. Documents provided to IPART by the ATA NSW show that the road transporters are well aware of this fact.

182 Patrick’s Vehicle Booking System Conditions of Access notes under section 5 “Limitation of Liability” that “Patrick shall not be liable for any claim, demand, liability, or consequential losses under any circumstances, howsoever arising or howsoever caused,” available at http://1-stop.biz/patrickvbs.htm
183 DP World’s 2007-08 Carrier Access Arrangements Port Botany Terminal notes under heading 15 “Cancellations” that “DP World Sydney reserves the right to cancel a time zone as a result of unforeseen circumstances. This will be generally done with at least an hour’s notice where possible. DP World Sydney will endeavour to assist carriers with replacement timeslots” (document attached to DP World submission) The document notes further that B class carriers may be entitled to lodge claims for some limited compensation for out of pocket costs in the event of delays of more than 2 hours (see section B4).
184 A memorandum to the container section of the NSWRTA dated 23 April 2001 was provided to IPART by ATA NSW as an attachment to its submission. It notes, among other points that: “There is no guarantee of service or slots being available when required by carriers.”, and “They will consider reimbursing Major carriers only if the terminal detains them more than two hours. However, they retain the right to cancel slots if something goes wrong at the terminal which would cancel out their obligation.”
CLAG expressed the view that stevedores should be accountable for delivery of VBS slots, and that slot holders should have recourse against the stevedores when booked slots were not met. If there were a formal customer-supplier relationship between road transporters and a stevedore, then these expectations might be reasonable. However there is no such customer-supplier relationship at present. Road transporters do not pay for the slots (they pay for access to the VBS), the terms on which slots are offered explicitly preclude recourse against the stevedore, and no assurance of service is provided. It would not be reasonable to move from the status quo to impose accountability and recourse upon the stevedores without introducing some commercial relationship involving payment for slots.

It is worth noting that the relationship between stevedores and shipping lines is quite different. The shipping lines have formal contracts with the stevedores, which impose a range of obligations on them, including performance monitoring regimes, and contractual payments by the shipping lines depend on them meeting specified performance standards.

If a price mechanism for VBS slots were introduced, two changes from the status quo would be necessary. First, the slot itself would need to be priced separately to any booking fee or related service charge. Second, delivery of the slot by the stevedore would need to be guaranteed, and there would need to be financial penalties associated with non-delivery or inadequate delivery. IPART considers that a simple rule of thumb, such as “double money back” in case of non-delivery, would provide the correct incentives for stevedores, while linking the financial penalty to the market value of the slot.

### 7.4 A two-tiered VBS is needed

The introduction of a price mechanism for VBS slots that are guaranteed would impose, for the first time, a commercial relationship of customer-supplier between the slot owner and the stevedore. This would create new risks and liabilities for the stevedore.

To manage these risks, it seems likely that the stevedore would prefer to offer fewer guaranteed slots in a given hour than the number of current (non-guaranteed) VBS slots that might normally be offered. For example, while 60 slots per hour may be deliverable with reasonable certainty, only 40 slots per hour could be provided with a sufficient safety margin to justify the guarantee in light of the possibility of unexpected developments at the terminal. At any rate, it seems unlikely that stevedores would be able to offer the same number of guaranteed slots each hour as current VBS slots without incurring considerable extra expense in the form of overmanning, opportunity cost, or penalty payouts.

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185 Roundtable transcript, pp 30-31.
Such a restriction on the total number of slots available to road transporters is not desirable, as it would likely reduce the total number of truck entries per day. Therefore, some non-guaranteed slots must be allocated outside the price mechanism. IPART considers that this can best be achieved by establishing a two-tiered VBS system. The guaranteed slots represent the upper tier, and these would be sold on the market. The non-guaranteed slots represent the lower tier, and these would be allocated on the same basis as all VBS slots are currently allocated—on a first-come-first-served basis. IPART has adopted the terminology ‘firm slots’ for guaranteed slots, and ‘interruptible slots’ for non-guaranteed slots. This terminology has its origins in energy markets, particularly gas, where firm contracts must be honoured no matter what, but delivery may be interrupted in certain circumstances under interruptible contracts.

This two-tiered system has the attractive property that demand will be strong and prices high for firm slots during peak hours, whereas demand will be weaker and prices lower for firm slots during off-peak hours. Interruptible slots would continue to attract only a nominal booking fee, and would remain inexpensive when they are available. A peak pricing mechanism will evolve spontaneously from these foundations. Through the operation of market forces and the design of the two-tiered system, VBS access will be more expensive, on average, during peak hours than off-peak hours.

Continuing with current practice, a VBS slot is associated with either the delivery or receival by road of a single container. To encourage more efficient dual runs, in which a truck delivers an export container and receives an import container in a single visit to the terminal, some slots of longer duration (dual slots) should be offered. Indeed, IPART considers it desirable to make all firm slots long enough to serve as dual slots. This would mean that a road transporter buying a firm slot would have the option of doing a single run (only delivering or receiving one container per visit), or a dual run. The single run would take slightly less time and so free the stevedore to service other trucks sooner. However, a dual run would enable the road transporter to derive more value from that slot, and those that intend to do a dual run could be expected to bid higher than those doing a single run.

The precise operational specification of a slot, in terms of time measurement, communication, reciprocal obligation, and penalties for non-compliance may be quite detailed. IPART has not attempted to explore this specification, as this is a matter for the stevedores and road transporters. However, in its view, the stevedore’s obligations should be considered fulfilled if the road transporter enters the terminal gate within the specified time for the firm slot and leaves the terminal premises within a certain specified time. That length of time may vary depending on the number of containers a truck is delivering and collecting.

It is difficult to accurately set performance targets that are achievable at this stage. KPIs for output-based performance measures—such as TTTs or truck waiting times—could be developed during the implementation phase of a pricing system. KPIs of
this sort may need to be phased in. Specific KPI targets for measures such as TTT should be set separately for each stevedore.

Some complexity may be involved in establishing penalties against a road transporter that appears late for a firm slot. In the case of complete non-appearance, the firm slot price would be forfeited by the slot owner. Slots would be sold on a ‘take-or-pay’ basis. In the case of late arrival, it may be preferable to link any penalty to the market value of the firm slot at the time the truck actually arrives. That type of approach would remove any incentive to book a firm slot at an inexpensive time then arrive later, during a much more expensive time period. In any case, the detailed implementation of such rules should be left to the direct participants.

The question of how to treat a road transporter that arrives late for a firm VBS slot entails a number of important issues. Part of the value of a firm slot may be the ability to transform it into an interruptible slot in the event of late arrival by the road transporter. While this treatment of late arrivals may weaken the ‘take or pay’ character of a firm slot somewhat, it recognises the practical reality that the stevedore needs to move that container. It would not be efficient if the punishment for a late-arriving road transporter led to increased congestion in the terminal.

Road transporters should be obliged to provide the relevant container number within a certain period before the start of the slot, to enable the stevedore to do appropriate housekeeping. While container numbers could be changed subsequently, there could be a penalty for doing this. For example, the firm slot could be converted to an interruptible one if advice of the changed container number was received inconveniently late.

Finally, it is important to emphasise that IPART is proposing that it is the firm slot that is priced. IPART is not advocating a charge for access to the port facilities, which would still be available at no charge through interruptible VBS slots.

### 7.5 The most efficient choice of price mechanism for firm slots is an auction

If a price mechanism is to be employed to allocate firm VBS slots, a particular price mechanism must be chosen. IPART considers that an auction is the most immediate and flexible price mechanism. However, the consultation process identified some nervousness within the port user community about how the auction would work in practice, and concern about opportunities for exploitation of parties that are unfamiliar with auction processes.

In light of these concerns, IPART has also considered some alternatives to the auction approach – including pricing by administrative decision, adjustable posted prices, and auction subject to price limits. Each of the alternatives and IPART’s considerations and conclusions are outlined below.
7.5.1 Pricing by administrative decision

Pricing by administrative decision would involve the NSW Government setting a price (or a set of prices for different times of day) for firm VBS slots. Government involvement would be necessary since this type of pricing by a private firm would likely run counter to the Trade Practices Act.

Presumably, a series of market demand studies would be undertaken beforehand to ensure that the price decision closely approximates a market-clearing price. However, it is likely that the initial price will be an inaccurate estimate of the market clearing price (which would, in any event, vary from day to day, and even from hour to hour). This is because forward-looking market demand studies in the transport field are notoriously unreliable. It is also because of the complexities involved in forecasting well in advance the number of VBS slots that should be offered in any hour (discussed in section 3.1.2).

Given fluctuations in demand, the market clearing price for 8am this Monday may be quite different to the market clearing price at 8am next Monday. But once set, it would be difficult and time consuming to alter an administratively determined price to reflect the change in demand, and therefore find the equilibrium point between supply and demand that would clear the market. The price review process would probably resemble the process for altering regulations. This price stickiness presents a further problem, as demand for firm VBS slots is likely to increase over time, given the forecast growth in containerised trade. A rigid price would not be sufficiently adaptable or responsive to shifting market conditions to serve its purpose.

7.5.2 Adjustable posted prices

If fixed pricing by administrative direction is rejected, an adjustable posted price may provide a desired level of flexibility without the potential for wild price fluctuations that are inherent in an auction. The market-clearing price level for a firm VBS slot at a particular time on a particular day could be determined by trial and error through posted prices that are gradually modified over a period of weeks or months until the market clears. Such a process can be thought of as a ‘slow-motion auction’.

When the posted price is set above the true market clearing price for a given hour and day, then not all the available firm slots will be sold. When the posted price is set below the market clearing price then the available firm slots will be oversubscribed, and they will have to be allocated among subscribers through a non-price mechanism such as a lottery. Whenever the posted price is set incorrectly there will be inefficiencies (either unserved demand or some allocation by lottery), but over time the extent of these inefficiencies will diminish as the posted price more closely approximates the clearing price.

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186 The FIC proposed in the FIAB report is an example of pricing by fiat. The FIC was proposed to be set by Government at a particular level.
The price discovery benefits of this process could be enhanced by maintaining a waiting list of unsuccessful bidders, or even a bid stack of the type maintained by the Australian Stock Exchange as part of its market depth information. By reviewing such a bid stack it would be possible to evaluate what the market clearing price would have been—information that would be useful for adjusting the posted price in the next iteration.

### 7.5.3 Auction subject to price limits

If the main concern about an auction is the possibility of extreme price volatility, then it may be prudent to impose minimum and maximum prices on the auction—at least for an introductory period until experience is gained with the auction format. Some well-known auctions, like the National Electricity Market (NEM) pool, operate with an absolute price cap. The maximum price could be set initially at a relatively low level, and subsequently relaxed as confidence in the system grows. The NEM price cap has been relaxed in this fashion.

### 7.5.4 Pure auction

In a pure auction (ie, one not subject to minimum and maximum price limits), the market will clear, but the price at which it does so may be perceived to be extreme. It may also vary considerably from day to day. If the price volatility reflects dynamic demand factors, then it may be entirely appropriate for prices to be volatile. On the other hand, if volatility is due to the auction design or strategic bidding by some parties, then it will be a problem.

The benefit of refusing to put limits on the price range is that allocation by lottery should never be necessary for firm VBS slots. An unlimited auction should be the most allocatively efficient pricing system, as long as bidders don’t “game” the system. The firm slot price would not be likely to exhibit the extremes of, say, the NEM pool price because the availability of an alternative (such as interruptible slots) will act as a natural limit. While road transporters may prefer not to operate at night or on weekends, the extra cost of doing so would not be hundreds of dollars per container, so an extreme auction price would not be sustainable. Similarly, a road transporter or an importer is unlikely to pay a firm slot price that exceeds the stevedore’s daily storage charge, except in rare circumstances.

Overall, while there are alternative pricing mechanisms to an auction, IPART considers that an unlimited price auction would be the most allocatively efficient one, barring manipulation by bidders. If there are concerns about price volatility under an auction scheme, then price limits could be imposed during an introductory period to help establish confidence. If even a price-capped auction is still perceived as too risky or experimental, then an adjustable posted price system with bid stack

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187 The maximum pool price is referred to as the “Value of Lost Load” or VOLL. It is presently set at $10,000/MWh. It was previously set at $5,000/MWh, then relaxed.
would permit progress to be made toward market clearing prices, while testing the auction process ‘off-line’. 188

7.6 Use of the revenue raised by the sale of firm VBS slots

The on-market sale of guaranteed VBS slots may raise significant revenues. For example, if the cost differentials noted in Chapter 5 between peak and off-peak road transport (comprising mostly the cost of handling off-peak deliveries at an intermodal terminal) are representative, and if these differentials approximate the value of a peak VBS slot, then peak firm slot prices could well fetch between $60 - $80 each. Applying this price range to eight peak hours per weekday for fifty weeks of the year, and assuming 40 guaranteed slots per hour at each stevedore’s premises, the market sale process might be expected to raise in excess of $10 million per annum across both stevedores combined. Of course, the actual sales proceeds could differ markedly from this range, depending on the number of guaranteed slots offered and changes to the factors that make them valuable to bidders.

Equating one VBS slot with one container, this hypothetical $60 – $80 range for guaranteed slots would represent more than a 100 per cent increase in the current level of ‘other revenue’ per TEU achieved by the stevedores. 189 It seems likely that sales proceeds of this magnitude would also exceed the additional costs that stevedores would incur in providing guaranteed slots. 190 This excess value or profit on a slot reflects its scarcity value and is in effect a ‘monopoly rent’. To the extent that this simplified analysis is correct, there is likely to be money left over from the sales process after all stevedore costs of providing guaranteed slots are covered.

How should this left over money be distributed? In IPART’s view, it would be inappropriate to permit the stevedores to retain it. The sale of firm VBS should not become a profit centre for the stevedores. However, they should be able to earn adequate revenue to recover the incremental costs they incur in putting the two-tiered VBS in place, including a market rate of return on any capital costs they incur in facilitating the system. This revenue should also cover expenditures necessary to maintain the service standards required for the firm slots and provide sufficient profit to create an adequate incentive for them to provide as many firm slots as possible.

188 The idea of the bid stack is that although the firm slots would be sold for an announced price, bidders would be asked to submit a range of bids indicating their level of interest in obtaining the slot at a range of prices above and below the announced price. By compiling these individual responses into a bid stack, it would be possible to determine, after the fact, what the market clearing price would have been. This process is essentially the process used by the NEM to establish the pool price.

189 See ACCC, Container stevedoring - Monitoring report no.8, November 2006, p 15. Applying an average rate of 1.5 TEU/container (consistent with figures for Sydney Port in BTRE’s Waterline 42), the given hypothetical range of VBS firm slot prices corresponds to $40 - $53/TEU, which is significantly greater than the $27.94/TEU in other revenue earned by the stevedores in 2005-06.

190 While it is difficult to make such an assessment without a detailed understanding of the stevedores’ cost drivers, the new revenue from each slot auction may represent a significant portion of the stevedore’s current costs on a TEU basis. The ACCC, Container stevedoring - Monitoring report no.8, notes that stevedore unit costs were $137.49/TEU in 2005-06 (p 11). The given hypothetical range of VBS firm slot prices represents between 29 per cent and 39 per cent of this cost.
To best promote the policy objective of relieving the anticipated congestion at Port Botany, including by promoting the greater use of rail, it would be desirable to use part of the sales proceeds to fund road and rail infrastructure investments that:

- would not otherwise be made on a commercial basis, or
- might be made commercially, but on an excessively slow timescale, and
- would act as a catalyst for further moves toward use of intermodal terminals, inland ports, and rail transport to and from the port.

Some part of the proceeds could also be used to encourage off-peak road access to Port Botany through payments to road transporters as an inducement, or perhaps to compensate for additional costs incurred in adopting that mode of operation. Such payments will encourage road transporters to work at off-peak times when there is a lower level of congestion not only at Port Botany but in Sydney more generally. The subsidy will help to address these congestion problems.

