



Independent Pricing and Regulatory Tribunal  
New South Wales

# Maximum fees and charges for cruise ships

## Sydney Harbour

Final Report  
Transport

November 2016

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ISBN 978-1-76049-034-8 S9-115

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# 1 Executive Summary

The Independent Pricing and Regulatory Tribunal (IPART) has been asked by the Premier of NSW to recommend maximum site occupation charges for cruise ships using berths and moorings in Sydney Harbour.

There are two dedicated cruise passenger terminals in Sydney Harbour – the Overseas Passenger Terminal (OPT) in Circular Quay, and the White Bay Cruise Terminal (WB5) near Balmain. In addition, there is a non-dedicated passenger terminal at White Bay 4 (WB4) and additional mooring facilities are available at buoys at Athol Bay and Point Piper. All berths and moorings are owned and operated by the Port Authority of New South Wales (the Port Authority), a state-owned corporation.

The Sydney cruise market has been experiencing strong growth, with a trend towards visits from larger cruise ships. OPT, which caters for larger cruise ships that cannot sail under the Sydney Harbour Bridge to White Bay, is currently operating at close to full capacity during peak cruising season (October to March). In contrast, WB5 is currently operating well below capacity during the peak season. The NSW Government is undertaking a separate review to develop a cruise industry strategy for NSW, including options for another terminal that can be accessed by large ships. In the meantime, larger cruise ships are operating in a capacity-constrained environment. If demand continues to grow at historical rates and there is no new terminal, WB5 may also reach full capacity during peak season within around five years.

The Port Authority has been investing in port infrastructure to support cruise industry growth. To fund these investments, it recently increased its site occupation charges for OPT and WB5 to \$30 per passenger, and has proposed a further increase to \$35 per passenger. Cruise ship operators consider Sydney to be an expensive port relative to others around the world.

In this context, it is important that site occupation charges:

- ▼ enable the Port Authority to recover the efficient costs of providing services to cruise ships, and maintain its commercial viability over the long-term, and
- ▼ signal more efficient use of cruise terminal infrastructure.

We have also been asked to consider the impact of our recommended site occupation charges on the growth of the cruise ship industry in Sydney.

This report explains our recommendations and findings.

## 1.1 Our recommended site occupation charges

Under our recommendations, maximum site occupation charges in 2016-17 would be:

- ▼ \$72,300 per call/visit to the Overseas Passenger Terminal

- 
- ▼ \$31.10 per passenger at the White Bay Cruise Terminal, and
  - ▼ \$15.60 per passenger at White Bay 4.<sup>1</sup>

We have retained the same charging structure as our draft recommendations – a fixed charge per call at OPT and a per passenger charge at WB5 and WB4. However, we have updated our analysis and the level of our recommended charges has decreased since our Draft Report (see Chapter 4). There are three main reasons for this:

- ▼ We have revised upwards the forecast demand at OPT and White Bay. Submissions to our Draft Report noted that our forecast cruise ship visits in 2016-17 were well below the number of visits in the Port Authority's booking schedule. We consider it reasonable to rely on the booking schedule for 2016-17. In later years, we have based forecast demand on the Port Authority's projected percentage growth in visits (see Chapter 6).
- ▼ We have estimated a slightly lower return on the Port Authority's cruise terminal assets based on updated market information (see Chapter 5 and Appendix E).
- ▼ Forecast inflation is lower over the period than it was in the Draft Report.

The financial impact of our recommended site occupation charges varies depending on the size of individual cruise ships. However, based on scheduled visits in 2017-18 we estimate that major cruise ship operators would be better off overall compared to the Port Authority's proposed charges. This is because higher charges faced by some ships at OPT are largely offset by lower charges at White Bay. We estimate that the major cruise ship operators in Sydney would save between \$1m to \$3.5m in site occupation costs in 2017-18 (the first full year that our recommendations could apply), relative to the Port Authority's proposed charges.

In making our recommendations, we have taken into consideration all stakeholder comments and feedback in submissions to our Issues Paper and Draft Report, and at the public hearing and subsequent consultations. Our reasoning behind our recommended charges, and responses to key stakeholder concerns, are summarised in the sections below and explained in further detail in the remaining chapters in this report.

### **1.1.1 Site occupations charges should be based on the efficient, site-specific costs at each terminal**

#### **The Port Authority's costs are generally efficient**

We commissioned a consultant, AECOM, to provide advice on the efficiency of the Port Authority's costs and asset values for services to cruise ships. In providing its advice, AECOM removed non-cruise related costs and assets from the asset base and optimised the assets required to provide port services to cruise ships. AECOM's advice is that the Port Authority's costs to operate and maintain its cruise terminals are generally efficient. AECOM did not find any opportunities for the Port Authority to improve its cost efficiency at this time.<sup>2</sup>

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<sup>1</sup> Charges are rounded to the nearest \$100 for OPT and \$0.10 for White Bay.

<sup>2</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships, Public Report*, 11 November 2016, p 25.



## **There are separate supply-side markets at OPT and White Bay**

Our recommendations retain our draft finding that there are separate supply-side markets at OPT and White Bay. This is because the Sydney Harbour Bridge restricts ships over a certain size from berthing at White Bay. While all ships can berth at OPT, increasing demand and a growing average ship size mean that there is almost no spare capacity at OPT in peak months. As demand continues to grow, smaller ships that currently berth at OPT will be consigned to White Bay, and each terminal will increasingly serve a separate customer base. For this reason, our recommended site occupation charges are based on the efficient site-specific costs at each terminal, rather than setting the same charge at OPT and WB5.

### **1.1.2 Site occupation charges at OPT**

#### **A per call charge is cost-reflective and an appropriate price signal to encourage greater utilisation**

We found that the costs of providing site occupation do not vary substantially based on the size of the ship or the number of its passengers. In line with advice from AECOM, we consider a more cost-reflective basis for site occupation charges would be per call, rather than per passenger.<sup>3</sup>

The submission from Royal Caribbean agreed there are two separate markets at OPT and White Bay and supported a per call charge at OPT to attract larger ships.<sup>4</sup> However, Carnival Australia (Carnival) preferred the current per passenger charge, while the Port Authority suggested that a fixed charge component has merit alongside a per passenger charge.<sup>5</sup>

Our final recommendation maintains a per call charge at OPT. To cater for growing demand in a capacity-constrained environment, it is important that OPT is used as efficiently as possible. This can be achieved by increasing the number of ship turnarounds and/or encouraging visits by larger ships. In our Draft Report, we noted that the typical calling pattern at OPT leaves substantial spare capacity in a 24-hour slot (slots are generally vacated by evening and overnight). Shortening turnaround times and 'double-stacking' (having two ships berth at the terminal on one day) would improve utilisation and potentially delay the need for another passenger terminal. However, cruise operators expressed strong resistance to this, noting that the needs of the industry vary widely and there are multiple challenges with making these arrangements work, including gaining passenger acceptance.<sup>6</sup> As such, while we consider that the Port Authority should negotiate discounts to provide an incentive for this, it is unlikely to increase capacity at OPT by a substantial amount in the short-term.

Any departure from a cost-reflective fixed charge; for example, a per passenger or fixed plus variable charge would result in larger ships paying more to cover some of the site occupation costs of smaller ships. In the absence of an increase in capacity at OPT, future

<sup>3</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships, Public Report*, 11 November 2016, p 24.

<sup>4</sup> Royal Caribbean submission, August 2016, p 3.

<sup>5</sup> Carnival Australia submission, September 2016, p 3; Port Authority submission, August 2016, p 3.

<sup>6</sup> Carnival Australia submission, September 2016, p 4; Royal Caribbean submission, August 2016, p 4.

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growth in passenger demand would have to be met through deploying larger ships. A fixed charge per call delivers the right price signal to encourage this.

### **1.1.3 Site occupation charges at White Bay**

#### **A per passenger charge would encourage greater utilisation in the short-term**

While we found that the costs of providing site occupation at White Bay are also fixed, we recommend a per passenger charge at White Bay. There are two main reasons for this:

- ▼ utilisation of White Bay is much lower than that of OPT (see Figure 2.2), and
- ▼ ships at White Bay are limited by size and cannot respond to a fixed price incentive by increasing the number of passengers beyond a certain limit.

#### **The cruise industry should not pay more for low utilisation**

The Port Authority has forecast that WB5 will continue to have lower demand compared to OPT. A combination of both fewer calls and smaller ships means that White Bay serves around half as many passengers as OPT (see Figure 6.2). If we recommended a site occupation charge based on the costs of site occupation and the Port Authority's forecast demand at White Bay, in the short-term it would likely result in a charge that would deter some ships from calling at White Bay. This would risk reducing utilisation even further and would not be consistent with the matters we must have regard to in our terms of reference.

In our view, users of White Bay should not pay more per passenger because WB5 is currently operating well below capacity during the peak season. In line with our draft recommendations, we have used a level of demand at WB5 that is similar to utilisation of OPT in the peak months (October to March). This results in a lower per passenger charge and lower revenue for the Port Authority, relative to using the Port Authority's demand forecasts for WB5.

The Port Authority disagreed with this approach, submitting that it would not afford it the opportunity to recover its costs. In its view, it should be able to recover all of its building block costs at WB5 over the life of the terminal as this is what a firm in a competitive market would expect.<sup>7</sup>

We consider that our recommended site occupation charges for WB5 would not prevent the Port Authority from recovering its costs over the life of the terminal. While the Port Authority prepared its demand forecasts in good faith, these are conservative relative to recent growth rates. As discussed further in Chapter 6, the Port Authority's forecast cruise ship calls in 2016-17 are considerably lower than current bookings and for this reason we have adjusted our demand forecast.

If the cruise industry continues to experience strong growth, WB5 could reach a point of full utilisation by as early as 2021. At this point, the Port Authority could over-recover its costs based on a per passenger charge. If WB5 reaches full capacity, a fixed charge per call would likely be preferable to ensure that only efficient costs are recovered from customers. We

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<sup>7</sup> Port Authority submission, August 2016, pp 8-9.

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consider that if WB5 reaches full capacity during the peak season then this should trigger a review of site occupation charges.

### **Retaining a 50% discount at WB4**

We recommend retaining the Port Authority's existing 50% discount at WB4 relative to WB5 charges. We consider this approach is reasonable given the different facilities available at these locations.

#### **1.1.4 Implications of different charging arrangements between terminals**

Some stakeholders raised concerns with having different charging arrangements at OPT and WB5. Carnival submitted that a price differential between terminals would unfairly discriminate against most operators and create a competitive advantage for larger cruise ships.<sup>8</sup> The Port Authority suggested that it could lead to unintended consequences on incentives for usage and investment.<sup>9</sup>

Our recommended site occupation charges at OPT and WB5 would mean that the effective per passenger charge varies both between terminals, and for different sized ships at OPT. For example, the \$31.10 per passenger charge at WB5 compares to an effective per passenger charge at OPT ranging from around \$16 to \$41 based on the largest and smallest ships that can only berth at OPT. This means the largest price differential is around \$24 per passenger, which represents around 1.2% of the cost of a cruise on the smallest ship that can only berth at OPT.<sup>10</sup>

Having the same site occupation charge at OPT and WB5 would result in larger cruise ships at OPT paying more to cover some of the costs of the White Bay terminal. We consider that this would not be cost-reflective, nor send appropriate price signals for efficient use of, and investment in, cruise infrastructure.

In limited circumstances, a handful of larger ships at WB5 may have an incentive to berth at OPT instead. However, they would have to be operating at more than 97% of maximum passenger capacity and the difference in the total site occupation charge between berthing at OPT and White Bay in this instance would be around \$1 per passenger. As discussed in section 1.5 below, most cruise ship operators would be better off overall under our recommended charges relative to the Port Authority's proposed charge of \$35 per passenger at OPT and WB5. Further, we consider that competition and investment decisions are more likely to be distorted where charges are not cost-reflective.

## **1.2 Longer-term capacity in Sydney**

If the cruise ship visits to Sydney continues to grow at recent rates, a new terminal east of the Sydney Harbour Bridge will be required. The NSW Government has a separate review

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<sup>8</sup> Carnival Australia submission, September 2016, p 2.

<sup>9</sup> Port Authority submission, August 2016, p 3.

<sup>10</sup> The *Aurora* has a scheduled cruise in March 2017 from Sydney to San Francisco with prices from \$1,999 per person. See <http://www.pocruises.com/>, accessed 04 November 2016.

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underway to consider options for a new terminal.<sup>11</sup> Whatever the option, adding capacity would involve additional costs. It would also involve some risk, as the longer-term outlook for the cruise industry is uncertain.

To reduce costs and risk, ideally a new terminal would be located at a site where there are existing facilities, like wharves, as was the case at White Bay. There appear to be few suitable locations in Sydney east of the Sydney Harbour Bridge with the exception of the naval facilities at the southern end of Garden Island. In our view, this would be the preferred location for a new terminal, if appropriate arrangements could be made.

We consider that, in principle, users – the cruise industry – should fund any new terminal. The Port Authority submitted that our draft recommendations have implications for a user-funded third terminal, because the NSW Government provides an implicit subsidy of current terminal costs by accepting a return on land valued at existing use, not ‘highest and best use’.<sup>12</sup> We consider that in the event that a new terminal is commissioned, this should trigger a review of the Port Authority’s site occupation charges to ensure that they remain appropriate under the new market circumstances. It would be up to the NSW Government to decide whether to extend a similar subsidy for a new terminal. We also note that if an entity other than the Port Authority was to operate the new terminal, this could deliver efficient charges through competition in the market.

If the Port Authority operated the new terminal, it should be indifferent to receiving a capital contribution or funding the terminal via usage charges that incorporate the efficient costs of the new facility. Long-run marginal cost (LRMC) is one option to signal to users the cost of a new terminal. Given the location, cost and timing of a new terminal are highly uncertain, we have not included a LRMC element in our price recommendations. In other industries, such as airports, long-term agreements are used to underwrite the investment in new infrastructure. We consider that a similar arrangement where the cruise operators agree to pay for a minimum number of visits per season for a fixed term would be suitable for a new cruise passenger terminal in Sydney. If the cruise industry requires a new facility then it is appropriate that it bears demand-side risks.

### 1.3 Implementing and updating site occupation charges

Consistent with existing arrangements, our recommended site occupation charges would cover a 24-hour period, after which a second charge would be levied.

We recommend that the Port Authority should have discretion to negotiate:

- ▼ minimum charges, which are currently based on 1,200 passengers per vessel, per 24 hours<sup>13</sup>, and
- ▼ discounts to encourage greater utilisation of spare capacity at OPT in less popular times, such as evening slots.

The Port Authority would continue to recover separately miscellaneous charges for security, cleaning, furniture hire, etc.

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<sup>11</sup> NSW Trade & Investment, *Visitor Economy Industry Action Plan – The NSW Government Response to the Final Report of the Visitor Economy Taskforce*, December 2012, p 24.

<sup>12</sup> Port Authority submission, August 2016, p 8.

<sup>13</sup> Excluding vessels with a stated capacity of less than 200 passengers.

### 1.3.1 Updating charges for changes in costs

We recommend updating site occupation charges annually based on the change in the consumer price index (CPI, All groups Sydney). We consider that this is a more suitable index than others, such as a producer price index or an industry cost index. Some stakeholders called for an additional efficiency incentive to apply. We consider that as AECOM did not find any opportunities for the Port Authority to improve its cost efficiency at this time,<sup>14</sup> a CPI index is appropriate to ensure that charges remain constant in real terms.

### 1.3.2 Updating charges for changes in demand

Given uncertainty around future demand, there is a risk that our recommended site occupation charges would be too high (too low) if future demand is higher (lower) than forecast. For site occupation charges at OPT, we recommend a demand management process to adjust charges either up or down if future bookings vary substantially from forecast demand.

While stakeholders did not comment specifically on the demand management mechanism in our Draft Report<sup>15</sup>, there was support for charges to be negotiated between parties, for example, a long-term contract arrangement that locks in a level of demand at a certain price.

To better support these negotiations, we have revised the demand management mechanism. Under our draft demand management mechanism, if actual cruise ship bookings varied by a threshold of +/-5% from forecast, charges would be adjusted for the full amount of the variation. Under our revised mechanism, we recommend only adjusting for the variation above or below the threshold. For example, if actual bookings are 10% higher than forecast, charges would be adjusted for the 5% increase above the 5% threshold only (rather than the full 10%). This revised process would allow some room for negotiations.

While implementation details should be determined between the Port Authority and the cruise industry, we propose that:

- ▼ At a designated time before site occupation charges are published for the coming season, the number of bookings is compared to the forecast calls for that year applied in this review.
- ▼ If actual demand varies from our forecast demand by +/- 5% or more, then site occupation charges for the coming season would be adjusted up or down based on the percentage difference between actual and forecast demand in excess of +/-5%.

More information is provided in Appendix F.

<sup>14</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships, Public Report*, 11 November 2016, p 25.

<sup>15</sup> IPART, *Review of maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, Appendix F.

## 1.4 Other recommendations and findings

### 1.4.1 A periodic, independent review of costs would assist price negotiations between parties

Both the Port Authority and cruise operators expressed views that charges could be agreed through negotiations between parties.<sup>16</sup> The Port Authority is the only provider of cruise terminal facilities in Sydney Harbour and Sydney is a very popular destination for cruising. In our view, other ports are not effective substitutes for Sydney Harbour and the Port Authority may have ability to charge higher than efficient prices before cruise operators would consider removing Sydney from their itineraries.

We consider that a ‘negotiate-arbitrate’ model has the potential to deliver efficient outcomes and could be suitable for the Port Authority and the cruise industry. However, our terms of reference require us to recommend maximum prices. In the event that the regulatory framework is revised to facilitate negotiation and arbitration, we would recommend that parties should have a right to arbitration by an independent body.

We consider that a periodic review of costs should be undertaken periodically to support such price negotiations. There are also other instances that could trigger a review of costs and pricing. This includes the commissioning of a new cruise terminal in Sydney Harbour or, as noted above, if demand at WB5 reaches capacity during the peak season.

### 1.4.2 The cruise industry benefits from access to land at less than its opportunity cost

Consistent with our Draft Report, we have valued cruise terminal land at its ‘existing use’, rather than its ‘highest and best use’. In response to our Draft Report, the Port Authority submitted that efficient costs are equivalent to opportunity costs, and therefore land should be valued at highest and best use. However, it submits that at the present time, the charges to recover the opportunity cost of land would mean that cruise ships could not afford to visit Sydney Harbour. It considers it should have the opportunity to recover opportunity costs and to determine the appropriate trade-off between efficient cost recovery and willingness to pay by the cruise industry.<sup>17</sup>

Having considered submissions, on balance we have decided to continue estimating efficient costs based on cruise terminal land valued at existing use. Valuing land at existing use, rather than a highest use value, is more consistent with our terms of reference and reflects the NSW Government’s decision to provide cruise ship facilities in Sydney Harbour. We considered an option of recommending site occupation charges based on an auction system that would elicit the cruise industry’s willingness to pay for terminal facilities. However, stakeholders did not generally support an auction system.<sup>18</sup>

<sup>16</sup> Carnival Australia submission, September 2016, p 3; Port Authority submission, August 2016, p 4, 10; Sydney Business Chamber submission, August 2016, p 2.

<sup>17</sup> Port Authority submission, August 2016, pp 6-8.

<sup>18</sup> IPART, *Review of maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, pp 22 – 23.



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The implication of our decision to base recommended site occupation charges on land valued at existing use is that the NSW Government (the owner of the assets) is foregoing the opportunity cost of the land in an alternate use. This constitutes a subsidy of the efficient costs of providing port services to cruise ships.

### **1.4.3 Pilotage and navigation charges**

Although we were not asked to recommend pilotage and navigation charges, we assessed the costs of these services to determine whether there were cross-subsidies between these charges and the site occupation charge.

We did not find evidence to suggest cross-subsidies between site occupation, navigation and pilotage services. However, through the course of our review we also found that:

- ▼ a per call charge for pilotage and navigation would be more cost-reflective
- ▼ the Port Authority's current discounts to the cruise industry on navigation charges are too high, and
- ▼ there is no economic basis for a channel fee for the use of the Sydney Harbour channel and berthing boxes.

## **1.5 What our recommendations would mean for stakeholders**

### **1.5.1 The Port Authority**

Our recommended charges would recover 79% of the Port Authority's efficient costs at WB5 and WB4, and 91% of efficient costs across all terminals. Overall, cost recovery has increased since our draft report (where it was estimated to be 88%) because of our higher demand forecast. However, the cost recovery is based on relatively conservative demand forecasts. Should demand at White Bay exceed our forecast, the Port Authority would recover a greater proportion of its costs. AECOM's modelling suggests that with demand growth at 7.0% per annum, White Bay would reach full cost recovery by 2021.<sup>19</sup>

We consider that our recommendations would not adversely affect the short-term financial sustainability of the Port Authority, or its ability to operate, maintain, renew and develop the assets required to deliver its cruise ship services over the review period (see Chapter 7).

### **1.5.2 Cruise ship operators and passengers**

#### **Impact on customers at OPT**

The effect of our recommended site occupation charge at OPT depends on the size of the cruise ship. Based on the characteristics of scheduled cruise ship visits to OPT in 2017-18, we estimate that 77% of calls would face an effective per passenger charge lower than that proposed by the Port Authority in 2017-18 (which is the first full year that our charges could be applied). However, 18% of scheduled calls at OPT could reduce their effective site

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<sup>19</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships, Public Report*, 11 November 2016, p 14.

occupation charges by berthing at White Bay instead. The remaining 5% would face a higher site occupation charge.

However, over the course of the year, the majority of cruise operators would be better off under our recommended site occupation charges, compared to the Port Authority's proposed charges. This is because higher charges faced by some ships at OPT are largely offset by lower charges at White Bay. In addition, the price differential between terminals offers operators an opportunity to book at the lower-cost White Bay location, which would result in further savings.

### Impact on customers at White Bay

For users of WB5 and WB4, our recommended charges are lower than the Port Authority's proposed charges. However, we note that while our recommended charges are designed to provide incentives to attract larger ships to OPT and smaller ships to White Bay, there are a limited number of ships that can berth at White Bay that may find it more economical to berth at OPT instead under rare circumstances.

For example, the *Noordam*, which is the largest ship scheduled at White Bay in 2017-18, would be better off at OPT if it was operating at more than 97% of its passenger capacity. Based on the last three years of data, the average capacity of the three large cruise ships visiting WB5 that could be affected is around 80% and none have operated above 97% of capacity. As such, we consider that the resulting differential in site occupation charge between OPT and White Bay in this instance would be minimal.

## 1.6 List of recommendations and findings

### Recommendations

- |   |  |    |
|---|--|----|
| 1 | That the Port Authority's miscellaneous charges for security, cleaning, furniture hire, etc continue to be recovered separately from site occupation charges.  | 20 |
| 2 | That maximum site occupation charges in 2016-17 would be:  | 23 |
|   | - \$72,300 per call/visit to the Overseas Passenger Terminal   | 23 |
|   | - \$31.10 per passenger at the White Bay 5 Cruise Terminal, and  | 23 |
|   | - \$15.60 per passenger at White Bay 4.  | 23 |
| 3 | That site occupation charges be updated annually based on the change in the consumer price index (CPI, All Groups Sydney).   | 23 |
| 4 | That, in any year if the number of bookings at OPT varies by +/-5% or more relative to forecast, site occupation charges be adjusted to reflect the difference between actual demand and the 5% threshold. | 23 |
| 5 | The Port Authority negotiates discounts with cruise operators where the take up of an evening slot leads to improved terminal utilisation.   | 23 |



6	That an independent review of efficient costs be undertaken:	23
	- periodically to provide information to facilitate ongoing price negotiations	23
	- in the instance that a new terminal is commissioned, and/or	23
	- if demand at White Bay 5 reaches capacity during the peak season.	23
7	That the Port Authority's current mooring fees for using the buoys at Athol Bay and Point Piper are reasonable and should be maintained.	34

## Findings

1	That the cruise industry is receiving a subsidy from the NSW Government through access to land for cruise terminals at less than its opportunity cost.	41
2	That a per call charge for the Port Authority's pilotage and navigation services would be more cost-reflective.	45
3	That the Port Authority's discounts to the cruise industry on navigation charges are too high.	45
4	That there is no economic basis for a channel fee for the Sydney Harbour channel and berthing boxes.	45

## 1.7 Structure of this report

The remainder of this report discusses our analysis, findings and recommendations in detail. It is structured as follows:

- ▼ Chapter 2 sets out the context for our review
- ▼ Chapter 3 provides an overview of our approach
- ▼ Chapter 4 discusses our recommendations and findings on maximum site occupation charge at OPT and White Bay
- ▼ Chapter 5 discusses our recommendations and findings on the efficient costs of providing port services to the cruise industry in Sydney Harbour
- ▼ Chapter 6 discusses our findings on forecast demand for cruise visits over the next five years
- ▼ Chapter 7 assesses the impact of our recommendations on stakeholders including the Port Authority and cruise operators, and
- ▼ Appendices A to G provide supporting information.

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## 2 Context for this review

IPART has reviewed the site occupation charges the Port Authority levies on cruise ships for using the passenger terminals in Sydney Harbour. We were asked to recommend maximum site occupation charges that reflect the efficient costs of providing the terminals, promote the allocative efficiency of the infrastructure involved, and maintain the commercial viability of this infrastructure.

The sections below provide the context for this review, including information about the Port Authority, the charges levied on cruise ships, and trends for cruise ship visits to Sydney Harbour.

### 2.1 The Port Authority

The Port Authority of New South Wales is a state-owned corporation that owns and operates two dedicated cruise passenger terminals in Sydney Harbour – OPT in Circular Quay, and WB5 near Balmain.

The Port Authority is responsible for the role of Harbour Master, port security, safety of navigation and shipping movements and pilotage for both cruise and non-cruise trade vessels. For providing these services to cruise ships, it levies three main compulsory charges, including:

- ▼ site occupation at a berth or terminal
- ▼ navigation service, and
- ▼ pilotage.

More information about the Port Authority is provided in Appendix B.

### 2.2 Site occupation charges

The site occupation charge is a fee for the use of a berthing facility. Between 1992 and 2013, the site occupation charge was based on an hourly fee for all cruise ships using the dedicated passenger terminals. This fee was set at \$670 between 1 July 1992 and 30 June 1997. From 1 July 1997 to 30 June 2013, the site occupation charge remained fixed at \$250 per hour to support the growth of the cruise industry. From 1 July 2000 to 30 June 2013, the site occupation charge for all other non-passenger berths remained at \$200 per hour.

Since 1 July 2013, the charge has been based on a per passenger fee and increased to assist with financing infrastructure upgrades and to provide a commercial return on NSW's investment in cruise ship facilities.<sup>20</sup> This fee was originally set at \$20 per passenger per

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<sup>20</sup> Sydney Ports Corporation, *Annual Report 2012-13*, October 2013, p 20.

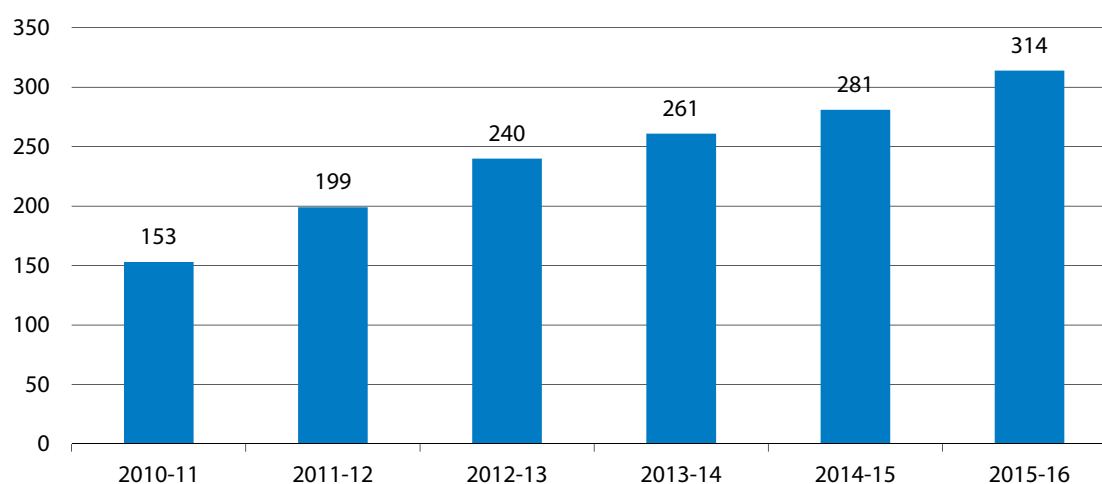
24-hour slot on 1 July 2013, but was discounted to \$18 following feedback from the industry that they would not be able to recoup the fee from passengers who had made bookings prior to the fee's implementation. The fee was increased to \$25 per passenger on 1 July 2014 and \$30 per passenger on 1 July 2015. The Port Authority has proposed to increase the site occupation charge to \$35 per passenger in 2016-17.<sup>21</sup>

More information about the Port Authority's charges for site occupation, navigation and pilotage is provided in Appendix B.

## 2.3 Cruise ship visits to Sydney Harbour

In 2015-16, Sydney Harbour hosted around 314 cruise ships, making it the most visited cruise ship port in Australia. These included 183 calls at OPT, 104 at WB5 and 16 at WB4. Since at least 2010-11, the number of cruise ship visits has been increasing (Figure 2.1).

**Figure 2.1 Chargeable cruise ship visits in Sydney Harbour (number of calls)**



**Data source:** Port Authority of NSW, *Annual Report 2014-15*, p 17; Port Authority of NSW, *Annual Report 2013-14*, p 21

### 2.3.1 Categories of cruise ship visits

Cruise visits fall into three main categories (see Box 2.1). Typically, they involve an arrival in the morning and departure in the afternoon or evening on the same day. However, some cruise ships also stay in Sydney overnight.

<sup>21</sup> Port Authority submission, May 2016, p 8.