However, IPART has some reservations about the use of such a subsidy, and its benefits would need to be balanced against these. IPART considers that the sales process itself will create a significant peak/off-peak price differential for firm VBS slots that will create incentives for road transporters to move to off-peak operation and to use rail. It is not clear that any further inducement would be needed to drive a spreading of the peak and a subsidy to off-peak road transport would reduce the incentive to move to rail.

There are other possibilities for the use of the sales proceeds, including the establishment and operational needs of coordination bodies for road and rail, and research projects that may be of genuine benefit to the port community. Potentially SPC could play a useful role in this process. In conjunction with stakeholders, SPC would be well placed to determine the broad priorities for infrastructure funding. After the stevedore’s costs of meeting the firm VBS slots were met, a proportion of the remaining sales proceeds would be dedicated to road and to rail infrastructure, to the road transporters prepared to use off-peak slots, to coordination and to research. Within that broad framework, SPC could determine the actual projects to which the funding would be directed from year to year.
Chapter 7 set out, in fairly general terms, the features of IPART’s proposed two-tiered VBS in which firm slots would be sold by auction, and interruptible slots would be allocated on a first-come-first-served basis (as all VBS slots currently are). Although it was not feasible or appropriate for IPART to set out all aspects of this proposed system in detail, it has looked more closely at some aspects. In particular, it considers that four essential features (in addition to those discussed in Chapter 7) would need to be incorporated if the proposed approach is to be effective:

1. the number of firm slots to be offered must be determined by the stevedores
2. there should be an unrestricted secondary market for firm VBS slots
3. there should be no restrictions on the number of firm slots any one party can purchase through the auction
4. the entire system should be computerised and be based on clear rules, and compliance with those rules should independently be audited on a regular basis.

IPART has also considered the auction design and the approach for allocating interruptible slots, to help stakeholders understand how the system might work. It concluded that a descending bid Dutch auction format would be the most suitable, but the specific design would need to be carefully considered. The interruptible slot allocation process should resemble the current VBS slot allocation process, but existing means of giving some road transporters priority in this process (such as DP World’s subscription scheme, including the B Class carrier status) would need to be abolished.

To implement the proposed system, a range of issues would need to be discussed and negotiated between the direct participants. These issues include who can participate, what should happen in relation to other existing means of access to the terminals (such as stack runs and standby queues), penalties for road transporters who arrive late or don’t show up at all, and Trade Practices Act issues.

Each of these matters is discussed below.
8.1 The number of firm slots offered should be determined by the stevedores

Decisions about how many firm VBS slots to offer in each one-hour time period must be made by the stevedore, as no other party has the detailed knowledge of the commercial tradeoffs required to make efficient decisions. The stevedore alone bears the consequences and has the ability to manage the associated risks, so is likely to be the most efficient decision-maker. The discussion in Chapter 3 on the difficulties of forecasting landside demand makes it clear that even with the stevedore’s detailed knowledge of ship arrival times, resource availability, and terminal operating constraints, it is difficult to avoid landside congestion. Any other party would lack even this information, and would therefore be considerably less well placed than the stevedore to make such operational resource allocation decisions.

It is important to consider the incentives facing a stevedore as it makes decisions about slot numbers. Generally speaking, if the stevedore retains part of the auction proceeds from selling firm slots, it will have an incentive to offer more firm slots. However, the structure of the stevedore’s remuneration should not create incentives for the stevedore to create artificial scarcity of firm slots and cause the price to spike. A remuneration scheme which gave the stevedore a fixed share of the auction proceeds might create such a perverse incentive. It may be preferable to give the stevedore a fixed financial payment for every firm slot that is sold (making the remuneration independent of the sale price). That type of remuneration scheme would encourage the stevedore to offer as many firm slots as possible.

Given that guarantees have never been provided by the stevedores in the past, and that they will be penalised for not meeting the set standards, the stevedores will face uncertainties in making decisions about the number of slots to be made available in each hour of the day. The stevedores are likely to apply a form of ‘adaptive management’, which is frequently used in natural resource management where decisions must be made and systems managed while information is still being collected. The stevedores should be informed by past experience and adapt their strategy accordingly.

During this review, some stakeholders argued that the stevedores would not voluntarily make available the number of peak VBS slots that they are capable of serving unless the NSW Government compelled them to. IPART does not consider this to be true, because the stevedores need to shift the import containers that arrive out of their terminals within a few days, to make room for more containers. In addition, the financial incentives associated with the proposed system should stimulate the release of more firm VBS slots, all else being equal. Nevertheless, perceptions that the stevedores may obtain some strategic advantage by withholding peak VBS slots remain.
If the financial incentives do not lead to the stevedores offering a number of firm VBS slots during peak hours that are considered reasonable (noting that a basis of judging reasonableness would need to be established), there may be merit in setting and reporting on KPIs for a period of time through intervention by the NSW Government. This issue is discussed further in Chapter 9.

Alternatively, the minimum number or percentage of firm slots to be offered over some time period could be established by regulation. However, great care would need to be exercised in establishing such a minimum, because of the difficulties in forecasting overall demand (discussed in Chapter 3), and many of the factors that influence demand for VBS slots and stevedores’ capacity to service that demand are outside the stevedores’ control (also discussed in Chapter 3). For example, these factors include ship arrival times, the varying size of ships, weather conditions such as fog and wind, and the density of containers in the stacks. The inherent variability of all of these factors leads to the need for flexibility, which tough minimum VBS slot requirements would impede. The need for regulation in general is discussed further in Chapter 9.

If it is accepted that only the stevedore can make efficient decisions as to the number of firm slots to be offered in any time period, with or without additional constraints around the meeting of KPIs or minimum slot offerings, then it necessarily follows that there is no logical role for an independent authority to sell firm slots on the stevedores’ behalf. The interposition of an additional independent party whose only role is to act as a facilitator of the auction would increase the complexity and reduce the flexibility of dealings without any benefit. The major perceived benefit of an independent authority, namely transparency, can be achieved through other means, discussed in section 8.4 below.

8.2 There should be an unrestricted secondary market for firm VBS slots

IPART considers that firm slots should be freely tradeable, and there must be no restrictions on the prices that may be charged on resale. Changes in operational requirements (and mistakes) by the road transporters are inevitable, and can be corrected by the secondary market. The secondary market will give the road transporters flexibility to change their plans to meet their clients’ priorities.

Conceivably, some participants may be concerned that unrestricted resale could lead to profiteering or scalping, so it is worth considering whether this might be the case. Since the initial price is established by auction there is no opportunity to make profits in the secondary market on average. This conclusion depends on the auction functioning properly in the sense that the parties placing the highest value on a slot win the auction at a price reflecting their valuation.

Hypothetically, wealthier firms have the capability to spend more on firm slots, but it is doubtful whether it would be rational for them to do so. If they pay more than the slot is worth then they will lose money, irrespective of their initial wealth position.
In theory, budget-constrained bidders might find themselves at a disadvantage if volume discounts were offered for bulk slot purchases. In that case, the wealthier bidders could buy big blocks of slots for a discount, then retail each slot to smaller, less well resourced firms. However, this type of strategy would be defeated if no discounts were offered for bulk purchases of slots. When there is no bulk discount, there is no incentive for a wealthy firm to overpay for a slot, because there is (on average) no possibility of reselling for a profit.

A road transporter’s circumstances may change between the time when a slot is auctioned and when it is used, but they could change in either direction. There will probably be some instances where the slot becomes more valuable after the auction closes, and the holder of the slot could resell for a profit. But equally often there will be instances where the slot becomes less valuable after the auction closes and the holder of the slot would lose money by reselling. On average, these instances should balance out.

It is important not to constrain the operation of the secondary market by imposing what are unavoidably, arbitrary rules. These rules would do more harm to efficiency than the problems they are designed to solve. It is also important to recognise that transactions in a secondary market are generally invisible to third parties, so restrictions on that market would be unenforceable in a practical sense anyway.

The degree of formality and sophistication of the secondary market is yet to be determined. IPART has no strong views at this early stage. At its simplest, it could be a bulletin board maintained by an interested party, a user organisation, or even an entrepreneur that would permit parties to lodge expressions of interest in acquiring or selling firm (or interruptible) VBS slots, and to match them. More formal and complex alternatives might include a trading platform of some kind. A centralised platform would form an efficient locus for the secondary market, but it may be best to let entrepreneurs and interested parties experiment until the most suitable method of exchange is found. If problems emerge with the secondary market—either the lack of a market maker, or undesired patterns of trading—then it may be appropriate for the NSW Government or SPC to take an active role, but this should not be the first approach trialled.

Finally, it would be important that when firm or interruptible VBS slots are exchanged on the secondary market, the stevedore is informed of the change in ownership, so that any changes to the container number associated with a slot can be duly registered and used to facilitate efficient stack management.
8.3 There should be no restrictions on the number of firm slots any one party is entitled to acquire through the auction

Currently, there are restrictions on the number of VBS slots that one road transporter may acquire in any time period when they are first offered. The presence of a price mechanism for allocation would remove the need for this quota. In fact, such a quota would distort the auction results—in some circumstances it would prevent the firm slot going to the highest value end-use.

The allocation of interruptible VBS slots should preserve the quota system that is presently in place. As interruptible slots would be allocated on a first-come-first-served basis, the price rationing mechanism would not be available.

8.4 The two-tiered VBS should be computerised and based on clear rules

The system for auctioning firm VBS slots and allocating interruptible slots should be computerised, and the operation of this system should be based on clear rules. In addition, all relevant details of the decisions made by this system should be recorded. And there should be regular independent third party audits of the allocation decision to ensure that the stated system rules were followed. IPART considers that this independent audit function is necessary to instil and maintain confidence in the fairness of the system. It will also address the longstanding complaints of road transporters about the fairness of slot allocation.

8.5 Descending bid Dutch auction format is most suitable auction design

There are many possible auction designs to choose from, but it would be important to select one that can be conducted quickly and repeatedly. After all, the firm slots in each of 24 one-hour periods must be auctioned each and every day. If the auction for firm slots in a given hour takes more than 10 minutes, then a minimum of four hours per day would be consumed conducting the auctions. Potentially, representatives of every road transporter and any other bidder would need to be online or otherwise engaged with the auction process over that timeframe. It is a significant consumption of resources, so the time needed to conduct the auction must be minimised.
With this consideration in mind, IPART proposes a descending bid Dutch auction format, pending more detailed investigation into the design. In such an auction, the offer price begins at a high level (say $200 per firm slot) and then descends in fixed increments every five seconds (or other time increment). Bidders may respond at any point by bidding for one or more slots at the current price level. The auction stops when one of the following events occurs:

1. the number of firm slots bid for at the current price exactly equals the number offered for that hour

2. the number of firm slots bid for at the current price exceeds the number offered for the first time, or

3. the current price has reached the reserve price.

In the case of event 1, those bidders receive the firm slots they have bid for, and each pays the current price, even if they had previously bid at a higher price. In the case of event 2, all bidders who had bid at the prior (higher) price receive the firm slots they have bid for, and the remaining firm slots are shared between the bidders who first bid at the final price proportionally, if possible, and otherwise by random lottery. All bidders receiving firm slots pay the current price, even if they had previously bid at a higher price. In the case of event 3, all bidders at the reserve price receive the firm slots they have bid for at the reserve price. All unsold firm slots at the reserve price are converted to interruptible VBS slots and allocated accordingly.

A reserve price is necessary to prevent the auction from delivering a price for a firm slot that is beneath the booking fee for an interruptible slot. Ideally the reserve would be slightly greater than the interruptible booking fee. Reserve prices that were substantially higher than this benchmark would not be desirable because they may tend to create an artificial scarcity at times, such as the off-peak hours, when firm slots are not in high demand. A high reserve would tend to counteract the peak pricing effect that is intended to be a by-product of the auction.

There is a need, in designing the auction, to determine the price decrement to be applied between rounds of the auction. The optimal decrement should be large enough that the auction does not consume too much time, but small enough that the precise clearing price can be clearly established. It may be necessary to fine-tune the decrement after experience in running the auction has been gained.

When firm slots are not sold at auction (because there is insufficient demand at the reserve price), they should be converted to interruptible slots and allocated using the interruptible slot system. This conversion would make them somewhat less valuable since they would no longer be capable of use in dual runs, and they would not carry any guarantee of delivery. This rule also makes it more difficult for the stevedore to increase the price of firm slots—unsold slots do not disappear, they are simply converted to a slightly less valuable item.
The auction literature identifies some risks of collusive bidding in uniform price auctions, such as the form of Dutch auction discussed here. To give an example of this risk, where a small number of bidders collectively account for a majority of demand for an auctioned good, there is a theoretical possibility that they could collusively agree to withhold their bids and thereby prevent the market from clearing until the price has fallen to a level that is lower than the fair market value. Under this scenario, the colluders would profit from this behaviour either by gaining and enjoying a valuable good at a depressed price, or by reselling on the secondary market for a price that more closely approximates the fair market value.

There are two reasons to believe that this type of collusion scenario may not pose a serious risk in the case of an auction for firm VBS slots. First, there is a high number of road transporters serving Port Botany and they are all relatively small. The largest single transporter has less than 15 per cent market share. Under these highly fragmented conditions it does not appear likely that a bidding cartel would be able to organise or remain stable. Second, demand for peak VBS slots appears to far outstrip supply. Under this excess demand condition, it is difficult to believe that any cartel of bidders would succeed in preventing the market from clearing by withholding their bids.

Nevertheless, auction design is a subtle art, and before any particular design is accepted, a rigorous process of examination of alternative designs should be undertaken. Risks of collusion should not be underestimated. There is a wealth of recent experience with auction design from which valuable lessons could be drawn.

8.6 The allocation process for interruptible slots should resemble the current VBS allocation process

Interruptible slots are very similar to the existing VBS slots, and the arrangements for allocating them should resemble the current VBS allocation process. In particular, these slots should continue to be allocated using a first-come-first-served approach, and offered on ‘reasonable endeavours’ basis with no penalty for non-delivery by the stevedore. The stevedores would determine how many slots they will offer at each point in time, and these slots would be transferable. There would be a greater number of slots offered overall because existing stack runs should in future also be coming through the VBS. Interruptible slots would be priced minimally, to reflect their lesser value, but sufficiently to recover the costs of the stevedores in setting up a system to process bookings.

While the interruptible slot would resemble current VBS slots in most respects, there would be some important differences. It is essential that existing priority slot schemes such as the DP World B-Class carrier scheme be abolished because these would conflict with the firm slot allocation approach. It is expected that, over time and with greater experience with the new pricing mechanism, there would be no need to maintain quotas that limit the number of interruptible slots any one road

191 ATA NSW submission, p 4.
transporter could acquire in any time period. To improve the value proposition for interruptible slots as compared to current VBS slots, explicit provision should be made for communication and protocols in the event of terminal delays, as set out in Chapter 4.

Other features of the current VBS slots, such as wrong zone and no show penalties would be maintained for interruptible VBS slots. The allocation of interruptible slots would need to take place after the auction for firm slots in the same time period had taken place so that the number of interruptible slots available is known.

8.7 A range of implementation issues would need to be addressed

Many issues would need to be discussed and negotiated between the parties before the proposed two-tier VBS with auction could be implemented. IPART has considered some of the key issues and its views are outlined below.

8.7.1 Who should be able to participate in the system?

The current VBS system is available only to bona fide road transporters. While the proposed two-tier VBS with auction would also be available to bona fide road transporters, IPART sees merit in widening the class of organisations that are eligible to bid for firm or interruptible slots. Given the likelihood that at least some firm slots would be sold for significant prices, one can anticipate that importers, exporters, or freight forwarders may wish to play a more active role in the bidding process. There does not appear to be any efficiency or fairness rationale from excluding this type of interested party from the bidding process. Other logistics providers and shipping lines may also wish to participate.

IPART does not have a view on whether further additional organisations should be permitted to participate in the auction or interruptible slot allocation processes. On one hand, the potential involvement of merchant banks and financial intermediaries may cause alarm in some quarters, but on the other hand, fuller participation in the auction would improve the price discovery process.

At the very least, the participation of importers and exporters in the VBS would increase the likelihood of those end customers eventually being aware of, and bearing, the cost of access to the scarce resource at Port Botany. IPART understands that many charges and costs incurred by road transporters related to delays at the port are passed on to their clients, but acknowledges road transport industry comments that some costs of congestion, for whatever reason, are not passed on. IPART considers that it is best that the end customer should be the eventual bearer of

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192 See for example, the ATA NSW submission: “VBS fees are passed onto importers and exporters. Penalty charges are passed onto importers or exporters, providing it is clear the fault lies with those companies. Otherwise the penalty costs would be borne by the customs broker, freight forwarder or the operator” (p 38).
the costs of access to the terminals, and that allowing these parties to bid for slots in the VBS would encourage that to happen.

If the class of VBS participants is to be widened, it may be advisable to consider managing the transition in stages, in order to minimise the industry discomfort associated with this change. Such a scenario might see the auction system introduced to existing road transporters and owners of freight with the range of participants expanded over time. Ultimately, the answer to the question of who participates in the auction or interruptible slot allocation process will be one for each of the stevedores to answer separately in implementing the system.

8.7.2 What should happen to existing means of access when the two-tier system with auction is introduced?

IPART is conscious that the proposed two-tier VBS with auction would not be introduced in a vacuum. In addition to the current VBS, which would be substantially amended by the new scheme, there are several alternative means of obtaining road access to the stevedores’ terminals, including the B-Class carrier subscription category at DP World, standby queues, stack runs, and special access for customs and quarantine purposes.

If the two-tier VBS is introduced, then slot priority schemes that conflict with the firm slots would need to be dismantled. The A and B-Class carrier subscription schemes at DP World would need to be stopped, as their continued presence would render the firm slot auction process too complex and impractical to work.

Stack runs—the process by which large numbers of usually empty containers are trucked onto the terminal just in time for loading onto a ship—present more of a dilemma. On one hand, the ability to conduct stack runs is very important to the stevedore in meeting its commitments to its main customers, the shipping lines. It may not be efficient to impede that streamlined process by making it subject to an uncertain auction or allocation process. On the other hand, stack runs presently take place during busy peak hours as well as off-peak times such as night time and weekends. The demand for stack runs depends mainly on the ship sailing schedule. Peak hour stack runs carry a high opportunity cost for other road transporters and the importers that they serve. If stack runs were forced to operate through the two-tier VBS system, then these opportunity costs would be factored into the stevedores’ decision as to when to conduct the stack run.

It is IPART’s current view that stack runs should be required to book slots in the same way as every other road operation for two reasons. First, this requirement will send the appropriate slot opportunity cost signal to the firm that decides when the stack run takes place. Second, requiring all access to go through the VBS will assist in fostering confidence in the fairness of the system, by making all allocations transparent. Nevertheless, IPART would like to receive comments from stakeholders on this specific question.
The complete elimination of standby queues may not be strictly necessary, as they may provide a useful safety valve. However, it would be preferable to convert standby access to booked slot access. Nevertheless, there may be a role for a bureau facility to deal with the needs of genuine irregular users of the port. That bureau might permit even ‘standby’ users to go through booked VBS slots. IPART would also like to receive comments on the ongoing benefits and costs of maintaining the standby queue.

Special access for customs, quarantine, and other government regulatory purposes should remain outside the two-tier VBS, as it is not driven by commercial considerations and therefore would not be responsive to price signals.

8.7.3 How should road transporters be penalised for late arrival or no-shows?

There are currently some differences in practice between the stevedores as to penalty charges for road transporters that arrive late or fail to arrive for booked VBS slots. The financial penalties applied in these cases are often waived at the stevedore’s discretion.

The detailed arrangements for such penalties in when a two-tier VBS with auction is established are a matter for each stevedore to determine separately, in consultation with the road transporters who would be their customers.

IPART is not well placed to determine what these penalties should be, but the following general observations are pertinent. First, it is desirable to remove as much discretion as possible from any penalty scheme. The practice of waiving penalties only invites road transporters to seek and argue for such waivers, which is an inefficient use of time. Clear rules that are consistently and universally enforced will best encourage compliant behaviour and confidence in the system. Public confidence would be more important in a guaranteed slot world than in the current best-endeavours world.

Second, the existence of a price mechanism for allocating firm slots provides a new and potentially powerful tool in the calibration of penalty schemes. For example, once it is established what the market price of a 10am firm slot on Wednesday is, it would become possible to link penalties for late arrival to the market value of the slot. Low penalties could be applied for late arrival during periods when slots are not in high demand, but high penalties could be applied when late arrival causes greater disruption and has higher opportunity costs for others.

Third, it may be desirable and necessary to have different penalties for late arrival for a firm slot, and for late arrival for an interruptible slot. IPART does not have definite views on what the quantitative difference should be, and would like to receive comments from stakeholders on this question.
8.7.4 Are there likely to be Trade Practices Act issues?

The duopolistic nature of container stevedoring in Australia has attracted a great deal of anti-trust attention over the past few years, to the extent that any mention of a pricing scheme that embraces both stevedores inevitably invites questions about Trade Practices Act issues. For this reason, the Trade Practices Act dimension of the proposed two-tier VBS should be given special attention.

Clearly, implementation of IPART’s broad recommendation should be done in a way that does not produce an anti-competitive outcome that would breach the Trade Practices Act. The objective purpose of the proposal as set out above is to promote an efficient, fair and transparent allocation of access to the port facilities that will improve competition. IPART is of the view that, with care, all potential breaches could be avoided.

Once there is a firmer, detailed proposal, participants to the proposed system may wish to consider whether ACCC authorisation would be required. That would be a matter to be determined by the participants. Obviously, the ACCC makes its assessment on a case-by-case basis and IPART cannot predict the approach that the ACCC might adopt. However, some commentary on this area suggests that the ACCC has generally considered, inter alia, the following criteria in its assessments:

- fostering business efficiency … in supply and distribution …, particularly where it enables businesses to compete more effectively with imports in the domestic market and with exports on world markets, that is to achieve international competitiveness;
- industry rationalisation providing for more efficient allocation of resources and lower unit production costs.193

As discussed above, IPART considers that for the proposed two-tier system to be effective, each stevedore should be free to make its own decisions as to pricing and the number of slots offered. While the full benefits of the two-tier VBS will be enjoyed through the development of a joint VBS auction platform (for example, online), it would be preferable to confine any arrangement or understanding between them only to elements where coordination is required for the VBS to be effective.

The presumption here is that the auction for firm slots at Patrick would be conducted entirely separately from the auction at DP World. This separation appears desirable from a competition law perspective. However, it may be that there is value in road transporters being able to match up an inbound slot at Patrick with an outbound slot at DP World. If so, it may prove difficult to match slots if the two stevedores conduct separate auctions. At this stage in the design process it is premature to attempt to settle this question, but these issues deserve further consideration during the implementation phase.

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There is no necessary connection between the pricing of firm or interruptible slots at one stevedore terminal and those at the other. There is no particular requirement that booking fees for interruptible VBS slots be the same between stevedores. There is no particular need for penalties to be uniform between the stevedores for late arrival, no show, or container storage. Negotiations with the NSW Government over how much of the auction proceeds may be retained would be conducted separately for each stevedore.

8.7.5 How should the auction proceeds be collected, held and distributed?

In broad terms, IPART considers it would be most appropriate for SPC to administer the funds in a trustee capacity having secured the cooperation of all interested parties. The dispersal of the funds should be in accordance with a set of rules that are established in advance of the operation of the system. How this is achieved will require careful consideration of all implications, including the possible consequences of exacting the auction proceeds by government regulation.

Recommendation

14 That the Minister request Sydney Ports Corporation to facilitate and each of the stevedores to independently implement a two-tiered system for booking access to each of the stevedores’ facilities, as set out in Chapters 7 and 8. Essential features of this system would be:

- each firm slot would carry with it a guaranteed service level relating to time of entry to and time of exit from the terminal
- each firm slot would carry the right to a dual run
- the interruptible slots would have the same features as currently exist, including the booking system, prices, and penalties
- each stevedore would determine the number of firm and interruptible slots to be issued in each 24 hour day
- all slots would go through the vehicle booking system (for each stevedore), which will be computerised, and there would be clearly stated rules about when and how slots were made available
- the system would be independently audited
- prices for firm slots would be set through descending bid auctions separately for each stevedore
- there would be penalties on both the stevedores and the road transporters for not meeting firm slot requirements, linked to the price paid for the slot
- there would be an unrestricted secondary market for the firm slots
- there would be no restriction on the number of firm slots any one party is entitled to acquire through the auction
– each stevedore would receive a portion of the proceeds, to cover the costs incurred in offering firm slots plus an appropriate profit.

The issues to be considered for implementation of the proposed two-tiered system would include, but not be limited to:

– the precise service levels attached to the firm slots
– how a missed firm slot might be converted into an interruptible slot
– the precise penalties imposed on both the stevedores and the road transporters for not meeting firm slot requirements
– the timing requirements for providing container numbers for firm and interruptible slots, and the incentives for not changing them (or the penalties for changing them)
– who would participate in the auctions for firm slots
– the dismantling of existing priority schemes
– the mechanics of how the auction would run – in what order slots would be auctioned, how far ahead they would be auctioned, what would happen to unsold firm slots, and the starting price and bid increments
– the amount of the proceeds to be paid to the stevedores, and the allocation of proceeds in excess of those paid to the stevedores
– how the auction proceeds should be collected, held and distributed.

IPART intends to continue considering the more detailed implementation issues and may provide further recommendations on them in its final report for this review, having taken into account stakeholder views on the proposal.
Improving efficiency if the voluntary approach fails

In general, the supply chain participants affected by this review are privately owned businesses that have profit maximising goals and incentives to continuously improve the range, quality and cost of their services. Therefore, IPART’s preference is to use market-based tools to provide the right incentives for the required structural changes to occur and, as far as possible, to avoid imposing requirements on participants in the supply chain. Experience suggests that it is more effective to encourage privately owned business to achieve the desired outcomes on a voluntary basis rather than with coercion from government.

The previous chapters have recommended a range of price-based and non-price-based initiatives, some of which need to be implemented or facilitated by the NSW Government, and others which need to be implemented by the supply chain participants themselves. IPART considers that, if implemented, these initiatives will be sufficient to provide the necessary incentives to improve the efficiency of the landside arrangements at Port Botany, including increasing the use of rail, both now and in the future.

IPART also considers that if the supply chain participants are convinced that these initiatives will result in an efficiently operating supply chain, and that this is in the best interests of all participants, they will implement them voluntarily.

IPART is of the view that its proposal will work, and that any sort of regulation should only be pursued if it becomes clear, after having given it a reasonable opportunity to work, that the market-based, cooperative approach cannot achieve the desired result.

However, IPART recognises that there is a risk that this voluntary approach may fail to achieve the desired outcomes. Therefore, it has considered the mechanisms available to encourage and enforce implementation of the recommendations should this occur, and the circumstances in which such mechanisms should be used. It concluded that:

- It may be effective to introduce a light-handed form of regulation that requires the stevedores to collect and provide data about their outputs and some inputs. Initially, this data could be used to monitor the performance of and investment in landside activities at Port Botany. Eventually, it could be used to establish a regime that imposed penalties on the stevedores if they failed to meet specified KPIs.
It may be necessary to consider a more prescriptive form of economic regulation, but only if it can be clearly established that the proposed regulation:

- would promote a material increase in competition in at least one market (other than the market for port facilities), and
- is not contrary to the public interest.

If both these tests were met, the preferred form of regulation would be incentive-based regulation that allows the regulated businesses some flexibility in balancing the requirements of productivity, service quality and financial viability, and encourages them to pursue efficiency gains.

It might also be possible to impose obligations on the stevedores via their leases with SPC. However, for practical reasons this is not likely to be an effective tool for quickly improving the efficiency of landside activities at Port Botany.

IPART’s considerations in relation to the regulatory and lease options are discussed in more detail below.

9.1 Regulatory options

The regulatory options available to the NSW Government range from light-handed options such as requiring information disclosure and performance monitoring, to more heavy-handed and intrusive regulation that includes setting prices and precise terms of access to the stevedores’ facilities.

IPART acknowledges that a light-handed form of regulation may assist participants in Port Botany’s containerised freight supply chain to better understand performance and investment by the stevedores. IPART also acknowledges that there may be a need in the future for more prescriptive regulatory intervention if the required structural changes do not occur as a result of changed market incentives – in other words, if there continues to be ‘market failure’ that results in congestion.

For the purpose of this chapter, IPART defines regulation to include any NSW laws or other NSW Government ‘rules’ which directly influence or control the way people and businesses behave, being instruments that impose mandatory requirements upon business and the community. Further, IPART notes that to deliver the social, environmental and economic goals of the community, regulation must be well designed and targeted. Regulation also imposes administrative and compliance burdens on business, consumers, government and the wider community. Therefore,

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194 This definition excludes voluntary codes and advisory instruments for which there is a reasonable expectation of widespread compliance, such as codes of practice or conduct, standards and accreditation or rating schemes. IPART notes that voluntary instruments are included in the definition of regulation adopted in the Council of Australian Governments’ Principles and Guidelines for National Standard Setting and Regulatory Action by Ministerial Councils and Standard Setting Bodies, amended by the Council of Australian Governments (COAG) June 2004, available at: www.coag.gov.au, and quoted in the January 2006 Issues Paper for IPART’s Investigation into the burden of regulation in NSW and improving regulatory efficiency, p 4. They are excluded in this chapter as it is focused on compulsory requirements rather than voluntary requests.
regulation should only be considered when it is clearly targeted at specific, defined problems, and when the advantages of imposing it exceed the costs.

Good regulation would require compliance with the following best-practice principles:

- the need for government action should be established
- the objective of the action should be made clear
- the costs and benefits of a range of options should be considered, including non-regulatory options
- government action should be effective and proportional
- business and community consultation should inform regulatory decisions
- the simplification, repeal, reform, or consolidation of existing regulation should be considered, and
- regulation should be periodically reviewed and, if necessary, reformed to ensure its continued efficiency and effectiveness.195

With this definition and set of principles in mind, IPART considered what light-handed regulatory approaches would be effective, the circumstances in which more prescriptive economic regulation would be needed, and what type of economic regulation should be implemented in these circumstances.

9.1.1 What light-handed regulatory approaches would be effective?

Initially, a relatively unobtrusive, but potentially effective, form of regulatory intervention would be to require each stevedore to provide certain information about its operational outputs, and a limited number of inputs, to an agency such as SPC. This was introduced in section 6.2.6 of this report, where IPART discussed the possibility of constructing KPIs that create incentives for the stevedores to improve the service to road transporters. The information obtained would be used to help monitor the performance of landside activities at the port, and would be published to inform participants in the supply chain about aspects of the stevedores’ operations.

The precise data to be collected would need to be determined through discussions between SPC and the stevedores. Ideally, the data and the way it is measured should be consistent for both stevedores so their performance can be compared. However, if this was not possible, it should not preclude collection and publication of the data with a caveat that the two stevedores cannot be compared. In addition, it is important that the data for each stevedore be monitored over time, and that each

stevedore reports on and measures that data consistently over time, advising SPC of any necessary (and enhancing) changes to measurement.