### Box 2.1 Cruise ship visit categories

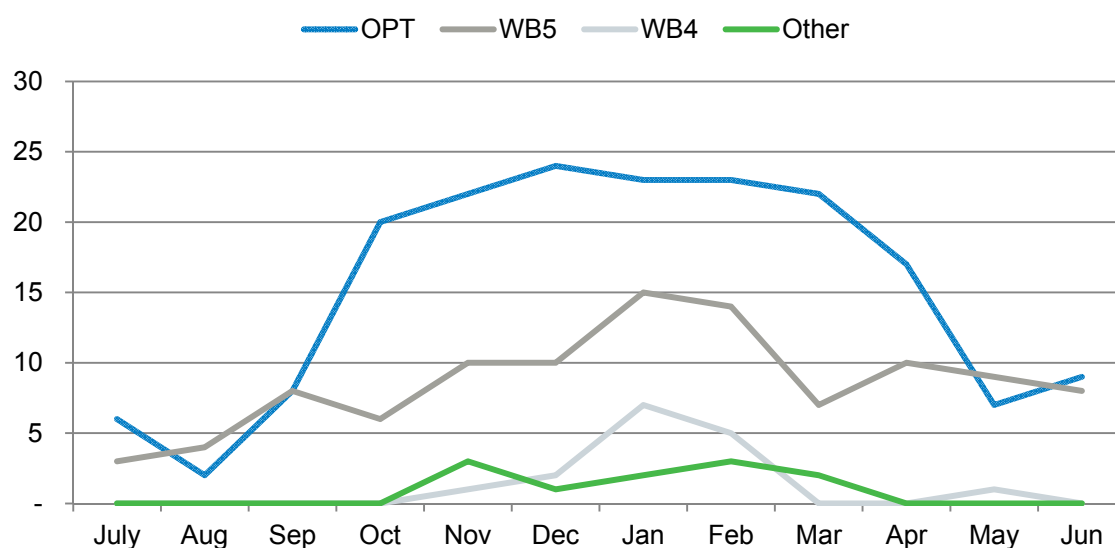
Cruise ship visits can be categorised into:

- ▼ **Home port** – these vessels are based in Sydney and their passengers are mainly NSW-based. Their destinations are South Pacific islands, New Zealand, other Australian cities or days at sea. These cruises start and end in Sydney and take place across the year.
- ▼ **Seasonal** – these vessels are deployed from the Northern Hemisphere during their off-season (October to April) to undertake Asia-Pacific cruises. The passengers are Australian and international tourists.
- ▼ **Round the world/vessels in transit** – these vessels are based overseas and Sydney is one destination on a longer cruise through the South Pacific or around the world. The majority of visits are in peak summer months (January to February) and the passengers are mostly international tourists.

### 2.3.2 Pattern of cruise ship visits

The majority of cruise visits take place in the summer months when home porting, seasonal and round the world cruise ships are all active. During 2015-16, 73% were made in between October to March, with 38% between December and February (Figure 2.2).

**Figure 2.2** Number of ship calls per terminal per month (2015-16)



**Data source:** The Port Authority.

Figure 2.2 indicates that OPT receives more visits than White Bay, which has restricted access due to the Sydney Harbour Bridge. The WB5 terminal (WB5) is typically used by home porting cruise ships.

### 2.3.3 Future capacity issues

As discussed in Chapter 6, over the next five years the number of cruise ship visits is projected to continue growing and OPT is already near capacity during summer. It may be argued that although there are spare berthing days at OPT, it has effectively reached capacity due to constraints on scheduling commercially viable deployments.

A key issue facing the cruise industry in Sydney is the need for another terminal in Sydney that can be accessed by large ships. The NSW Government has committed to a Cruise Development Plan to address this and other issues related to the growth of the cruise industry.<sup>22</sup> The key issues that need to be resolved are where it should be located, how it should be funded and who should bear risk.

Our view is that a new terminal would ideally be located at a site where there are existing facilities, such as wharves, as was the case at White Bay when the cruise terminal was established there. There would appear to be few suitable locations in Sydney east of the Sydney Harbour Bridge, with the exception of the naval facilities at the southern end of Garden Island. In our view, this would be the preferred location for a new terminal if appropriate arrangements could be made. Royal Caribbean agreed that a new terminal should make use of obsolete existing wharfage, but does not agree with Garden Island as a potential site unless it is made available to the cruise industry on a dedicated and permanent basis.<sup>23</sup>

We consider that, in principle, any new terminal should be funded by users – the cruise industry. The Port Authority submitted that our draft recommendations have implications for a user-funded third terminal, because the NSW Government provides an implicit subsidy of current terminal costs (by accepting a return on land valued at existing use).<sup>24</sup> We consider that in the event that a new terminal is commissioned, this should trigger a review of the Port Authority's site occupation charges to ensure that they remain appropriate under the new market circumstances. It would be up to the NSW Government to decide to extend a similar subsidy for a new terminal. We also note that if an entity other than the Port Authority was to operate the new terminal, this could deliver efficient charges through competition in the market.

If the Port Authority operated the new terminal, it should be indifferent to receiving a capital contribution or funding the terminal via usage charges that incorporate the efficient costs of the new facility. Long-run marginal cost (LRMC) is one option to signal to users the cost of a new terminal. Given the location, cost and timing of a new terminal are highly uncertain, we have not included an LRMC element in our price recommendations.

In other industries, such as airports, long-term agreements are used to underwrite the investment in new infrastructure. We consider that a similar arrangement where the cruise operators agree to pay for a minimum number of visits per season for a fixed term would be suitable for a new cruise passenger terminal in Sydney. If the cruise industry requires a new facility then it is appropriate that they bear demand-side risks. The willingness of the cruise industry to enter into long-term contracts, where they agree to pay for a minimum number

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<sup>22</sup> NSW Trade & Investment, *Visitor Economy Industry Action Plan – The NSW Government Response to the Final Report of the Visitor Economy Taskforce*, December 2012, p 24.

<sup>23</sup> Royal Caribbean submission, August 2016, p 4.

<sup>24</sup> Port Authority submission, August 2016, p 8.

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of visits per season for a fixed term, would likely depend on where the terminal was located and the extent to which it meets their needs.<sup>25</sup>

We note cruise operators have indicated some willingness to engage in long-term contractual arrangements over price and access to terminal facilities. Carnival supports a long-term arrangement for access to cruise terminals in Sydney Harbour. Carnival considers that such a contract would ensure cost recovery of the Port Authority's efficient costs, competitive charges compared to other ports, and certainty of access.<sup>26</sup> It could provide greater stability and transparency of charges over the long-term and allow operators to have greater influence over future developments to ensure they meet industry requirements and support growth and sustainability. Issues around ownership and operation of any new terminal would be a matter of negotiation between the contract parties.

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<sup>25</sup> We note that regulatory arrangements for energy networks require consumers to start paying for investments when the capital expenditure is incurred, rather than after the investment starts providing services. AER, *Explanatory statement – Proposed amendment, Electricity transmission network service providers - Roll forward model (version 3)*, July 2015, pp 1.

<sup>26</sup> Carnival submission, May 2016, p 5.

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## 3 Our approach and process

We developed an approach to this review to guide our decision-making and ensure we considered all the matters specified in the terms of reference, the contextual issues outlined in Chapter 2, and issues raised by stakeholders in submissions and through direct consultation.

This chapter provides an overview of our approach and each of its key steps.

### 3.1 Overview of our approach

Our approach to making our recommendations is similar to that which we use in industries that we regulate, such as the water industry. It makes use of key methodologies we have developed and tested over time, and includes public consultation and detailed analysis as outlined in Box 3.1.

Our approach included the following steps:

1. Identify all services for cruise ships provided by the Port Authority and determine whether any of these should be contestable and whether they should be levied separately or included in the site occupation charge.
2. Estimate the efficient costs of providing each of the Port Authority's cruise ship services over a forward-looking 5-year period using our 'building block' methodology.
3. Decide on the forecast cruise ship calls over the period.
4. Determine the most appropriate price structure and mechanism for the Port Authority's cruise terminal and berthing services (ie, the services for which site occupation charges currently apply) by considering how well it would:
  - a) recover the efficient costs of providing the cruise terminal and berthing services given expected demand for them, and
  - b) promote the efficient use of infrastructure related to these services.
5. Assess our recommendations based on the first four steps of our process with other matters in our terms of reference.

In sections 3.2 to 3.6, we describe how we implemented these steps to reach our findings and recommendations.

### Box 3.1 Process for this review

The process we followed in conducting this review included public consultation and detailed analysis. As part of this process, we:

- ▼ Released an Issues Paper in March 2016. This paper explained the terms of reference, outlined our proposed approach for the review and invited interested parties to make a submission in response to this paper. We received seven submissions, which are available on our website.
- ▼ Invited the Port Authority to provide information for the review, including details of its assets and forecasts of demand and operating and capital costs.
- ▼ Engaged consultants, AECOM, to review information provided by the Port Authority and provide expert advice on efficient operating and capital costs, and an efficient asset base for port services.
- ▼ Published a Draft Report in July 2016, on which we sought submissions. We received a further eight submission, which are available on our website.
- ▼ Held a public hearing in August 2016, to provide stakeholders with an opportunity to address the Tribunal directly with feedback on our draft recommendations and findings.
- ▼ Conducted our own analysis, considering all stakeholder submissions and comments.
- ▼ Liaised with the Port Authority regarding disclosure of some information that the Port Authority has claimed was confidential. Having considered the Port Authority's concerns we are satisfied that the information is not confidential in nature and have decided to disclose the information.

Having had regard to the above steps, we have now finalised our final report to the NSW Government.

## 3.2 Identify the services the Port Authority provides for cruise ships

The Port Authority carries out a number of functions in addition to managing terminals and berthing facilities and cruise ships may incur a number of miscellaneous charges for services in addition to site occupation, navigation and pilotage. Currently, all primary (site occupation, navigation and pilotage) and miscellaneous services are either provided by or procured through the Port Authority.

In our Issues Paper, we asked whether the services that the Port Authority provides for cruise ships could be more efficiently provided if they were:

- ▼ contestable – whether the cruise operator should be able to choose whether to procure the services from the Port Authority or another external provider, and
- ▼ charged separately – whether the charges that apply should be levied separately or included in the site occupation charge.<sup>27</sup>

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<sup>27</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Issues Paper*, March 2016, p 21.



### 3.2.1 Contestability of services

Carnival supported making pilotage services contestable, noting that current services are provided by a third party, which is a division of the Port Authority and that there is room for greater competition in the market place.<sup>28</sup> Carnival submitted that it benefits from quasi contestability of security services and that there is little scope for further improvement because security services are currently provided through market tender and Carnival is part of the selection panel. In addition, it considered that contestability of other services but navigation and cleaning services is unlikely to result in an improved outcome.<sup>29</sup>

Royal Caribbean Cruise Lines stated that it was open-minded about who should provide shore-side services, but noted that current improved efficiency at OPT has been the result of collective efforts of the Port Authority, outside contractors and cruise operator staff.<sup>30</sup> The Australian Cruise Association expressed concern about a competing pilotage service being introduced without due consideration of marine safety.<sup>31</sup> The Port Authority stated that in the medium to longer-term, its cruise terminals compete with other potential destinations and therefore all cruise services are contestable in that context.<sup>32</sup>

AECOM benchmarked the costs of pilotage services with other ports in Australia. It found that pilotage charges in Sydney were broadly in line with other ports with similar characteristics.<sup>33</sup>

### 3.2.2 Bundling miscellaneous services into the site occupation charge

Carnival did not support a proposal to bundle discrete service charges into the site occupation charge. It considered that while it provides simplification, it reduces transparency and leads to the potential for over-recovery of charges. It noted that some services performed routinely, such as security screening of passengers or x-rays of luggage, vary by volume or type of call.<sup>34</sup> The Port Authority was 'agnostic' on this issue, but did not consider that there were substantial benefits in packaging together charges that recover different costs.<sup>35</sup>

In its submission to our Draft Report, the Port Authority noted that IPART had deducted costs relating to miscellaneous items from operating expenditure and an allocation of overheads (\$1.6m per annum), which has a material effect as the Port Authority does not recover a margin for these costs.<sup>36</sup>

AECOM found that miscellaneous charges such as cleaning and security were passed through to customers at cost, while residual costs were absorbed into the site occupation charge.<sup>37</sup> These include any overhead costs associated with the Port Authority's role in

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<sup>28</sup> Carnival Australia submission, May 2016, p 13.

<sup>29</sup> Ibid.

<sup>30</sup> Royal Caribbean submission, May 2016, p 9.

<sup>31</sup> Australian Cruise Association submission, May 2016, p 2.

<sup>32</sup> Port Authority submission, May 2016, pp 15-16.

<sup>33</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships, Public Report*, 11 November 2016, pp 20-21.

<sup>34</sup> Carnival Australia submission, May 2016, p 13.

<sup>35</sup> Port Authority submission, May 2016, p 23.

<sup>36</sup> Port Authority submission, August 2016, p 16.

<sup>37</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships, Public Report*, 11 November 2016, p 26.

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negotiating contracts for miscellaneous services. As such, we consider that charges for miscellaneous services, including cleaning, security, and furniture hire, etc should be recovered separately from site occupation charges and that an appropriate margin to recover any additional efficient costs of providing services is already included in site occupation charges.

### Recommendation

- 1 That the Port Authority's miscellaneous charges for security, cleaning, furniture hire, etc continue to be recovered separately from site occupation charges.

## 3.3 Estimate efficient costs

In our Issues Paper, we proposed to use a building block approach over a 5-year period to determine efficient costs to inform our recommended maximum charges.<sup>38</sup> This involves calculating and adding individual 'cost blocks' such as the efficient operating costs, a return on assets and depreciation in each year. The building block method is typically applied over a future period, which allows us to consider, for example, future lumpy expenditure that is relevant to pricing. We use the building block method in other industries that we regulate, including water and public transport.

### 3.3.1 Stakeholder submissions on our approach to recommending maximum charges

The Port Authority considered our building block approach to be unusually heavy-handed for a firm that is not a monopoly supplier of essential services. It considered that cruise services face competition from other locations and that two cruise lines – Carnival and Royal Caribbean – operate a majority of services in Sydney and have significant bargaining power in negotiating prices.<sup>39</sup>

While the Port Authority supported our approach as a 'one-off' to assess whether costs were currently in line with charges, it did not support using forecast annual demand and costs as an appropriate basis for updating charges going forward.<sup>40</sup> In its view, we should take a light-handed approach for updating prices annually that can be extended beyond a 5-year period. For example, the arrangement might involve:

- ▼ a simple price path (eg, adjusting prices annually in line with changes in the CPI)
- ▼ obligations for consultation and reporting of information about proposed charges, and
- ▼ more formal triggers for the Minister to instigate a review of charges.<sup>41</sup>

Similarly, Carnival considered that while the building block approach could provide greater transparency about efficient costs as a starting point for negotiations, such a prescriptive

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<sup>38</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Issues Paper*, March 2016, pp 24-36.

<sup>39</sup> Port Authority submission, May 2016, pp 12-13.

<sup>40</sup> Ibid, pp 12, 14-15.

<sup>41</sup> Ibid, pp 12-13.

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approach would not be suitable for the cruise industry. Carnival noted that the cruise industry is not an essential service and demand is discretionary.<sup>42</sup>

### **3.3.2 Our response to stakeholder submissions**

We agree with the Port Authority and Carnival that we have not been asked to regulate site occupation charges, but to recommend a maximum price. We acknowledge that, while the Port Authority is the sole provider of cruise terminal services in Sydney Harbour, there are some important differences between this and our other regulatory reviews:

- ▼ The cruise industry is not an essential service, whereas providers of water services such as Sydney Water are providers of monopoly services. There are limits to cruise operators' ability to pass through increased costs to customers.
- ▼ The prices we determine for regulated utilities are generally binding on these businesses. In this review, we are making recommendations and the NSW Government will make the final decisions on the site occupation charge and associated charging arrangements.

For the purpose of this review, we have applied the building block method only to inform our recommendations on maximum charges. We find that it provides a systematic framework to ensure that the cruise operators would pay only for efficient costs, and that charges would allow the Port Authority to provide these services efficiently over the longer term. We also recommend that in future this type of cost review should be undertaken periodically by an independent body to facilitate price negotiations between parties.

Further information on how we applied our building block analysis is provided in Chapter 5 and Appendix D.

## **3.4 Forecast cruise ship visits**

Once we estimated efficient costs, the next step in our approach was to decide on the forecast chargeable cruise ship visits to Sydney. We decided to use a 5-year forecast of demand, which we used to calculate the price levels needed to recover the efficient costs.

There is considerable uncertainty around future demand. We reviewed forecasts of cruise ship calls and passenger numbers from the Port Authority and took account of recent historical trends and other industry forecasts and submissions to our Draft Report. We have proposed an adjustment mechanism to adjust site occupancy charges up or down should demand vary substantially at OPT. Information on our forecast of cruise ship visits is provided in Chapter 6.

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<sup>42</sup> Carnival Australia submission, May 2016, pp 11, 18-19.

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### **3.5 Assess options for the price structure or mechanism**

We assessed various options for the price structure or mechanism and considered how these met our assessment criteria (Appendix C). In line with the terms of reference for this review, we identified which option would recover the efficient costs of the Port Authority's cruise terminal and berthing services and send price signals that promote more efficient use of the infrastructure used to provide these services. Information on our assessment of pricing structures and mechanisms is provided in Chapter 4.

### **3.6 Assess the impact of our recommendations**

Our final step is to consider the impact of our recommendations on stakeholders, including the cruise industry and the Port Authority. We have also been asked in our terms of reference (Appendix A) to have regard to equivalent charges on cruise ship visits to other national and international ports and the total costs of a port visit to Sydney. Our consideration of these issues is provided in Chapter 7 and Appendix G.

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## 4 Our recommended site occupation charges

In this chapter we outline our recommended maximum site occupation charges for OPT and White Bay for 2016-17.

To make our recommendations on the level of site occupation charges we considered the efficient costs of providing site occupation and the forecast demand for cruise ship visits in Sydney Harbour over the next five years. Our assessment of these is set out in Chapters 5 and 6 respectively. To make our recommendations on the structure of site occupation charges, we considered various options and how well these met our assessment criteria (see Appendix C). We also considered all stakeholder comments and feedback on our draft recommended site occupation charges, including submissions to our Draft Report and input and comments at our public hearing.

This chapter begins with a summary of our recommendations. The sections that follow discuss our reasoning for our recommended charges and responses to stakeholder feedback. We also discuss our recommended process for updating site occupation charges.

### 4.1 Summary of our recommendations

#### Recommendations

- 2 That maximum site occupation charges in 2016-17 would be:
  - \$72,300 per call/visit to the Overseas Passenger Terminal
  - \$31.10 per passenger at the White Bay 5 Cruise Terminal, and
  - \$15.60 per passenger at White Bay 4.<sup>43</sup>
- 3 That site occupation charges be updated annually based on the change in the consumer price index (CPI, All Groups Sydney).
- 4 That, in any year if the number of bookings at OPT varies by +/-5% or more relative to forecast, site occupation charges be adjusted to reflect the difference between actual demand and the 5% threshold.
- 5 The Port Authority negotiates discounts with cruise operators where the take up of an evening slot leads to improved terminal utilisation.
- 6 That an independent review of efficient costs be undertaken:
  - periodically to provide information to facilitate ongoing price negotiations
  - in the instance that a new terminal is commissioned, and/or
  - if demand at White Bay 5 reaches capacity during the peak season.

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<sup>43</sup> Charges are rounded to the nearest \$100 for OPT and \$0.10 for White Bay.

We have retained the same charging structure as our draft recommendations – a fixed charge per call at OPT and a per passenger charge at WB5 and WB4. However, we have updated our analysis and the level of our recommended charges has decreased since our Draft Report (Table 4.1). There are three main reasons for this:

- ▼ We have revised upwards the forecast demand at OPT and White Bay. Submissions to our Draft Report noted that our forecast cruise ship visits in 2016-17 were well below the number of visits in the Port Authority’s booking schedule. We consider it reasonable to rely on the booking schedule for 2016-17. In later years we have based forecast demand on the Port Authority’s projected percentage growth in annual visits (see Chapter 6 for more details).
- ▼ We have estimated a slightly lower return on the Port Authority’s cruise terminal assets based on updated market information (see Appendix E).
- ▼ There has also been a small decrease in forecast inflation over the period since the Draft Report.

**Table 4.1 Summary of draft and final recommendations (\$2016-17)**

	Draft recommendation	Final recommendation <sup>a</sup>
OPT	\$80,375 per call	\$72,300 per call
WB5	\$32.60 per passenger	\$31.10 per passenger
WB4	\$16.30 per passenger	\$15.60 per passenger

<sup>a</sup> Charges are rounded to the nearest \$100 for OPT and \$0.10 for White Bay.

Source: IPART.

## 4.1 Overview of our reasoning for our recommended maximum charges

We consider that there are separate supply-side markets at OPT and White Bay, which support having different charging approaches to cater for the unique characteristics of each market.

- ▼ A fixed charge per call at OPT encourages larger ships to satisfy growing passenger demand in an environment of capacity constraints, while encouraging smaller ships to berth at White Bay.
- ▼ A fixed charge per call at OPT is cost-reflective and removes the current subsidy of smaller capacity ships by larger capacity ships.
- ▼ A per passenger charge at White Bay encourages smaller capacity ships while the terminal is operating well below its maximum capacity.
- ▼ A charge for WB4 that is 50% of the charge at WB5 reflects the lower level of service and facilities at this terminal, as well as its infrequent use.

Our recommended maximum charges are designed to strike an appropriate balance between the Port Authority’s efficient cost recovery and financial sustainability, and the viability and growth of the cruise industry.

## 4.2 Separate supply-side markets at OPT and White Bay

In our Draft Report we found that there were different markets at OPT and White Bay and as such, site occupation charges should be set to recover the costs separately for each terminal.<sup>44</sup> The Sydney Harbour Bridge restricts ships over a certain size from berthing at White Bay. While all ships can technically berth at OPT, increasing demand and growing average ship size mean that OPT is almost at maximum capacity in the peak months. If demand continues to grow, smaller ships that currently berth at OPT will be progressively consigned to White Bay. Because of the difference in the costs and utilisation at each terminal, setting the same charge for each would lead to customers at OPT subsidising those at White Bay, even though a majority would not use White Bay. We considered that this would not be cost-reflective or send appropriate price signals for efficient use of, and investment in, cruise infrastructure.

## 4.3 A fixed charge per call at OPT

A key element of our recommended site occupation charges is a fixed charge per call at OPT, instead of the current per passenger charge. As discussed in Chapter 5, we found that the costs of providing site occupation do not vary substantially based on the size of ship or number of passengers.

### 4.3.1 Submissions to our Draft Report

There were mixed views among stakeholders about a fixed charge per call. Carnival stated that:

...a per call charge at OPT benefits the largest ships and has material commercial consequences for Carnival. It has the effect of most cruise operators, including Carnival's multi-brand fleet, subsidising the operations of one unique cruise ship operator to the order of \$2 million per annum.<sup>45</sup>

Carnival further stated that:

...this proposal unfairly discriminates against most cruise operators, and fails to properly take into account relevant competition principles, under section 5 of the Competition Principles Agreement (CPA)...[which] requires that IPART's determination not restrict competition unless the benefits of doing so outweigh the costs and there are not less restrictive ways of IPART making its determination. Carnival respectfully submits that there is no evidence that IPART:

- has considered less restrictive pricing methodologies, which pricing would not result in competitive disadvantage; and
- has considered that the benefits of proposed pricing outweigh its discriminatory impact.<sup>46</sup>

Carnival submitted that our proposed charging arrangements would penalise those brands that have sought to work within the confines of Sydney Harbour's infrastructure restrictions.<sup>47</sup> That is, those who have invested in smaller ships.

<sup>44</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, p 2.

<sup>45</sup> Carnival Australia submission, September 2016, p 2.

<sup>46</sup> Ibid, p 7.

<sup>47</sup> Ibid, p 2.



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Carnival advocated a per passenger charge for both terminals, to ensure that all operators pay their fair share of the Port Authority's costs in regard to their respective ability to pay.<sup>48</sup>

The Port Authority stated that a fixed charge is not the only price structure that might arise in a competitive market. It considered that per passenger charges provide a proxy for the willingness to pay from larger ships – which would also mean the NSW community would share in revenue upside from more visits from larger ships. Setting charges on a fixed basis would cap the level of recovery below 'efficient costs'. It suggested a combination of fixed plus variable charges, such as a minimum charge and declining per passenger charge at OPT to encourage larger ships.<sup>49</sup>

On the other hand, Royal Caribbean stated that bigger ships should not be penalised by paying more than their fair share of the costs of the Port Authority in operating the terminal – or operations in another market (ie, White Bay).<sup>50</sup> CLIA supported a charge that reflects the true economic costs of delivering the service.<sup>51</sup>

#### **4.3.2 Price structures that would arise in a competitive market**

In our Draft Report, we considered whether there was merit in a two-part tariff or 'fixed plus variable' charging arrangement. However, as AECOM's advice was that costs of providing site occupation are largely fixed, we considered a per call charge rather than a two-part tariff.<sup>52</sup> A cost-reflective 'fixed plus variable' charge would comprise of a large fixed component and a very small variable component. Any move away from a cost-reflective fixed charge would result in the transfer of costs from one party to another. In this instance it would result in larger ships paying extra to cover some of the site occupation costs of smaller ships, which is what happens under the Port Authority's current per passenger charge.

The Port Authority's proposal for a combined fixed and per passenger charge at OPT would provide it with an opportunity to gain additional revenue from the trend for increasing average vessel size. The Port Authority notes that over time a per passenger charge would help to reduce the implicit subsidy provided to the cruise industry through 'revenue upside'.<sup>53</sup> We consider that the Port Authority should not over-recover its efficient costs. The Port Authority is the only provider of cruise terminal facilities in Sydney Harbour and Sydney is a very popular destination for cruising. Other ports are not effective substitutes for Sydney Harbour and the Port Authority may have ability to charge higher than efficient prices before cruise operators would consider removing Sydney from their itineraries.

#### **4.3.3 Effect on competition and investment**

We disagree with Carnival's view that a fixed charge per call at OPT would constitute a subsidy from smaller capacity ships to larger ones. What drives the Port Authority's costs of providing site occupation services is not the number of passengers on a ship. Instead, its

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<sup>48</sup> Ibid, p 7.

<sup>49</sup> Port Authority submission, August 2016, p 11.

<sup>50</sup> Royal Caribbean submission, August 2016, p 3.

<sup>51</sup> CLIA submission, August 2016, p 10.

<sup>52</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, p 23.

<sup>53</sup> Port Authority submission, August 2016, p 11.



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costs are largely fixed for each cruise ship visit, regardless of the ship's size. Our recommended site occupation charges reverse the current situation where larger ships pay more to cover some of the site occupation costs of smaller ships.

In our view, past investment decisions made by cruise operators should not influence future charging arrangements. We do not consider that recommending a cost-reflective charge at OPT restricts competition. Competition and investment decisions are more likely to be distorted where charges are not cost-reflective.

#### **4.3.4 Incentives for maximising efficient use of OPT**

To cater for growing passenger demand in a capacity-constrained environment, it is important that OPT is used as efficiently as possible. This can happen by increasing the number of ship turnarounds or encouraging visits by larger ships.

In our Draft Report, we noted that the typical calling pattern at OPT leaves substantial spare capacity in a 24-hour slot (slots are generally vacated by evening and overnight). Shortening turnaround times and 'double-stacking' (having two ships berth at the terminal on one day) would improve utilisation and potentially delay the need for another passenger terminal.<sup>54</sup> However, cruise operators expressed strong resistance to this, noting that the needs of the industry vary widely and there are multiple challenges with making these arrangements work, including gaining passenger acceptance.<sup>55</sup> While we consider that the Port Authority should have the flexibility to negotiate discounts to provide an incentive for this, where possible, we note that it is unlikely to result in a large increase in capacity at OPT.

In the absence of an increase in capacity at OPT, future growth in passenger demand would have to be met through deploying larger ships. We consider that a fixed charge per call delivers the right price signal to support and encourage larger ships at OPT in future.

#### **4.4 A per passenger charge at White Bay**

While we found that the costs of providing site occupation at White Bay are also fixed, we recommend a per passenger charge at White Bay. There are two main reasons for this:

- ▼ utilisation of White Bay is much lower than that of OPT, and
- ▼ ships at White Bay are limited by size and cannot respond to a fixed price incentive by increasing the number of passengers beyond a certain limit.

While the costs of White Bay are around 75% of those of OPT, a combination of fewer calls and smaller ships mean that White Bay serves only half as many passengers. We consider that if we recommended a fixed charge per call in the short-term, it would be at a level that would likely deter some ships from calling at White Bay, reducing utilisation even further. This is not consistent the objectives in our terms of reference.

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<sup>54</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, p 3.

<sup>55</sup> Carnival Australia submission, September 2016, p 17; Royal Caribbean submission, August 2016, p 4.

#### 4.4.1 The cruise industry should not pay for current low utilisation

In our Draft Report, we considered that users of White Bay should not be asked to pay more per call/passenger because WB5 is operating below capacity.<sup>56</sup> Pricing based on the Port Authority's demand forecasts at White Bay would result in site occupation charges that are likely to exceed the cruise industry's willingness to pay. To recommend site occupation charges at WB5 and WB4, we assumed a level of utilisation that is similar to that of OPT in the peak months. This resulted in a lower per passenger charge and lower revenue for the Port Authority.

#### Submissions to our Draft Report

The Port Authority disagreed with our approach, stating that it should be able to recover all of its efficient costs at White Bay and that our recommendation does not take into account possible willingness to pay of cruise operators for the use of White Bay. It considered that our 'motel analogy'<sup>57</sup> of pricing was inappropriate as no firm would open a motel unless it expected to recover its efficient costs. While it may struggle to attract high utilisation initially, eventually it would expect to recover its costs. It considered we should recommend charges at WB5 that either recover the building block costs, or include a mechanism to earn back any under-recovery in later charges.<sup>58</sup>

Mr R. Davey, an individual, submitted that ships that can pass under the Sydney Harbour Bridge should be encouraged as small or medium ships spend more money per passenger on shore excursions and have a higher proportion of international passengers.<sup>59</sup> Royal Caribbean submitted that small 'luxury' ships are a relatively small segment of the market (5%) and deliver less than larger ships in terms of international passengers.<sup>60</sup>

#### Our response to stakeholder submissions

We consider that our recommended site occupation charges for WB5 would encourage smaller ships to berth at White Bay and would not prevent the Port Authority from recovering its building block costs over the life of the terminal. While the Port Authority prepared its demand forecasts in good faith, these are conservative relative to recent growth rates. As discussed further in Chapter 6, the Port Authority's forecast cruise ship visits in 2016-17 are considerably lower than current bookings and for this reason we have adjusted our demand forecast in light of this.