The data should not be used by third parties to interfere in day-to-day operational management decisions made by the stevedores. There is a complex interplay between inputs, outputs, service quality, and financial viability of each stevedore; the data collected would focus on results rather than the way stevedores seek to obtain results. The data would be collected and published to help other members of the Port Botany containerised freight supply chain better understand the landside operations at the terminals.

IPART considers that the information to be collected and published could consist of:

- number of slots offered for each shift for each day (separated into firm and interruptible slots)
- number of slots used for each shift for each day (separated into firm and interruptible slots)
- average TTTs for each shift for each day, and a description of precisely how the TTTs are measured (separated into TTTs for firm and interruptible slots)
- proportion of firm slots for each shift where the stevedore paid a penalty for not meeting obligations related to firm slots
- proportion of interruptible slots for each shift where the TTT was less than 60 minutes
- number of instances where penalties for late arrivals and non-arrivals were imposed on road transporters (separated into instances related to firm and interruptible slots)
- average number of containers stripped from train per hour of rail window time daily
- average number of containers loaded onto train per hour of rail window time daily
- percentage of rail unloading task left incomplete by time of train departure daily
- percentage of rail loading task left incomplete by time of train departure daily
- percentage of on time arrival of train at stevedore siding (train standing at siding within, say, 5 mins of start of rail window) daily
- percentage of on time departure of train from stevedore siding
- number of rail window hours offered for each shift for each day
- number of rail window hours used for each shift for each day
- the age profile of containers that are accruing storage
- the nature and value of capital investment commitment and expenditure by each stevedore.

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196 This is consistent with DP World’s submission (p 12), which sets out some KPIs it uses internally, following discussions with road transporters.
SPC should collect and publish this information regularly, at a time to be set after consultation with the stevedores, and the relevant stevedore should be named in the presentation of the data.

IPART’s view is that this light-handed form of regulation meets the definition and principles set out above. It is simple, does not intrude greatly on the stevedores’ commercial interests, and has the benefit of informing the public of relevant aspects of the stevedores’ performance.

If the stevedores did not agree to provide this information voluntarily, the introduction of a reporting requirement would likely involve legislative enactment of some kind. While ultimately the manner in which a reporting requirement might be implemented is one for the NSW Government to decide, a likely starting point is to consider an amendment to existing legislation such as the Ports and Maritime Administration Act 1995. In particular, consideration could be given to an appropriately drafted amendment that extended the functions of SPC or NSW Maritime to expressly include the collection and publication of the relevant information together with the ability to require its production.

Once performance has been measured for a period of time, and appropriate and achievable goals for improvement can be determined, it might be appropriate to introduce further regulation that establishes KPIs for the stevedores and imposes penalties on those found to have not met these KPIs.

However, implementing a regime that imposed penalties on landside participants for failures to meet KPIs is a significantly more complex proposition than introducing a reporting requirement. Matters such as the determination of appropriate penalties, the circumstances in which they are imposed, and by whom all present difficulties that are not easily resolved. Care would be needed to ensure that any such penalties imposed by regulation would not over-ride the market-based incentives that should exist, and would exist if the proposal set out in Chapters 7 and 8 was implemented.

One approach to consider would be introducing a licensing regime under which the stevedores would be required to hold a licence to conduct their activities. The licence conditions could then include complying with the KPIs referred to above. Such a regime would need to be created through legislation, the form of which would be a matter for the NSW Government, and would be in addition to any existing licence requirements already imposed on the stevedores.

9.1.2 The circumstances in which more prescriptive economic regulation would be needed

The land at Port Botany is publicly owned but the stevedoring facilities are privately owned and managed by the stevedores. Given the significance of Port Botany to the NSW economy, the NSW Government has a responsibility to ensure that it is used in the public’s best interests.
One rationale for introducing more prescriptive economic regulation is to correct ‘market failure’. It could be argued that in the absence of such regulation, the ‘market’ would fail to produce behaviour or results in accordance with the public interest. In this instance, market failure in an unregulated market may produce excessive prices, inequity, and insufficient supply.

However, the fact that there is a market failure does not in itself indicate that there should be regulation in that industry. Rather, the benefits of correcting (or attempting to correct) market failure via regulation should be greater than the costs of this corrective mechanism.

At present, the Port Botany containerised supply chain is driven by market forces, and there is some degree of market failure. However, it is very difficult to determine what degree of market failure should occur in this supply chain before regulation is needed. Rather than looking for a trigger point at which regulation should be imposed, IPART’s preference is to establish clear tests for determining whether the port facilities should be regulated (and what form that regulation should take.)

In particularly, IPART considers that more prescriptive economic regulation of the Port Botany facilities should be imposed only if it can be clearly established that the benefits from a more intrusive regulatory intervention is greater than the costs. Given the importance of the infrastructure that might be regulated in this way, any assessment of the costs and benefits would need to be rigorous, with public input to the process and public scrutiny of the reasons for the conclusion.

The February 2006 Competition and Infrastructure Reform Agreement of the Council of Australian Governments addresses economic regulation of significant infrastructure. It requires that, wherever possible, third-party access to services provided by means of significant infrastructure facilities should be on the basis of terms and conditions commercially agreed in negotiations between the access seeker and the operator of the infrastructure (see Appendix A.3). A review of this agreement in relation to NSW ports is currently being undertaken through NSW Maritime, and IPART will address any relevant issues raised in the review in its final report.197

9.1.3 The type of economic regulation that should be implemented

As noted earlier in this chapter, IPART expects that the market-based solution to congestion at Port Botany that is set out in Chapters 7 and 8 will work, and that there will be no need for this type of regulation. Although IPART considers that market-based solutions would be preferable to economic regulation, such regulation may be necessary if market-based solutions do not work.

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As set out in Chapter 2, the players in the Port Botany containerised freight supply chain are motivated by profits, which in turn implies that they are concerned about increasing revenues and reducing costs. Such enterprises are “more easily regulated than public operators because it is possible to design regulatory instruments that make it financially attractive for a company to act in the interests of consumers.”

The performance of a business is a function of three factors: its productivity (which in turn is a function of how it converts inputs into a volume of output); its service quality; and its financial viability. These factors are equally important, and are interrelated to the extent that a change in one will affect the others to varying degrees.

In a competitive environment, the market will sort out the point of equilibrium between productivity, service quality, and financial viability. In a regulated environment, the regulator must accept that changing one will inevitably have an impact on the others – and particularly that imposing a quota on one will affect the others – and therefore must weigh up the consequences in determining the appropriate regulatory requirements.

Incentive-based regulation allows the regulated business some degree of flexibility in balancing the requirements of productivity, service quality, and financial viability. It also encourages the business to pursue efficiency gains in order to outperform the regulatory requirements so it can keep the benefits.

The stevedores at Port Botany have existing contractual obligations regarding their outputs on the shipside. They must still meet these contractual obligations regardless of what regulation is imposed on the landside. Any regulation imposed on the landside would need to take account of the effect on the shipside, as well as the impact on productivity, service quality and financial viability.

Over the last two decades, governments around the world have recognised the importance of incentives in the effective functioning of the economic system and have introduced commercial objectives into the charters of government owned monopoly infrastructure operators. Regulators around Australia apply incentive-based regulation to water, electricity and gas networks.

IPART’s view is that incentives, rather than the imposition by government of controls over simply one aspect of a regulated organisation’s performance, should also be the key feature of any regulation introduced into the Port Botany containerised freight supply chain.

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Section 9.1.1 sets out a form of light-handed regulation that would assist in monitoring stevedore performance as it affects downstream landside players. If a more intrusive form of economic regulation was implemented, it should involve a combination of setting, monitoring, and enforcing maximum tariffs (set to recover efficient operating and capital costs) and of minimum service standards. It may also involve access conditions, and investment obligations.

IPART notes that in the case of the electricity supply chain, the distribution network service providers (DNSPs) are required to meet service standards imposed by license agreements. These standards force DNSPs to invest in the capital necessary to ensure targets are met. However, to assist in this task, the use of peak period pricing aids DNSPs by signalling the scarcity value of electricity consumption in peak periods (to achieve peak-demand reduction and peak spreading, which limits the capital investment required in the distribution network). This form of regulation recognises the inter-relatedness of inputs, outputs, service standard requirements, and the need for financial viability. The complexity of the interplay between those factors must be taken into account in imposing any regulation.

Continuing the analogy with the electricity supply chain, if the service levels road transporters received were to be deemed inadequate, applying electricity-like service standards would force the stevedores to allocate capital and labour to meet the targets established by the service standards. However, this comparison needs to be considered within the context of electricity being an essential service. This is important as some peak periods of electricity demand cannot be shifted (for example, electricity for heating/cooling in extreme weather) and failure or delay of supply is not an option. On the other hand, IPART’s view is that there is no reason why some demand for stevedore operations in peak periods cannot be shifted, especially since no price rationing mechanism (such as the proposed auction system) is in use at present.

Recommendation

15 That the Minister consider implementing light-handed regulation that enables the collection by Sydney Ports Corporation of information for the purposes of monitoring performance and investment in landside activities at the port. The data should be disaggregated by stevedore, and the stevedore named. The data should be published regularly.

16 That further economic regulation of the Port Botany containerised freight supply chain only be considered if

- voluntary cooperation has been insufficient to achieve the expected improvement in performance, and
- the benefits from more intrusive regulatory intervention are greater than the costs, a conclusion that should be supported by a rigorous assessment of the costs and benefits, with public input to the process and public scrutiny of the reasons for the conclusion, and
9.2 Lease options

As landlord of the port precinct, SPC provides suitably equipped land to the stevedores in return for rent, with annual rent increments tied to container throughput. The leases require the stevedores to provide information relating to throughput to enable calculation of the rent.

Patrick’s lease expires in 2017 and DP World’s lease expires in 2008 but is expected to be renegotiated shortly.

IPART considers that these leases should be used to address landside issues to a greater degree than they currently do. For example, there would be benefits if the leases included general requirements for the stevedores to offer both road and rail access on the fundamental principles of transparency, fair and equitable outcomes, efficient operation and competitive advantage (no discrimination for access), while still leaving the stevedores with power to determine how that is to be achieved. There would also be benefits if the leases required the stevedores to engage with the road transporters over access conditions, and with rail operators in ensuring rail windows allocated align with rail paths.

However, given the period of time that the leases run, and the need for flexibility in changing requirements on the stevedores from time to time to reflect changed operating conditions, IPART considers that the leases could only contain relatively general statements about the need for stevedores to provide efficient, fair and equitable use of the port facilities. Therefore, the leases are unlikely to be an effective tool for quickly improving the efficiency of the port.

Further, obligations could only be placed on the stevedores and not on other participants in the supply chain, which would reduce the effectiveness of such mandated requirements.
Terms of Reference

Reference to the Tribunal

The Independent Pricing and Regulatory Tribunal of NSW (IPART) is requested under Section 9 of the Independent Pricing and Regulatory Tribunal Act 1992 to undertake a review of the interface between the road transport industry, rail operators and the stevedores at Port Botany. Key background information for the Review is outlined at Appendix 1.

Matters for consideration

With the commencement of the Port Botany Expansion, the volume of containers handled at Port Botany will triple by the year 2025 to 3.9M TEU. At least 60 per cent of this freight task will be handled by road. It is therefore imperative the issue of truck congestion and road transport efficiency is addressed.

IPART is requested to review the interface between the land transport industries and the Port Botany stevedores, including the vehicle booking system, rail access arrangements and the provision of any other services to industry by or in connection with the stevedore’s business.

In advising on the above, IPART is requested to examine the following matters, and to develop and make recommendations on options available for addressing any issues which it considers materially impact on the efficiency of the port-land transport interface:

- an assessment of the cost base underpinning the provision of the vehicle booking system and services referred to above
- structure and framework of charges and penalties (however described) payable by participants in the road transport industry and or rail operators
- impact of the vehicle booking system, and the manner of the provision of the services referred to above, on road transport movements
- impact of road and rail pricing on the choice of mode by which containers are transported to and from the port
- efficiency of the landside logistics chain at Port Botany, noting the work already done by FIAB.
The report should consider:

- whether charges and penalties are efficient
- whether charges and penalties are fair to all users
- whether the efficient allocation of space and movement of trucks to and from the Port is affected
- arrangements which would help ensure that the stevedores provide a transparent and fair allocation of access and provision of services in connection with the terminal
- any road and rail issues raised in addition to those considered by FIAB which are specifically related to the efficiency of the interface between the stevedores and land transport operators at Port Botany, and
- whether institutional changes can be made to improve the efficiency of the landside logistics chain.

Other matters

- IPART should consult with stakeholders and accept public submissions within the timetable for the investigation and report.
- IPART should have regard to the port competition and regulation principles set out in Clause 4.1 and Clause 4.2 of the Competition and Infrastructure Reform Agreement signed by COAG on 10 February 2006.
- IPART should take into account any relevant studies and practices undertaken both in NSW or other jurisdictions. A list of relevant NSW Government and industry reports is at Appendix A2.

Timing

IPART is to investigate and provide a draft report to the Minister for Ports and Waterways within six months of commencement and a final report to the Minister after a further three months.

A.1 Industry background

The majority of containers at Port Botany (80 per cent) are transported by road. The two stevedores, DP World (formerly P&O Ports) and Patrick, operate independent vehicle booking systems to manage the road movement of containers in and out of the port. Access to the terminals is arranged via subscription with each stevedore for truck slots per hour. The system also provides for penalties to discourage no shows or cancellations. Prior to the establishment of the VBSs long truck queues commonly occurred as drivers simply waited in turn for access to the terminal.
Rail access charges to Port Botany are applied by the stevedores in part to recover the cost of servicing rail operations at the terminals. The access charges are applied on the basis of volume (per container) transported to and from the terminals. The magnitude of charges applied to individual rail operators is anecdotally high in comparison road transport. Consideration of the relative access charge per TEU would provide a meaningful comparison of the relative costs.

The stevedoring industry (generally) is currently under annual monitoring by the Australian Competition and Consumer Commission (ACCC). The ACCC’s container stevedoring monitoring program is undertaken at the direction of the Federal Treasurer under Part VIIA of the Commonwealth Trade Practices Act 1974 to monitor prices, costs and profits of container terminal operator companies at the ports of Adelaide, Brisbane, Burnie, Fremantle, Melbourne and Sydney. This is on the basis that stevedoring in Australia is dominated by the strong duopoly of Patrick and DP World. A report is prepared annually that monitors trends in container operator’s costs, revenues and profits.

The ACCC reports the proportion of revenues earned from activities other than stevedoring has increased from 11 per cent in 2001-02 to 15 per cent in 2004-2005. In that period revenues from ‘non-stevedoring’ activities have doubled to $112.5 million.

In its Container Stevedoring Monitoring Report No. 8 for 2005-06 released in November 2006, the ACCC states “a proactive approach by port managers to managing certain landside logistics arrangements may be necessary to ensure that the landside interface does not emerge as a transport bottleneck”. The ACCC considers the current landside interface arrangements for container stevedoring services needs further assessment.

The vehicle booking system (VBS) and rail access arrangements are part of the landside interface between the port and connecting transport modes. Under the current arrangements, Patrick and P&O have a major role in managing the landside interface. Both companies also provide road and rail transport services.

In a July 2005 report to the NSW Government on ways to manage the movement of increasing numbers of containers at Port Botany, the Freight Industry Advisory Board (FIAB) recommended the establishment of a Port Botany Logistics Chain Team to manage the logistics task, optimise the efficiency of the port-rail-road interface and enhance capacity on the infrastructure network.

Following a Roundtable meeting with industry on 14th September 2006, the Minister for Ports and Waterways agreed to establish an industry/government taskforce to provide comprehensive advice to government on issues in the land transport logistics chain at Port Botany, including port operations, stevedoring, road and rail freight operations, intermodal terminal operations, container parks, planning and regulation. The Minister chaired the first meeting of the Port Botany Logistics
Taskforce on 27th November 2006. Its Terms of Reference include vehicle booking systems and rail access charges.