Based on AECOM analysis, at demand growth of 7.0% per annum, WB5 could reach a point of full utilisation by 2021. At this point, the Port Authority could *over-recover* its building block costs based on a per passenger charge. If WB5 reaches full capacity, a fixed charge per call would likely be preferable, to ensure that only efficient costs are recovered from customers. We consider that if there is much stronger than forecast demand at White Bay

<sup>56</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, p 49.

<sup>57</sup> That is, in a competitive market, a new motel would not be able to charge customers extra to cover the costs of a large number of unbooked rooms. Instead, this would be a cost of business until it developed a reputation, built its customer base and began operating at a higher level of utilisation.

<sup>58</sup> Port Authority submission, August 2016, pp 7-9.

<sup>59</sup> Mr R. Davey submission, August 2016, pp 1-2.

<sup>60</sup> Royal Caribbean submission, August 2016, p 2.

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that results in a higher level of utilisation than we have used to determine our per passenger charge, this should trigger a review of site occupation charges.

#### **4.4.2 A 50% discount at WB4**

We recommend retaining the Port Authority's existing 50% discount at WB4 relative to WB5 charges. We consider this approach is reasonable given the different facilities available at this location.

### **4.5 Implications of different charging arrangements between terminals**

The Port Authority considered that there are not separate markets at OPT and White Bay and that there are a substantial number of ships that can use both. It suggested that different charging arrangements between terminals could cause a significant shift in incentives to use cruise terminals in Sydney Harbour.<sup>61</sup> This could lead to unintended consequences on incentives for usage and new investment.<sup>62</sup>

Carnival expressed concern that the price differential between terminals would distort market conditions and lead to unintended consequences. For example, it claimed that based on additional tug boat costs for White Bay and our recommended charges, selected ships (that can currently berth at both terminals) would have an incentive to berth at OPT, which would amplify peak demand. In addition, smaller capacity transit ships would likely prefer to berth at White Bay which would result in lost opportunity for customer spending around Sydney and Circular Quay.<sup>63</sup> Carnival also contended that the charge structure does not take into account the Port Authority's booking process that already manages capacity constraints at OPT. Carnival considered that a single per passenger charge for both OPT and WB5 is the simpler, more equitable option for cruise operators, the Port Authority and the NSW community.<sup>64</sup>

#### **4.5.1 Our response to stakeholder submissions**

Our recommended site occupation charges at OPT and WB5 would mean that the effective per passenger charge varies both between terminals, and for different sized ships at OPT. For example, the \$31.10 per passenger charge at WB5 compares to an effective per passenger charge at OPT ranging from around \$16 to \$41 based on the largest and smallest ships that can only berth at OPT. This means the largest price differential is around \$24 per passenger, which represents around 1.2% of the cost of a cruise on the smallest ship that can only berth at OPT.<sup>65</sup> Having the same site occupation charge at OPT and WB5 would result in larger cruise ships at OPT paying more to cover some of the costs of the White Bay terminal. We consider that this would not be cost-reflective, nor send appropriate price signals for efficient use of, and investment in, cruise infrastructure.

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<sup>61</sup> Port Authority submission, August 2016, pp 12-13.

<sup>62</sup> Ibid, p 3.

<sup>63</sup> Carnival Australia submission, September 2016, p 2.

<sup>64</sup> Ibid, p 7.

<sup>65</sup> The *Aurora* has a scheduled cruise in March 2017 from Sydney to San Francisco with prices from \$1,999 per person. See <http://www.pocruises.com/>, accessed 4 November 2016.

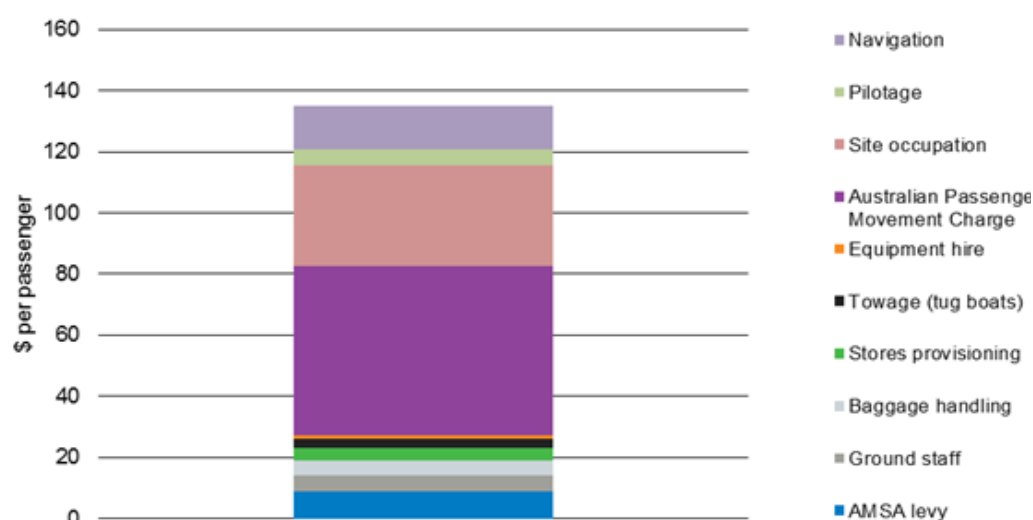
In comparison to the Port Authority's proposed charge of \$35 per passenger at both terminals, our recommended charges mean that smaller capacity ships (less than 2,324 chargeable passengers) would be better off at White Bay. We consider that this price incentive is complementary to the Port Authority's current booking protocol, where the Port Authority reserves the right to move smaller ships to White Bay to free up capacity for larger ships at OPT if necessary.

### Incentives for ships at White Bay to berth at OPT

Not all cruise vessels going to the OPT require towage, however, all vessels proceeding to White Bay require at least one tug (due to the difficulties associated with transiting to/from the terminal). As such, a vessel proceeding to/from White Bay will typically require at least one tug inbound and one tug outbound, whereas this may not be required for the same vessel going to OPT. The cost of a tug varies as operators are able to obtain lower rates based upon their usage.<sup>66</sup>

As discussed in Appendix G, tug costs are one of a number of costs that cruise operators incur at port. Figure 4.1 shows the typical port costs incurred by an operator in Sydney. Tug costs make up about 2.2% of typical port costs.

**Figure A.1 Typical port costs in Sydney (\$/passenger, \$2016-17)**



**Data source:** IPART, Carnival Australia.

We consider that while tug costs may influence an operator's decision to book at a specific terminal they are generally factored in at the time of making the original booking. In the instance that the Port Authority requests that a vessel move from OPT to White Bay, the operator bears the costs associated with the move, including any additional tug costs. If a move is required, the Port Authority aims to give six months' notice to operators. In situations where another operator has requested access to OPT at short notice, it is likely that

<sup>66</sup> As advised by the Port Authority on 16 September 2016.

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the operator requiring access would pay any advertised additional costs for the incumbent to move to White Bay as an incentive for them to do so.<sup>67</sup>

Tug costs cannot be considered in isolation of other port costs. There may be other cost advantages at White Bay that offset higher tug costs, such as the costs associated with baggage handling, storage provision and ground staff. We note that compared to OPT, the White Bay terminal is new and purpose-built to load and unload cruise ships efficiently. The comparative benefits of the site include:

- ▼ adequate space for staging and servicing of the terminal
- ▼ flexibility to meet operators' space and facility requirements
- ▼ ease of accessibility for deliveries by shipping agents and operators prior to cruise ship visits, and
- ▼ the provision of adequate storage facilities in a secured area.<sup>68</sup>

In addition, there may be other operational reasons that a ship chooses to berth at White Bay, including greater certainty in regard to access.

Tug costs for White Bay are known at the time of the original booking or at least six months' in advance of arrival, are a small proportion of total port costs, and may be offset by lower costs in other areas. Currently, operators that use White Bay may incur additional tug costs. On balance we continue to recommend a fixed site occupancy charge for OPT as we consider that it is cost-reflective and provides an incentive to encourage larger ships at OPT.

We have undertaken analysis of what our recommended site occupation charges would mean for larger cruise ships that just fit under the Sydney Harbour Bridge. We estimated average site occupation charges per passenger at OPT and WB5 for the *Noordam* under different levels of passenger capacity utilisation (Figure 4.2).

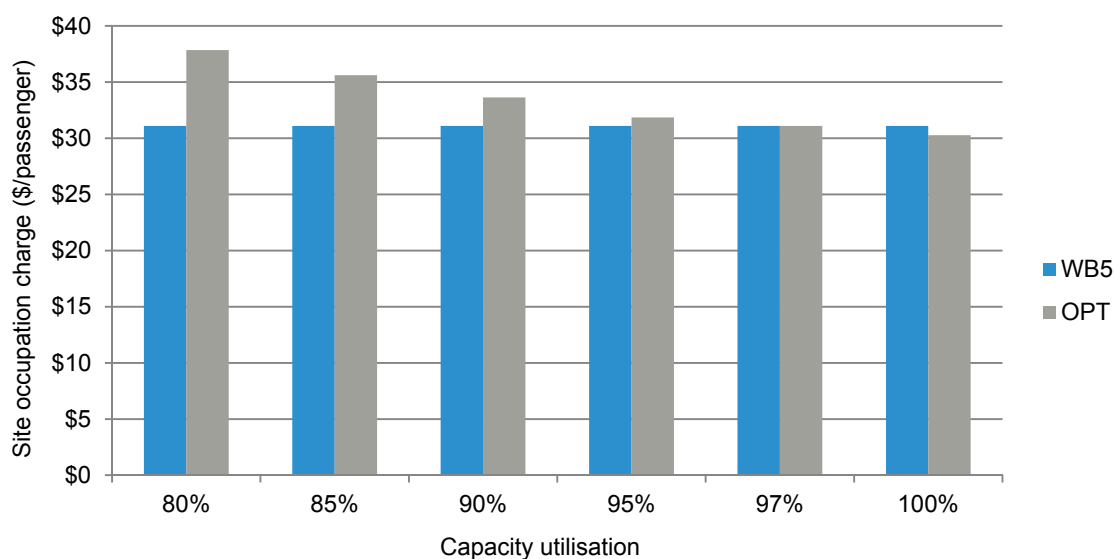
The *Noordam* is the largest cruise ship by registered passenger capacity that has visited WB5 in the last three years. It has a registered maximum passenger capacity of 2,388 and 82,897 gross registered tonnage (GRT). It is substantially bigger than an average cruise ship visiting WB5, which has an average passenger capacity of around 1,850 and 66,000 GRT. It is also larger than the smallest cruise ship that cannot fit under the Sydney Harbour Bridge, which is the *Aurora*, which has registered passenger capacity of 1,950 and 76,152 GRT.

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<sup>67</sup> Ibid.

<sup>68</sup> [http://www.sydneyports.com.au/projects\\_and\\_planning/white\\_bay\\_cruise\\_terminal](http://www.sydneyports.com.au/projects_and_planning/white_bay_cruise_terminal), accessed 11 November 2016.

**Figure 4.2 Average site occupation charge per passenger for *Noordam* at OPT and WB (\$2016-17)**



**Data source:** IPART analysis.

Our analysis shows that if the *Noordam* operates below 97% of its passenger capacity, the average site occupation charge per passenger at WB5 would be *less* than at OPT. On the other hand, if it operates above 97% of its passenger capacity, the average charge per passenger at WB5 would be *more* than at OPT. In this case, the *Noordam* would be financially better off berthing at OPT rather than WB5. The magnitude of financial benefit is small. The average charge per passenger at WB5 would be less than \$1 per passenger more than our recommended charge at OPT.

Based on the current fleet of ships that have visited, or are scheduled to visit Sydney, there are three such ships that could be affected by this incentive: the *Noordam*, the *Sea Princess* (max capacity 2,342) and the *Dawn Princess* (max capacity 2,342), but only if they are operating above 97% of their maximum capacity. The last three years of data on cruise ships visiting WB5 shows that the average passenger capacity for these ships was around 80%, and there were no instances where the above cruise ships were operating above 97%. Hence, while it is theoretically possible, based on historical data it would be rare that an individual cruise ship at WB5 would face a higher average charge per passenger at WB5 than at OPT.

We also considered a tiered charging system at White Bay, but concluded that it would be likely to deter smaller ships from visiting White Bay (see Box 4.1).



#### **Box 4.1 Tiered per passenger charges at WB5**

One option to address any incentive for a cruise ship to book at OPT instead of WB5 would be through a tiered charging structure at WB5. Under this approach, site occupation charges at WB5 would vary depending on the ship size (eg, a higher per passenger charge for smaller ships and a lower charge for larger ships). This could help to alleviate any financial incentive for larger ships at WB5 to prefer to book at OPT.

In order for tiered charging to be revenue-neutral for the Port Authority, charges for smaller ships would need to increase to offset the reduction in charges for larger ships. This type of pricing structure is more complex, and would rely on judgement about how much less larger ships should be charged relative to smaller ships. Further, if smaller ships were paying a higher per passenger charge, this would exacerbate the differential in the average charge per passenger between these ships and a typical ship at OPT. Depending on the level of the difference, this could deter some smaller ships from visiting White Bay. For these reasons we are not recommending a tiered approach to per passenger charges at WB5.

## **4.6 The role of negotiations in determining site occupation charges**

Throughout our review there has been support from both the Port Authority and cruise operators for a less prescriptive approach to setting site occupation charges, with more emphasis on negotiation between parties.

### **Stakeholder submissions on the role of negotiations**

Carnival's preferred approach is long-term contracts that support long-term investment decisions and the industry's need for price stability and certainty.<sup>69</sup> It noted that IPART and/or another public body could have a role to play in providing the right balance of negotiating power between the parties.<sup>70</sup>

The Port Authority considered that the optimal structure of charges is something that is best determined in negotiations between the Port Authority and cruise operators.<sup>71</sup> It noted that through negotiating charge structures with the cruise industry, it may need to depart from our recommended structure.<sup>72</sup> The Sydney Business Chamber considered that the Port Authority and cruise industry should be left to engage on and negotiate site occupation charges; with a 'regulator' only becoming involved in the presence of an unworkable disagreement that risks the viability of the cruise industry or Port Authority.<sup>73</sup> CLIA also considered that service providers should be encouraged to negotiate lower rates based on greater activity at the terminal.<sup>74</sup>

<sup>69</sup> Carnival Australia submission, May 2016, p 14.

<sup>70</sup> Carnival Australia submission, September 2016, p 3.

<sup>71</sup> Port Authority submission, August 2016, p 4.

<sup>72</sup> Ibid, p 10.

<sup>73</sup> Sydney Business Chamber submission, August 2016, p 2.

<sup>74</sup> CLIA submission, September 2016, p 9.

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## Our response to stakeholder submissions

We consider that negotiations have the potential to deliver efficient outcomes and may be suitable for use by the Port Authority and the cruise industry. Indeed, in other similar industries such as airports, prices are often determined via negotiations. However, for negotiations to be effective, where a facility owner or user has market power, regulatory oversight or intervention (for example, arbitration) may be required.

The Port Authority is the only provider of cruise terminal facilities in Sydney Harbour and Sydney is a popular destination for cruising. In our view, other ports are not perfect substitutes and the Port Authority may have some scope to charge higher than efficient prices before cruise operators would consider removing Sydney from their itineraries.

We consider that a ‘negotiate-arbitrate’ model has the potential to deliver efficient outcomes and could be suitable for the cruise industry. However, our terms of reference require us to recommend maximum prices. Should the regulatory framework be revised to facilitate a negotiate-arbitrate framework, we would recommend that parties should have a right to arbitration by an independent body.

A periodic, independent review of the efficiency of the Port Authority’s costs would assist such price negotiations. In our view, the building block method serves as a useful reference point for negotiations between the Port Authority and cruise operators.

### 4.7 Charges for buoys and non-passenger berths

Our terms of reference ask us to consider all berths and moorings in Sydney Harbour. There are additional berthing facilities at Glebe Island 1 and 2 that cruise ships could use if the OPT, WB5 and WB4 are all occupied. However, only one cruise ship has docked at Glebe Island in almost the last 3 years and the Port Authority has not forecast any cruise ships using those facilities in the future. Most of the time, these and other non-passenger berthing facilities are used for non-cruise related activities (see Appendix B).

There are also two buoys within Middle Harbour that are used to temporarily berth vessels:

- ▼ Athol Buoy is located on the northern side of the harbour, just off Bradley’s Head, and
- ▼ Point Piper Buoy is almost directly opposite, on the southern side of the harbour.

These facilities are used infrequently. In its report, AECOM determined the revenues earned from the use of the buoys were similar to the annual return of capital required.<sup>75</sup> As such, based on the intermittent nature of use of, as well as the costs and revenues associated with, these buoys, we consider that the current charging regime is reasonable for recovering efficient costs. The Port Authority’s current lay-up rate for using the buoys is \$36.52 per vessel, per hour (ex-GST). See Appendix B for details.

#### Recommendation

- 7 That the Port Authority’s current mooring fees for using the buoys at Athol Bay and Point Piper are reasonable and should be maintained.

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<sup>75</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships*, Public report, 11 November 2016, p 8.



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## 4.8 Implementing site occupation charges

Consistent with existing arrangements, our recommended site occupation charges would cover a 24-hour period, after which a second charge would be levied.

The Port Authority would continue to recover separately miscellaneous charges for security, cleaning, furniture hire, etc.

### 4.8.1 Minimum charge

In response to our Draft Report, Carnival stated that the 1,200 minimum passenger charge should be removed and aligned to ships' ability to pay.<sup>76</sup> CLIA claimed that the minimum charge counters the objective of growing the utilisation of White Bay.<sup>77</sup>

We consider that if a minimum charge was removed, it may result in some ships paying less than what it costs to service them at the terminal. These costs would need to be recovered from other users. We consider that Port Authority is in the best position to determine whether the trade-off between reducing the charges for these ships (and hence its revenue) would be outweighed by the revenue it would receive from new ships.

### 4.8.2 Off-peak charges

In its submission to our Draft Report, Carnival suggested that IPART consider opportunities to maximise use of cruise facilities in off-peak.<sup>78</sup>

As with the minimum charge, we consider that the Port Authority is in the best position to determine whether it could increase terminal usage by offering an off-peak discount.

### 4.8.3 Conclusion

In conclusion, we consider that the Port Authority should have discretion to negotiate:

- ▼ minimum charges, which are currently based on 1,200 passengers per vessel, per 24 hours<sup>79</sup>, and
- ▼ discounts to encourage greater utilisation of spare capacity at OPT in less popular times, such as evening slots, and
- ▼ discounts to encourage greater use of terminal facilities in the off-peak season.

## 4.9 Updating site occupation charges

We were asked to recommend an approach for updating site occupation charges on an annual basis that considers administrative costs, promotes a clear and simple pricing structure and provides certainty over the medium term for the cruise industry and the Port

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<sup>76</sup> Carnival Australia submission, September 2016, p 16.

<sup>77</sup> CLIA submission, August 2016, p 5.

<sup>78</sup> Carnival Australia submission, September 2016, p 7.

<sup>79</sup> Excluding vessels with a stated capacity of less than 200 passengers

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Authority. In updating charges, we also consider it relevant to consider risks to the cruise industry and Port Authority.

#### **4.9.1 Updating charges based on the consumer price index**

In our Draft Report, we recommended updating site occupation charges annually based on the change in the consumer price index (CPI, All groups Sydney). We considered whether other indices such as a producer price index or an industry cost index may be more appropriate to adjust charges. However, on the basis of our assessment of the Port Authority's operating and capital costs, we considered that using the CPI is relevant to the types of costs involved.

Some stakeholders considered that we should include a further efficiency incentive. For example, Carnival advocated escalating charges by a rate lower than CPI to incentivise the Port Authority to achieve further operating efficiencies.<sup>80</sup> CLIA echoed this sentiment stating that the CPI adjustment does not provide any incentive for the Port Authority to continue to work with industry to identify further efficiencies. It added that the Port Authority should disclose their annual cost base to the industry with an explanation of major variances.<sup>81</sup>

AECOM's assessment of the Port Authority's costs was that they were generally efficient and hence, there were no obvious areas for further efficiencies at this time. We consider that a CPI index is reasonable as it ensures that charges are maintained at level in real terms. We also recommend that costs are periodically reviewed by an independent body to support negotiations. Such a review would identify any scope for future efficiency savings.

#### **4.9.2 Updating charges for changes in demand**

In Chapter 6 we discuss the demand forecasts that we use in our building block model to recommend site occupation charges. In our Draft Report, we acknowledged that the Port Authority's demand projections were conservative, and that there was substantial uncertainty about the level of demand in future years. We recommended a mechanism to adjust site occupation charges at OPT to manage the risk of demand being substantially more or less than our forecast.<sup>82</sup>

While stakeholders did not comment specifically on our draft demand management mechanism, there was widespread support for actual charges to be negotiated between parties. We considered that our draft demand management mechanism did not support this, because once demand reached the +/-5% threshold, charges would be adjusted for the total amount of actual demand which exceeded our forecast demand.

We consider that this could be alleviated by leaving the threshold at +/-5%, but only adjusting the charge for demand that exceeds the threshold. That is, if actual demand is 10% higher than our forecast demand, charges would be adjusted for the 5% increase above the 5% threshold only. While implementation details should be determined between the Port Authority and the cruise industry, we propose that:

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<sup>80</sup> Carnival Australia submission, September 2016, p 16.

<sup>81</sup> CLIA submission, August 2016, p 9.

<sup>82</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, p 49.

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- ▼ At a designated time before site occupation charges are published for the coming season, the number of bookings is compared to the forecast calls for that year applied in this review.
  - ▼ If actual demand varies from our forecast demand by +/- 5% or more, then site occupation charges for the coming season would be adjusted up or down based on the percentage difference between actual and forecast demand **in excess of +/-5%**.

More information about and examples on this are provided in Appendix F.

## 5 Estimating efficient costs

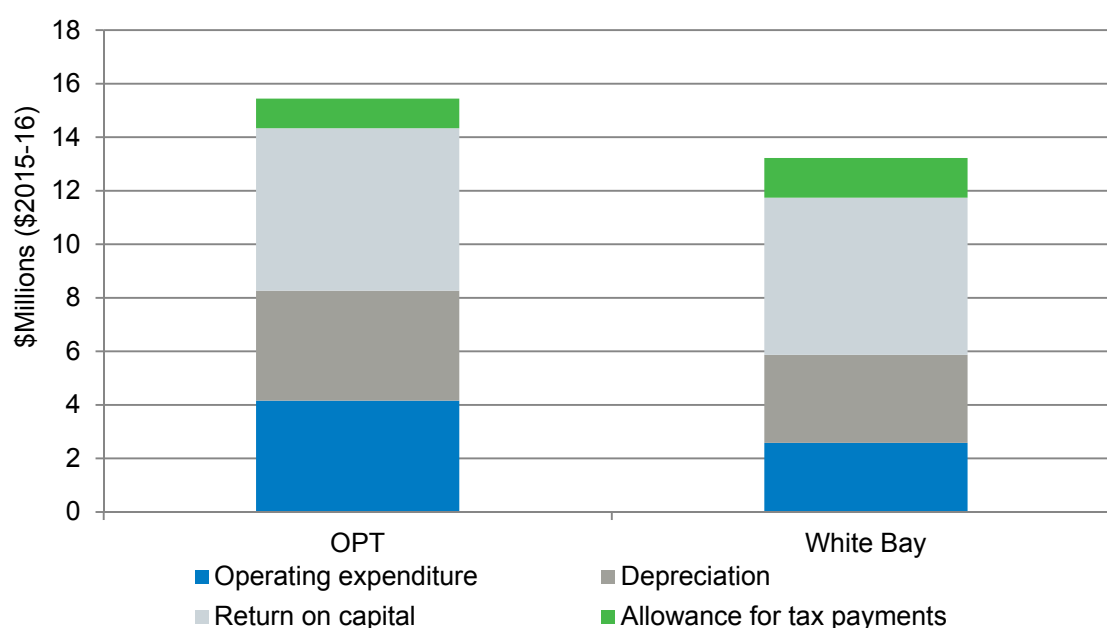
To make our recommendations on maximum site occupation charges we estimated the efficient costs of providing each of the Port Authority's cruise ship services. We did this using a building block approach.

This chapter summarises our findings on the efficient costs of providing site occupation services to cruise ships. We discuss some key issues in relation to our analysis. More information on our assessment of efficient costs is provided in Appendix D.

### 5.1 Overview of our findings

A summary of our findings on the cost building blocks for providing site occupation services is summarised in Figure 5.1 for OPT and White Bay.

**Figure 5.1 Summary of cost building blocks for site occupation in 2016-17 (\$2016-17)**



**Data source:** AECOM and IPART calculations.

Site occupation services are capital-intensive, therefore the cost building blocks for return on capital and depreciation make a substantial portion of the efficient costs at OPT and White Bay.

In contrast to site occupation, operating costs make up a greater proportion of building block costs for pilotage and navigation (see section 5.4). While we have not been asked to make recommendations on pilotage and navigation, we considered the efficient costs of these services because we need to assess whether there are any cross-subsidies between the Port Authority's charges to cruise ships.

## 5.2 Our approach to estimating efficient costs

We invited the Port Authority to provide information on its assets, and forecasts of operating and capital costs in relation to site occupation, navigation and pilotage services to cruise ships. We commissioned AECOM to review this information and provide advice on efficient operating and capital costs, and an initial asset base.

## 5.3 Key issues and findings in relation to efficient costs

Our findings are largely unchanged from our Draft Report. These include that:

- ▼ the Port Authority's costs are generally efficient
- ▼ land for cruise terminals should be valued at existing use, rather than highest and best use, and
- ▼ the Port Authority's non-cruise revenue, excluding from restaurant leases at OPT, should be shared equally between the cruise industry and the Port Authority.

The main change is a 20 basis point decrease in the weighted average cost of capital (WACC) to 6.0% (real, post-tax).<sup>83</sup> This is mainly due to a reduction in the risk-free rate since making our draft recommendations in July 2016. More information on our assessment of efficient costs is provided in Appendix E.

### 5.3.1 The Port Authority's costs are generally efficiently

We found that in general the Port Authority's costs to operate and maintain its cruise terminals are generally efficient. In its advice, AECOM did not find opportunities for the Port Authority to substantially improve its cost efficiency. More information is provided in AECOM's report, which is available on our website.

### 5.3.2 Valuing land at existing use

The land on which the terminals and other assets are built is a valuable asset. Under the building block method, the value of land is included in the asset base of the Port Authority on which the Port Authority will earn a rate of return.

In the Port Authority's statutory accounts, the value of land is determined based on existing use, reflecting the value of continuing to operate cruise terminal services on those sites.<sup>84</sup> However, in its submission to our Issues Paper, the Port Authority put the view that these valuations are not appropriate for assessing efficient costs because:

- ▼ this may not necessarily reflect the highest value use of the site and would therefore not set a price signal that promotes allocative efficiency
- ▼ the value based on existing use is based on the expected level of future prices from operating cruise services at the existing terminal sites, and it would be circular to use this value as a check on prices for those services, and

<sup>83</sup> The WACC is estimated as of 8 September 2016.

<sup>84</sup> Port Authority submission, May 2016, p 19.

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- ▼ an approach that uses a lower value will have the effect of providing an implicit subsidy to the cruise industry.<sup>85</sup>

The Port Authority provided us with a confidential valuation by KordaMentha Real Estate (KordaMentha) for OPT, and White Bay based on the land's highest and best use. KordaMentha's land valuation is based on market values for residential apartments that could otherwise be built on the site, complying with current regulations and planning controls. Land values based on the highest and best use approach are materially higher than those based on existing use. For example, for OPT, the Port Authority notes that land value based on the highest and best use is 17 to 44 times the book value.<sup>86</sup>

In our Draft Report, we decided to value land based on its existing use at OPT and WB5. We considered that site occupation charges derived from highest and best use land values would be more than twice the level of the current site occupation charges. In our view, such charges would likely exceed the cruise industry's willingness to pay and would not be consistent with our terms of reference in that they would have a detrimental effect on the viability and growth of the cruise industry. However, we noted that valuing land at existing use constituted an implicit subsidy of the cruise industry by the NSW Government, which foregoes the opportunity cost of the highest and best use alternative of the land use.<sup>87</sup>

### Stakeholder submissions on the value of land

Carnival submitted that IPART had provided no transparency as to the land values in the KordaMentha report and those in the Port Authority's statutory accounts. It questioned some of the assumptions in the KordaMentha report including whether:

- ▼ current planning and zoning restrictions were taken into account
- ▼ heritage listings at OPT could impose constraints on any development of OPT, and
- ▼ there is a problem of circularity in the valuation of land at existing use.<sup>88</sup>

Carnival further noted that the 2012 Independent Review on cruise ship use of Garden Island did not attribute any material benefits to removing cruise ships from White Bay and no materially valuable alternative use was identified, except for transportation and importation of industrial goods.<sup>89</sup>

In response to our Draft Report, the Port Authority submitted that efficient costs are equivalent to opportunity costs, and therefore land should be valued at highest and best use. However, it submits that at the present time, the charges to recover the opportunity cost of land would mean that cruise ships could not afford to visit Sydney Harbour. It considers it should have the opportunity to recover opportunity costs and to determine the appropriate trade-off between efficient cost recovery and willingness to pay by the cruise industry.<sup>90</sup>

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<sup>85</sup> Ibid, pp 17, 19.

<sup>86</sup> Ibid, p 19.

<sup>87</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, p 3.

<sup>88</sup> Carnival Australia submission, September 2016, pp 10-11.

<sup>89</sup> Ibid, p 11.

<sup>90</sup> Port Authority submission, August 2016, pp 6-8.

## Our response to stakeholder submissions

We have considered submissions, but on balance, have decided to continue valuing land at existing use. We consider that valuing land at existing use, rather than at a higher use, is consistent with our terms of reference and reflects the NSW Government's decision to provide cruise ship facilities in Sydney Harbour. We considered an option of recommending site occupation charges based on an auction system that would elicit the cruise industry's willingness to pay for terminal facilities. An auction approach was not generally supported by stakeholders.<sup>91</sup>

The KordaMentha report was commissioned by the Port Authority and it has declined to permit IPART to release it publicly. It was reviewed by our cost consultant AECOM, who advised that they accepted the valuation.<sup>92</sup>

The Port Authority's land valuation at existing use takes into account comparable land sales. This involves the valuer's professional judgement of what are comparable sales given the use of land at OPT. The valuation is not directly related to cash flows generated by the Port Authority.

The implication of our decision to base recommended site occupation charges on land valued at existing use is that the NSW Government (the owner of the assets) is foregoing the opportunity cost of the land in an alternate use. We consider that this constitutes a subsidy of the efficient costs of providing port services to cruise ships.

### IPART finding

- 1 That the cruise industry is receiving a subsidy from the NSW Government through access to land for cruise terminals at less than its opportunity cost.

### 5.3.3 Treatment of non-cruise revenue

The Port Authority earns revenue unrelated to cruise services from some of its assets. For example, it leases floor space at OPT to externally-managed restaurants and hires out facilities at WB5 and OPT for functions and events. In our Draft Report, we proposed to deduct a proportion of this revenue from the efficient costs in recognition that this revenue offsets some of the cost of holding assets used to service cruise operations.<sup>93</sup>

In our building block analysis, we have:

- ▼ excluded all costs and revenues related to permanent leases for restaurants at OPT, and
- ▼ deducted 50% of other non-cruise related income from the total efficient costs before estimating site occupation charges.

We have excluded the revenue from restaurant leases from our building block analysis as these are separate activities to the Port Authority's cruise business and the costs and revenue are also separate. We have also adjusted the asset values of OPT to exclude floor space relating to restaurant leases.

<sup>91</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, pp 22-23.

<sup>92</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships, Public Report*, 11 November 2016, p 10.

<sup>93</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, pp 37-38.



For other non-cruise revenue, such as from venue hire and functions, we have deducted 50% of the forecast revenue from the total efficient costs. These events typically occur on days when there is no cruise activity and facilities that would otherwise be used for cruising. We consider this approach provides a balance between passing the benefits of non-cruise revenues to cruise passengers through lower site occupation charges and providing the Port Authority with an incentive to pursue more opportunities to earn supplementary revenue from its spare capacity. This approach is consistent with other industries where we conduct price reviews.<sup>94</sup>

### 5.3.4 Determining a return on capital

As shown in Figure 5.1 the return on capital is the largest single component of our estimate of the efficient costs of providing site occupation, constituting 39% to 44% of the total revenue required. To calculate a return on assets, we multiply the value of the asset base in each year of the review period by an appropriate rate of return. We have estimated the rate of return using a weighted average cost of capital (WACC).

#### Determining the WACC for our recommended maximum charges

We have estimated a real, post-tax WACC of 6.0%, which is based on:

- ▼ market-based WACC parameters (ie, risk-free rate, inflation rate, debt margin, short-term market risk premium) estimated as of 8 September 2016, and
- ▼ an equity beta range of 0.8 to 1.0 and a gearing ratio range of 30% to 40%.

The WACC parameters for our recommendations are summarised in Table 5.1.

**Table 5.1 WACC parameters for our recommendations (8 September 2016)**

	Current market data			Long-term averages			WACC range		
	Low	Mid	High	Low	Mid	High	Low	Mid	High
Nominal risk-free rate	1.9%	1.9%	1.9%	4.4%	4.4%	4.4%			
Inflation	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%			
Debt margin	2.6%	2.6%	2.6%	3.2%	3.2%	3.2%			
Gearing	40%	35%	30%	40%	35%	30%			
Market risk premium	7.3%	9.0%	10.7%	5.5%	6.0%	6.5%			
Equity beta	0.8	0.9	1.0	0.8	0.9	1.0			
Cost of debt (nominal pre-tax)	4.5%	4.5%	4.5%	7.6%	7.6%	7.6%			
Nominal vanilla WACC	6.4%	8.1%	10.2%	8.3%	9.0%	9.9%			
Real post-tax WACC	3.9%	5.5%	7.6%	5.8%	6.5%	7.3%	5.5%	<b>6.0%</b>	6.5%

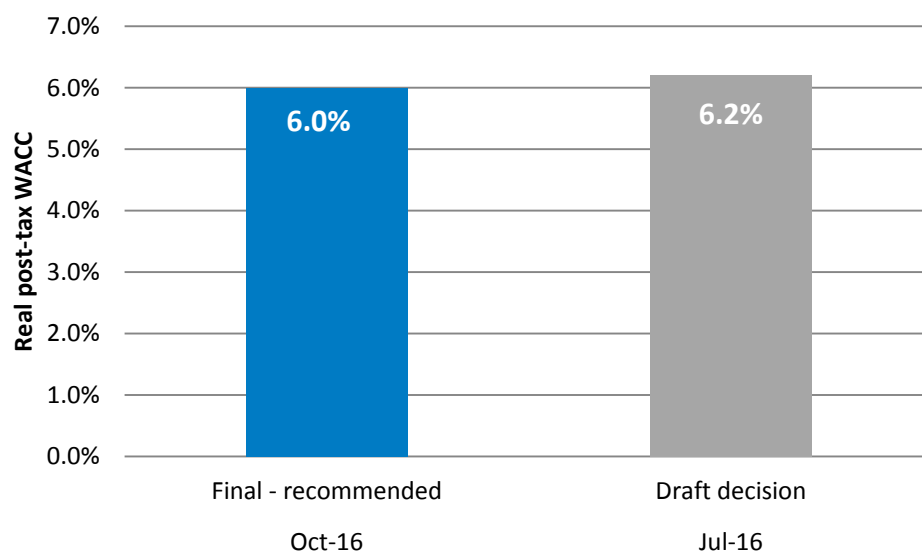
Source: Bloomberg, RBA and IPART analysis.

<sup>94</sup> See for example, IPART, *Review of prices for Sydney Water Corporation from 1 July 2016 to 30 June 2020 – Final Report*, June 2016, p 77.



The recommended WACC for our final report is 20 basis points lower than in our Draft Report released in July 2016 (Figure 5.2). This is mainly due to a reduction in the risk-free rate since making our draft decision.

**Figure 5.2 Final WACC compared to our draft decision**



Data source: IPART.

## How we estimated the WACC

The calculation of the real post-tax WACC requires the estimation of the following parameters:

- ▼ market-based parameters: risk-free rate, debt margin, expected inflation estimate and market risk premium (MRP), and
- ▼ industry-specific parameters: equity beta and levels of debt and equity financing (ie, gearing).

To estimate the market-based parameters, we adopted our standard WACC methodology. Our WACC methodology has been developed in consultation with stakeholders over a number of reviews and is applied commonly to all industries.<sup>95</sup>

To determine industry-specific parameters for a typical cruise terminal business, ideally we would be able to conduct a peer group analysis of stand-alone port businesses providing berthing, navigation and pilotage services to cruise ships. However, there is no listed port business that earns revenue from cruise ship services only. The majority of the listed ports are diversified businesses delivering various services such as ships anchoring services, cargo handling, loading and unloading passengers, goods storage and car transportation services.

<sup>95</sup> IPART completed a major review of the WACC in 2013 (IPART, *Review of WACC methodology – Final Report*, December 2013). More recently, it has developed the method of estimating the debt margin and the inflation adjustment (IPART, *WACC - IPART's new approach to Estimating the cost of debt – Fact Sheet*, April 2014; IPART, *New approach to forecasting the WACC inflation adjustment – Fact Sheet*, March 2015).

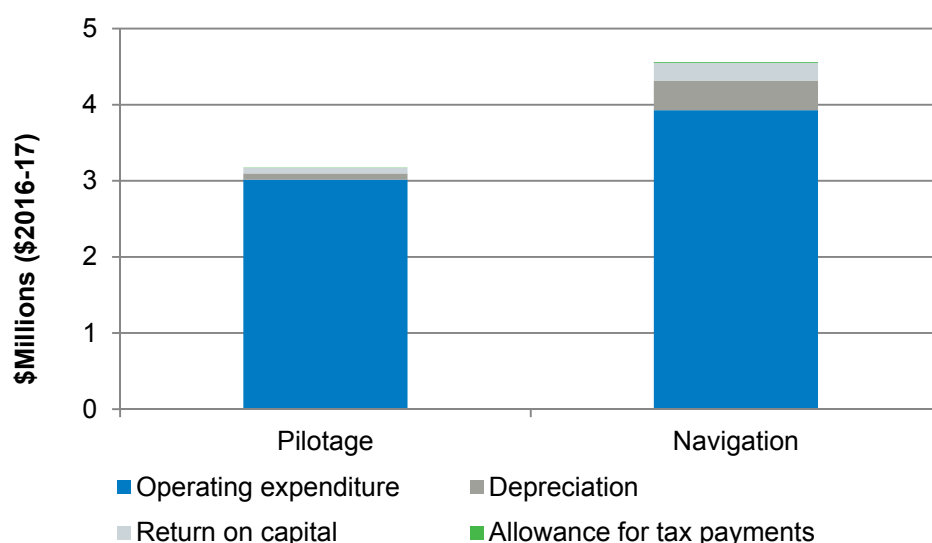
For industry-specific parameters we have undertaken empirical analysis of airports, ports and cruise lines, and considered regulatory decisions on international airports and ports, and our past decisions. In our view, in the absence of suitable proxies for a typical cruise terminal business, the best approach is to analyse risks of airports, ports and cruise lines in determining an appropriate gearing ratio and equity beta for a typical cruise terminal business. We considered airports because there are some similarities between airports and cruise terminals in that they both provide passenger terminal services and often earn revenues from leasing of food and beverage spaces and retail spaces. We considered cruise lines because revenues of cruise terminals would likely be positively correlated with customer demand for, and revenues of, cruise lines.

Appendix E provides more detail of our analysis, including our considerations of stakeholders' submissions on WACC.

## 5.4 Efficient costs of pilotage and navigation

We have not been asked to make recommendations on pilotage and navigation charges. However, we assessed the efficient costs of these services because we needed to determine whether there are any cross-subsidies between these charges. Our findings are summarised in Figure 5.3 below.

**Figure 5.3 Summary of cost building blocks for pilotage and navigation services for cruise ships in 2016-17 (\$2016-17)**



**Data source:** AECOM and IPART calculations.

We have not found evidence of cross-subsidies between charges to the cruise industry for site occupation, pilotage and navigation. However, in assessing the efficient costs of pilotage and navigation we found that the costs of providing these services are largely fixed per cruise ship visit. On this basis, a more cost-reflective charging structure would be per call, rather than based on gross tonnage. We understand from discussions with the Port

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Authority that its current charging basis for pilotage and navigation is common in the industry.<sup>96</sup>

We found that the level of the Port Authority's current pilotage charges do not vary substantially from our assessment based on efficient costs. However, we found that the discounts that the cruise industry receives on navigation charges are too high (by around 10% relative to 2016-17 charges).

Consistent with our draft finding, in assessing the efficient costs of navigation we decided to exclude the cost of channel fees.<sup>97</sup> We consider that there is no economic basis for the current channel fee paid by the Port Authority to RMS for the use of the Sydney Harbour channel and berthing boxes. The channel has essentially an unlimited life and the historic cost of the channel assets would have been already recovered. While the channels require little ongoing maintenance, any maintenance and capital costs are borne by the Port Authority and would be recovered through their charges. The marginal cost of using a channel is zero and the opportunity cost of the channel in isolation of other port assets is also zero. There appears to be no capacity constraints related to using the channel. In these circumstances, we consider there is no economic rationale for a channel fee.

In response to our Draft Report, the Port Authority submitted that the channel fee is a matter of government policy and not a cost that is controllable by the Port Authority. It submitted that our recommendation should relate to whether the charge should be applied, rather than whether the Port Authority is entitled to recover it.<sup>98</sup>

While we have not been asked to make recommendations about pilotage and navigation charges, we have made some findings in relation to these charges. The Port Authority's navigation charge includes the cost of channel fees paid to RMS, and for the reasons outlined above, we consider there is no economic basis for this fee. We have clarified our finding in this regard.

#### IPART findings

- 2 That a per call charge for the Port Authority's pilotage and navigation services would be more cost-reflective.
- 3 That the Port Authority's discounts to the cruise industry on navigation charges are too high.
- 4 That there is no economic basis for a channel fee for the Sydney Harbour channel and berthing boxes.

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<sup>96</sup> Discussions with Port Authority.

<sup>97</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, p 9.

<sup>98</sup> Port Authority submission, August 2016, p 16.

## 6 Forecasting cruise ship visits

Having forecast the efficient costs of providing site occupation, the next step in our approach is to forecast the number of chargeable cruise ship calls and passengers at each terminal over the next five years. We use these forecasts to recommend the level of charges that should apply to recover the Port Authority's efficient costs.

In making our recommendations, we considered the Port Authority's demand forecast provided to us, recent historical trends and industry outlooks. This chapter provides more detail about each of these and discusses the implications of demand forecasts at each terminal or berth.

### 6.1 Overview of our decisions on forecast demand

Our final decisions on forecast demand are summarised in Table 6.1 below.

**Table 6.1 Summary of forecast demand**

	2016-17	2017-18 to 2020-21
OPT	<ul style="list-style-type: none"><li>July and August - actual visits at OPT</li><li>September to June – scheduled bookings at OPT</li></ul>	Percentage growth in monthly visits based on the Port Authority's demand forecasts for OPT
WB5	<ul style="list-style-type: none"><li>July and August - actual visits</li><li>October to March – scheduled bookings at OPT</li><li>Other months – scheduled bookings at WB5</li></ul>	Percentage growth in monthly visits based on the Port Authority's demand forecasts for OPT (between Oct – Mar) and WB5 for other months

**Note:** To determine passenger numbers at WB5 we have applied the average number of passengers per call at WB5, based on the Port Authority's forecast.

Submissions to our Draft Report noted that our original demand forecast for 2016-17 was much lower than indicated in the Port Authority's booking schedule. We consider it reasonable to rely on the booking schedule for demand in 2016-17. As noted above, in later years we have based our forecast of demand on the Port's Authority's percentage growth in demand. This has resulted in an upward revision to our forecast demand (see Table 6.2) and reduces our recommended site occupation charges.

### 6.2 How demand affects our recommended site occupation charges

We recommend site occupation charges by taking our forecast of efficient costs as discussed in Chapter 5 and dividing this by the forecast annual number of chargeable calls or passenger numbers.

There has been substantial growth in the number of cruise ship visits to Sydney over the past five years. However, there is considerable uncertainty in forecasting the number of

visits by the cruise industry over the next five years. If forecast demand is relatively low, efficient costs are recovered from fewer calls/passengers leading to a higher charge for each. In contrast, if demand is relatively high, the charge per call/passenger is lower.

If demand significantly exceeds our forecasts, the industry would be paying charges that are too high and the Port Authority would over-recover its efficient costs. Alternatively, if demand falls lower than forecast, the Port Authority risks not recovering its efficient costs.

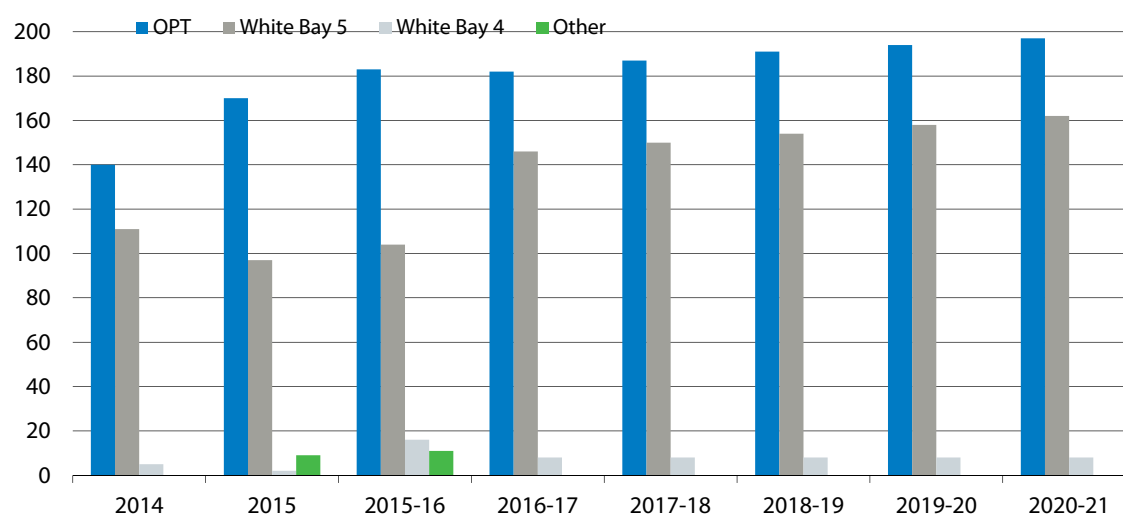
### 6.3 Demand forecasts in our Draft Report

The Port Authority provided demand forecasts to us for this review. We also invited other stakeholders to provide information relevant to forecasting cruise ship visits.<sup>99</sup>

In making our draft recommendations, we used the demand forecast provided by the Port Authority, with an adjustment for higher utilisation at WB5. The demand forecast for 2016-17 provided by the Port Authority was *based on actual bookings made in the system, but also included some downward adjustments given the practice of cruise lines to over-book the schedule in advance and then cancel nearer the time.*<sup>100</sup> Bookings made in 2016-17 also reflected a shift, by the cruise lines, towards booking home port vessels into WB5 wherever possible as opposed to at the OPT.

The Port Authority's actual and forecast calls and passengers for OPT and White Bay that we used to make our recommendations are shown in Figure 6.1 and Figure 6.2.

**Figure 6.1 Number of calls per terminal/berth (actual and forecast)**

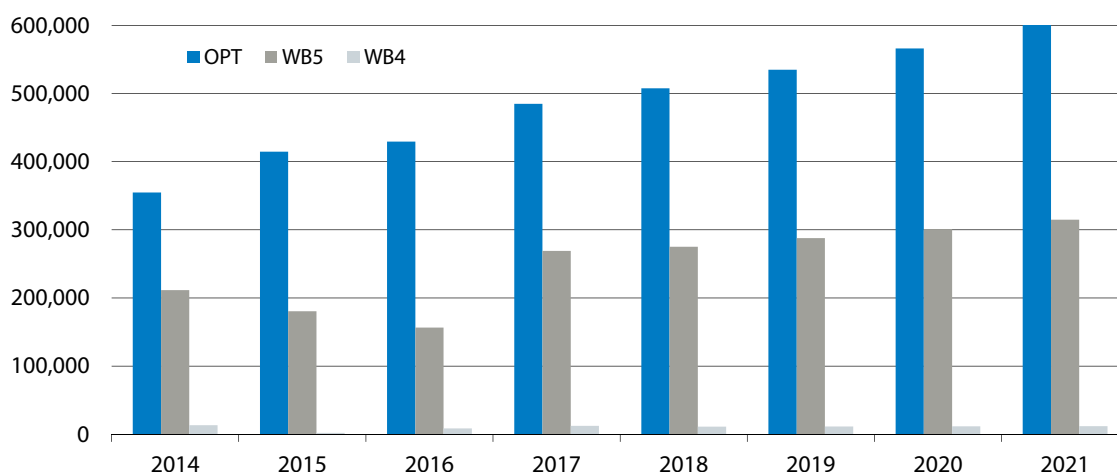


**Data source:** The Port Authority.

<sup>99</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour - Issues Paper*, March 2016, p 38.

<sup>100</sup> Information provided by the Port Authority of NSW, April 2016.

**Figure 6.2 Number of passengers (actual and forecast)**



**Data source:** The Port Authority.

Although we noted that the Port Authority's forecasts were conservative, we considered them to be the best source of information available to us. While the cruise industry provided evidence of recent strong levels of growth (Box 6.1), such levels may not be sustainable indefinitely, particularly in light of capacity restrictions at OPT.

#### **Box 6.1 Industry views on demand growth<sup>101</sup>**

The Cruise Lines International Association (CLIA) reports that in 2015 the number of annual ocean cruise passengers grew 14.6% to 1.06 million. This follows a decade of strong growth in Australian passenger numbers, averaging around 19.2% per annum. Australia has a current cruise penetration rate of 4.5% of the population: that is, 4.5% of Australian residents went on a cruise in 2015, up from 4.2% in 2014. This is the highest of any region in the world. By comparison, the next biggest market is North America with a penetration rate of 3.5%.

NSW was the largest source of Australian cruise passengers making up 39.9% of the market. NSW has a penetration rate of 5.5%, which is higher than the national average. These statistics indicate that demand for 'home port' cruises is currently strong and may remain so in the short-term. The industry target of 2 million passengers by 2020 requires an annual growth rate of 13.6% over the next five years. These figures are unconstrained, and do not take account of the size restrictions of ships at White Bay and capacity restrictions during the peak at OPT.

In addition to strong home port growth, international transit visits have also been growing in recent years. In 2015, the number of transit visits to Australia grew 5.4% from the previous year. Since 2008, Royal Caribbean has grown its cruise business in Australia from 50,000 to 250,000 passengers a year. Two out of five of Royal Caribbean's cruise brands now operate in Australia, contributing 55,000 international passengers a year.

<sup>101</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, pp 47-48.

### 6.3.1 Stakeholders submissions to our Draft Report

In response to our Draft Report, Royal Caribbean submitted that IPART should review the expected number of calls at OPT in 2016-17 as they may be underestimated.<sup>102</sup> CLIA also noted that it is unlikely for cruise companies to cancel bookings in a 24-36 month period unless there is an exceptional change in circumstances.<sup>103</sup>

Carnival considered IPART's demand forecasts overly conservative in light of prior growth and current market dynamics. Carnival noted that with cruise lines publishing and selling itineraries more than two years out from sailing, the practice of overbooking was unlikely to affect the 2016, 2017 and 2018 financial years.<sup>104</sup>

### 6.3.2 Our response to stakeholder submissions

Upon review, we determined that the number of calls we used to make our draft recommendations are 9% lower at OPT and 3% lower at WB5 than the number of calls in the current booking schedule on the Port Authority's website.

Given that we have already commenced the 2016-17 year, we consider that the bookings in the schedule are unlikely to vary substantially from the schedule, except in exceptional circumstances, because these are cruises that have already been sold. While it may be possible that there are some minor changes, these could vary the expected number of calls up or down.

For our final recommendations, we have updated demand forecast for 2016-17 based on actual visits and bookings currently in the system without any downward adjustment. We have used the number of calls based on actual visits for July and August 2016, and the number of bookings made in the system from September 2016 to June 2017. We then applied the percentage changes in monthly demand forecasts from the Port Authority's original demand forecast to work out monthly demand forecast for 2017-18 to 2020-21 (Table 6.2).

**Table 6.2 Forecast demand for draft and final recommendations (number of calls)**

	OPT		WB5	
	Draft	Final	Draft	Final
2016-17	182	199	181	186
2017-18	187	205	185	190
2018-19	191	209	189	194
2019-20	194	211	193	199
2020-21	197	214	197	202

**Source:** Port Authority booking schedule as of 7 September 2016 and IPART analysis.

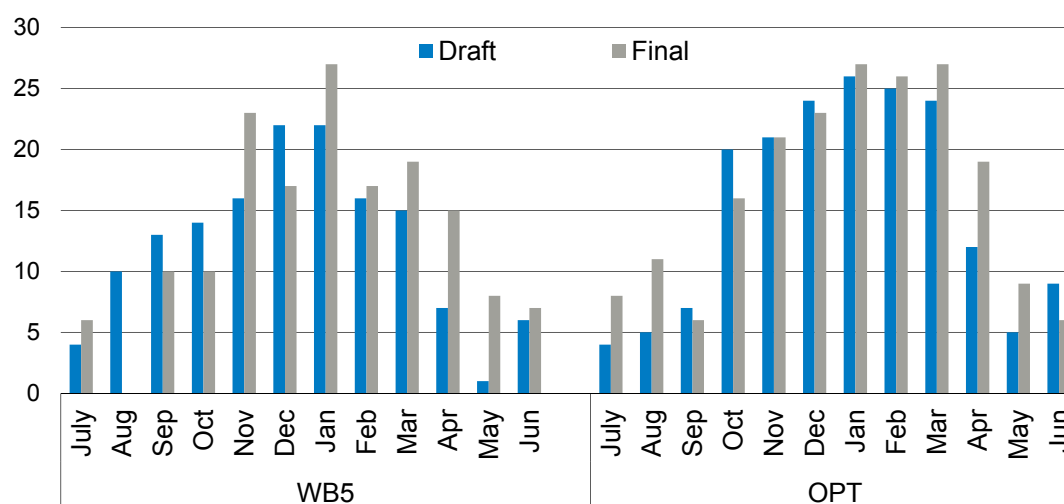
<sup>102</sup> Royal Caribbean submission, August 2016, p 3.

<sup>103</sup> CLIA submission, August 2016, p 6.

<sup>104</sup> Carnival Australia submission, September 2016, pp 15-16.

Updating the demand forecast results in a bigger difference between OPT and WB5. As Figure 6.3 shows, this is because OPT demand forecast outside October to March (ie, the months in which WB5 demand is set to be the same as OPT demand) is much higher than that used in our Draft Report.

**Figure 6.3 Demand forecast for 2016-17 (number of calls)**



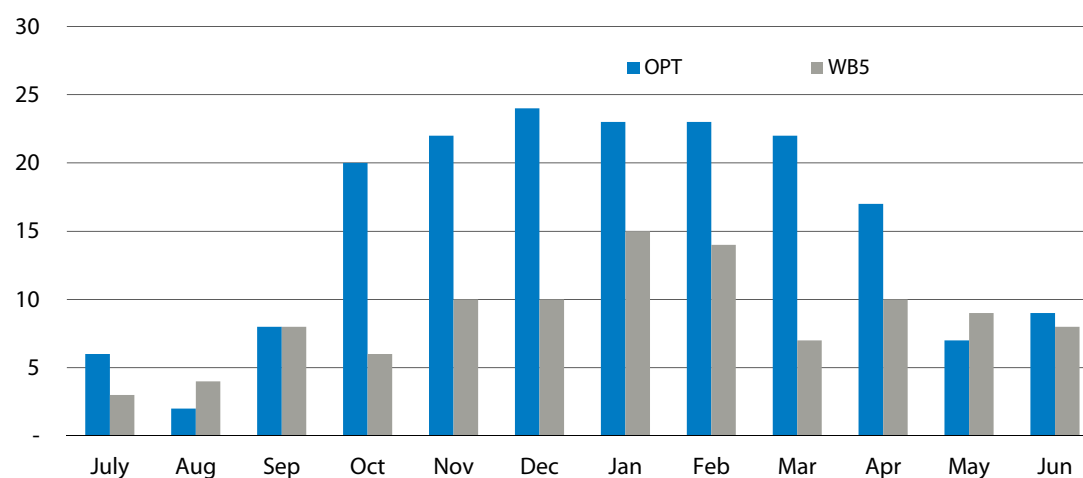
**Note:** Demand in July and August is based on the actual number of visits. Demand from September to June is based on scheduled bookings.

**Data source:** Port Authority of NSW.

## 6.4 Lower utilisation at White Bay

As shown in Figure 6.4, OPT currently has much higher utilisation relative to WB5, particularly between October and March.

**Figure 6.4 Comparison of number of calls at OPT and WB5 in 2015-16**

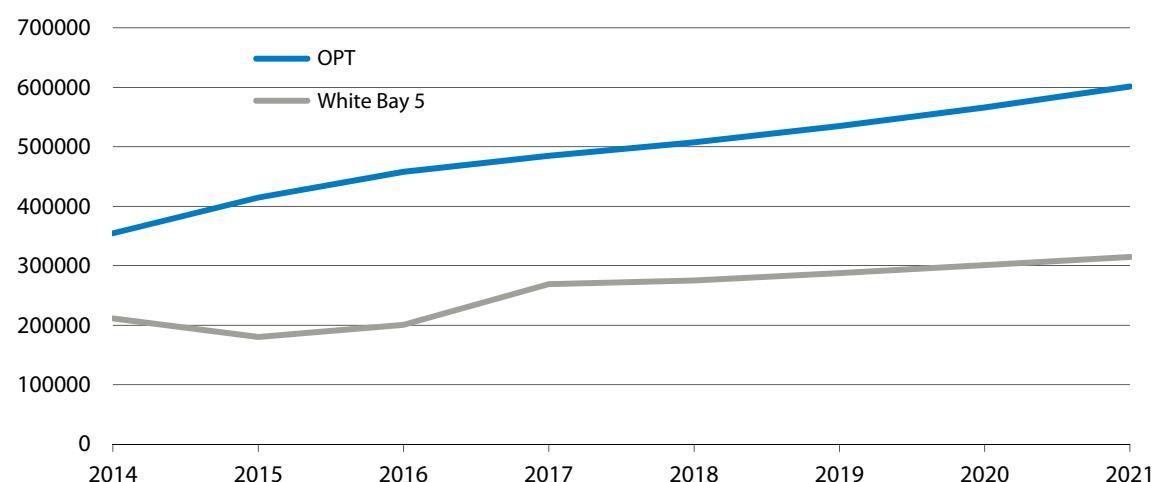


**Data source:** The Port Authority



In addition, passenger numbers grow at a faster rate for OPT, because average ship size is increasing, whereas ships that berth at WB5 are restricted in size. Figure 6.5 shows the actual and forecast average number of passengers per call for OPT and WB5 over the period.