According to the ACCC, increasingly, automated VBSs are being used to manage the flow of containers into and out of ports. Revenue from this activity represents about 6.6 per cent of total “non-stevedoring” revenue and is therefore not a significant component of total revenues in the industry. However, the VBS component of “non-stevedoring” revenue is increasing. VBS revenue on a per unit basis increased 224 per cent in the five years to June 2006.\(^{199}\)

**ACCC authorisations**

The ACCC recently authorised the Container Logistics Action Group (CLAG) representing container carriers, freight forwarders, customs brokers, importers and exporters to negotiate collectively on behalf of current and future members with the stevedores on terms, prices and conditions of supply of a range of services and terminal access conditions. The authorisation, however, does not compel the stevedores to participate in negotiations.

The ACCC does not receive detailed cost and profit data on the VBSs. It simply provides economic monitoring of annual revenue data provided by the stevedores.

**Major issues**

A range of services are supplied to the participants in the land transport of containers by or in connection with stevedoring activity at Port Botany, including the VBSs, container storage, maintenance and repositioning services.

Major issues in connection with these services include:

- the transparency, applicability and affordability of charges and penalties
- the fees charged for access to the services and whether any benefit received is commensurate with those fees
- the level of penalties for missed bookings or late arrivals which may not be the carrier’s own fault
- the imposition of penalties to include Sundays and Public Holidays and
- whether there is adequate transparency in the way time slots are allocated.

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\(^{199}\) This figure was derived by the ACCC and can be sourced at p 19 of ACCC, *Container stevedoring - Monitoring report no. 8*. The stevedores have advised IPART that it is misleading.
A.2 Relevant NSW Government and Industry Reports

- Railing Port Botany’s Containers by the Freight Infrastructure Advisory Board July 2005.
- P&O Ports response to CLAG submission March 2006.
A.3  Competition and infrastructure reform agreement

The Terms of Reference require IPART to have regard to the Competition and Infrastructure Reform Agreement signed by COAG on 10 February 2006. The relevant clauses are Clause 4.1 and 4.2 and are listed in Box A.1.

Box A.1 Competition and Infrastructure Reform Agreement

4.1. The Parties agree that:

a) ports should only be subject to economic regulation where a clear need for it exists in the promotion of competition in upstream or downstream markets or to prevent the misuse of market power; and

b) where a Party decides that economic regulation of significant ports is warranted, it should conform to a consistent national approach based on the following principles:

(i) wherever possible, third party access to services provided by means of ports and related infrastructure facilities should be on the basis of terms and conditions agreed between the operator of the facility and the person seeking access;

(ii) where possible, commercial outcomes should be promoted by establishing competitive market frameworks that allow competition in and entry to port and related infrastructure services, including stevedoring, in preference to economic regulation;

(iii) where regulatory oversight of prices is warranted pursuant to clause 2.3, this should be undertaken by an independent body which publishes relevant information; and

(iv) where access regimes are required, and to maximise consistency, those regimes should be certified in accordance with the Trade Practices Act 1974 and the Competition Principles Agreement.

4.2. The Parties agree to allow for competition in the provision of port and related infrastructure facility services, unless a transparent public review by the relevant Party indicates that the benefits of restricting competition outweigh the costs to the community, including through the implementation of the following:

a) port planning should, consistent with the efficient use of port infrastructure, facilitate the entry of new suppliers of port and related infrastructure services;

b) where third party access to port facilities is provided, that access should be provided on a competitively neutral basis;

c) commercial charters for port authorities should include guidance to seek a commercial return while not exploiting monopoly powers; and

d) any conflicts of interest between port owners, operators or service providers as a result of vertically integrated structures should be addressed by the relevant Party on a case by case basis with a view to facilitating competition.
**B Terms of Reference checklist**

<table>
<thead>
<tr>
<th>Terms of Reference</th>
<th>Relevant report section</th>
</tr>
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<tbody>
<tr>
<td>IPART is requested to review the interface between the land transport industries and the Port Botany stevedores, including the vehicle booking system, rail access arrangements and the provision of any other services to industry by or in connection with the stevedore’s business.</td>
<td>Whole report</td>
</tr>
<tr>
<td>In advising on the above, IPART is requested to examine the following matters, and to develop and make recommendations on options available for addressing any issues which it considers materially impact on the efficiency of the port-land transport interface.</td>
<td>see below</td>
</tr>
<tr>
<td>1. An assessment of the cost base underpinning the provision of the vehicle booking system and services referred to above</td>
<td>Cost base underpinning VBS is discussed in section 3.4—note that IPART did not receive specific information on these costs, but was able to reach view that cost-price mismatch was not a serious problem</td>
</tr>
<tr>
<td></td>
<td>Rail costs are addressed in section 5.2</td>
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<tr>
<td></td>
<td>Storage costs are addressed in sections 3.3 and 4.4</td>
</tr>
<tr>
<td>2. Structure and framework of charges and penalties (however described) payable by participants in the road transport industry and or rail operators</td>
<td>Section 3.3 Access prices (by road and by rail)</td>
</tr>
<tr>
<td></td>
<td>Sections 3.3 Storage charges</td>
</tr>
<tr>
<td>3. Impact of the vehicle booking system, and the manner of the provision of the services referred to above, on road transport movements</td>
<td>Chapters 3, 4, 7, as well as section 6.2</td>
</tr>
<tr>
<td>4. Impact of road and rail pricing on the choice of mode by which containers are transported to and from the port</td>
<td>Chapter 5 addresses road and rail cost differential</td>
</tr>
<tr>
<td>5. Efficiency of the landside logistics chain at Port Botany, noting the work already done by FIAB</td>
<td>Chapters 3-8 specifically assess the efficiency of the landside logistics chain. Chapters 4-8 consider concrete proposals to improve it</td>
</tr>
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# Terms of Reference

The report should consider:

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<tr>
<th>Terms of Reference</th>
<th>Relevant report section</th>
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</table>
| 6. Whether charges and penalties are efficient | Sections 3.3 - 3.5 summarises pricing and efficiency issues  
  Section 5.2 assess the efficiency of rail charges  
  Chapters 7 and 8 propose a more efficient pricing mechanism for road access |
| 7. Whether charges and penalties are fair to all users | As a preliminary matter, IPART’s treatment of the fairness criterion is set out in section 2.6. There, fairness is linked to efficiency and non-discrimination. Efficiency is dealt with in sections 3.3-3.5, 5.2 and chapters 7-8  
  Non-discrimination is dealt with in section 4.3 and chapters 7 and 8 |
| 8. Whether the efficient allocation of space/movement of trucks to and from the Port is affected | Chapters 3, 4 and 7 consider the effect of charges and penalties on efficient behaviour by road operators |
| 9. Arrangements which would help ensure that the stevedores provide a transparent and fair allocation of access and provision of services in connection with the terminal | Section 4.3 addresses ownership or independent operation of the VBS  
  Chapters 7 and 8 discusses independent auditing of firm VBS auction and VBS rule-based allocation |
| 10. Any road and rail issues raised in addition to those considered by FIAB which are specifically related to the efficiency of the interface between the stevedores and land transport operators at Port Botany | Chapters 3, 5 and 6 specifically outline road or rail efficiency issues pertaining to the interface |
| 11. Whether institutional changes can be made to improve the efficiency of the landside logistics chain | Chapters 4, 6, 7 and 8 specifically recommend various institutional changes that would improve efficiency |

Other matters:

| 12. IPART should consult with stakeholders and accept public submissions within the timetable for the investigation and report | Section 1.4 – How did IPART approach its task  
  Appendix D – List of submissions and Roundtable participants |
<table>
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<tr>
<th>Terms of Reference</th>
<th>Relevant report section</th>
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<tr>
<td>13. IPART should have regard to the port competition and regulation principles set out in Clause 4.1 and Clause 4.2 of the Competition and Infrastructure Reform Agreement signed by COAG on 10 February 2006</td>
<td>Section 9.1 discusses the circumstances in which more prescriptive economic regulation would be needed</td>
</tr>
<tr>
<td>14. IPART should take into account any relevant studies and practices undertaken both in NSW or other jurisdictions. A list of relevant NSW Government and industry reports is at Appendix A2:</td>
<td>The reports listed in Appendix A2 have been reviewed and taken into by IPART along with other studies that are referred to throughout the report</td>
</tr>
<tr>
<td>- Container Stevedore Monitoring Report No 8 by ACCC Nov 2006</td>
<td></td>
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<tr>
<td>- Mismatch of Hours Report by NSW Sea Freight Council Jan 2005</td>
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<tr>
<td>- Railing Port Botany’s Containers by the Freight Infrastructure Advisory Board July 2005</td>
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<tr>
<td>- Container Logistics Action Group (CLAG) submissions to ACCC seeking authorisation to collectively bargain with stevedores, March 2006 at <a href="http://www.accc.gov.au">www.accc.gov.au</a></td>
<td></td>
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<tr>
<td>- P&amp;O Ports response to CLAG submission March 2006</td>
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</table>
C List of recommendations

1. That each stevedore provides real-time information about the size of the truck queue at its terminal, and an estimate of the time that trucks with booked VBS slots will need to wait after their slot to enter the terminal.

2. That road transporters invest in the communication devices they need to receive the stevedores’ real time communications and act accordingly.

3. That stakeholders consider adopting a non-discretionary set of communication rules that establish how the stevedores will adjust the number of VBS slots when delays occur in their landside service.

4. To foster goodwill, that the stevedores consider making basic amenities such as toilets and cold drinking water available to truck drivers who are required to queue to gain access to the stevedores’ terminals.

5. That each of the stevedores ensures that its carrier access agreement specifies, in clearly expressed terms, how it operates its VBS, the complete terms and conditions of access to this system, and what a holder of a booking in this system is entitled to.

6. That the stevedores each engage an independent auditor to conduct regular audits of their compliance with their carrier access agreements.

7. That the NSW Government request the Roads and Traffic Authority to review whether ‘super B-double’ trucks can be permitted to access Port Botany along selected routes at selected hours in consultation with relevant local councils.

8. That Sydney Ports Corporation investigates, in consultation with the stevedores, the creation of a VBS that encourages two-way loading, covering the wider port precinct, taking into account the principles set out above. Sydney Ports Corporation should also take into account the views of the road transport operators to the extent that they relate to the construction of a joint VBS.

9. That the NSW Government take up the matters related to the work of the Australian Customs Service discussed in Chapter 4 with the Australian Government.

10. That the road transporters invest in the technology needed to fully automate the gate processing for trucks.

11. That the stevedores use container numbers that have been provided in advance to do more housekeeping to reduce truck turnaround time.
12 That the NSW Government continue to undertake the following non-price initiatives to overcome impediments to increased use of rail to transport containers to and from Port Botany:

- assist ARTC to secure AusLink funding for necessary improvements to Botany Yard
- require DP World to lengthen its sidings
- fund further dedicated freight access across the Sydney passenger network (beyond the current Southern Sydney Freight Line).

13 That a Port Botany Logistics Team (PBLT), modelled loosely on the successful Hunter Valley Coal Chain Logistics Team (HVCCLT), should be adopted to improve rail system performance at Port Botany relative to current arrangements. Given the distinctive differences between the Port Botany container chain and the Hunter Valley coal chain, a successful PBLT would need to embody the following design characteristics:

- the objective should be to minimise total supply chain costs while meeting shipper demands for overall throughput and quality of service
- members’ adherence to PBLT decisions on investment should be voluntary, and the PBLT should have no power to compel members to do anything
- members should include stevedores DP World and Patrick, track proprietor ARTC, Sydney Ports Corporation, and any of the train operators that wish to join
- Sydney Ports Corporation’s role should not be a leadership role, but should be limited to matters in which it has a commercial stake
- membership should not be available to road transport operators, freight forwarders, importers or exporters, but their views could be taken into account through the equivalent of the HVCCLT Industry Reference Group
- industry peak bodies should not be represented, either on the Steering Committee or the Industry Reference Group
- RailCorp, Australian Quarantine Inspection Service, and Australian Customs Service should not be represented, but could be part of the Industry Reference Group
- as many members compete with each other, ACCC authorisation should be sought as soon as the constitution is established
- the PBLT should be staffed by secondees of member organisations, and the management of the team should be independent of all members
- system performance KPIs should be established, monitored regularly, and high level summaries reported publicly.

14 That the Minister request Sydney Ports Corporation to facilitate and each of the stevedores to independently implement a two-tiered system for booking access to each of the stevedores’ facilities, as set out in Chapters 7 and 8. Essential features of this system would be:
List of recommendations

Reforming Port Botany’s links with inland transport

– each firm slot would carry with it a guaranteed service level relating to time of entry to and time of exit from the terminal
– each firm slot would carry the right to a dual run
– the interruptible slots would have the same features as currently exist, including the booking system, prices, and penalties
– each stevedore would determine the number of firm and interruptible slots to be issued in each 24 hour day
– all slots would go through the vehicle booking system (for each stevedore), which will be computerised, and there would be clearly stated rules about when and how slots were made available
– the system would be independently audited
– prices for firm slots would be set through descending bid auctions separately for each stevedore
– there would be penalties on both the stevedores and the road transporters for not meeting firm slot requirements, linked to the price paid for the slot
– there would be an unrestricted secondary market for the firm slots
– there would be no restriction on the number of firm slots any one party is entitled to acquire through the auction
– each stevedore would receive a portion of the proceeds, to cover the costs incurred in offering firm slots plus an appropriate profit.

The issues to be considered for implementation of the proposed two-tiered system would include, but not be limited to:
– the precise service levels attached to the firm slots
– how a missed firm slot might be converted into an interruptible slot
– the precise penalties imposed on both the stevedores and the road transporters for not meeting firm slot requirements
– the timing requirements for providing container numbers for firm and interruptible slots, and the incentives for not changing them (or the penalties for changing them)
– who would participate in the auctions for firm slots
– the dismantling of existing priority schemes
– the mechanics of how the auction would run – in what order slots would be auctioned, how far ahead they would be auctioned, what would happen to unsold firm slots, and the starting price and bid increments
– the amount of the proceeds to be paid to the stevedores, and the allocation of proceeds in excess of those paid to the stevedores
– how the auction proceeds should be collected, held and distributed.

15 That the Minister consider implementing light-handed regulation that enables the collection by Sydney Ports Corporation of information for the purposes of monitoring performance and investment in landside activities at the port. The data
should be disaggregated by stevedore, and the stevedore named. The data should be published regularly.