**Figure 6.5 Chargeable passengers at OPT and WB5 (actual and forecast)**

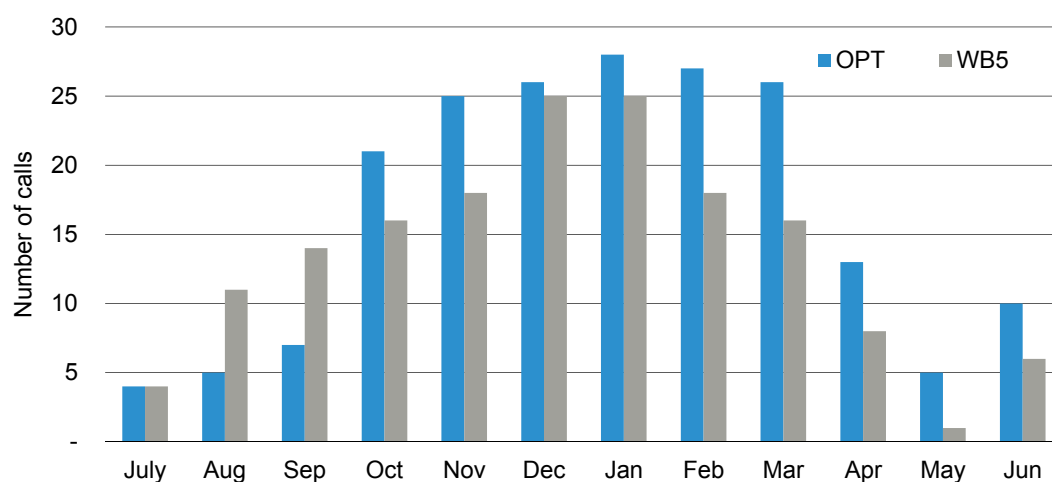


**Data source:** The Port Authority.

An implication of fewer calls and passengers at WB5 is that the efficient costs of the terminal are higher per call/passenger. All else equal, this means higher site occupation charges.

Because WB5 is still a relatively new terminal, low utilisation may be a temporary issue while the industry adjusts its operations and the Port Authority builds its customer base. The Port Authority projects a more similar level of utilisation between OPT and WB5 by 2021 (Figure 6.6). In its final report, AECOM found that if demand is higher than the Port Authority forecasts (around 7.0% per annum), WB5 could reach full capacity by 2021.

**Figure 6.6 Comparison of forecast demand at OPT and WB5 in 2021 (number of calls)**



**Data source:** The Port Authority.

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In our Draft Report, we adjusted the forecast demand at WB5 by using the Port Authority's demand forecasts for OPT between the months of October and March, and the Port Authority's WB5 forecasts during other months.

We considered that cruise passengers should not be asked to pay more because utilisation of WB5 is below capacity. This would not be the outcome in a competitive market. We gave the example that in a competitive market a new motel would not be able to charge customers extra to cover a large proportion of rooms that are unbooked. Instead, this would be a cost of establishing the business until it develops a reputation, builds its customer base, and operates at a higher utilisation.

An implication of using demand forecasts at WB5 that are higher than forecast by the Port Authority is that, should actual demand reflect the Port Authority's projections, it would recover less than 100% of its efficient costs at White Bay. Based on our recommended site occupation charges, this would be 79% at White bay and 91% overall. However, should demand at WB5 exceed the Port Authority's projections, cost recovery would be higher than these estimates.

#### **6.4.1 Stakeholder submissions to our Draft Report**

The Port Authority disagrees with our approach for setting the level of charges at White Bay (ie, increasing the forecast cruise ship visits so that customers do not pay for low utilisation). It considers that our 'motel example' is inappropriate as no firm would open a motel unless it expected to recover its efficient costs. While it may struggle to attract high utilisation initially, eventually it would expect to recover its costs. It considers either we should recommend charges at WB5 that either recover the building block costs, or include a mechanism to earn back any under-recovery in later charges.<sup>105</sup>

#### **6.4.2 Our response to stakeholder submissions**

We do not agree with the Port Authority that we should set maximum charges at White Bay that recover full building block costs over the 5-year building block period. We consider that the reasons put forward in our Draft Report that customers should not pay for low utilisation, are reasonable and appropriate for the current usage at White Bay.

While we agree with the Port Authority that a firm in a competitive market would not enter unless it expects to eventually recover its costs, we do not consider that our recommended charges at White Bay necessarily prevent the Port Authority eventually recovering its building block costs. In addition, while firms would enter the market expecting to recover their costs, it doesn't necessarily mean they will.

To the extent that demand for White Bay is higher than the Port Authority have forecast, moving towards utilisation at a similar level to OPT, then the Port Authority would recover a much higher proportion of its building block costs. AECOM's analysis shows that if demand was to exceed forecasts, White Bay could reach full utilisation and potentially by 2021.<sup>106</sup>

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<sup>105</sup> Port Authority submission, August 2016, p 9.

<sup>106</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships, Public Report*, 11 November 2016, p 14.

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We have retained our draft finding that site occupation charges at WB5 should be based on an adjusted level of utilisation, using forecasts at OPT from October to March for the review period.

## **6.5 Managing uncertainty in demand**

We acknowledge that the Port Authority's demand projections are conservative, and that there is substantial uncertainty about the level of demand in future years. We have recommended a demand management mechanism at OPT to manage the risk of demand being substantially more or less than our forecast.

The mechanism is explained in Chapter 4 where we outline our recommended approach for updating site occupation charges. Information on how we developed the 'adjustment factors' used to adjust site occupation charges is provided in Appendix F.

## **6.6 Demand forecasts at WB4**

The berthing facility at WB4 is used relatively infrequently by the cruise industry and is also used for non-cruise activity. We found that a site-specific charge for WB4 would likely exceed the cruise industry's willingness to pay, and not reflect the reduced level of service and facilities at this location. We have not used the Port Authority's demand forecasts for WB4 to make our recommendations. Instead, we have recommended a site occupation charge at WB4 equivalent to half the charge at WB5 (consistent with the Port Authority's current charging arrangement).

## 7 Impacts of our recommendations

In line with our terms of reference, in this chapter we have assessed how our recommendations would affect key stakeholders, including the Port Authority and cruise operators.

In the first section of this chapter, we assess the effect of our recommendations on the commercial viability of the Port Authority. We then assess the implications for the cruise industry and the NSW economy.

### 7.1 Commercial viability of the Port Authority

Our recommendations on maximum site occupation charges need to maintain the commercial viability of the Port Authority's cruise business. In other industries we regulate, we use an established financeability test to consider the effect of our decisions on the business' financial sustainability. In particular, we assess whether our decisions would enable the regulated business to raise finance consistent with an investment grade rated (Baa2) firm over the regulatory period.

While we do not regulate the Port Authority's charges, we consider that our financeability test is a useful framework to assess how our recommendations would affect the Port Authority's commercial viability.

In the context of this review, our financeability test involves:

- ▼ constructing financial statements for the Port Authority's cruise ship business
- ▼ using the Port Authority's actual cost of debt and gearing levels to compute the following three financial ratios:
  - **funds from operations (FFO) interest cover** calculated as FFO plus interest expense divided by interest expense. This is a coverage ratio and measures the ability to service debt.
  - **debt gearing (regulatory value)** calculated as debt divided by the asset base. This is a leverage ratio and measures ability to repay debt.
  - **FFO over debt** calculated as FFO divided by debt. This is a more dynamic measure of leverage than debt gearing and a useful indicator of ability to generate cash flows.
- ▼ comparing these financial ratios against our Baa2 benchmark levels, and
- ▼ making an overall assessment taking into account the financial ratios, financial statements and other relevant information which could affect financial sustainability.<sup>107</sup>

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<sup>107</sup> For more information on our financeability test, see IPART, *Financeability tests in price regulation – Final Decision*, December 2013.

As noted above, to assess the effect of our recommended charges on the Port Authority's cruise ship business, we constructed financial statements for the cruise ship segment of the Port Authority as a stand-alone business, based on our recommended charges and the Port Authority's charges for navigation and pilotage services for 2016-17 to 2020-21. Therefore, Table 7.1 shows our forecast financial ratios for the Port Authority's **cruise ship business**. Table 7.2 shows our financial ratio benchmarks.

**Table 7.1 Forecast financial ratios for the Port Authority of NSW's cruise ship business**

	2016-17	2017-18	2018-19	2019-20	2020-21
FFO Interest Cover	4.4	4.9	5.9	8.0	11.1
Debt/RAB	37%	33%	27%	19%	13%
FFO/Debt	22%	27%	37%	57%	96%

Source: IPART calculations.

**Table 7.2 Financial ratio benchmarks**

	A3	Baa1	Baa2	Baa3	Ba1
FFO Interest Cover	>2.9	2.3 - 2.9	1.7 - 2.5	1.4 / 1.5 - 1.7	<1.4 / 1.5
Debt/RAB	<60%	80%-85%	60%-91%	90%-100%	>100%
FFO/Debt	>10%	>10%	6-10%	5-8%	<4%

Source: Kananga Ratings Advisory Services advice to IPART, see IPART, *Financeability tests in price regulation Research — Final Decision*, December 2013, p 10.

The tables above indicate that overall the financial ratios for the Port Authority's cruise ship business are projected to be consistent with a credit rating of A3 based on all financial ratio benchmarks, in every year of our review period. While our recommended site occupation charges are less than the Port Authority's proposed charges, the recommended charges still enable the Port Authority's cruise ship segment as a stand-alone business to achieve a credit rating of A3, which is well above our benchmark investment grade rating of Baa2.

Therefore, we consider that our recommendations would not adversely affect the ability of the Port Authority to operate, maintain, renew and develop the assets required to deliver its cruise ship services over the review period.

## 7.2 Impact on the cruise industry

The cruise industry contributes to local economies through employment and spending from cruise operators, passengers and crew. Our recommendations on site occupation charges have the potential to affect the growth and viability of the cruise industry and the benefits this industry provides to the NSW economy.

### 7.2.1 How our recommendations compare to current and proposed charges

Our recommendations are compared with the Port Authority's current and proposed charges for 2017-18 in Table 7.3 below. We have used 2017-18 for our analysis as it is the first full financial year in which the charges could be implemented.

**Table 7.3 Comparison of recommendations to the Port Authority's current and proposed charges (\$nominal)**

	Current charge	Port Authority's proposed charge in 2017-18	Our recommended charge in 2017-18
OPT	\$30 / passenger	\$35.70 / passenger	\$73,800 / call
WB5	\$30 / passenger	\$35.70 / passenger	\$31.80 / passenger
WB4	\$15 / passenger	\$17.85 / passenger	\$15.90 / passenger

**Source:** IPART; Port Authority submission, May 2016, p 9.

For WB5 and WB4, our recommendations represent an increase of around 6% on current charges. However, they are around 11% below the Port Authority's proposed charges in 2017-18. At OPT, the effect of our recommended charge of \$73,800 per call would depend on the size of the cruise ship. Cruise ships with at least 2,460 passengers would pay a charge no higher than the current charge of \$30 per passenger, and those with at least 2,067 passengers would pay a charge no higher than the Port Authority's proposed charge.

However, the implications are most relevant for smaller ships at OPT that are unable to berth at White Bay. In Table 7.4 we show the implications of a per call charge for different sized ships that can only visit the OPT due to their size. According to the booking schedule for 2017-18, vessels unable to fit under the Sydney Harbour Bridge will carry an average of 2,819 adult passengers. Based on our recommended per call charge of \$73,800, this would translate to \$29.10 per passenger, similar to the Port Authority's current charge.

**Table 7.4 Implications of per call site occupation charges at OPT in 2017-18**

Vessel	Adult passengers	Implied charge per passenger (\$2017-18)
Typical ship at OPT	2,819	\$29.10
Smallest ship (Aurora)	1,950	\$42.10
Largest ship (Ovation of the Seas)	4,905	\$16.70
White Bay ship	1,793	\$31.80

**Note:** The number of adult passengers is calculated assuming a cruise ship operates at 90% of its passenger capacity.

**Source:** The Port Authority and IPART analysis.

The Aurora and Ovation of the Seas are the smallest and largest cruise ships by registered passenger capacity that berth at OPT. Assuming that they operate at 90% of their passenger capacity, our recommended charge would translate to around \$42.10 per passenger for the Aurora and \$16.74 per passenger for the Ovation of the Seas.

Based on the characteristics of scheduled cruise ship visits to OPT in 2017-18<sup>108</sup>, we estimate that 77% of calls would face an effective per passenger charge lower than that proposed by the Port Authority in 2017-18. However, 18% of scheduled calls at OPT could reduce their effective site occupation charges by berthing at White Bay instead.<sup>109</sup> The remaining 5% would face a higher site occupation charge.

<sup>108</sup> As per the current booking schedule.

<sup>109</sup> This takes into account whether the ship is able to sail under Sydney Harbour Bridge to berth at White Bay and whether the WB5 terminal is available on the same day.

## 7.2.2 Financial impact on operators

We analysed the overall financial impact of our recommended site occupation charges on each operator for the 2017-18 financial year, compared to the Port Authority's proposed charge. We took into account the effective site occupation charge that each operator would face for all visits to all terminals. We assumed a 90% average passenger capacity.

We found that over the course of the year, all cruise operators would be better off compared to the Port Authority's proposed charge. This is because higher charges faced by a few ships at OPT would be largely offset by lower charges at White Bay. For users of WB5 and WB4, our recommended charges are lower than the Port Authority's proposed charges (Table 7.5).

**Table 7.5 Annual site occupation costs for operators in 2017-18 (\$2017-18m)**

Invoice agent	Carnival	Royal Caribbean	ISS	BWL	Total
Annual SOC - IPART	15.05	6.91	0.55	0.06	22.57
Annual SOC - PA <sup>a</sup>	16.16	10.36	0.58	0.06	27.17
Difference	-1.11	-3.46	-0.03	-0.01	-4.60

<sup>a</sup> Based on a site occupation charge of \$35.70 in 2017-18, which is the 2016-17 charge of \$35 inflated by CPI for one year.

**Note:** This takes into account all calls at WB5, WB4 and OPT over the course of the year.

**Source:** Port Authority booking schedule for 2017-18 and IPART calculations.

## 7.2.3 How would operators respond to our recommended change in site occupation charge?

The price differential between terminals offers operators an opportunity to book at the lower-cost White Bay location, which would result in further savings. In 2017-18 there are 51 ships scheduled to call at OPT, which have the ability to berth at White Bay. Of these, 40 are scheduled to call on a day where WB5 is vacant. If all of these ships chose to reschedule their booking at White Bay it would result in a further gain as shown in Table 7.6 below.

**Table 7.6 Annual site occupation costs for operators in 2017-18 with demand response (\$2017-18m)**

Invoice agent	Carnival	Royal Caribbean	ISS	BWL	Total
Annual SOC - IPART	14.22	6.87	0.52	0.06	21.66
Annual SOC - PA <sup>a</sup>	16.16	10.36	0.58	0.06	27.17
Difference	-1.94	-3.49	-0.06	-0.01	-5.50

<sup>a</sup> Based on a site occupation charge of \$35.70 in 2017-18, which is the 2016-17 charge of \$35 inflated by CPI for one year.

**Note:** This takes into account all calls at WB5, WB4 and OPT over the course of the year.

**Source:** PA booking schedule for 2017-18 and IPART calculations

Further, it would result in a 38% increase in demand at WB5 and an 18% decrease in demand at OPT.

We note that there are factors other than price that may influence an operator's decision to berth at one terminal over another, including convenience and passenger experience.



Otherwise, there would be more ships that berthed at the cheaper WB4 berth. As such, we consider that this is an upper bound of the likely demand response that could be expected.

#### 7.2.4 How do cruise passengers respond to price changes?

Any increase in site occupation charges should be considered relative to the overall cost of cruising. For a relatively inexpensive cruise from Sydney of \$399 per person, a \$5 per passenger increase in site occupation charges would represent an increase of 1.3% in the cost of the cruise trip. The percentage increase would be lower for more expensive cruises.

There have been relatively few studies that examine how cruise travellers respond to price changes. One recent study in New Zealand found that price increase may not substantially affect the decision to take a cruise (Box 7.1).

The growth in cruise ship visits to Sydney has continued despite increases in site occupation charges over recent years. This may relate to Sydney being considered a premium destination for cruising. However, the submission from Royal Caribbean Cruise Lines noted that this doesn't take into account that deployment decisions are made two to three years in advance, that growth may have been higher had charges not increased, and that alternative markets are developing including in Asia.<sup>110</sup>

##### **Box 7.1 Effect of the New Zealand Border Clearance Levy on cruise passengers**

In 2015, Sapere Research Group examined the potential effects of the introduction of a \$22 New Zealand Border Clearance Levy on the number of tourists visiting New Zealand and consequently on tourist expenditure. This study relied on demand elasticity estimates for New Zealand tourism by Schiff and Becken (2011) who estimated constant price elasticities of arrivals.

The Sapere analysis concluded that potential cruise passengers' decisions to travel to New Zealand are unlikely to be substantially affected by imposition of the levy. The analysis predicted that a \$22 levy would reduce the number of cruise passengers travelling to New Zealand from Australia by 0.5%.

**Source:** Sapere Research Group, *Effects of an increase in travel ticket price on New Zealand tourism – Report prepared for the Ministry of Primary Industries*, September 2015, p 12.

Relative to the Port Authority's current site occupation charges, we consider that our recommendations would have a very minor effect on the cost of cruising in Sydney, and would not substantially effect the growth of the cruise industry and subsequent benefits to the NSW economy.

### 7.3 Broader economic benefits and costs of the cruise industry in NSW

Throughout this review, there has been much discussion about the possible economic benefits of the cruise industry to the NSW economy. In our Issues Paper, we noted that the cruise industry contributes to local economies through employment and spending from cruise operators, passengers and crew. We noted that various studies have estimated these

<sup>110</sup> Royal Caribbean submission, May 2016, pp 6-7.

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economic impacts. For example, a study commissioned by Cruise Down Under, submitted by CLIA, estimated the direct expenditure (including both domestic and international passenger, crew, operator and corporate expenditure) by the cruise industry in Sydney in 2014-15 was \$1.1 billion.<sup>111</sup>

### 7.3.1 Stakeholder submissions on economic benefits and costs

Royal Caribbean submitted that there has not been sufficient acknowledgement of the industry's economic contribution and employment creation to NSW.<sup>112</sup> Carnival stated that any assertion that the cruise industry is subsidised should only be made after considering the opportunity costs of relocating or terminating cruise services in Sydney.<sup>113</sup>

In contrast, the 'Stop Cruise Ship Pollution' group submitted a report by the Competition Economists Group that stated that the economic benefits in the Cruise Down Under report were overstated for a number of reasons:

- ▼ They use an input-output measure instead of value-added GDP, which is 'widely discredited' and overstates the economic contribution of an activity.
- ▼ They include 'transfers' and do not exclude domestic passenger expenditure that would occur in another area of the domestic economy.
- ▼ They do not take into account gains from international tourists that would otherwise occur via other means.
- ▼ They do not account for negative externalities.<sup>114</sup>

In his submissions to our Issues Paper, Mr Van Der Weyden, an individual, noted that there is a problem with noise and pollution from on-board diesel generators at White Bay. He suggested that ship-to-shore power should be used instead, and that this could be funded by a \$20 per passenger pollution tax.<sup>115</sup> The Sydney Harbour Association also stated that there are environmental costs associated with cruise ships in Sydney Harbour, and that the site occupation charge should enable the Port Authority to recover costs to protect the nearby amenity of residential communities.<sup>116</sup>

A submission by Ms M. Marinkovic, an individual, also suggested that IPART should take into account the health and marine costs associated with cruise ship pollution.<sup>117</sup>

### 7.3.2 Our response to stakeholder submissions

#### Economic benefits do not justify a subsidy of site occupation charges

While the cruise industry contributes to economic activity in NSW, in our view this does not necessarily imply it should receive a discount or subsidy through port charges. Many of the

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<sup>111</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Issues Paper*, May 2016, p 50.

<sup>112</sup> Royal Caribbean submission, August 2016, p 2.

<sup>113</sup> Carnival Australia submission, September 2016, p 4.

<sup>114</sup> Competition Economists Group, *Economic Contribution of the cruise industry – Final*, August 2016, p 2.

<sup>115</sup> C. van der Weyden submission, April 2016, p 1.

<sup>116</sup> Sydney Harbour Association submission, May 2016, p 1.

<sup>117</sup> M. Marinkovic, submission, September 2016.

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benefits provided by visiting cruise ships may be considered ‘private benefits’. That is, economic transfers to businesses who service the industry and individuals who gain employment. Similar private benefits are provided by many industries including hotels, airports and airlines and other tourism operators.

We consider that there is no economic justification for providing an explicit subsidy to site occupation charges for private benefits. However, as discussed in Chapter 5, the NSW Government provides a subsidy by making land on which cruise terminals are provided available at less than its opportunity cost. We have taken into account the benefits provided by the industry by ensuring that our recommended maximum charges do not substantially effect the growth and viability of the cruise industry.

### **Site occupation charges are not the right mechanism to address pollution concerns**

Our recommended maximum charges allow the Port Authority to earn sufficient revenue to recover the efficient costs of providing its services, including meeting legal requirements mandated by parliament and government. These include obligations under the Environment Protection Licences that the Port Authority holds with the NSW Environmental Protection Authority.

In exceptional circumstances, we would consider, and could allow, expenditure proposals to achieve standards higher than those mandated by government. In such a case, we would require clear evidence that it would be prudent and efficient for customers to pay extra to exceed the mandated standards. For instance, we would consider:

- ▼ whether the proposal would fit best with Port Authority’s responsibilities or whether it would fit best with another party or parties’ responsibilities such as another arm of government, and
- ▼ whether the Port Authority’s customers have both the capacity and willingness to pay more to realise the higher standard.

We note that the NSW Government introduced the *Protection of the Environment Operations (Clean Air) Regulation 2010* to limit the sulphur content of fuel used by cruise ships to reduce the health impacts of fine particles and diesel emissions.<sup>118</sup> However, due to amendments by the Commonwealth to its own legislation, the low sulphur fuel regulation is now not in effect. At present, cruise lines are voluntarily continuing to use low sulphur fuel at berth and the EPA has made representations to the Commonwealth for an amendment to its legislation to rectify this situation.<sup>119</sup>

We consider that this matter is best addressed through changes to the Commonwealth Government’s legislation and the action of cruise operators, rather than by increasing charges to deter cruise ships. On balance, having considered all stakeholder submissions, we consider that there is no case for departure from our standard procedure of allowing sufficient revenue to meet efficient costs only at this time.

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<sup>118</sup> See <http://www.epa.nsw.gov.au/air/cruise-ship.htm>, accessed 11 November 2016.

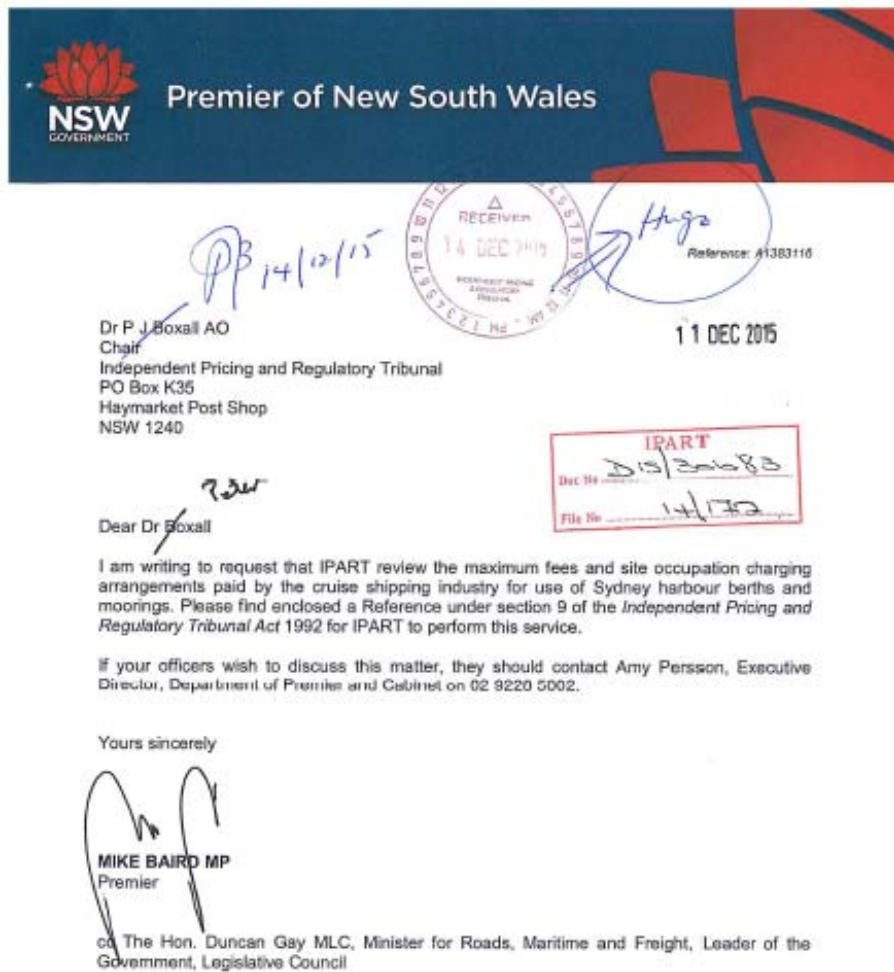
<sup>119</sup> As advised by Transport for NSW, 31 October 2016.



## Appendices



## A Terms of reference



## TERMS OF REFERENCE

Review of site occupation charges for cruise ships using the Overseas Passenger Terminal at Circular Quay and White Bay Cruise Terminal

I, Mike Baird, Premier of New South Wales, pursuant to Section 9 of the Independent Pricing and Regulatory Tribunal Act 1992, request IPART to conduct an investigation into the maximum fees and site occupation charging arrangements paid by the cruise industry for use of the Overseas Passenger Terminal, the White Bay Passenger Terminal and any other berths and moorings used by the cruise industry in Sydney Harbour.

In conducting its review IPART should recommend fees that reflect:

- The efficient cost (capital and operating) of providing existing cruise services by the Port Authority of New South Wales (PANSW) and the scope for greater efficiency in the supply of existing services so as to reduce costs, improve passenger experience and enhance efficiencies and turnaround times.
- An appropriate site occupation charge structure and charging arrangements.
- The need to maintain the commercial viability of PANSW's cruise infrastructure.

IPART should also recommend an appropriate approach for updating site occupation charges on an annual basis that considers administrative costs, promotes a clear and simple pricing structure and provides certainty over the medium term for the cruise industry and PANSW.

IPART should also provide advice on pricing mechanisms to improve the allocative efficiency of cruise infrastructure, with the effect of maximising the economic benefit of the cruise industry to the NSW economy, while avoiding cross-subsidies and overly complex pricing structures. This analysis should consider the relative economic benefits of different cruise market segments in Sydney, e.g. home port and transit and by ship size.

In providing recommendations IPART should have regard to:

- The total port costs and charges incurred per visit by the cruise industry for use of the Overseas Passenger Terminal, the White Bay passenger terminal and any other berths and moorings used by the cruise industry in Sydney Harbour.
- The equivalent charges applicable to the cruise industry in other national and international jurisdictions and the rates of return derived from these charges in these jurisdictions.
- The benefits of the cruise industry to the NSW economy and the effect any recommendations may have on the viability and growth of the cruise industry.
- Whether there should be different charging schedules and arrangements for use of the different berthing facilities.
- Changes required to the regulatory framework to encourage the efficient operation of the passenger cruise terminal facilities operated by PANSW.
- Potential reforms that could provide savings to business and the community, including net benefits for NSW, and budget implications for Government.
- An appropriate rate of return on port assets across 12 months (given the seasonal nature of cruising).



IPART should undertake public consultation. A draft report should be publicly released for comment within six months of receiving this Terms of Reference. A final report should be provided to the Minister for Roads, Maritime and Freight within ten weeks after release of the draft report.

The Minister for Roads, Maritime and Freight will provide copies of the final report, upon receipt from IPART, to the Treasurer and Minister for Industrial Relations and Minister for Finance, Service and Property, in their capacity as the voting shareholders of PANSW.



The Hon. Mike Baird MP

Premier

Minister for Western Sydney

Dated at Sydney .....10 / 12 / .....2015

## B Information about the Port Authority

In this appendix, we provide more information about the Port Authority's roles and functions and its current charges for the cruise industry.

### B.1 The Port Authority's role and functions

The Port Authority of New South Wales, a state-owned corporation, owns and operates two dedicated cruise passenger terminals in Sydney Harbour – the Overseas Passenger Terminal (OPT) in Circular Quay, and the White Bay Cruise Terminal (WB5) near Balmain, as well as other passenger berthing and mooring facilities in Sydney Harbour.

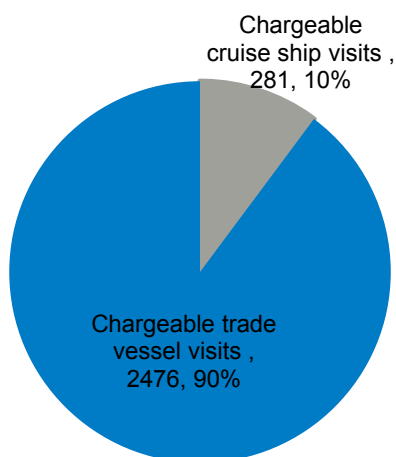
The Port Authority's statutory objectives and functions are derived from the *State Owned Corporations Act 1989*, *Ports and Maritime Administration Act 1995* and its Port Safety Operating Licence. In addition to operating the cruise ship terminals at Sydney Harbour, its responsibilities in all ports include:

- ▼ the role of Harbour Master
- ▼ management of harbour/port approaches and channels
- ▼ safety of navigation and shipping movements
- ▼ pilotage
- ▼ port security
- ▼ safety of operations
- ▼ management of dangerous goods regulations
- ▼ contingency planning and emergency response to marine-based incidents, and
- ▼ clean-up of spills in the marine environment.<sup>120</sup>

The Port Authority provides these services for both cruise and non-cruise trade vessels. In 2014-15, around 10% of chargeable vessel movements in Sydney Harbour and Port Botany related to cruise ships (Figure B.1).

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<sup>120</sup> Port Authority of NSW, *Annual Report 2014-15*, p 9.

**Figure B.1 Chargeable vessel visits in Sydney, 2014-15**

**Note:** Trade vessel visits include Sydney Harbour and Port Botany.

**Data source:** Port Authority of NSW, *Annual Report 2014-15*, p 17.

While the Port Authority owns many of the assets that are used to provide its services, the seabeds of Sydney Harbour, Botany Bay, Newcastle Harbour and Port Kembla and the channels and berthing boxes are owned by Roads and Maritime NSW (RMS). These are licensed to the Port Authority for its non-exclusive use.

### B.1.1 The Port Authority's passenger terminals in Sydney Harbour

The Port Authority resources each cruise terminal with an onsite Duty Manager of Operations supported by an asset manager who manages and oversees all aspects of terminal operations including ship day activities. In addition to these, it has non-dedicated passenger berth, White Bay 4, which is available, but infrequently used by cruise ships.

The Port Authority publishes a cruise schedule on its website<sup>121</sup> that enables cruise ship operators to see when OPT, WB5 and WB4 are available in the coming years. The schedule shows the projected arrival and departure times of cruise ships booked to berth at each facility. Currently, bookings are made on a first come first served basis, with established protocols around this process.<sup>122</sup> The Port Authority is in the process of reviewing its booking system and is currently consulting with stakeholders independently of this review.

<sup>121</sup> The Port Authority cruise schedule is available at [http://www.sydneyports.com.au/port\\_operations/cruise\\_schedule](http://www.sydneyports.com.au/port_operations/cruise_schedule).

<sup>122</sup> The passenger vessel protocol is available at [http://www.sydneyports.com.au/\\_\\_data/assets/pdf\\_file/0016/33226/Passenger\\_Vessel\\_Booking\\_Protocol\\_2016\\_Final.pdf](http://www.sydneyports.com.au/__data/assets/pdf_file/0016/33226/Passenger_Vessel_Booking_Protocol_2016_Final.pdf).

## Overseas Passenger Terminal

The OPT is located on Circular Quay, within sight of some of Sydney's major tourist attractions and on the edge of the CBD. It has undergone several makeovers since it opened in 1960. The most recent upgrade, completed in 2015, improved the terminal's efficiency and capacity to service the growing cruise market. This upgrade included a new mezzanine floor for passenger check-in, new lifts, escalators and a large travelator and more space for baggage. The new design and additional floor space enables passengers to embark and disembark at the same time reducing a ship's turnaround time by up to 2.5 hours.<sup>123</sup>

At the same time as the terminal upgrade, the OPT wharf was extended by 60 metres so that it can host the increasing number of large cruise ships visiting Sydney. For example, this includes the *Ovation of the Seas* which is scheduled to berth at the OPT in December 2016. At close to 170,000 gross tonnes and 5,000 passengers, this will be the largest cruise ship to sail in Australian waters.

## White Bay Cruise Terminal

This is a modern terminal located at WB5. Officially opened on 19 April 2013, it features approximately 4,000 square meters of floor space, a dedicated baggage drop facility and short-term parking for up to 200 vehicles. The arrivals and departures halls can cater for up to 2,400 passengers at a time.<sup>124</sup> It can also host functions or events on non-cruise days. The White Bay Cruise Terminal is the designated 'home port' for cruise ships serving the domestic market.

## Other berthing and mooring facilities

A non-dedicated passenger terminal can be provided adjacent to WB5, at WB4, by erecting temporary structures for customer clearance and baggage storage. This enables two cruise ships to berth at White Bay at the same time. It is also possible for two cruise ships to share the WB5 operational space, sharing the costs for security and cleaning, with no requirement for temporary infrastructure at WB4.

There are also berthing facilities at Glebe Island 1 and 2 that cruise ships could use if OPT, WB5 and WB4 are all occupied. However, the Port Authority has informed us that no cruise ship has docked at Glebe Island in the last 30 months and they have not forecast any cruise ships using those facilities in the future. Most of the time, these and other non-passenger berthing facilities<sup>125</sup> are used for:

- ▼ loading and unloading vessels transporting construction materials, other bulk materials and bulk liquids

<sup>123</sup> Advice from the Port Authority of NSW.

<sup>124</sup> Sydney Ports Corporation, *Annual Report 2012-13*, October 2013, p 29.

<sup>125</sup> Including White Bay 3 and Glebe Island 7 and 8.

- ▼ refuelling cruise and other ships, and/or
- ▼ undertaking emergency response and repairs to vessels.<sup>126</sup>

Additional mooring facilities are also available on the buoys at Athol Bay and Point Piper.

## B.2 The Port Authority's current charges for cruise ships

The Port Authority provides three main services to all cruise ships in Sydney Harbour, for which it levies compulsory charges:

- ▼ site occupation at berth or terminal
- ▼ navigation services, and
- ▼ pilotage.

It also provides mooring and other miscellaneous services, for which it charges cruise vessels separately. Not all of these services are provided directly by the Port Authority. The Port Authority may outsource the service or act as the intermediary to organise the service, in which case it passes through the cost directly to the cruise ship.

Cruise ship passengers also pay a passenger movement charge to the Commonwealth Government. Cruise ships may also arrange and pay for services unrelated to the Port Authority, such as refuelling and restocking food and beverages. We have not made recommendations about these charges, as they are outside the scope of our terms of reference.

### B.2.1 Site occupation charge

The site occupation charge is a fee for the use of a berthing facility. Currently, the site occupation charge is based on the number of incoming passengers arriving on the cruise ship<sup>127</sup>, and is charged per 24-hour slot. This means if a cruise ship's stay at port is 12 hours, it pays for one 24-hour slot. If it stays 25 hours, it pays for two 24-hour slots. Table B.1 summarises the current level of these charges.

<sup>126</sup> Port Authority of NSW, *Annual Report 2014-15*, p 17; Port Authority of NSW, *Annual Report 2013-14*, p 13.

<sup>127</sup> As recorded in the ship's Inward Passenger Manifest Declaration, excluding infants and crew.

**Table B.1 Site occupation charge for cruise ships in Sydney Harbour – per passenger, per 24-hour slot (from 1 July 2016)**

Site type	Charge (ex-GST)
<b>Dedicated passenger terminal</b> (OPT and WB5)	\$30
<b>Non-dedicated passenger terminal</b> (WB4)	\$15

**Source:** Port Authority of NSW, *Schedule of Port Charges Sydney - Effective 1 July 2016*, p 8.

The site occupation charge for WB4 is half the rate for the dedicated passenger terminals because, as discussed above, there are no permanent passenger facilities there. Temporary shelters are erected when it is used by a cruise ship, and the ship pays for the cost of this. Some cruise ships – for example vessels in transit – prefer to book WB4 to take advantage of the lower charge.

### Non-passenger berths

There are also site occupation charges for non-passenger berths as outlined in Table B.2. These are hourly rates and may apply if a cruise ship was waiting to access a passenger berth. A lay-up rate only applies to those vessels which are undergoing emergency repairs, emergency maintenance, or which cannot otherwise carry out normal operations.

**Table B.2 Site occupation charge for cruise ships in Sydney Harbour – per passenger, per 24-hour slot (from 1 July 2016)**

Site type	Charge (ex-GST)
<b>Non-passenger berths</b> (eg, Glebe Island 1,2,7 & 8; White Bay 3)	\$121.76
<b>Lay-up rate</b> (for dedicated, non-dedicated and non-passenger berths) – pre-approval required	\$36.52

**Source:** Port Authority of NSW, *Schedule of Port Charges Sydney - Effective 1 July 2016*, p 9.

### Mooring fees

Mooring fees are time-based charges applied to all vessels for the use of buoys. A vessel is taken to be moored if it is secured to or otherwise held on a buoy or if it is one of a number of vessels secured to or otherwise held together on a buoy.

A navigation light handling fee is levied for the removal and subsequent installation of navigation lights on a buoy. It is always charged to vessels that incur a mooring fee and is applied per vessel, per use (See Table B.3).

**Table B.3 Mooring fees from 1 July 2016**

Type	Charge (ex-GST)
Buoy (per vessel, per hour)	\$36.52
Navigation light handling fee (flat rate per vessel, per use)	\$593.94

**Source:** Port Authority of NSW, *Schedule of Port Charges Sydney - Effective 1 July 2016*, p 12.

### B.2.2 Navigation services charges

Navigation Services Charges are authorised by the *Ports and Maritime Administration Act 1995*, Part 5, Division 2 and are payable in respect of the general use by a vessel of a designated port and its infrastructure.

The charges relate to the provision of the following services and facilities to vessels:

- ▼ Channels and Berthing Boxes (Maintenance Dredging)
- ▼ Hydrographical Surveys
- ▼ Navigation Ads
- ▼ Ports Operations (Communications, Traffic Control and Integrated Vessel Surveillance System)
- ▼ Port Safety
- ▼ Port Security
- ▼ Emergency Response Service
- ▼ Environmental Control (Protection and Pollution Control), and
- ▼ Harbour Master's Duties and Responsibilities.

These services improve the safe and efficient movement of vessels and protect the port's environment and infrastructure.

Cruise ships (and all other commercial vessels) entering Sydney Harbour are required to pay for these navigational services each time they enter the port. The charge for these services is based on the gross tonnage (GT) of the vessel. The current charge is \$0.6036/GT (excl. GST) per port entry, which came into effect on 1 July 2016.<sup>128</sup> However, the Port Authority has advised us that all cruise vessels have a 35% discount on this rate, and a further rebate of 9.64% since August 2014. The 9.64% rebate was granted to all ship companies on the basis that during the financial year 2014-15 the OPT was being upgraded and cruise ships would likely experience a measure of inconvenience during the reconstruction works. The 9.64% recently reduced to 7.00% on 1 April 2016. The rebate will gradually be eliminated now that the OPT upgrade is completed.

<sup>128</sup> Port Authority of NSW, *Schedule of Port Charges Sydney – Effective 1 July 2016*, p 4.



Additionally, the 35% concession can be increased by a further 15% (ie, a 50% concession in total) for all passenger vessel visits after the 29<sup>th</sup> visit in a financial year. This concession applies on a group basis such that one company that operates more than one cruise line will benefit as the concession will apply to all vessels after the 29<sup>th</sup> visit in aggregate for that company.

As noted in Chapter 1, RMS owns the channels and berthing boxes in Sydney Harbour. As these are required by the Port Authority to provide its services, channel fees are paid by the Port Authority to RMS based on a percentage of the navigation service charge revenue per annum. The channel fee is currently set at 13.8% of the navigation service charge (excluding Maritime Security Charges and GST). Under a Channel Licence Agreement between the two parties, RMS grants the Port Authority a non-exclusive licence to not only use the channels and berthing boxes, but also to undertake maintenance dredging; and to repair, maintain, install and remove navigation aids.

### B.2.3 Pilotage charge

Cruise ships (and all other commercial vessels) entering, leaving or moving within Sydney Harbour must take on board a marine pilot to conduct their movement. The pilotage charge is calculated on a tiered basis based on the gross tonnage of the ship. Cruise ships pay the charge, plus a boarding fee, for each inbound and outbound movement within the harbour (see Table B.4).

As with the navigation services charges, pilotage charges for cruise ship vessels have been granted a rebate of 9.64%, since August 2014, to all ship companies in connection with the OPT upgrade. This rebate reduced to 7% on 1 April 2016. The rebate will gradually be eliminated now that the OPT upgrade is completed.

**Table B.4 Pilotage Charge for passenger vessels from 1 July 2016**

<b>Pilotage Charge (per movement) = Boarding fee + Gross Tonnage (GT) Base Charge</b>	
<b>Fee</b>	<b>Amount (Ex-GST)</b>
Boarding Fee	\$1,051.98
<b>GT Base Charge (per GT)</b>	
Tier I (1 to 4,000 GT)	\$0.00
Tier II (4,001 to 30,000 GT)	\$0.1238
Tier III (30,001 to 55,000 GT)	\$0.0211
Tier IV (> 55,000 GT)	\$0.0070

**Notes:** The boarding fee includes a fuel surcharge of \$25 (ex GST). These charges do not include the current temporary discounts and rebates discussed above. For Passenger Vessels that require a pilot to board off Sydney Harbour rather than Botany Bay, a 50% premium will be applied.

**Source:** Port Authority of NSW, *Schedule of Port Charges Sydney – Effective 1 July 2016*, p 5.

### B.2.4 Miscellaneous charges

Cruise ships can also incur other fees for a range of miscellaneous services, including mooring (which apply if the ship moors on a buoy), security, cleaning, furniture hire and water usage (as applicable). More information on these charges is provided in Table B.5.

**Table B.5 Miscellaneous charges for passenger vessels from 1 July 2016**

Charge type	Amount (Ex-GST)
Security (eg, patrolling access to the facility, controlling access to the ship, screening unaccompanied baggage, etc)	Recoverable
Cleaning charges (per vessel call) - OPT	\$541.72
Cleaning charges (per vessel call) – White Bay	Recoverable
Standard furniture hire	\$1,300.12
Non-standard furniture hire	\$1,625.15
Hose handling fee	\$541.72
Additional hours gangway(s) hire (per hour)	\$151.68
Water per kL	TBA
Berthing facility insurance surcharge (per vessel, per hire, per period)	\$325.03

**Note:** The Port Authority charges water per kL at the same rate applied by Sydney Water.

**Source:** The Port Authority, *Schedule of Port Charges Sydney – Effective 1 July 2016*, p 10.

## C Analysis of site occupation charging options

At the beginning of our review, we proposed six criteria for assessing pricing structures and mechanisms that reflect the objectives in our terms of reference for the review:

1. Recover the Port Authority's efficient costs.
2. Provide incentives for the Port Authority to improve the allocative efficiency of current cruise infrastructure.
3. Provide incentives for efficient future expenditure.
4. Provide a greater connection between costs and prices by removing any cross-subsidies between the cruise and commercial shipping; navigation, pilotage and other cruise services; and between terminals where possible.
5. Provide certainty for stakeholders.
6. Be administratively simple and transparent.

This appendix gives an overview of the pricing structures and mechanisms that we considered as part of this review, and discusses these against our criteria. We also summarise stakeholder comments on the option of reducing slots times to facilitate greater utilisation of terminals.

### C.1 Our assessment criteria

In our Issues Paper, we consulted stakeholders on a list of criteria that we proposed to use to assess pricing structures and mechanisms. These were derived from the matters in our terms of reference that we were asked to consider, as well as our experience in setting prices for other monopoly industries.<sup>129</sup>

In response to our Issues Paper, the Port Authority agreed with our proposed criteria, but noted that some were likely to conflict with each other.<sup>130</sup> Carnival submitted that the criteria should focus on:

- ▼ providing certainty over access and charges in the long-term
- ▼ maximising utilisation of port infrastructure throughout the year
- ▼ reflecting the efficient costs of providing infrastructure and services
- ▼ limiting cost over-recovery on poor investment decisions and higher than expected industry growth

<sup>129</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Issues Paper*, May 2016, pp 39-40.

<sup>130</sup> Port Authority submission, May 2016, p 23.

- ▼ maintaining competitiveness of Sydney against other international ports, and
- ▼ maximising the benefits of the cruise industry to the NSW economy.<sup>131</sup>

We considered that the first four criteria proposed by Carnival were already incorporated in our criteria. The last two criteria proposed by Carnival were also factors that we have taken into consideration in making our recommendations.

## C.2 Assessment of pricing options

In our Issues Paper, we considered various charging structures, including an auction pricing mechanism and per passenger or per call charges that were either terminal-specific or the same across both terminals.<sup>132</sup> The options we considered are discussed in more detail in the sections below.

### C.2.1 Auction pricing mechanism

An auction pricing mechanism would allocate berthing capacity according to the value that users place on the slots. In our Issues Paper, we noted that auctions have long been used to allocate port capacity for the shipping of bulk goods and considered that it could be suitable for the capacity-constrained OPT.<sup>133</sup>

#### Stakeholder submissions on an auction pricing mechanism

Stakeholders largely did not support an auction allocation system. In its submission to the Issues Paper, the Port Authority noted that auctions bring a level of complexity to pricing that is not sought by the Port Authority or its customers.<sup>134</sup> Carnival stated that auctions would introduce significant complexity to ship deployment and itinerary planning.

It is critical to understand that an auction would create a circular process since port costs drive ship deployment/itinerary planning decisions. An auction would then require the ship deployment planning decisions to inform the decision to go to Auction, port cost and port booking. The auction also adds significant complexity to itinerary planning in the context of Sydney as only one port among many in any voyage. An auction process would thereby significantly impact on the ability of a cruise operator to manage its operations.<sup>135</sup>

Royal Caribbean did not express a view on berthing slot auctions, but noted that given its ships carry up to a third more passengers than its competitors; it would be in an advantageous position entering into a slot auction. Royal Caribbean also

<sup>131</sup> Carnival Australia submission, May 2016, p 20.

<sup>132</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Issues Paper*, May 2016, pp 44-47.

<sup>133</sup> Ibid, p 44.

<sup>134</sup> Port Authority submission, May 2016, p 24.

<sup>135</sup> Carnival Australia submission, May 2016, p 22.

noted that it was opposed to any allocation system that encourages gaming of slots. That is, secondary trade in slots should only exist to facilitate best and most efficient use of the terminal.<sup>136</sup> The submission from Mr Davey, an individual, put the view that an auction system would lead to an unsustainable bidding war between Carnival and Royal Caribbean.<sup>137</sup>

### Our response to stakeholder submissions

In our Draft Report, we noted that an auction system would:

- ▼ provide least certainty around future site occupation charges and certainty of access, and
- ▼ be relatively complex to design and administer relative to other pricing structures.<sup>138</sup>

We also noted that in Sydney, competition for many slots would be limited to the two large operators, Royal Caribbean and Carnival Australia. It is uncertain whether an auction for slots at OPT would be fiercely contested or merely rearrange capacity between the two main cruise lines. Given the importance that cruise operators place on certainty, and that auctions were not supported, we decided not to recommend adopting an auction mechanism for establishing site occupation charges.

### C.2.2 A per call or per passenger charge

In our Issues Paper we considered whether some kind of two-part tariff consisting of a fixed charge (eg, per call) and a variable charge (eg, per passenger) might be suitable for the industry.<sup>139</sup> The fixed charge is typically set at a level that will recover the fixed costs of providing the service – that is, the costs associated with providing infrastructure that do not vary in the short-term with the number of ship visits. The variable per-unit charge is usually set equal to the marginal cost of supply. This could be set equal to the long run marginal cost of providing additional berthing services. This may be levied on a per passenger basis, per tonne, per hour or another similar basis, depending on the cost drivers.

<sup>136</sup> Royal Caribbean submission, May 2016, p 9.

<sup>137</sup> Mr R. Davey submission, April 2016, p 2.

<sup>138</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, p 23.

<sup>139</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Issues Paper*, May 2016, p 43.

However, in its report on efficient costs, AECOM found that the costs of site occupation are largely fixed<sup>140</sup> and so a two-part tariff would look very similar to a charge per call. As discussed in Chapter 4, we also found that there are different supply-side markets at OPT and White Bay. On that basis, we adopted a per call charge at OPT. However, we found that a per call charge would not be suitable for White Bay as it would result in a charge level that would likely deter some ships from calling at White Bay, reducing utilisation and cost recovery.

Table C.1 and Table C.2 summarise the options we considered. Table C.1 shows how site occupation charges would compare under these options and Table C.2 summarises each option against our criteria.

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<sup>140</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships, Public report*, 11 November 2016, pp 25-26.

**Table C.1 Site occupation charges under different charging options (\$2016-17)**

	Port Authority proposed	Option 1 Same charge at OPT and WB5 per passenger	Option 2 Same charge at OPT and WB5 per call	Option 3 Site based per passenger	Option 4 Site based per call	Option 5 Site based per call at OPT and per passenger at WB5
<b>Charges</b>						
OPT	\$35	28.90	67,900	25.70	72,300	72,300
WB5	\$35	28.90	67,900	31.10	58,400	31.10
WB4	\$17.50	14.50	34,000	15.60	29,200	15.60
<b>Cost recovery</b>						
PV of costs at OPT		62,400	62,400	62,400	62,400	62,400
PV of costs recovered at OPT		70,300	58,600	62,500 <sup>a</sup>	62,400	62,400
<b>Cost recovery OPT</b>		<b>113%</b>	<b>94%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
PV of costs at WB5 and WB4		52,600	52,600	52,600	52,600	52,600
PV of costs recovered at WB5 and W4		38,800	49,000	41,700	42,100	41,700
<b>Cost recovery WB5 and WB4</b>		<b>74%</b>	<b>93%</b>	<b>79%</b>	<b>80%</b>	<b>79%</b>
<b>Cost recovery overall</b>		<b>95%</b>	<b>94%</b>	<b>91%</b>	<b>91%</b>	<b>91%</b>
<b>Option summary</b>						
Terminals modelled		Together	Together	Separately	Separately	Separately
Costs considered		All locations	All locations	OPT and WB5 costs	OPT and WB5 costs	OPT and WB5 costs

<sup>a</sup> Difference due to rounding.

**Note:** For each option above, the site occupation charges for OPT are based on our demand forecast for OPT. For WB5, the site occupation charges are based on our demand forecast for OPT between October and March (inclusive) and the demand forecast for WB5 for the remainder of the year. The cost recovery percentages show the revenue that would be recovered under each option relative to the revenue if site occupation charges were modelled using individual demand forecasts at OPT and WB5 across the entire year.



**Table C.2 Summary of assessment of pricing options against criteria**

Criteria	1. Same charge at OPT and WB5 per passenger	2. Same charge at OPT and WB5 per call	3. Site based per passenger	4. Site based per call	5. Auction system
Recover the Port Authority's efficient costs	Recovers an estimated 95% of building block costs	Recovers an estimated 94% of building block costs	Recovers an estimated 91% of building block costs	Recovers an estimated 91% of building block costs	Can be designed with a floor price to ensure adequate cost recovery and may require a refund for over-recovery.
Provide incentives for allocative efficiency	We consider a more cost-reflective basis for charges would be per call	We consider charges per call would be most cost-reflective	We consider a more cost-reflective basis for charges would be per call	We consider charges per call would be most cost-reflective	If well-designed, would be most effective at promoting allocative efficiency
Provide incentives for efficient future expenditure	Charges are set with reference to efficient costs, providing an incentive for efficient expenditure	Charges are set with reference to efficient costs, providing an incentive for efficient expenditure	Charges are set with reference to efficient costs, providing an incentive for efficient expenditure	Charges are set with reference to efficient costs, providing an incentive for efficient expenditure	An auction can be designed to recover 100% of efficient costs.
Provide a greater connection between costs and prices	Results in customers at OPT paying for some of the costs at White Bay, and larger capacity ships paying some of the costs of smaller capacity ships	Results in customers at White Bay paying for some of the costs at OPT	Results in larger capacity ships paying some of the costs of smaller capacity ships	This option provides a direct connection between costs and prices	This would depend on auction bidding behaviour
Provides certainty for stakeholders	Provides less certainty to the Port Authority as it does not know what to charge until the ship leaves the berth	Provides the most certainty to both the Port Authority and cruise operators	Provides less certainty to the Port Authority as it does not know what to charge until the ship leaves the berth	Provides the most certainty to both the Port Authority and cruise operators	Would provide the least certainty, and is not supported by stakeholders
Administratively simple and transparent	Requires ship passenger manifest to verify chargeable passenger numbers	Per call charges are most simple, but may add some complexity to cruise forward planning	Requires ship passenger manifest to verify chargeable passenger numbers	Per call charges are most simple, but may add some complexity to cruise forward planning	Would be the most complex pricing option

### C.3 Reducing slot times to increase capacity

In our Issues Paper, we invited comment on the possibility of reducing slot times to less than 24-hours to allow more than one visit at a terminal in a day.<sup>141</sup> If adopted, this would allow for greater utilisation of the existing terminals, and defer the need for a new terminal east of the Sydney Harbour Bridge.

Given the pattern of most cruise ship visits is an early morning arrival and evening departure, there is considerable scope to improve utilisation through a second evening slot. AECOM provided analysis on slot usage in its final report.<sup>142</sup>

#### Stakeholder submissions on reducing slot times

The Port Authority supported achieving more efficient use of terminal assets through shorter slot times and is consulting on a revised booking procedure that allows for a shorter slot.<sup>143</sup> However, it suggests that our recommended charges do not allow any 'head room' to negotiate above and below-average charges to support this kind of arrangement.<sup>144</sup>

The submission from Mr Davey, an individual, supported a trial of two ship turnarounds at OPT during a 24-hour period. He noted that while not widespread, such arrangements have worked in Europe. In his view, an incentive should be provided to those companies who participate in the trial.<sup>145</sup>

The cruise industry did not support shorter slot times. In its submission to our Issues Paper, Carnival noted that shorter slots would:

- ▼ negatively affect passenger experience (eg, passengers want sufficient time to look around Sydney)
- ▼ affect the coordination of cruise ships with airport and other transport services
- ▼ need to be coordinated with ferry curfew restrictions, and
- ▼ have implications in bad weather conditions.<sup>146</sup>

In its submission to our Draft Report, Carnival further stated that it did not believe that evening slots were practically feasible and would not contemplate testing or implementing such a measure.<sup>147</sup>

Royal Caribbean stated that hiring terminals for a 24-hour period in Sydney is consistent with practice worldwide.<sup>148</sup> It rejected the notion of double turnarounds for large cruise ships (2,000 or more passengers) as unworkable due to poor guest experience, higher operating costs and restrictions on crew working hours. It noted that other ports can have

<sup>141</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Issues Paper*, March 2016, p 47.

<sup>142</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships, Public Report*, 11 November 2016, p 5.

<sup>143</sup> Port Authority submission, May 2016, p 24.

<sup>144</sup> Port Authority submission, August 2016, p 15.

<sup>145</sup> Mr R. Davey submission, April 2016, p 3.

<sup>146</sup> Carnival Australia submission, May 2016, pp 23-24.

<sup>147</sup> Carnival Australia submission, September 2016, p 4.

<sup>148</sup> Royal Caribbean submission, May 2016, p 5.

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shorter turnarounds because of significantly larger baggage claim and check-in areas.<sup>149</sup> At the public hearing, Royal Caribbean noted further that older, smaller terminals like OPT present a different challenge. For example, with Ovation of the Seas (Royal Caribbean's largest capacity ship of up to 4,905 passengers), they would have to lay out baggage in three to four stages, as opposed to all in one go. This delays and slows the disembarkation process.<sup>150</sup>

### **Our response to stakeholder submissions**

We note that because needs of the cruise industry vary substantially, there is no single best way to structure a second – or evening – slot. In addition, defining architecture around a second slot may also discourage other forms of behaviour that lead to more efficient use of terminal assets, for example berthing three ships over 48 hours. We acknowledge stakeholder submissions that there are a number of challenges involved in making these arrangements work, including passenger acceptance.

Nonetheless, OPT is likely to reach full capacity in the next five years and it is not clear how the steady increase in patronage by larger vessels will be accommodated. Since plans for a new terminal east of the Sydney Harbour Bridge are not well advanced, it seems unlikely that it would be made available in time to accommodate this excess demand. Arrangements to accommodate additional slots would at least offer a short-term and to increase capacity at OPT.

We consider that the Port Authority should have the flexibility to make arrangements with the cruise industry, where possible. To provide an incentive for take up of spare capacity, we consider the Port Authority should negotiate discounts with cruise operators where the take up of an evening slot leads to improved utilisation. In response to the Port Authority's concerns about our maximum charges not allowing head room for negotiating a lower charge for such cases, we consider that the gains from incorporating a second turnaround would outweigh the discount in revenue from reduced site occupation charges for a second ship.

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<sup>149</sup> Royal Caribbean submission, August 2016, p 4.

<sup>150</sup> Public hearing transcript, 23 August 2016, p 18, lines 46-47; p 19, lines 7-14.

## D Building block analysis

As discussed in Chapter 5, we used a building block method to estimate the efficient costs of providing site occupation services. In this appendix, we provide more information on our building block analysis and our response to stakeholder submissions on issues related to this.

### D.1 Total efficient costs of site occupation services

Table D.1 sets out the total efficient costs for site occupation services at OPT and White Bay.

**Table D.1 Cost building blocks for OPT and White Bay in 2016-17 (\$000, \$2016-17)**

	OPT	White Bay
Operating expenditure	4,198	2,606
Depreciation	4,147	3,314
Return on capital	6,118	5,928
Net allowance for tax payments	1,120	1,495
Total	15,583	13,343

**Source:** IPART calculations based on AECOM's advice on efficient costs.

We have removed 50% of the Port Authority's forecast non-cruise revenue, for example, revenue from functions and events, from the amount that needs to be recovered from site occupation charges. As discussed in section 5.3.3, the asset base for OPT excludes building space used by restaurants. Therefore, the total non-cruise income at OPT does not include rental income from leasing restaurants.

### D.2 Operating expenditure

AECOM reviewed the Port Authority's total forecast operating expenditure for its operation in Sydney Harbour, and found that there were no opportunities for the Port Authority to improve its cost efficiency at this time.<sup>151</sup>

OPT and WB5 are dedicated to cruise shipping, and hence 100% of the Port Authority's forecast operating expenditure for OPT and WB5 has been allocated to cruise shipping. However, the Port Authority's forecast operating expenditure for navigation and pilotage services and WB4 included costs associated with commercial shipping. We have allocated:

- ▼ the forecast operating expenditure for navigation and pilotage services to cruise according to its share of all vessel calls scheduled to visit Sydney Harbour, and

<sup>151</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships, Public Report*, 11 November 2016, p 25.

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- ▼ the forecast operating expenditure for WB4 to cruise based on the relative number of cruise ships and commercial ships scheduled to use it.

In the section below, we discuss our findings on the Port Authority's allowance for operating expenditure.

### **Security and cleaning costs at OPT and WB5**

The Port Authority carries out a number of functions such as cleaning, security, furniture hire services in addition to managing terminals and berthing facilities and cruise ships may incur a number of miscellaneous charges for these services in addition to site occupation, navigation and pilotage. Currently, costs associated with these services are passed through to cruise ships by the Port Authority, and are not recovered through the site occupancy charges.