16 That further economic regulation of the Port Botany containerised freight supply chain only be considered if

- voluntary cooperation has been insufficient to achieve the expected improvement in performance, and

- the benefits from more intrusive regulatory intervention are greater than the costs, a conclusion that should be supported by a rigorous assessment of the costs and benefits, with public input to the process and public scrutiny of the reasons for the conclusion, and

- if this more stringent regulation is imposed, it is consistent with the key principles of good regulation and is incentive-based, taking into account the commercial interests of the regulated entities.
## List of stakeholders

### D.1 Submissions to Issues Paper

<table>
<thead>
<tr>
<th>Organisation/Individual</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Australian Rail Track Corporation</td>
<td>Terry Bones</td>
</tr>
<tr>
<td>2 Australian Trucking Association NSW</td>
<td>Hugh McMaster</td>
</tr>
<tr>
<td>3 Botany Bay and Catchment Alliance Inc</td>
<td>Lynda Newnam</td>
</tr>
<tr>
<td>4 Customs Brokers and Forwarders Council of Australia</td>
<td>Stephen J Morris</td>
</tr>
<tr>
<td>5 Container Logistics Action Group (1)</td>
<td>Martin Feil</td>
</tr>
<tr>
<td>6 DP World</td>
<td>Andrew Adam</td>
</tr>
<tr>
<td>7 Independent Rail Group - Macarthur Intermodal Shipping Terminal, Independent Railways of Australia and Bowport Allroads Transport</td>
<td>Stephen Heraghty</td>
</tr>
<tr>
<td>8 Individual</td>
<td>David Lemke</td>
</tr>
<tr>
<td>9 Individual</td>
<td>John Tourrier</td>
</tr>
<tr>
<td>10 ING Real Estate*</td>
<td>Leisha Clarke</td>
</tr>
<tr>
<td>11 Maritime Union of Australia</td>
<td>Paddy Crumlin</td>
</tr>
<tr>
<td>12 Patrick Corporation Limited</td>
<td>James Dorney</td>
</tr>
<tr>
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<td>Jim Noble</td>
</tr>
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<td>15 Randwick City Council</td>
<td>Karen Armstrong</td>
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<td>16 Save Botany Beach Inc</td>
<td>Greg Killeen</td>
</tr>
<tr>
<td>17 Shipping Australia Limited</td>
<td>Llew Russell</td>
</tr>
<tr>
<td>18 Sydney Ports Corporation</td>
<td>Greg Martin</td>
</tr>
<tr>
<td>19 The South West Enviro Centre Inc</td>
<td>Gary Blaschke, OAM</td>
</tr>
<tr>
<td>20 Transport Workers Union</td>
<td>Tony Sheldon</td>
</tr>
<tr>
<td>21 Visa Australia Pty Ltd*</td>
<td>Simon Hardwidge</td>
</tr>
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*Note: * Submissions not publicly available due to confidentiality.

### D.2 Late/supplementary submissions

<table>
<thead>
<tr>
<th>Organisation/Individual</th>
<th>Name</th>
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<tbody>
<tr>
<td>22 Container Logistics Action Group (2)</td>
<td>Martin Feil</td>
</tr>
<tr>
<td>23 City of Botany Council</td>
<td>Peter Fitzgerald</td>
</tr>
<tr>
<td>24 Macarthur Intermodal Shipping Terminal</td>
<td>Steve Heraghty</td>
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<td>25 Victorian Transport Association</td>
<td>Philip Lovel, AM</td>
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<td>26 CRT Group</td>
<td>C. Dunn</td>
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**18 July Roundtable attendees**

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<tr>
<td>1st Fleet</td>
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<tr>
<td>1st Fleet</td>
<td>J Taylor</td>
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<tr>
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<td>Mark Owens</td>
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<td>Terry Bones</td>
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<td>Asciano</td>
<td>Marie Festa</td>
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<td>ATA NSW</td>
<td>Hugh McMaster</td>
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<td>Mike Moylan</td>
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<td>Lynda Newnam</td>
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<td>David Scott</td>
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<td>Paul Zalai</td>
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<td>Paul Shepherd</td>
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<td>CLAG</td>
<td>Martin Feil</td>
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<td>DP World</td>
<td>Richard Johnstone</td>
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<td>Andrew Adam</td>
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<td>Jeremy Spinak</td>
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<td>Ashley Midalia</td>
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<td>Leisha Clarke</td>
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<td>J J Lawson</td>
<td>John Preston</td>
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<tr>
<td>J&amp;J Robertson &amp; Sons</td>
<td>Barry Robertson</td>
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<td>Sam Collyer</td>
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<td>Rod Pickette</td>
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<td>Geraldine Andrews</td>
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<td>Peter Ferris</td>
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<tr>
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<td>I McNamara</td>
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<td>Kushy Athureliya</td>
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<td>Philip Lovel</td>
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### Table E.1 Intermodal Terminals within Sydney metropolitan area

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<tr>
<th>Intermodal Location</th>
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<th>Rail Operator(s)</th>
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<tbody>
<tr>
<td>Cooks River</td>
<td>Maritime Container Services (MCS)</td>
<td>Independent Rail of Australia, Australian Railroad Group (part of QR National), Patrick PortLink and Pacific National (for holding of trains)</td>
</tr>
<tr>
<td>Camellia</td>
<td>Patrick PortLink</td>
<td>Patrick PortLink</td>
</tr>
<tr>
<td>Leightonfield</td>
<td>Road Sea Rail</td>
<td>Southern &amp; Silverton Rail</td>
</tr>
<tr>
<td>Minto</td>
<td>Macarthur Intermodal Shipping Terminal (MIST)</td>
<td>Independent Rail of Australia</td>
</tr>
<tr>
<td>Yennora</td>
<td>Stocklands</td>
<td>Patrick PortLink</td>
</tr>
<tr>
<td>Villawood</td>
<td>Mannway</td>
<td>Southern &amp; Silverton Rail</td>
</tr>
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</table>

**Source:** Sydney Ports Corporation

### Table E.2 Intermodal Terminals in NSW regional areas

<table>
<thead>
<tr>
<th>Intermodal Location</th>
<th>Intermodal Company</th>
<th>Rail Operator(s)</th>
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<tr>
<td>Bathurst</td>
<td>Patrick PortLink</td>
<td>Patrick PortLink</td>
</tr>
<tr>
<td>Blayney</td>
<td>FCL Interstate Transport Services (part of Linfox)</td>
<td>Independent Rail of Australia</td>
</tr>
<tr>
<td>Cootamundra</td>
<td>Sutherlands Transport</td>
<td>Independent Rail of Australia</td>
</tr>
<tr>
<td>Dubbo</td>
<td>Patrick PortLink</td>
<td>Patrick PortLink</td>
</tr>
<tr>
<td>Griffith*</td>
<td>Patrick PortLink</td>
<td>Patrick PortLink</td>
</tr>
<tr>
<td>Manildra</td>
<td>Manildra Group</td>
<td>Australian Railroad Group (part of QR National)</td>
</tr>
<tr>
<td>Moree</td>
<td>Dunavant</td>
<td>Patrick PortLink, Independent Rail</td>
</tr>
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<td>Narrabri</td>
<td>Inland Packing and Storage</td>
<td>Patrick PortLink, Southern &amp; Silverton Rail, Independent Rail of Australia</td>
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<tr>
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<td>Auscott</td>
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<td>Newcastle</td>
<td>R&amp;H Sandgate (part of Toll Holdings)</td>
<td>Patrick PortLink</td>
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<tr>
<td>Nowra</td>
<td>Manildra Group</td>
<td>Australian Railroad Group</td>
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<td>FCL Interstate Transport Services</td>
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<td>Tamworth</td>
<td>Pacific National</td>
<td>Pacific National</td>
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<tr>
<td>Wagga Wagga*</td>
<td>Bomen (part of Asciano Limited)</td>
<td>Patrick PortLink</td>
</tr>
<tr>
<td>Wee Waa</td>
<td>Namoi Cotton</td>
<td>Southern &amp; Silverton Rail</td>
</tr>
</tbody>
</table>

**Note:**
- * Rail service to Melbourne only
- ** Parkes is the major regional intermodal location for the east-west interstate rail service.

**Source:** Sydney Ports Corporation.
Case 1: Landside terminal delays and a ‘domino effect’

From Friday August 4, 2007 to Monday morning of August 6, one of the Port Botany terminal operators had to unload and load a much greater-than-usual influx of ships. The build-up of import containers in the terminal by the end of the weekend was apparently such that long delays resulted for trucks, both inside the terminal and/or seeking access to the terminal, in the days that followed.

One after-hours transport operator provided IPART with data on the VBS slots it had sought and been allocated for Tuesday and Wednesday 7 and 8 August. At the time of the initial allotments, the operator was unaware of the landside delays looming on the wharf as a result of the weekend shipside task. According to the transport operator, the message board that accompanied the VBS screen for that stevedore contained no advice or warning.

Once the road transporter’s trucks were delayed in the very early hours of Tuesday morning, several taking four hours from access to exit, a “domino” effect of delays was created. The road transporter’s trucks ran late throughout Tuesday, causing them to fail to meet VBS timeslot commitments booked for the evening.

To catch up, the road transporter redirected some trucks away from the stevedore’s terminal, thereby automatically recording “no shows”, but also thereby having the trucks available to fulfil later VBS timeslot commitments. Until midnight trucks continued to enter the yard several hours after the start-time of their VBS slots. By the start of evening commitments on Wednesday, the transport operator was recording no more delays (either before entry or inside the terminal) or “no shows”.

In the light of the circumstances, the stevedore acceded to the road transporter’s request to not be charged for the no shows. The stevedore was unable to grant another request for extra slots to enable the road transporter to access the containers left in the terminal as a result of the “no shows”. When the operator attempted to book extra slots through the VBS, none remained available for either the afternoon and evening of the 8th or for any of the 24 hours of the 9th and 10th.

To avoid storage charges on the containers that were approaching the last day three days free storage, the operator switched container numbers on already booked VBS slots that he held. He also received some extra VBS slots from the secondary market so that none of the original “no show” containers incurred storage charges.
Case Two – No extra VBS access at night

A different road transporter has provided IPART with evidence that he was unable to obtain VBS slots in the very early hours of Tuesday 14 August.

Case Three - Long delays inside/outside the terminal

Several other road transport operators reported delays of three and four hours on Friday 10 August and on Monday 27 and Tuesday 28 August, again at one stevedore’s terminal. One operator provided IPART with a sample of drivers’ worksheets.

Summary of anecdotes and measured average TTTs

The available measure of landside efficiency that seeks to capture delays is average truck turnaround times. They appear to do so in August 2007, although the time spent within the terminals is considerably less than that experienced by the road transporters. Indeed, truck turnaround times seem to be more than double the average TTT on certain days.

Figures F.1 and F.2 show how average TTTs behaved in July and August 2007 at each of the stevedores’ terminals. The duration of truck turnaround clearly rises in a sustained way at the Patrick terminal in August over the 6th to the 10th which is the period to which most of the case studies refer.

No measure of total truck waiting times is available for that period, but it is likely that they rose considerably more than the TTT.

The ability of measured TTTs to capture some of the extensive delays at the port makes them a useful, albeit limited, measure of landside efficiency as compiled and published by the BTRE.

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200 The levels of the TTTs may not be directly comparable for the two stevedores because they measure TTTs differently. Patrick measures in-gate-to-out-gate; DP World measures from commencement of job processing to job completion. The latter is likely to be a shorter time than the former.
IPART recites these cases in order to highlight some of the challenges faced by transport operators in running their businesses. Unpredictable container inflows obviously place stress on all parties and in these times it seems especially crucial for mutual goodwill and good communications to prevail in order that the supply chain operate efficiently. How goodwill might be fostered and communications improved are discussed in Chapter 4.
G Statistical relationship between the shipside task and the road landside task

This appendix presents regression results on the relationships between the aggregate shipside and landside tasks (where aggregate means that the individual stevedores’ data have been combined).

Regression analysis in a nutshell

Regression is a statistical technique for measuring the degree of association between two or more variables with the purpose of establishing which variables show statistically significant association with the variable of interest. Regression analysis cannot determine causation (that is, if one variable depends on another in a cause-and-effect manner) but it does measure the degree of association. If changes in one variable are already thought to be a cause of changes in another, regression results measure the strength, or otherwise, of that relationship.

The degree of association between the dependent and all the independent variables in any regression equation is measured by the $R^2$. The $R^2$ measures how much of the variation in the dependent variable is associated with the independent variables against which it is regressed. For example, an $R^2$ of 0.85 means that 85 per cent of the variation in the dependent variable is associated with the movements in the independent variables. If the independent variables are thought to cause the movements in the dependent variable, one could say, somewhat loosely, that 85 per cent of the variation in the dependent variable is “explained by” or “caused by” variations in the independent variables. The remaining 15 per cent, however, would be unexplained.

The $t$-statistic on each independent variable is a key statistic for determining whether a significant relationship exists between the dependent variable (say, daily truck entries to a stevedore’s terminal) and one or more of the independent variables (say, today’s import TEUs or yesterday’s import TEUs). An absolute value of $t$ that is greater than 2.0 means that the independent variable is statistically significant in the sense that it is highly unlikely that the statistical association with the dependent variable has occurred simply by chance.
Relationships within the roadside supply chain at Port Botany

In the case of container movements to and from Port Botany, it is widely believed that the size of the shipside task is a major cause of the size of the landside task and of the efficiency with which the landside task is performed. To measure the strength of the relationships that are believed to exist, measures of the two tasks and the efficiency with which the landside task is done must be found. Then the variable may be regressed in appropriate ways.

The following figure illustrates the supposed cause-and-effect relationships where:

- The shipside task is measured by daily import and export TEUs to be processed by the stevedores.
- The landside task is measured by the daily number of truck entries into the terminals.
- The efficiency with which the landside task is done is measured by average daily truck turnaround times (TTTs). Ideally, for the latter, total truck waiting times (truck waiting times) would be a better measure, but data on truck waiting times are generally not available.

As will be apparent shortly, truck entries depend heavily on the size of the shipside task (arrow 1 in Figure G.1 below) while truck turnaround times are modestly affected by the number of truck entries (arrow 2) or by the shipside task (arrow 3).

Figure G.1 Schematic representation of the Port Botany road supply interactions

In what follows, the detailed regression results for arrows 1 and 3 in the figure are presented and some inferences drawn from them.
Arrow 1 - Ship TEUs and Truck entries

To show how strongly truck entries into the stevedores’ terminals are associated with the number of import and export containers to be handled, daily truck entries have been regressed against the previous week’s import TEUs and the coming week’s export TEUs. The notation in the detailed regression results are:

- “C” = the constant term
- “M” = import TEUs that were on ships that arrived at Port Botany ‘today’
- “M1” = TEUs that arrived yesterday
- “M2” = TEUs that arrived two days ago, and so on
- “X” = export TEUs that were on a ship that departed ‘today’
- “X1” = export TEUs that will depart tomorrow
- “X2” = export TEUs that will depart two days hence, and so on
- “SAT”, “SUN” and “PUB” are dummy variables that isolate the effect of Saturdays, Sundays and public holidays on the dependent variable.

Because it takes a day or two after ship arrival before import containers are completely unloaded and therefore ‘available’ for collection, and then three days free storage is permitted, containers that arrived up to a week ago are likely to affect the number of truck entering the terminal today. Similarly for export containers, exports due out over the next week could reasonably be expected to affect truck entries today.

Three dummy variables are included because truck entries are known to be considerably lower on Saturdays, Sundays and public holidays. This is related to downstream supply chain work practices rather than the size of any shipside task. The dummies isolate the weekday relationship that might exist between truck entries and shipside task. Once allowance is made for Saturday, Sunday and public holiday effects, truck entries are strongly correlated with the shipside task. This conclusion is based on the regression results set out in Table G.1.

The three columns of interest are the far left column which lists the independent variables, the “co-efficient” column which measures the average relationship between truck entries and each independent variable and the “t-statistic” column which indicates the likelihood that the relationship is not just due to chance - it is not if \( t > 2 \). The co-efficients where \( t > 2 \) have been shown in bold type.

In 2006/07, based on the results shown in Table G.1, it can be inferred that:

- The average number of truck entries per day into the terminals was 1,578 (as shown by the mean at the bottom right of the table. Adjusting for Saturday, Sunday and public holidays, the average daily weekday truck entries would be just over 2,000.).

- A minimum of 1,321 trucks enter the stevedores’ terminals on average each day to deal with the shipside task (as shown by the value of the co-efficient on the constant term “C”).
More trucks also enter in response to the number of import TEUs that arrive each day between 2 and 7 days ago (as shown by the t statistics of >2 on each of the coefficients on the variables M2 to M7). Thus, if 1000 import TEUs arrived each day between two days and seven days ago, on average 306 trucks (the sum of the coefficients on M2 to M7 multiplied by 1000) would enter the terminals ‘today’. If the average daily import TEUs of 2,212 had arrived each day between two and seven days ago, the number of extra trucks being induced into the port today in response would be 677.