Based on AECOM's assessment, our finding is that security and cleaning services at OPT and WB5 are sourced via competitive tendering and reflect market prices. AECOM did not find any opportunities to reduce these costs without affecting the quality of the service.<sup>152</sup>

The majority of the Port Authority's security and cleaning costs at OPT and WB5 are passed through to the cruise operators, but some costs are not recovered directly from cruise ships. These 'residual' security and cleaning costs are included in operating expenditure at OPT and WB5.

## **D.3 Capital expenditure**

We engaged AECOM to review the Port Authority's forecast capital expenditure in providing each of its cruise ship services and make recommendations on efficient capital expenditure. Under the building block method, there is no explicit allowance for capital expenditure in the notional revenue requirement. Instead, the prudent and efficient capital expenditure is added to the asset base and recovered through a return on assets and depreciation.

AECOM recommended that the Port Authority's forecast capital expenditure seems appropriate when compared to organisations in Sydney with similar assets.<sup>153</sup>

Some of the Port Authority's forecast capital expenditure for navigation services included costs associated with commercial shipping. We have accepted AECOM's advice to allocate the total capital expenditure to cruise based on the proportion of the number of cruise ships relative to all vessel calls scheduled to visit Sydney Harbour. 100% of the forecast capital expenditure at OPT and WB5 are allocated to cruise.

## **D.4 Allowance for a return on assets and regulatory depreciation**

To calculate a return on assets and depreciation we determined three key inputs:

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<sup>152</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships, Public Report*, 11 November 2016, p 17.

<sup>153</sup> Ibid, p 16.

- ▼ the value of the Port Authority's asset base for site occupation at OPT, WB5 and WB4, and for pilotage and navigation
- ▼ the appropriate rate of return on the Port Authority's asset base, and
- ▼ the appropriate depreciation method and asset lives for the Port Authority's assets.

#### D.4.1 Estimating the initial asset base

We determined:

- ▼ an initial asset base as at 1 July 2016 based on a depreciated optimised replacement cost (DORC) valuation method, and
- ▼ the asset base for each year of the review period by rolling forward the asset base by:
  - adding forecast capital expenditure over the period
  - deducting the regulatory value of asset disposals, capital contributions and depreciation.

The initial asset base for OPT and White Bay is summarised in Table D.2 below.

**Table D.2 Initial asset base – 1 July 2016 (\$000, \$2016-17)**

	Initial asset base
OPT	100,484
WB5 and WB4	99,115

**Source:** IPART calculations.

We engaged AECOM to provide advice on the Port Authority's assets used to provide cruise ship services at OPT, WB5 and WB4, and pilotage and navigation services.

Some key issues associated with setting the initial asset base are discussed below.

#### D.4.2 Valuing the Port Authority's land assets

We valued land based on its existing use at OPT and WB5. This is discussed in detail in Chapter 5.

#### D.4.3 Valuing the Port Authority's non-land assets

The Port Authority's non-land assets include buildings, roads, wharves and jetties, plant, etc. To establish the asset base, we have decided to adopt asset values based on a DORC valuation method. A DORC is an estimate of the value of an asset in use that is equivalent to the net current cost of replacing the asset in its current state with an asset that has similar service potential, taking into account any scope for efficiencies.

In estimating DORCs for the Port Authority's assets, AECOM:

- ▼ calculated replacement costs by building up from composite unit rates using current market rates based on benchmarking, taking into account asset age, condition, etc,<sup>154</sup>
- ▼ depreciated the replacement costs using a straight line depreciation method,<sup>155</sup> and
- ▼ optimised the depreciated replacement costs by excluding assets that are not required for cruise shipping purposes.<sup>156</sup>

### Stakeholder submissions on valuing non-land assets

In its submission to our Issues Paper, the Port Authority considered that a DORC approach would be appropriate as it would promote the efficient use of assets, and reflect values that would arise in a competitive market.<sup>157</sup> We note that optimised asset values based on the Port Authority's valuations are not materially different from those based on the DORC valuation.

However, Carnival expressed concern that the DORC approach would result in higher asset values. It considered that a lower valuation should be used for White Bay assets to take into account the fact that the investment was not made on a commercial basis, noting that the decision to build the White Bay cruise terminal was the result of the Barangaroo development and was not driven by the cruise industry.<sup>158</sup> Royal Caribbean was also concerned that using inflated asset values for terminals, which do not reflect full depreciation, and physical and heritage restrictions, would not stand up to scrutiny or international comparison with port with which Sydney competes for cruise deployments.<sup>159</sup>

In its submission to our Draft Report, Carnival requested that IPART comment on, and reconsider, the rationale for including what it considered to be a free/gifted asset by way of a \$50 million contribution from the Barangaroo Delivery Authority in the White Bay asset base.<sup>160</sup>

### Our response to stakeholder submissions

We consider the DORC method is an appropriate valuation technique for all non-land assets as it is based on market valuation, reflecting the current state of the existing assets, and is optimised to include assets that are required for cruise services.

In relation to contributions from the Barangaroo Delivery Authority, we have not made any adjustments to the asset value for White Bay. The Government made a contribution to the cost of the terminal at White Bay and is entitled to earn a return on this. We based the initial capital base on the DORC of the assets.

In its report, AECOM considered the minimum quantity and quality of assets required to deliver site occupation services to the largest ship that is able to use White Bay. This

<sup>154</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships, Public Report*, 11 November 2016, p 11. Where insufficient benchmarking information was available, AECOM estimated replacement costs based on the Port Authority's estimated book value.

<sup>155</sup> Ibid, p 9.

<sup>156</sup> Ibid, p 11.

<sup>157</sup> Port Authority submission, May 2016, pp 17-18.

<sup>158</sup> Carnival Australia submission, May 2016, pp 15-17.

<sup>159</sup> Royal Caribbean submission, May 2016, p 6.

<sup>160</sup> Carnival Australia submission, September 2016, p 11.



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involved some theoretical optimisation of the assets; for example, they allowed for a shorter wharf length, even though existing wharf was a legacy from White Bay's previous life as a commercial facility. They then considered what would be the depreciated replacement cost of those assets. This is irrespective of the ownership of the assets.<sup>161</sup>

In some circumstances, such as in some of our regulated water company reviews, we have excluded 'gifted' assets from the initial capital base. This is because these gifted assets have been funded by industry in the first instance before ownership is transferred to the regulated company. It would therefore be unreasonable to expect industry to pay for them again via a return on and of capital. We do not consider that this is the case for the White Bay assets.

#### **D.4.4 Allocating shared assets between cruise and non-cruise segments**

Some of OPT's assets are shared for cruise and non-cruise (eg, restaurants) purposes. AECOM recommended that asset values relating to this non-cruise activity be identified and excluded from OPT's RAB. The non-cruise activity at OPT uses around 20% of the building area exclusively, and therefore only 80% of all land value is included in OPT's asset base.

In addition, the Port Authority has assets used for berthing service at WB4 and navigation and pilotage services that are utilised for all commercial shipping using Sydney Harbour. AECOM allocated the values of these shared assets between cruise and non-cruise segments using the following approaches.

- ▼ Some of assets used to provide navigation and pilotage services are positioned in locations where they cannot provide a service for cruise shipping. The values of these assets have been excluded from the initial asset base.
- ▼ Some assets used to provide navigation and pilotage services for cruise ships are also used by all commercial shipping. In this case, the values of these assets are allocated to cruise shipping based on the number of cruise ships relative to all commercial ships (ie, cruise shipping is considered to employ these assets in the ratio of the number of cruise ships to all commercial ships).
- ▼ WB4 is shared between cruise and commercial shipping. The value of WB4's assets is allocated to cruise shipping based on the relative number of cruise ships and commercial ships scheduled to use it.<sup>162</sup>

#### **D.4.5 Return on capital**

To calculate a return on capital we multiply the value of the asset base in each year by an appropriate rate of return. We have determined the rate of return using a weighted average cost of capital. This is discussed in Appendix E.

#### **D.4.6 Depreciation**

An allowance for depreciation is included in the total efficient costs to ensure that the capital invested in the assets is returned over the useful life of each asset. To calculate this

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<sup>161</sup> AECOM, *Efficient Cost Review of Port Services to Cruise Ships – Public Report*, 11 November 2016, p 11.

<sup>162</sup> Ibid, p 9.

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allowance, we determine the appropriate lives for the assets in the Port Authority's asset bases, and the appropriate depreciation method to use.

We have used a straight-line approach to depreciation. This is consistent with our approach in other price reviews. Using AECOM's assessment of the asset lives for the Port Authority's existing and new assets, we have calculated a weighted average asset life by asset category.

## **D.5 Tax liabilities**

We include an explicit allowance for tax, because we use a post-tax WACC to estimate the allowance for a return on assets in the revenue requirement. We calculate the tax allowance for each year by applying a 30% statutory corporate tax rate adjusted for franking credits to the business's (nominal) taxable income. For this purpose, taxable income is the notional revenue requirement (excluding tax allowance) less operating cost allowances, tax depreciation, and interest expenses.

As part of calculating the appropriate tax allowance, the Port Authority provided forecast tax depreciation on existing assets for our review period. We have estimated forecast tax depreciation on new assets by calculating tax asset values and applying taxation asset life. Other items such as interest expenses are based on the parameters used for the WACC, and the value of the RAB.

## E Weighted average cost of capital (WACC)

Under the building block method, determining an allowance for a return on capital is an important task in estimating site occupation charges given the capital intensive nature of the Port Authority's terminal assets.

To calculate this we multiply the value of the asset base in each year of the review period by an appropriate rate of return. We have estimated the rate of return using a weighted average cost of capital (WACC). In this appendix, we discuss how we have estimated the WACC for making our recommendations.

The WACC is the expected cost of debt and equity, weighted to take into account their proportions in the capital structure. To determine this cost for the Port Authority's cruise ship business, we used the following approaches:

- ▼ Estimating the possible range for the WACC, by calculating values for each of the parameters that determine the cost of debt and the cost of equity.
- ▼ Making a decision on the appropriate WACC point estimate within the range based on IPART's WACC decision rule, which takes into account the level of economic uncertainty.

### E.1 Summary of the WACC for our recommendations

For our recommendations we have estimated a real post-tax WACC of 6.0%, which is the midpoint of the WACC range established based on:

- ▼ market-based WACC parameters (ie, risk-free rate, inflation rate, debt margin, market risk premium) estimated as of 8 September 2016, and
- ▼ the same industry-specific parameters that were used in our Draft Report - an equity beta range of 0.8 to 1.0 and a gearing ratio range of 30% to 40%.

Table E.1 sets out the individual parameters underpinning the WACC.

The recommended WACC for the final decision is 20 basis points lower than the draft decision released in July 2016 (Table E.2). This is mainly due to a reduction in the risk-free rate since making the draft decision.

**Table E.1 WACC parameters for our recommendations (8 September 2016)**

	Current market data			Long-term averages			WACC range		
	Low	Mid	High	Low	Mid	High	Low	Mid	High
Nominal risk-free rate	1.9%	1.9%	1.9%	4.4%	4.4%	4.4%			
Inflation	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%			
Debt margin	2.6%	2.6%	2.6%	3.2%	3.2%	3.2%			
Gearing	40%	35%	30%	40%	35%	30%			
Market risk premium	7.3%	9.0%	10.7%	5.5%	6.0%	6.5%			
Equity beta	0.8	0.9	1.0	0.8	0.9	1.0			
Cost of debt (nominal pre-tax)	4.5%	4.5%	4.5%	7.6%	7.6%	7.6%			
Nominal vanilla WACC	6.4%	8.1%	10.2%	8.3%	9.0%	9.9%			
Real post-tax WACC	3.9%	5.5%	7.6%	5.8%	6.5%	7.3%	5.5%	<b>6.0%</b>	6.5%

Source: Bloomberg, RBA and IPART analysis.

**Table E.2 Comparison of draft and final WACC**

	Final decision			Draft decision		
	Current data	Long-term	Range	Current data	Long-term	Range
Nominal risk-free rate	1.9%	4.4%		2.2%	4.5%	
Inflation	2.4%	2.4%		2.4%	2.4%	
Debt margin	2.6%	3.2%		2.8%	3.1%	
Gearing	40% to 30%	40% to 30%		40% to 30%	40% to 30%	
MRP	7.3% to 10.7%	5.5% to 6.5%		7.4% to 10.4%	5.5% to 6.5%	
Equity beta	0.8 to 1.0	0.8 to 1.0		0.8 to 1.0	0.8 to 1.0	
Real post-tax WACC	3.9% to 7.6% (Midpoint 5.5%)	5.8% to 7.3% (Midpoint 6.5%)	5.5% to 6.5% (Midpoint 6.0%)	4.4% to 7.7% (Midpoint 5.8%)	5.8% to 7.4% (Midpoint 6.5%)	5.8% to 6.5% (Midpoint 6.2%)

Source: IPART analysis and IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, p 85.

### E.1.1 Stakeholder submissions on the level of the WACC

Some stakeholders considered that setting the WACC lower would provide an opportunity for the NSW Government to reinvest its equity into ventures that may drive a higher financial or social return.

### E.1.2 Our response to stakeholder submissions

We have set the WACC at a level that recognises that the risks faced by a cruise terminal operator are higher than most industries we regulate. This provides:

- ▼ a risk-adjusted return on funds already invested in the cruise terminal
- ▼ a signal to inform future investment decisions.

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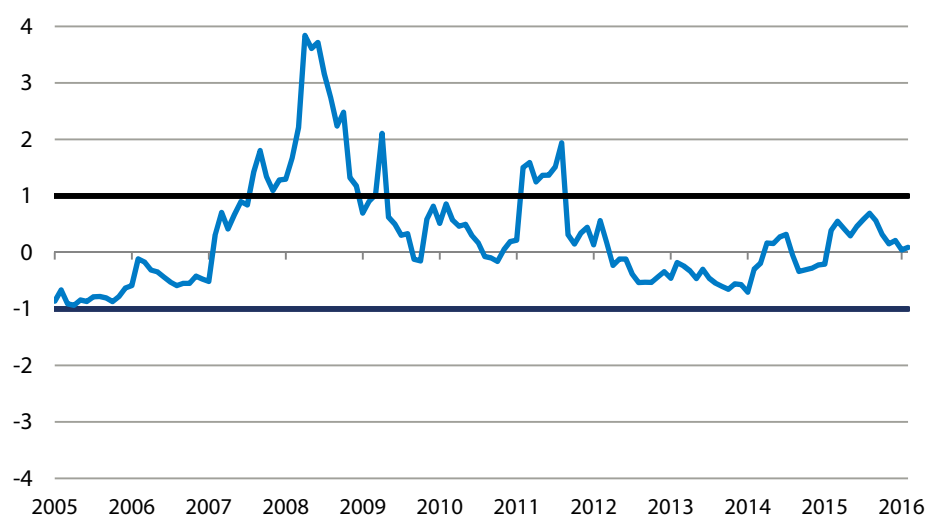
Not providing a sufficient return on capital could discourage investment in the long-term.

## E.2 Uncertainty index

As discussed above, we have selected the midpoint of our WACC range based on our WACC decision rule, which takes into account the level of economic uncertainty. We use our uncertainty index as a measure of economic uncertainty. We select the midpoint if the uncertainty index is within or at one standard deviation from the long-term average of zero. If the uncertainty index is more than one standard deviation from the long-term average of zero, we consider selecting a point other than the midpoint within the WACC range.<sup>163</sup>

As shown in Figure E.1, our measure of uncertainty is currently within one standard deviation of the long-term average value of zero. Therefore, we have decided to select the midpoint of the established WACC range.

**Figure E.1** IPART uncertainty index as of 8 September 2016



**Data source:** Thomson Reuters Datastream and IPART analysis.

## E.3 Market based parameters

We have estimated the market-based parameters using our standard approach, estimated as at 8 September 2016. Table E.3 summarises the approach to calculating the market-based parameters.

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<sup>163</sup> IPART, *Review of WACC methodology – Final Report*, December 2013, p 4.

**Table E.3 Estimating the market-based WACC parameters**

Parameter	Current market data	Long-term average
Risk-free rate	Based on data sampled over the 40-day trading period to 8 September 2016 from Bloomberg.	Based on end-of-trading-day data sampled over 10 years from Bloomberg.
Inflation	Based on the geometric mean of: - the latest available one-year forecast from the RBA and - the midpoint of the RBA's target range for inflation (2.5%).	
Debt margin	Based on the two month average of the monthly ten year BBB corporate spreads published by the RBA.	Based on the ten year average of the monthly ten year BBB corporate spreads published by the RBA.
MRP	Based on monthly data using IPART's standard approach.	IPART's standard parameter valuation.

**Note:** We use market data to estimate the debt margin, but its value depends on an industry-specific credit rating. The RBA's BBB measure aggregates bonds with a credit rating of BBB- to BBB+.

## E.4 Overview of methodology for determining the industry-specific parameters

To make a decision on the industry-specific parameters such as the gearing ratio and equity beta for a typical cruise terminal business, ideally we would be able to conduct a peer group analysis by identifying and analysing a large number of stand-alone port business providing berthing, navigation and pilotage services to cruise ships. However, there is no listed port business that earns revenue from cruise ship services only. The majority of the listed ports are diversified businesses delivering various services such as ships anchoring services, handling cargo, loading and unloading passengers, goods storage and car transportation services. This makes it difficult to isolate a reasonable number of comparable businesses that earn revenues from cruise ship services only.

To address this issue, we analysed equity betas and gearing ratios of airports, and cruise lines as well as ports. We considered airports because there are some similarities between airports and cruise terminals in that they both provide passenger terminal services and often earn revenues from leasing of food and beverage spaces and retail spaces. We considered cruise lines based on a reasonable assumption that the revenues of cruise terminals would be positively correlated with customer demand for, and revenues of, cruise lines.

Our sample included airport, port and cruise line stocks from a number of different countries. Airport stocks are those classified as *Airport Services* by Thomson Reuter Business Classification (TRBC). Port stocks are those classified as *Marine Port Services* by TRBC. For cruise line stocks, we first identified stocks classified as *Hotels, Motels and Cruise Lines* by TRBC and selected stocks relevant to cruise services based on their business descriptions. A list of airport, port and cruise line stocks in our sample is available on request.

We then downloaded monthly total return indexes, total market indexes and annual market capitalisation and total debt from Thomson Reuters Datastream. The sample period for the comparator firms is from 28 February 1985 to 29 April 2016.

#### **E.4.1 Stakeholder submissions on our methodology for determining industry parameters**

In its submission to our Issues Paper, the Port Authority agreed with a benchmark approach and considered that ports and airports may provide relevant information for estimating systematic risks for cruise site occupation services, and that cruise lines could also be relevant comparable businesses.<sup>164</sup>

In its submission to our Issues Paper, Carnival did not agree with our approach to estimating industry-specific parameters of the WACC as it considered that there are no reliable and accurate comparable companies. It considered that the WACC should be commensurate with the risks faced by the Port Authority in providing port services and that depends on the commercial terms and pricing structure adopted by the Port Authority. Carnival noted a number of points in relation to estimating industry-specific WACC:

- ▼ cruise ship activity has grown strongly for the last 10 years, with no regard for economic downturns
- ▼ there have been no major shifts in capacity deployed or passenger segments served in Australia
- ▼ payment by cruise operators to port operators is independent of market conditions
- ▼ Carnival is considered investment grade by ratings agencies, and
- ▼ the asset beta associated with ports maintaining cruise shipping under long-term contracts is likely to be lower than that of commercial ports.<sup>165</sup>

In its submission to the Draft Report, Carnival stated that our chosen benchmark industries that we considered when estimating the equity beta and gearing level were not appropriate comparators.<sup>166</sup> Carnival suggests that the cruise industry faces less revenue volatility than the port/airport industries and that:

- ▼ Airports and cargo ports are more susceptible to changes in economic conditions than cruise berthing. This is because cruise line operators are able to reduce fares to increase demand for on-board services.
  - This is demonstrated by the growth in the Port Authority's revenues and call numbers over the last 10 years, despite the most recent recession.
- ▼ Airports can generate 20% of their revenue from retail venues. On the other hand, cruise terminals offer limited ancillary services and typically do not generate more than 5% of revenue from retail. A cruise terminal is therefore less subject to passenger traffic and its variations.<sup>167</sup>

#### **E.4.2 Our response to stakeholder submissions**

When making a recommendation on the gearing ratio and equity beta for a typical cruise terminal business, ideally we would conduct a peer group analysis by identifying and analysing a large number of stand-alone port businesses providing berthing, navigation and

<sup>164</sup> Port Authority submission, May 2016, p 21.

<sup>165</sup> Carnival Australia submission, May 2016, pp 17-18.

<sup>166</sup> Carnival Australia submission, September 2016, p 14.

<sup>167</sup> Ibid, p 15.



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pilotage services to cruise ships. However, there are no listed port businesses that earn revenue from cruise ship services only.

To address the lack of standalone port businesses, we analysed equity betas and gearing ratios of airports, cruise lines, and ports. This approach takes into account the multi-dimensional characteristics of a cruise terminal business as port infrastructure providing international and domestic passenger terminal services to the cruise line industry. We acknowledge that the comparators are not a perfect proxy for the benchmark firm. However, we do consider that they are suitable point of reference when considering the beta and gearing levels of a port business.

In our Draft Report we demonstrated that a portfolio of cruise stocks has higher earnings volatility than those of airport and port stock, especially during negative market cycle. Cruise lines have been associated with the highest earnings volatility during market downturns (2008 – 2012), followed by airports and ports.<sup>168</sup>

We also noted that a cruise trip is a highly-discretionary product as consumers can defer the purchase of a cruise trip during a downturn in the economy. Air transportation includes a mix of discretionary (eg, leisure flights) and non-discretionary (eg, business flights and cargo) products/services. Ports tend to earn revenues mostly from cargo and container services which are driven by business cycles.<sup>169</sup>

That the Port Authority's revenues over the last 10 years have increased despite the GFC is not evidence that cruise lines are able to respond to economic downturns. Figure E.2 in the next section shows Carnival and Royal Caribbean's revenues are substantially influenced by economic conditions:

- ▼ revenue dropped dramatically following the GFC and other downturns, and
- ▼ upswings in the economy were followed by increases in cruise revenues.

## E.5 Gearing ratio

The gearing ratio is the proportion of debt to total assets in the business' capital structure. We adopt a benchmark capital structure rather than the actual capital structure of the regulated entity, to ensure that customers will not bear the costs associated with an inefficient capital structure.

We have adopted a gearing range of 30% to 40% for a typical cruise terminal business, having regard to empirical evidence on the gearing ratios of listed international airports, ports and cruise lines and past regulatory decisions on airports and the Port of Melbourne. The lower end is based on our empirical evidence and the upper end is based on regulatory precedents.

We consider setting a lower bound of the gearing ratio at 30% for the cruise terminal business is appropriate based on empirical evidence. The findings of our comprehensive sample indicate that airports, ports and cruise lines tend to have a gearing ratio of about 30%. While cruise lines would be better able to manage earnings volatility due to the

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<sup>168</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Draft Report*, July 2016, p 95.

<sup>169</sup> Ibid, p 90.

flexible nature of their (fixed) assets which can be re-deployed in response to shifts in market demand, this same reasoning does not necessarily apply to cruise terminals. This is confirmed by the monthly distribution of the number of ship calls to the Port Authority with a peak (trough) during the summer (winter) season. Further, the highly-discretionary nature of cruise lines demands implies that cruise terminals would have significantly higher earnings volatility than that of ports and airports. On the whole, these factors suggest that risk associated with a cruise service terminal business is likely to be higher than that of airports, ports or even cruise lines. Therefore, an appropriate gearing ratio for a cruise terminal is likely to be lower than airports, ports and cruise lines, possibly below 30%. However, we consider setting a lower bound of the gearing ratio at 30% is more appropriate considering our past decision for electricity retailers. We set a gearing ratio of 20% for electricity retailers which are characterised to have less tangible assets than cruise terminals.

We consider an upper bound of 40% for the cruise terminal business is reasonable based on regulatory evidence. International regulators adopted a gearing ratio in a range of 40% to 60% for regulated airports. A gearing ratio of 40% was applied to a regulated port in Australia. For the reasons discussed above, we consider that a cruise terminal business is likely to have lower gearing ratio than airports or ports, and hence we consider that setting 40% as the upper bound is reasonable.

In the sections below, we discuss our analysis of gearing ratios in more detail.

### E.5.1 Empirical analysis

To make a decision on the appropriate gearing ratio for a typical cruise terminal business, we analysed actual gearing ratios of listed international airport, port and cruise line stocks. Overall, our empirical analysis suggests that an appropriate gearing ratio for a cruise terminal business is 30%.

As a firm's financial leverage may change over time, we considered gearing ratios over the past five years.<sup>170</sup> Table E.4 shows that the average gearing ratios of the airport, port, and cruise line stocks in our sample vary within the narrow range of 25% to 30%. Based on the median, cruise line stocks have a slightly higher gearing ratio than airports and ports.

**Table E.4 Gearing ratios of all sampled airport, port and cruise line stocks**

Statistics	Airport	Ports	Cruise lines
<b>All sample</b>			
Number of observations	30	95	11
Mean	25%	30%	26%
Median	23%	26%	28%

**Note:** The gearing ratio is obtained by dividing firm's total debt by the sum of total debt and market capitalisation.

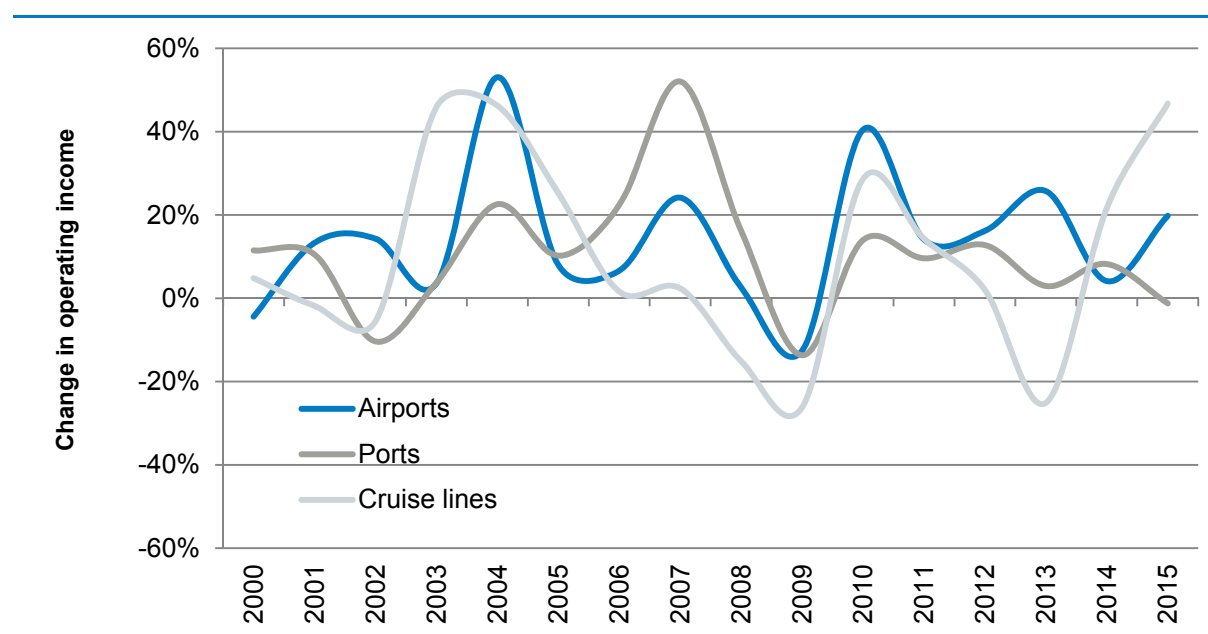
**Source:** Thomson Reuter Datastream and IPART analysis.

One of the key determinants of a firm's capital structure is the ability of the firm to service debt obligations which is a function of earnings fluctuations. Firms with high volatility in operating income would be associated with lower leverage ratios due to higher default risk

<sup>170</sup> For active stocks, the 5-year estimation window of the gearing ratio is from 2011 to 2015. For delisted stocks, the average gearing ratio is computed over the five years ending on the delisted date.

and higher cost of external finance, all else being equal. We examine the level of earnings volatility by constructing three portfolios consisting of airport, port and cruise stocks. For each of these portfolios, we then estimate the value-weighted annual changes in firms' operating income. As shown in Figure E.2 airports and port industries reveal generally similar patterns in earnings volatility. On the other hand, the cruise line portfolio reveals higher earnings volatility than airport and port industries portfolios, especially during negative market cycles. Table E.5 confirms that cruise lines have been associated with the highest earnings volatility during market downturns (2008 – 2012), followed by airports and ports.

**Figure E.2 Average changes in operating income of airports, ports and cruise lines from 2000 to 2014**



Data source: Thomson Reuter Datastream and IPART analysis.

**Table E.5 Volatility of annual changes in operating income of airports, ports and cruise lines from 2000 to 2015**

	Airports	Ports	Cruise lines
2000-2015	16.3%	14.9%	23.7%
2008-2012 (Down market)	19.5%	12.2%	22.0%

Source: Thomson Reuter Datastream and IPART analysis.

This is consistent with our expectation. A cruise trip is inherently a niche and highly-discretionary product as consumers can defer the purchase of a cruise trip during poor economic times. This would have a substantial effect on the cyclicity of cruise lines' revenues, especially during market downturns. In comparison, airport revenues are expected to be less volatile than cruise lines' during market downturns since air transportation includes a mix of discretionary (eg, leisure flights) and non-discretionary (eg, business flights and cargo) products/services. Ports tend to earn revenues mostly from cargo and container services which are driven by business cycles. Hence while airport, port and cruise line revenues are all cyclical, cruise lines would have a higher sensitivity of

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earnings to negative shocks, and as a result we would expect them to have a lower gearing ratio than airports or ports, all else being equal.