If ‘today’ were a Saturday, the number of trucks would fall, on average, by 1,203, if a Sunday, by 1,864 and if a public holiday, by 1,437.

Overall, 94 per cent of the variation in truck entries was associated with variations in import TEU inflows over the previous two to seven days, allowing for Saturdays, Sundays and public holidays (as shown by the value of the $R^2$ at bottom left of the table).

### Table G.1 Truck entries and the shipside

<table>
<thead>
<tr>
<th>Dependent Variable: TRUCK ENTRIES</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
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</thead>
<tbody>
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<td>C</td>
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<td>114.588</td>
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<td>0.012</td>
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<tr>
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<td>X(3)</td>
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<td>0.011</td>
<td>1.382</td>
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<tr>
<td>X(4)</td>
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<td>0.011</td>
<td>0.717</td>
<td>0.474</td>
</tr>
<tr>
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<td>-0.002</td>
<td>0.010</td>
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<td>PUB</td>
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<td>-18.169</td>
<td>0.000</td>
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R-squared   0.94  Mean dependent var 1578
Adjusted R-squared 0.94  S.D. dependent var 750.55

Source: Regression results from IPART’s analysis of data provided by Sydney Ports Corporation, DP World and Patrick.
The closeness of the relationship can also be seen in the Figure G.2 below, which plots the actual daily truck entries in 2006/07 against the number that would be predicted from the regression relationship. The line X=Y has been imposed on the figure.201

**Figure G.2 Scatter plot of actual and predicted (fitted) truck entries**

![Scatter plot of actual and predicted truck entries](image)

**Source:** IPART analysis of data provided by DP World and Patrick.

In layman’s language, the number of import containers that arrived at the port 2 to 7 days ago all play a significant role in determining the number of trucks that enter the terminals ‘today’. Saturdays, Sundays and public holidays see a large reduction in the number of trucks that enter the terminal because of the work practices of the downstream supply chain.

**Arrow 3 - TTTs AND SHIPSIDE TEUs**

The measure of port-average TTTs used in the regression below weighted each stevedore’s TTTs by the number of daily truck entries. Table G.2 shows that port-average TTTs are associated with the shipside task and vary with Saturday, Sunday and public holidays, but that the association leaves much unexplained.

Import TEUs arriving between 1 and 6 days ago still have some positive effect on TTTs, as do export TEUs due out the next day and Saturdays, Sundays and public holidays. But the $R^2$ of 0.296 indicates that 70 per cent of the variation in TTT

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201 If Saturdays, Sundays and public holidays were excluded, the figure would reduce to Figure 3.3 on p 37.
remains unexplained. A further explanation is offered in Appendix G and other factors that could affect TTTs are noted in Chapter 3.

Table G.2  Truck turnaround times and the shipside

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
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</thead>
<tbody>
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<td>0.0004</td>
<td>-0.0762</td>
<td>0.9393</td>
</tr>
<tr>
<td>M(1)</td>
<td>0.0013</td>
<td>0.0005</td>
<td>2.5927</td>
<td>0.0099</td>
</tr>
<tr>
<td>M(2)</td>
<td>0.0028</td>
<td>0.0006</td>
<td>4.6656</td>
<td>0.0000</td>
</tr>
<tr>
<td>M(3)</td>
<td>0.0029</td>
<td>0.0007</td>
<td>3.9521</td>
<td>0.0001</td>
</tr>
<tr>
<td>M(4)</td>
<td>0.0016</td>
<td>0.0006</td>
<td>2.5998</td>
<td>0.0097</td>
</tr>
<tr>
<td>M(5)</td>
<td>0.0012</td>
<td>0.0006</td>
<td>2.0167</td>
<td>0.0445</td>
</tr>
<tr>
<td>M(6)</td>
<td>0.0007</td>
<td>0.0006</td>
<td>1.1175</td>
<td>0.2646</td>
</tr>
<tr>
<td>M(7)</td>
<td>0.0005</td>
<td>0.0005</td>
<td>0.9997</td>
<td>0.3182</td>
</tr>
<tr>
<td>X</td>
<td>0.0017</td>
<td>0.0006</td>
<td>2.7238</td>
<td>0.0068</td>
</tr>
<tr>
<td>X(1)</td>
<td>0.0011</td>
<td>0.0006</td>
<td>1.7437</td>
<td>0.0821</td>
</tr>
<tr>
<td>X(2)</td>
<td>0.0002</td>
<td>0.0005</td>
<td>0.3658</td>
<td>0.7147</td>
</tr>
<tr>
<td>X(3)</td>
<td>-0.0006</td>
<td>0.0005</td>
<td>-1.1096</td>
<td>0.2680</td>
</tr>
<tr>
<td>X(4)</td>
<td>-0.0002</td>
<td>0.0005</td>
<td>-0.3106</td>
<td>0.7563</td>
</tr>
<tr>
<td>X(5)</td>
<td>-10.4733</td>
<td>1.7597</td>
<td>-5.9518</td>
<td>0.0000</td>
</tr>
<tr>
<td>SAT</td>
<td>-14.8626</td>
<td>2.5822</td>
<td>-5.7557</td>
<td>0.0000</td>
</tr>
<tr>
<td>PUB</td>
<td>-11.0337</td>
<td>1.7121</td>
<td>-6.4444</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

R-squared 0.296  Mean dependent var 41.731
Adjusted R-squared 0.259  S.D. dependent var 12.211

Source: Regression results from IPART’s analysis of data provided by Sydney Ports Corporation, DP World and Patrick.
Figure G.3 Scatter plot of actual and predicted (fitted) TTTs

Source: IPART analysis of data provided by DP World and Patrick.
This appendix illustrates the quantitative relationships between TTTs, days of free storage at port, average stack density and truck entries. The results are summarised in the body of the report, section 3.2.1. The data analysis presented here was provided in part by Patrick on a confidential basis.

**Stack density and truck entries as drivers of TTT**

A key factor causing delays in serving the landside is the need to rehandle containers. Typically rehandling arises because a container will need to be moved in order to access a container beneath or beside it. Intuitively, the number of rehandles required in a given day will depend both on the number of truck entries (which correspond to the number of containers passing through the landside interface) and the average stack density across the terminal. The denser the stack, the more the rehandles.

Daily truck entries and average stack density on the prior day provide a good prediction of the number of rehandles required at Patrick in 2006. The regression relationship is such that 56 per cent of the variation in actual rehandles (R^2 0.56) is associated with variations in truck entries and stack density. Actual and predicted daily rehandles are compared in Figure H.1. The line X = Y has been superimposed on each figure that follows.

The same explanatory variables are also important drivers of TTTs. A similar linear regression model provides a reasonable prediction of TTT at Patrick over calendar 2006. It explains 27 per cent of the variation in actual TTT. Actual and predicted TTT are compared in Figure H.2 below.

While this relationship does not explain all of the variation in TTT, all coefficients are statistically significant (at the 5 per cent level) and the coefficients for stack density and truck entries are highly significant (at the 1 per cent level; t-value > 8 for each coefficient).
Figure H.1  Actual and predicted (fitted) re-handles at Patrick in 2006

Source: IPART analysis of data provided by Patrick.

Figure H.2  Actual and predicted (fitted) TTTs at Patrick in 2006

Source: IPART analysis of data provided by Patrick.
Days of free storage as driver of density

It is obvious that if each container is permitted to stay longer at the terminal, the average number of containers held at the terminal will increase in proportion to the length of the stay. For example, if 100 containers arrived each day, and they had to be removed the same day, then the largest number of containers at the terminal on any day would be 100. If the rule were changed to 2 days before removal, then there could be as many as 200 containers on the terminal: those that arrived today plus those that arrived yesterday.

If one assumes that import containers will be removed at a constant rate over the days of free availability, then the average number of containers stored at port each day would be 50 per cent higher with 5 days free than with 3 days. Table H.1 provides an example where import containers are arriving at a rate of 150 a day. Under three days of free storage, 50 must be removed per day. Under five days, 30 must be removed each day. By day 4 the stock of boxes has built up to a level of 450 which is 50 per cent higher than the stock level under the three day allowance.

Table H.1 The effect on terminal stock levels of days of free storage

<table>
<thead>
<tr>
<th>day</th>
<th>day 0</th>
<th>day 1</th>
<th>day 2</th>
<th>day 3</th>
<th>day 4</th>
<th>day 5</th>
<th>day 6</th>
<th>day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>boxes in</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>3 days free:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>boxes out</td>
<td>0</td>
<td>50</td>
<td>100</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>boxes at terminal</td>
<td>150</td>
<td>250</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>5 days free:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>boxes out</td>
<td>0</td>
<td>30</td>
<td>60</td>
<td>90</td>
<td>120</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>boxes at terminal</td>
<td>150</td>
<td>270</td>
<td>360</td>
<td>420</td>
<td>450</td>
<td>450</td>
<td>450</td>
<td>450</td>
</tr>
</tbody>
</table>

Net effect on TTT of a policy change to days of free storage

A change to the number of permitted days of free storage will have two effects. First, it will smooth the daily pattern of truck entries so that there will be fewer extremely busy landside days. Through the effect of truck entries on TTT, this smoothing would be expected to have some moderating influence over TTTs. Second, it will substantially increase the average stack density at the port, tending to increase TTTs.

The regression that estimates TTTs based on density and truck entries provides a means of quantifying the relative impact of these two contending influences. SPC data on daily import TEUs for 2006/07 have been used to calculate daily data for truck entries and stack densities based on a 3 day free storage scenario and a 5 day free storage scenario. Predicted TTTs for each day of the year were then derived from the regression relationship under both scenarios. Figure H.3 plots the predicted TTTs for each day based on 3 days free storage (x-axis) and 5 days free storage (y-axis).
For almost every day of 2006/7, the average predicted TTT in minutes was higher under a 5 day free storage rule than under a 3 day free storage rule. The annual average predicted TTT was higher by 23 minutes under the 5 day free storage rule.

This result demonstrates that the following assertion is contrary to the evidence:

The more days of free availability the less congestion and the greater operational efficiency throughout the supply chain.\textsuperscript{202}

The more days of free availability, the greater the container congestion inside the terminal, the longer the truck waiting times, and the worse the performance of the entire supply chain. Intuitively, this result arises because the smoothing effect on truck entries of a longer free storage period is only important on a small number of days of the year, whereas the density effect on container rehandling is experienced every day of the year.

\textsuperscript{202} CLAG submission, p 63.
IPART, drawing on some experimental estimates of the BTRE, raised the question in its Issues Paper of how it was possible for the stevedores to offer more VBS timeslots between the hours of 8am and 4pm in Melbourne than they did in Sydney.

DP World submitted that the data published by BTRE seemed to refer only to its operations and the stevedore therefore offered IPART an analysis of why it offers more peak VBS slots in Melbourne than it does in Sydney.

A summary of the data provided by DP World is shown in Table I.1 (comments in the final column are remarks made by DP World, condensed and interpreted by IPART). DP World made three adjustments to the Melbourne data to make it directly comparable with the Sydney data. These adjustments were:

First, an adjustment for rail which, unlike Sydney, is handled outside the stevedores’ port terminals. Containers to be placed onto trains in Melbourne are first transported by trucks to a rail terminal. These movements are booked via the VBS, thus inflating the number of VBS slots used in Melbourne. In Sydney, whilst the same resources may be used to service the landside, some resources are devoted directly to rail and are not included in the VBS numbers.

Second, Sydney handles more empty export containers, most of which are returned to the terminal outside the VBS. In Melbourne, more export containers, being full, are returned to the port via the VBS. In Sydney, whilst the same resources may be used to service the landside, some directly service empty containers and are not measured in the VBS numbers.

Third, Melbourne has a larger container throughput, and one factor that determines how many peak VBS slots the stevedores offer is the demand from road transporters.

After making these adjustments, there was only a 3.4 per cent difference between the number of peak VBS slots offered in the June 2006 quarter at the two terminals.
However, IPART’s central question was not: ‘why does DP World offer more peak VBS slots in Melbourne than in Sydney?’ but rather ‘why is DP World able to offer more peak VBS slots in Melbourne?’ The answer to this question seems to be primarily because DP World allocates more resources to its task.\(^\text{203}\)

### Table I.1 Comparison of peak VBS slots offered in Melbourne and Sydney

<table>
<thead>
<tr>
<th></th>
<th>Melbourne</th>
<th>Sydney</th>
<th>IPART’s comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slots available</td>
<td>45,941</td>
<td>26,632</td>
<td>Question: how can Melbourne offer nearly 46,000 slots when Sydney only offers 26,600?</td>
</tr>
<tr>
<td>Slots used</td>
<td>43,920</td>
<td>25,247</td>
<td></td>
</tr>
<tr>
<td>1. Rail proportion -</td>
<td>0.823</td>
<td></td>
<td>43,920 is inflated by 7,800 pre-rail movements which Sydney does not need</td>
</tr>
<tr>
<td>adjustment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>36,146</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Proportion of</td>
<td>0.851</td>
<td></td>
<td></td>
</tr>
<tr>
<td>exports as empties</td>
<td></td>
<td></td>
<td>Another 5,400 is for full boxes included in the Melbourne VBS but which are empties in Sydney and not in VBS</td>
</tr>
<tr>
<td>(handled as bulk-runs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- adjustment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>30,760</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Terminal volume</td>
<td>0.849</td>
<td></td>
<td>Of the 30,760, another 4,600 difference is because of greater volumes in Melbourne</td>
</tr>
<tr>
<td>for quarter -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>adjustment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>26,116</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPW adjusted slots</td>
<td>26,116</td>
<td>25,247</td>
<td>Percentage difference = 3.44%</td>
</tr>
</tbody>
</table>

\(^{203}\) In its submission, DP World lists the factors that affect the number of VBS slots (p 31). One of these factors is “the requirement of resources to be working vessels”. The others are demand side variables which explain why a certain number are actually offered, not what affects how many could be offered. In its submission, Patrick states that the number of slots is “determined by Patrick management and reflects the volume capabilities of the operation for that particular day” (emphasis added) which seems to highlight resource limitations rather than demand factors (Patrick submission, p 27).
**Existing supply chain groups**

This appendix outlines the role of existing supply chain groups that are involved in planning for better coordination of road/rail interface at Port Botany. It will identify who the various groups are, how they operate and what their limitations have been in achieving productive outcomes.

**Port Botany Supply Chain Groups**

Coordination of supply chain activities is a critical component in ensuring that the overall efficiency of the landside freight movement is maximised. The Port Botany containerised supply chain involves numerous players and activities of any one participant impacts on the commercial and operational efficiency of another. The Tribunal recognises that involvement of all key supply chain participants is necessary for any meaningful operational efficiency across to be achieved. SPC has worked towards facilitating forums where key supply chain participants such as the stevedores, road transporters, rail operators, empty container parks, ACS, and AQIS can talk to each other to plan for and resolve both strategic and operational efficiency issues. In recognising benefits from having such a forum, three groups have been set up on an informal basis that relies on cooperative working relationships and goodwill of participants. These are:

1. Sydney Port Users Consultative Group
2. Sydney Ports Cargo Facilitation Committee, and

Strategically, the most important group at Port Botany is the Sydney Port Users Consultative Group. It is the only representative body that acts as a strategic advisor to Sydney Ports on matters of port management and port infrastructure capacity issues. The other two groups are operational groups that effectively deal with more detailed day-to-day matters of the supply chain. Each group is discussed below.
The Sydney Port Users Consultative Group (SPUCG) was formed in 1998 as a representative body of senior members from the Port Botany logistics community to consider strategic issues on port related activities. The Group is independently chaired and convenes quarterly. Members of SPUCG during 2006 included representatives from:

- Patrick and DP World
- Sydney Ports Corporation
- Shipping Australia Ltd
- Shipping lines
- Road transporters
- Rail operators
- Intermodal operators
- Freight forwarders and customs brokers
- Australian Customs Service
- AQIS
- Sydney Ports Cargo Facilitation Committee Chair
- Private wharf operators
- Bulk liquid terminal operators.

The focus of SPUCG meetings has been to provide a forum for information exchange and developing relationships amongst various port users. Meetings have served as a means of updating port users and other stakeholders on major developments and achievements of various supply chain members whilst also acting as an informal advisory body to SPC’s Board of Directors on port needs and port performance issues.

Given the senior membership of this Group and the frequency of its meeting, it places more emphasis on strategic matters such as port capacity and infrastructure needs rather than land transport operational issues. If, however, any operational issues are raised at this forum, it is referred to another operational group, the Sydney Ports Cargo Facilitation Committee for consideration. Matters referred to the operational group are monitored through regular updates from the chair of the Cargo Facilitation Committee who is also a member of SPUCG. In addition to monitoring operational efficiency, SPUCG also monitors other areas of port activity, including trade and shipping, marine operations, bulk liquids and general cargo handling and port security.

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204 Prior to 2006, the Group met bi-monthly.
205 Sydney Ports Corporation communication to IPART, 23 July 2007.
206 Sydney Ports Corporation communication to IPART, 23 July 2007.
**Sydney Ports Cargo Facilitation Committee**

The Sydney Ports Cargo Facilitation Committee (SPCFC) is an operational working group made up of volunteer representatives from:

- Patrick and DP World
- Sydney Ports Corporation
- Road transporters
- Shipping Australia Ltd
- Intermodal operators
- Empty container depot operators
- Freight forwarders and customs brokers
- NSW Police
- Australian Customs Service
- AQIS
- Trade Unions.

It was formed as a forum where participants could monitor the turnaround performance of the terminals and plan and implement ways in which peak seasonal container movements could be better managed. For practical purposes, this group meets on a monthly basis and coordinates its activities through SPC. Other than reporting on issues referred to it by SPUCG, the committee undertakes collaborative planning activities leading up to the Port’s Christmas peak period. To this end, a mid-year Transport Workshop is held annually by the committee in conjunction with SPC, where all industry representatives are invited to participate in planning and organising the handling of containers in the six months to Christmas.

SPCFC keeps track of terminal turnaround performance through monitoring truck turnaround times (TTT). They monitor the TTT (Gate-In to Gate-Out) as reported by the stevedores on a monthly basis to SPC and periodically conduct their own independent TTT survey. Over the last few years, SPC has undertaken this survey on behalf of the committee every 15-18 months. The last survey was undertaken in May 2007 with results released to the industry in late August 2007.
Botany Rail Steering Group

The purpose of the Botany Rail Steering Group is as a reference group to drive and promote the growth of containerised rail through Port Botany. The membership comprises of:

- Patrick and DP World
- RailCorp
- Rail operators
- Intermodal terminal operators.

This Group was formed in 2000 to improve the rail interface at Port Botany by fostering a closer working relationship between key rail stakeholders. No meetings have taken place since October 2004. However, its operational role is performed by the Botany Rail Operation Group.

Botany Rail Operation Group

An operational sub-group formed around the same time as Botany Rail Steering Group. It is now known as the RailCorp/Botany Stevedores Group and meets weekly under the chair of RailCorp. This group addresses daily rail operational management issues, monitors rail operating protocols for Botany Yard and monitors weekly rail performance of Botany Yard and individual rail operators.

Port Botany Logistics Task Force

The Minister for Ports and Waterways established a Port Botany Logistics Taskforce in November 2006. It is chaired by the Minister for Ports and Waterways and includes members appointed from the following organisations:

- Sydney Ports Corporation
- RailCorp
- NSW Department of Planning
- NSW Maritime
- Sea Freight Council NSW
- NSW Roads and Traffic Authority
- Unions NSW
- Saha International
- Austate Logistics Terminal
The Minister has announced that the Taskforce will be facilitating strategic industry input in providing advice to the NSW Government on issues in the land transport logistics chain, including port operations, stevedoring, road and rail freight operations, intermodal terminal operations, container parks, planning and regulation. The first meeting was held in November 2006 and the commissioning of the IPART review was a recommendation from that meeting.

Sydney Ports Corporation’s role under the legislation

SPC was established as a Port Manager under the NSW Ports Corporatisation and Waterways Management Act 1995 (which has since been renamed the Ports and Maritime (Administration) Act 1995). Its objectives and functions under the legislation are set out in Box J.1.

Box J.1 SPC’s objectives and functions under Ports and Maritime (Administration) Act 1995

The principal objectives of SPC are set out in section 9 of the legislation, and are:

(a) to be a successful business and, to this end:
   (i) to operate at least as efficiently as any comparable businesses, and
   (ii) to maximise the net worth of the State’s investment in the Port Corporation, and
   (iii) to exhibit a sense of social responsibility by having regard to the interests of the community in which it operates and by endeavouring to accommodate these when able to do so, and

(b) to promote and facilitate trade through its port facilities, and

(c) to ensure that its port safety functions are carried out properly.

The principal functions of SPC are set out in section 10(2) of the legislation, and are:

(a) to establish, manage and operate port facilities and services in its ports, and

(b) to exercise the port safety functions for which it is licensed in accordance with its operating licence.

Section 10(3) also allows SPC to:

(a) provide facilities or services that are ancillary or incidental to its principal functions, and

(b) conduct any business (whether or not related to its principal functions) that it considers will further its objectives.

207 The taskforce consists of The Hon. Joe Tripodi (Chair), Minister for Ports and Waterways; Mr Geoff Farnsworth, Sea Freight Council of NSW; Mr Vince Graham, RailCorp; Mr Sam Haddad, Department of Planning; Mr Greg Martin, Sydney Ports Corporation; Mr Chris Oxenbould, NSW Maritime; Mr John Robertson, Unions NSW; Ms Liesbet Spanjaard, Saha International; Mr Terry Tzaneros, Austate Logistics Terminal; Mr John West, Dangerous Goods Logistics; and Mr Les Wielinga, Roads and Traffic Authority.
The key requirements of SPC that are relevant to this review are therefore to promote and facilitate trade through Port Botany, by establishing, managing and operating port facilities and services there. In doing so, it can provide facilities or services that are ancillary or incidental to establishing, managing and operating its facilities at Port Botany, and can conduct any business that it considers will further the promotion and facilitation of trade through Port Botany.

**What Sydney Ports Corporation currently does**

SPC owns 349 hectares of property in Sydney Harbour, Port Botany, Cooks River and Enfield and consequently is the significant landlord in the Port Botany container supply chain. It leases the two container terminals to Patrick and DP World at Port Botany. It also leases other specialised terminals to licensed stevedores of liquid bulk and general cargo.

SPC is also involved in implementing policies of the NSW Government that address the growing freight task as set out below.

**Port Botany Expansion**

To ensure capacity can be handled adequately, the NSW Government has decided to expand Port Botany’s container facilities to significantly increase container handling facilities. SPC is facilitating this policy decision of the NSW Government to expand the port facilities, and is currently considering tenders for construction of a third terminal at Port Botany that will cater for five additional berths on 60 hectares of reclaimed land.

**Intermodal Terminal Development**

SPC owns two metropolitan intermodal sites, as extensions of the port facilities located at Port Botany. In 2005, SPC purchased the intermodal terminal and empty container site at Cooks River from RailCorp, which had had plans to shut down this facility. SPC has stated that it purchased this site to secure continued operation for rail operators and exporters in close proximity to Port Botany the dedicated freight line. Maritime Container Services currently operates this facility under lease.

SPC also owns a 60 hectare site at Enfield. This industrial estate has existing rail track connections to the Metropolitan Freight Network and to the Port Botany via the Botany Goods Line.

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208 Sydney Ports Corporation submission, p 9.
209 For further information, see http://www.sydneyports.com.au/port_development/port_botany
On 31 May 2007, the NSW Premier announced details of the Government’s plans to increase freight rail from Port Botany and one of the key initiatives was to endorse plans to establish new freight terminals at the Enfield site and, subject to discussions with the Commonwealth Government, at Moorebank.

On 6 September 2007, the NSW Department of Planning announced that it has approved plans for the Enfield Intermodal Logistics Centre. SPC has secured Government funding to develop this site principally for rail transfer of containers to and from Port Botany. SPC has undertaken work on appropriate features for the Enfield Intermodal Logistics Centre. As noted in section 2.2 of this report, a taskforce is overseeing the business development of this site.

Landside tasks at Port Botany

SPC has played a role in co-ordinating the road and rail task, primarily through the SPUCG, SPCFC and the annual Transport Workshops. SPC is a member of each and provides secretariat support, but each is independently chaired.

Whilst SPC has an explicit role in managing port assets and providing navigational and operational safety services under its Act, it has no direct role in managing the efficiency of the landside interface. In effect, SPC possesses no regulatory powers under the legislation to regulate port-related road or rail activity. In the supply chain, the only contractual relationship SPC has is with the stevedores through the terminal leases entered into nearly thirty years ago. SPC has stated in its submission that their ability to influence the stevedores’ operational practices on the landside are limited under the lease documentation. The leases are addressed in Chapter 8.

SPC has expressed its frustration at some industry actions that have hampered its efforts in pursuing transport efficiencies. SPC in its submission state that it was actively involved with the stevedores and road operators to effect enhancements to the VBS when their efforts were halted in 2004 through ACCC’s investigations into the VBS and subsequent application by CLAG to ACCC for authorisation to negotiate collectively with the stevedores.

Without any direct powers under the Act to control or sanction any commitment from participants in improving operational efficiency, any involvement by SPC must be based on cooperative working relationships between supply chain participants. This has already been occurring to date with groups like SPUCG and SPCFC, however with limited success.

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211 Sydney Ports Corporation submission, p 17.
212 Sydney Ports Corporation submission, p 10.
213 Sydney Ports Corporation submission, p 10.
**The Victorian Approach to the role of a Port Authority**

In terms of core functions, Port of Melbourne Corporation (PoMC) and SPC are very similar, in that they are effectively port asset managers and provide navigational and maritime services to the shipping industry.\(^{214}\) In managing its port assets, the PoMC works as “an integrated partner in the broader freight and logistics system,” \(^{215}\) rather than itself managing the Port’s supply chain coordination services.

A distinctive feature of the Victorian structure is the direct involvement of the Government. The PoMC has been coordinating number of projects on port-related infrastructure for which the Victorian Government has been securing a significant source of funding through the Commonwealth Government’s AusLink program. Therefore, the Government plays a more central role in facilitating and coordinating supply chain initiatives.

Advice on port, freight and logistics matters is primarily given by the Victorian Freight and Logistics Council (VFLC), which was specifically established by the Government for this purpose in 2004.\(^ {216}\) Input from VFLC feeds into the Government’s broader Freight and Logistics Strategy.

The Victorian Government’s Freight and Logistics Strategy is a State blueprint through which it seeks to coordinate policy and prioritise strategic initiatives. To this end, the Government has created an industry consultative group structure that provides coordination of both the strategic and operational direction for the benefit of the whole supply chain.

In contrast to the informal strategic advisory role of Sydney Port Users Consultative Group at Port Botany, in Victoria, the Government itself (three Ministers) makes up the Victorian Supply Chain Consultative Group (VSCCG). Industry representative groups still play an important advisory role in Melbourne. The VSCCG in turn consults with a much larger and diverse industry representative group that forms the Victorian Transport, Distribution and Logistics Industry Roundtable (TDL).

The VSCCG links the Ministers of three Victorian Government portfolios and their departments with peak TDL industry associations, companies and customers. It provides a more robust mechanism for TDL members to directly address Ministers on any issues that affect their members. Currently, the three Ministers are:

- Minister for State and Regional Development
- Minister for Transport
- Minister for Education and Training.\(^ {217}\)

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\(^{214}\) The Port of Melbourne Corporation was established in 2003 as a statutory corporation under the *Port Services Act 1995* (VIC).

\(^{215}\) Port of Melbourne Corporation, *Port Profile*.


\(^{217}\) TDL Supply Chain Victoria – www.supplychainvictoria.com.au
TDL is where key policy issues are raised and discussed to form a well considered and cohesive industry viewpoint. TDL is also responsible for establishing, supporting the various Partner Reference Groups and the Regional Roundtables.

Partner Reference Groups deal with operational matters. The chair of each group is a member of TDL. Regional Roundtables bring together local transport providers, business, tertiary institutions and state and local Government representatives in an ongoing forum focused on TDL industry issues. The chairs of the Regional Roundtables are also members of TDL.

IPART notes that the Victorians have a structured coordinated approach to funding and setting policy through the Government department and a series of advisory committees including the relevant Ministers, rather than through the PoMC.
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>ACCC</td>
<td>Australian Competition and Consumer Commission</td>
</tr>
<tr>
<td>ACS</td>
<td>Australian Customs Service</td>
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<tr>
<td>ACT</td>
<td>Australian Competition Tribunal</td>
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<tr>
<td>AQIS</td>
<td>Australian Quarantine and Inspection Service</td>
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<tr>
<td>ARTC</td>
<td>Australian Rail Track Corporation</td>
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<tr>
<td>ATA NSW</td>
<td>Australian Trucking Association NSW</td>
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<tr>
<td>CBFCA</td>
<td>Customs Brokers and Forwarders Council of Australia</td>
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<tr>
<td>CEF</td>
<td>Container Examination Facility</td>
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<tr>
<td>CLAG</td>
<td>Container Logistics Action Group</td>
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<tr>
<td>COAG</td>
<td>Council of Australian Governments</td>
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<tr>
<td>EGL</td>
<td>Export Grain Logistics</td>
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<tr>
<td>FIAB</td>
<td>Freight Infrastructure Advisory Board</td>
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<tr>
<td>FIC</td>
<td>Freight Infrastructure Charge</td>
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<tr>
<td>HVCCCLT</td>
<td>Hunter Valley Coal Chain Logistics Team</td>
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<tr>
<td>IR</td>
<td>Independent Rail Group</td>
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<tr>
<td>JWG</td>
<td>Port Botany Joint Working Group</td>
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<tr>
<td>KPIs</td>
<td>Key performance indicators</td>
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<tr>
<td>MCS</td>
<td>Maritime Container Services</td>
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<tr>
<td>MIST</td>
<td>Macarthur Intermodal Shipping Terminal</td>
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<tr>
<td>NSWRTA</td>
<td>NSW Road Transport Association</td>
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<tr>
<td>PBLT</td>
<td>Port Botany Logistics Team</td>
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<tr>
<td>PWCS</td>
<td>Port Waratah Coal Services</td>
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<tr>
<td>QR</td>
<td>Queensland Rail</td>
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<tr>
<td>RMG</td>
<td>Rail Mounted Gantries</td>
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<tr>
<td>RTG</td>
<td>Rubber Tyred Gantries</td>
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<tr>
<td>SFC</td>
<td>Sea Freight Council of NSW</td>
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<tr>
<td>SPC</td>
<td>Sydney Ports Corporation</td>
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<tr>
<td>SPCFC</td>
<td>Sydney Ports Cargo Facilitation Committee</td>
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<tr>
<td>SPU CG</td>
<td>Sydney Ports Users Consultative Group</td>
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<tr>
<td>SSFL</td>
<td>Southern Sydney Freight Line</td>
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<tr>
<td>TEU</td>
<td>Twenty foot equivalent units</td>
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<tr>
<td>TTT</td>
<td>Truck Turnaround Times</td>
</tr>
<tr>
<td>TWT</td>
<td>Truck Waiting Times</td>
</tr>
<tr>
<td>VBS</td>
<td>Vehicle Booking System</td>
</tr>
<tr>
<td>VTA</td>
<td>Victorian Transport Association</td>
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