Our empirical results however show that the average gearing ratio of cruise lines is not as low as one would expect given their earnings volatility relative to airports and ports. This finding could be partially explained by differences in firm size. Empirical studies in the capital structure literature find a positive association between firm size and leverage, and suggest that since larger firms are better diversified they have a lower probability of facing financial distress.<sup>171</sup> Our cruise line sample is dominated by three big players, Carnival, Royal Caribbean Cruises and Norwegian Cruise Line Holdings. These firms have an average market capitalisation of around US\$19 billion, representing approximately 89% of the total market capitalisation of the cruise lines sample. In comparison, the airport stocks in our sample have a median market capitalisation of US\$2.4 billion, and the port stocks have a median market capitalisation of US\$275 million.

In addition, it is also possible that (some) cruise lines in our sample could issue more debt despite their relatively higher earnings volatility because they can respond to shocks in the consumer discretionary demand. Unlike airports or ports, cruise lines have flexible assets that can be easily reallocated in response to fluctuations in market demand. For example, Royal Caribbean Cruises has expanded its operation from the Northern to the Southern Hemisphere to benefit from the cycle of seasons:

Our revenues are seasonal based on demand for cruises. Demand is strongest for cruises during the Northern Hemisphere's summer months and holidays. In order to mitigate the impact of the winter weather in the Northern Hemisphere and to capitalize on the summer season in the Southern Hemisphere, our brands have focused on deployment to Australia and Latin America during that period.<sup>172</sup>

## E.5.2 Regulatory decisions

In making our decision on the appropriate gearing ratio for a typical cruise terminal business, we also considered regulatory decisions on regulated airports and ports. There is a regulatory precedent for gearing levels of at least 40% in the regulated airport industry in the UK and Ireland.

As shown in Table E.6, the Civil Aviation Authority (CAA) adopted a gearing ratio of 60% for Heathrow airport, and lower gearing ratios of 55% and 50% for Gatwick and Stansted airports, respectively. There is no regulatory precedent on ports providing services to cruise ships. The Essential Services Commission (ESC) applied a gearing ratio of 40% to the Port of Melbourne, which has terminals for containers, automotive and a variety of non-containerised pack types (eg, farm equipment and machinery, and breakbulk commodities such as timber, paper, iron and steel).<sup>173</sup>

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<sup>171</sup> For example, Titman, S. and R. Wessels, 1988, The determinants of capital structure choice, *Journal of Finance* 43, pp 1-19, and Rajan, R.G. and L. Zingales, 1995, What do we know about capital structure? Some evidence from international data, *Journal of Finance* 50, pp 1421-1460.

<sup>172</sup> Royal Caribbean Cruises Ltd, 2014 *Annual report*, p 21.

<sup>173</sup> <http://www.portofmelbourne.com/about-us/about-the-port/about-the-port-infrastructure>, accessed 11 November 2016.

**Table E.6 Recent regulatory decisions on the gearing ratio**

Country	Regulator	Decision	Period	Gearing
UK	Civil Aviation Authority	Heathrow airport	2015-19	60%
UK	Civil Aviation Authority	Gatwick airport	2015-19	55%
UK	Civil Aviation Authority	Stansted airport	2015-19	50%
Ireland	Commission for Aviation Regulation	Dublin airport	2015-19	40%-60%
NZ	Commerce Commission	Auckland airport	2016	17%
NZ	Commerce Commission	Christchurch airport	2016	17%
AUS	ESC	Port of Melbourne	2009	40%
AUS	QCA	Dalrymple Bay Coal Terminal	2014	60%

**Source:** PWC, *Estimating the cost of capital in Q6 for Heathrow, Gatwick and Stansted – A report prepared for the Civil Aviation Authority (CAA)*, April 2013, p 26; Commission for Aviation Regulation, *Maximum level of airport charges at Dublin airport 2014 Determination*, 7 October 2014, p 86; Commerce Commission New Zealand, *Cost of capital determination for information disclosure year 2016 for Transpower, gas pipeline businesses and suppliers of specified airport services (with a June year-end)*, 31 July 2015, p 19; Essential Services Commission Victoria, *Review of Victorian port regulation – Final report, Appendix D – Total factor productivity*, June 2009, p 202; QCA, *DBCT Management's 2015 draft access undertaking*, April 2016, p 110.

### E.5.3 Stakeholder submissions on the gearing ratio

Carnival considered that IPART was conservative in its estimate of the gearing ratio because:

- ▼ gearing decisions are made on an individual basis, depending on the risk appetite of shareholders and the cost base of the company
- ▼ IPART's financeability test indicates that the Port Authority can service higher levels of debt, and
- ▼ IPART should consider addressing the seasonality of cruise traffic with the pricing lever and reflect its consequence in the gearing ratio.<sup>174</sup>

### E.5.4 Our response to stakeholder submissions

As discussed in the sections above, we use a benchmark capital structure to ensure that the rate of return reflects the efficient cost of capital for a benchmark firm operating in a competitive market and facing similar risks to the business in question. We do not attempt to replicate a business' actual financing strategy. The risk appetite of the firm in question is not relevant.

The results of the financeability test do not have a bearing on our decision on the gearing ratio. The financeability test is used to assess how our recommendations would affect the Port Authority's financial sustainability. In particular, this is used to assess whether our recommendations would enable the Port Authority to raise finance consistent with an investment grade rated firm (Baa2) over our review period (see Chapter 7).

<sup>174</sup> Carnival Australia submission, September 2016, p 15.

If customers respond to cheaper off-peak prices, differential pricing would have a positive effect on earnings' stability and it would increase a cruise terminal operator's ability to service debt all else being equal. If customers do not respond to cheaper off-peak prices, differential pricing would not affect earnings' stability and hence, would not have any effect on gearing.

## E.6 Equity beta

The equity beta measures the extent to which the return of a particular security varies in line with the overall return of the market. It represents the systematic or market-wide risk of a security that cannot be eliminated through diversification. It is important to note that the equity beta does not contain business-specific or diversifiable risks.

In calculating the WACC for our recommendations, we have adopted an equity beta range of 0.80 to 1.00 for a typical cruise terminal business. This is based on an asset beta range of 0.59 to 0.75 based on our analysis presented below and the midpoint of the gearing ratio range we adopted for a typical cruise terminal business, which is 30% to 40%.

The lower end of the asset beta range is the median asset beta of ports and the upper end is the median asset beta of cruise lines. Based on our previous discussion in Section E.4 on the relative risk of cruise terminals, on one side, higher expected cyclicalities of sales of a cruise terminal relative to cruise lines suggests that other things being equal, the asset beta of a cruise terminal could be higher than that of a cruise line. However, it is unknown how the degree of operating leverage of a typical stand-alone cruise terminal would be relative to cruise lines. In the absence of this information, we have decided to set the upper bound of a cruise terminal's asset beta based on the asset beta of cruise lines. Regulatory decisions on the asset betas of airports and the Port of Melbourne are broadly in line with our decision on the asset beta range. In our view, our approach appropriately reflects systematic risk of a cruise terminal business.

### E.6.1 Empirical analysis

As with the gearing ratio, we analysed equity betas of listed international airport, port and cruise line stocks to form our view on the appropriate equity beta for a typical cruise terminal business.

We estimated equity betas of listed airport, port and cruise line stocks by regressing monthly stock returns ( $R_i$ ) against monthly market returns ( $R_m$ ) over an estimation period of five years:

$$\bar{R}_i = \hat{\alpha}_i + \hat{\beta}_i \bar{R}_m$$

where  $\hat{\alpha}$  = Intercept from the characteristic line

$$\hat{\beta} = \text{Slope of the characteristic line} = \text{Covariance}(R_i, R_m) / \sigma_m^2$$

The slope of the regression,  $\hat{\beta}_i$ , is the estimated (OLS) beta of the stock and measures its systematic risk. In this briefing,  $\hat{\beta}_i$  is referred to as OLS beta. In addition, we also estimate



betas correcting for potential estimation errors using two techniques, Blume (1975) and Vasicek (1973).

The Blume technique adjusts all betas towards one using the following equation:

$$\text{Beta}_{\text{Blume}} = \text{Beta}_{\text{OLS}} * \frac{2}{3} + 1 * \frac{1}{3}$$

where,  $\text{Beta}_{\text{OLS}}$  is a raw beta derived from an OLS regression, and  $\text{Beta}_{\text{Blume}}$  is the Blume-adjusted beta.

The Vasicek adjustment is implemented using the following formula:

$$\beta_{Y|X}^{\text{Vasicek}} = w_Y \times \beta_{Y|X} + (1 - w_Y) \times \beta_{\text{average}}$$

where

$$w_Y = \frac{\sigma_{\text{Cross-Sectional}}^2}{\sigma_{\rho(Y|X)}^2 + \sigma_{\text{Cross-Sectional}}^2}$$

This process adjusts OLS regression-based equity betas toward the best prior beta estimate ( $\beta_{\text{average}}$ ), with the degree of adjustment determined by the precision of the OLS beta estimates ( $\sigma_{\rho(Y|X)}^2$ ) and the prior distribution ( $\sigma_{\text{Cross-Sectional}}^2$ ).

The standard errors of OLS regression-based equity betas are used to calculate  $\sigma_{\rho(Y|X)}^2$ . In our analysis,  $\beta_{Y|X}$  in the equation above is an equity beta estimated over the last five years ending 29 April 2016.  $\beta_{\text{average}}$  has been calculated as the average of OLS regression-based equity betas estimated using all available returns excluding the last five years (ie, out-of-sample period), and  $\sigma_{\text{Cross-Sectional}}^2$  is the variance of OLS regression-based equity betas estimated over the same out-of-sample period.<sup>175</sup>

Table E.7 presents median and mean OLS equity betas and bias-adjusted equity betas of the airport, port and cruise line stocks in our sample.

**Table E.7 Equity betas of all airport, port and cruise line stocks**

	Airport	Ports	Cruise lines
<b>No. of observations</b>	<b>30</b>	<b>95</b>	<b>11</b>
<b>Median</b>			
OLS beta	0.76	0.79	0.83
Blume-adjusted (1975)	0.84	0.86	0.89
Vasicek-adjusted (1973)	0.81	0.80	0.84
<b>Average</b>	<b>0.80</b>	<b>0.82</b>	<b>0.85</b>
<b>Mean</b>			
OLS beta	0.78	0.74	1.00
Blume-adjusted (1975)	0.85	0.83	1.00
Vasicek-adjusted (1973)	0.80	0.77	0.93
<b>Average</b>	<b>0.81</b>	<b>0.78</b>	<b>0.97</b>

**Source:** Thomson Reuter Datastream and IPART analysis.

<sup>175</sup> Industry Panel, *Review of the Independent Competition and Regulatory Commission's 2013 Price Direction for regulated water and sewerage services in the ACT, Draft Report*, December 2014, p 183.

The beta of a firm is determined by three factors, which are cyclicity of sales, degree of operating leverage, and degree of financial leverage. Generally, an increase in financial leverage will increase the equity beta of a firm as higher leverage increases the variance in earnings per share and makes equity investment in the firm riskier. The effect of financial leverage on a firm's equity beta can be eliminated by estimating its asset beta.<sup>176</sup>

Table E.8 summarises the asset betas of all airport, port and cruise line stocks. Cruise line stocks have the highest asset beta followed by airports and ports. In analysing asset betas, we use median values and place equal weights to asset betas obtained from the market model regression (ie, OLS beta) and asset betas adjusted for potential estimation errors (ie, Blume-adjusted and Vasicek-adjusted).

**Table E.8 Asset betas of all airport, port and cruise line stocks**

	Airport	Ports	Cruise lines
<b>No. of observations</b>	<b>30</b>	<b>95</b>	<b>11</b>
<b>Median</b>			
OLS beta	0.56	0.55	0.73
Blume adjusted	0.65	0.63	0.75
Vasicek adjusted	0.65	0.58	0.76
<b>Average</b>	<b>0.62</b>	<b>0.59</b>	<b>0.75</b>
<b>Mean</b>			
OLS beta	0.62	0.53	0.78
Blume adjusted	0.68	0.60	0.79
Vasicek adjusted	0.64	0.56	0.74
<b>Average</b>	<b>0.64</b>	<b>0.57</b>	<b>0.77</b>

Source: Thomson Reuter Datastream and IPART analysis.

As discussed below, differences in asset beta among airports, ports and cruise lines are explained by cyclicity of sales and the degree of the firms' operating leverage.

### Cyclicity of sales

Since betas measure the risk of a firm relative to the market, the more sensitive a business is to overall market conditions, the higher its beta. This implies that firms in cyclical industries (eg, automobile, mining, consumer discretionary and real estate) can be expected to have higher betas than firms in noncyclical industries (eg, utilities and tobacco). In addition, the degree to which a product's consumer demand is discretionary will affect the beta of the firm selling the product. Airports, ports and cruise lines would be considered to be cyclical. They would often experience above-average earnings growth in good years, and be hit harder in bad years, but at a differing degree. As shown in Figure E.2, economic conditions would have a stronger effect on earnings of cruise lines than airports or ports during market downturns, due to a substantial reduction in discretionary spending.

<sup>176</sup> Unlevered beta,  $\beta_U$  (ie, asset beta) is calculated based on the following relationship between unlevered beta and levered beta ( $\beta_L$ ),  $\beta_L = \beta_U [1 + (1-t) D/E]$ . This assumes that the beta of debt is zero.



## Degree of operating leverage

The degree of operating leverage refers to the proportion of fixed costs relative to total costs in a firm's overall cost structure. A firm with higher operating leverage (ie, higher percentage of fixed costs out of total costs) will have higher variability in operating income than a firm with lower operating leverage, all else being equal. This higher variability in operating income will lead to a higher beta for the firm with higher operating leverage (see Table E.9).

The degree of operating leverage is typically measured as a percentage change in earnings over a percentage change in sales. Based on the median values, we find that airports have slightly lower operating leverage than ports. Cruise lines have much higher operating leverage than airports and ports. For example, based on median estimates, a 1% increase in net sales leads to a 12% increase in operating income for cruises, whereas the same change results in around 3% to 4% increase in operating income for airports and ports. This confirms once again that earnings of cruise lines are likely to be more volatile than those of airports or ports, resulting in a higher beta, all else being equal.

**Table E.9** Degrees of operating leverage of airports, ports and cruise lines

	Airports	Ports	Cruise lines
Mean	5.58	11.71	13.39
Median	2.76	3.62	12.37

**Note:** Degree of operating leverage is calculated as % change in operating income ÷ % change in net sales – 1. The mean is calculated excluding outliers at the 99<sup>th</sup> and 1<sup>st</sup> percentiles.

**Source:** Thomson Reuters Datastream and IPART analysis.

### E.6.2 Regulatory decisions

We also considered regulatory decisions on regulated airports and ports (Table E.10). There is a regulatory precedent for asset betas of 0.5 to 0.6 (based on midpoint asset betas) in the regulated airport industry in the UK and Ireland. NZ Commerce Commission adopted an asset beta of 0.63 for Auckland and Christchurch airports. ESC applied an asset beta of 0.61 to the Port of Melbourne.

**Table E.10 Recent regulatory decisions on regulated airport asset and equity betas**

Country	Regulator	Decision	Period	Asset beta ( $\beta_U$ )	Midpoint asset beta	Equity beta ( $\beta_L$ )
UK	Civil Aviation Authority	Heathrow airport	2015-19	0.42-0.52	0.47	0.90-1.15
UK	Civil Aviation Authority	Gatwick airport	2015-19	0.46-0.58	0.52	0.90-1.17
UK	Civil Aviation Authority	Stansted airport	2015-19	0.55-0.67	0.61	1.00-1.24
Ireland	Commission for Aviation Regulation	Dublin airport	2015-19	0.50-0.60	0.55	1.03 <sup>a</sup>
NZ	Commerce Commission	Auckland airport	2016	0.63a	0.63	0.72
NZ	Commerce Commission	Christchurch airport	2016	0.63a	0.63	0.72
AUS	ESC	Port of Melbourne	2009	0.61a	0.61	0.89
AUS	QCA	Dalrymple Bay Coal Terminal	2014	0.45	0.45	0.87

**a** IPART's estimation based on corporate tax rate of 12.5% for Ireland, 28% for New Zealand and 30% for Australia using the formula:  $\beta_L = \beta_U \times (1 + (1 - \text{tax})D/E)$ . For Ireland, the estimated equity beta is based on the midpoint gearing ratio and midpoint asset beta.

**Source:** PWC, *Estimating the cost of capital in Q6 for Heathrow, Gatwick and Stansted – A report prepared for the Civil Aviation Authority (CAA)*, April 2013, p 26; Commission for Aviation Regulation, *Maximum level of airport charges at Dublin airport 2014 Determination*, 7 October 2014, p 86; Commerce Commission New Zealand, *Cost of capital determination for information disclosure year 2016 for Transpower, gas pipeline businesses and suppliers of specified airport services (with a June year-end)*, 31 July 2015, p 19; Essential Services Commission Victoria, *Review of Victorian port regulation – Final report, Appendix D – Total factor productivity*, June 2009, p 202; QCA, *DBCT Management's 2015 draft access undertaking*, April 2016, p 110.

## E.7 Comparing the industry specific parameters for a typical cruise terminal with our recent decisions

Figure E.3 ranks asset betas of various business and industries adopted in IPART's past decisions, including the asset beta we determined for a typical cruise terminal. The asset beta range for a cruise terminal business is towards the top end of asset betas previously determined by us.

**Figure E.3 Implied relative risks of IPART's decisions**



Table E.11 compares our decision on the industry-specific parameters for a typical cruise ship terminal with our recent decisions for other industries.

**Table E.11 IPART's recent decisions on industry-specific parameters**

Industry	Gearing	Equity beta	Credit rating assumption
Cruise ship terminal	40% to 30%	0.80 to 1.00	BBB
Water	60%	0.60 to 0.80	BBB
Transport			
2016 Buses	60%	0.70 to 1.00	BBB
2016 Ferries	60% to 40%	0.80 to 1.00	BBB
2016 Sydney and NSW Trains	60%	0.70 to 1.00	BBB
2016 Light Rail	60%	0.80 to 1.00	BBB

Source: IPART.

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### **E.7.1 Stakeholder submissions on the Port Authority's risk profile**

Carnival stated that a negotiated outcome should lower the Port Authority's risk profile. This should be reflected in a lower WACC.<sup>177</sup>

### **E.7.2 Our response to stakeholder submissions**

As we determine an equity beta and gearing ratio for a benchmark entity operating efficiently in a competitive market, any private negotiations between the cruise industry and the Port Authority are irrelevant.

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<sup>177</sup> Carnival Australia submission, September 2016, p 15.

## F Demand management mechanism

As outlined in Chapter 4 and Chapter 6, the demand forecasts we have adopted for OPT are conservative relative to recent growth in cruise ship visits. To manage demand risk at OPT, we are recommending a process to adjust charges either up or down if future bookings vary substantially from forecast demand.

### F.1 Process to manage demand risk

While we consider it appropriate that implementation details be determined between the Port Authority and the cruise industry, we propose a process that involves:

- ▼ At a designated time before site occupation charges are published for the coming financial year, the number of scheduled bookings is compared to the forecasts in Table 6.2
- ▼ If scheduled bookings vary from our forecast demand by more than +/- 5% , then site occupation charges for the coming season would be adjusted up or down based on the percentage difference between actual and forecast demand **in excess of +/-5%**.

As an example, if demand **exceeds** forecasts by 9% in 2018-19, then site occupation charges at OPT would be revised **down** by 3.7% (Table F.1).

### F.2 How we determined the adjustment factors

The process outlined above includes adjustment factors to revise site occupation charges should demand vary by more than 5% from forecast.

The adjustment factors are designed to make the Port Authority approximately revenue neutral relative to revenue under the original demand forecasts. To derive these factors we undertook a sensitivity analysis which is shown in Table F.1 below.<sup>178</sup>

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<sup>178</sup> The sensitivity analysis presented here is for 2017-18. The adjustment factors do not change across the remaining years (ie, 2018-19 to 2020-21).

**Table F.1 Adjustment factors for changes in demand from 2017-18 to 2020-21 (\$2016-17)**

Excess demand (%)	Actual demand (No of calls)	Total change in revenue from charges based on new demand (\$000)	Price adjustment (\$ per call)	Our recommended charge (\$ per call)	Revised price to achieve NPV neutral (\$ per call)	Difference between revised and recommended charges (%)	Adjustment factor
-10%	185	-1,469	398	72,300	75,600	5.6%	0.6
-9%	187	-1,322	315	72,300	74,800	4.4%	0.5
-8%	189	-1,175	234	72,300	74,000	3.3%	0.4
-7%	191	-1,028	154	72,300	73,200	2.2%	0.3
-6%	193	-881	76	72,300	72,400	1.1%	0.2
- 5% to 5%	No change						
6%	217	881	-68	72,300	71,000	-0.9%	-0.2
7%	219	1,028	-134	72,300	70,300	-1.9%	-0.3
8%	221	1,175	-199	72,300	69,700	-2.8%	-0.3
9%	223	1,322	-263	72,300	69,000	-3.7%	-0.4
10%	226	1,469	-326	72,300	68,400	-4.5%	-0.5

Source: IPART analysis.

## G Comparison of Sydney port charges

In making our recommendations, our terms of reference ask us to have regard to total port costs per visit to Sydney, and equivalent charges applicable to the cruise industry in other national and international jurisdictions (see terms of reference in Appendix A). In this appendix we outline our findings on these issues.

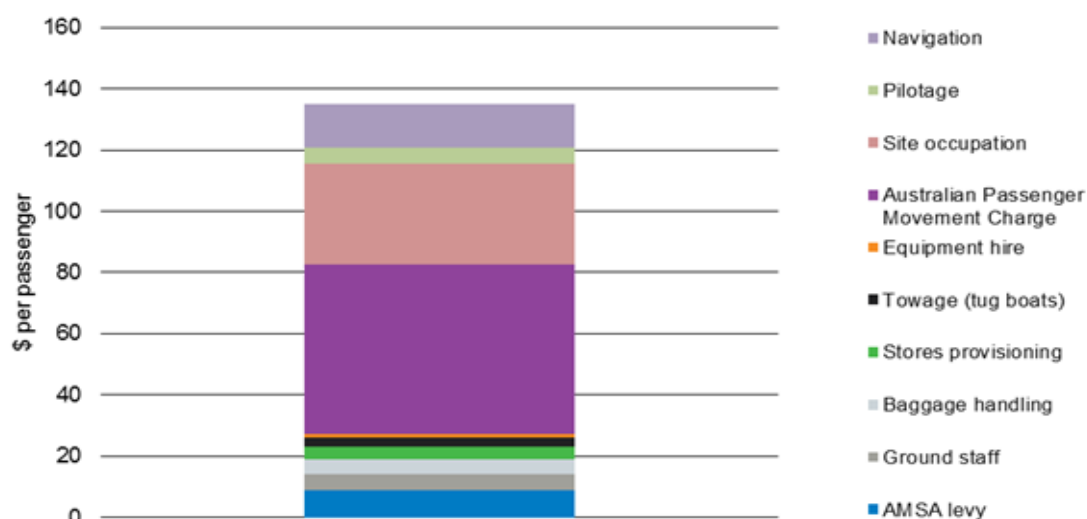
This analysis does not take account of any unpublished or negotiated discounts that cruise operators may receive on port charges.

### G.1 Total port costs and charges in Sydney

In addition to the Port Authority's charges for site occupation, pilotage and navigation cruise ships also incur other costs at port, eg, charges for tug boats, and Federal Government charges, such as the Passenger Movement Charge.<sup>179</sup> These costs are all relevant to a cruise operator's decision to visit Sydney and the financial incentives faced by the operator.

We invited comment from stakeholders on the nature and amount of these costs for a typical cruise ship visit to Sydney Harbour.<sup>180</sup> In its submission to our Issues paper, Carnival provided indicative port costs as summarised in Figure G.1 below.<sup>181</sup>

**Figure G.1 Typical port costs in Sydney (\$/passenger, \$201617)**



Data source: Carnival Australia.

<sup>179</sup> The Passenger Movement Charge (PMC) is an excise tax levied by the Commonwealth Government on all passengers departing on international flights or maritime transport.

<sup>180</sup> IPART, *Maximum fees and charges for cruise ships in Sydney Harbour – Issues Paper*, March 2016, p 50.

<sup>181</sup> Carnival Australia submission, May 2016, p 24.

Carnival noted that non-Port Authority costs will vary based on the size of the ship.<sup>182</sup> Figure G.1 suggests that the largest single cost is the Australian Passenger Movement Charge followed by the site occupation charge.

## G.2 Cruise ship port charges in other jurisdictions

Royal Caribbean provided us with confidential information on a 2010 comparison of port charges and costs worldwide for its Vision Class of vessels.<sup>183</sup> In this study, Sydney had the highest aggregated costs of 22 ports in the world where Royal Caribbean turned around Vision Class vessels. We have compared the main cruise ship charges (site occupation, pilotage and navigation) in 12 ports from six different countries. Table G.1 below provides the list of domestic and international ports included in our analysis.

**Table G.1 List of ports included in our analysis of cruise ship charges**

Country	Port
Australia	Brisbane, Melbourne, Tasmania
Italy	Venice
Japan	Yokohama
Spain	Barcelona
United States	Canaveral, Everglades, Galveston, Houston, Miami
United Arab Emirates	Dubai

Source: IPART.

It is challenging to compare port charges between different locations because:

- ▼ different ports have their own charging structure with different charging categories and units
- ▼ port charges may vary depending on the size of a vessel or the type or timing of a cruise ship visit
- ▼ actual charges may differ from published rates if based on negotiations between the relevant port authority and cruise operators, and
- ▼ charges may not reflect the same service at different locations.

To compare different port charges on the same basis in the same unit, we have taken the following approach:

- ▼ categorising different types of port charges into **Site Occupation**, **Navigation** and **Pilotage** charges, consistent with the charging types in Sydney as shown in Table G.2.
- ▼ making assumptions about the characteristics of a cruise ship (eg, Gross register tonnage, passenger capacity, draft feet) and a cruise ship visit (eg, cruise type, time and days, and length of stay at passenger berth) as shown in Table G.3 and estimating cruise ship charges, and

<sup>182</sup> Ibid.

<sup>183</sup> As provided to IPART by Royal Caribbean, 18 May 2016.



- ▼ converting the total port charges of local currencies to the Australian dollar term using a Purchasing Power Parity (PPP) conversion factor.<sup>184</sup>

**Table G.2 Categorisation of cruise ship port charges in other jurisdictions**

Category	Type of charges in other ports
Site occupation	Wharfage, dockage, berthing, berth hire, passenger tax, passenger service charge, passenger handling charge, multi-user terminal, assistance to disembarking, embarking and transiting passengers/overnight passengers, mobile passenger boarding bridge
Navigation	Harbourmaster fee, vessel tax, port dues, navigation aid tax, channel fees, harbour fee, harbour dues, conservancy, tonnage due
Pilotage	Pilotage

Source: IPART analysis.

**Table G.3 Scenario assumption for port charge calculation**

	Cruise A	Cruise B
<b>Cruise vessel details</b>		
Gross tonnage	70,310	168,666
Passenger capacity	1,950	4,905
Actual passenger numbers	1,950	4,905
Length in metres	245	348
Length in feet	804	1,142
Draft in metres	8	8.5
Draft in feet	26	28
Beam (maximum) in feet	117	160
Unit	940	1,827
<b>Cruise trip details</b>		
Cruise terminal in Sydney	WB5	OPT
Cruise visit type	Transit	Transit
Cruise visit time	Weekend	Weekend
Cruise days	7	7
Length of stay at berth (day)	1	1
International or domestic	International	International

### G.2.1 Comparison of cruise ship port charges

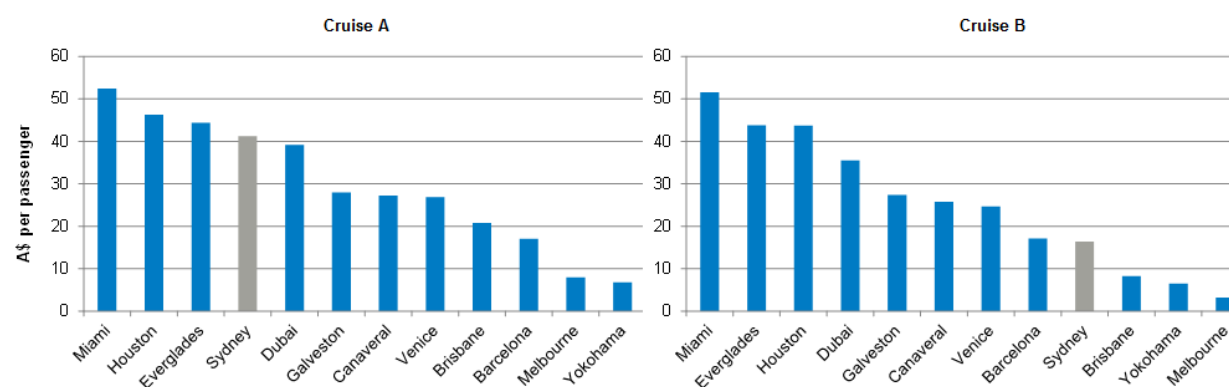
Figure G.2 compares our recommended site occupation charge per call in Sydney on a per passenger basis, with the equivalent charges in other international and domestic ports for the two hypothetical cruise ships described in Table G.3.

For Cruise A which berths at WB5, Sydney has the fifth highest site occupation charge. For Cruise B, which is assumed to berth at OPT, our recommended site occupation charge is

<sup>184</sup> While conversion based on exchange rates is common, we consider that there are some disadvantages of using exchange rates. Results could be driven by fluctuation in exchange rates. Also, exchange rates do not reflect the relative prices of goods and services produced in different countries. To address this issue, we converted international port charges to Australian dollars using the 2015 PPP factor calculated by the World Bank. See <http://data.worldbank.org/indicator/PA.NUS.PPP>, accessed 15 July 2016.

lower than the equivalent charges in all international ports except for Yokohama. Cruise B is a large ship, which benefits from a charge per call when converted to a per passenger basis. Our recommended site occupation charge is higher than other domestic ports such as Melbourne and Brisbane irrespective of the type of cruise ship.

**Figure G.2 Comparison of site occupation charges (A\$ per passenger)**



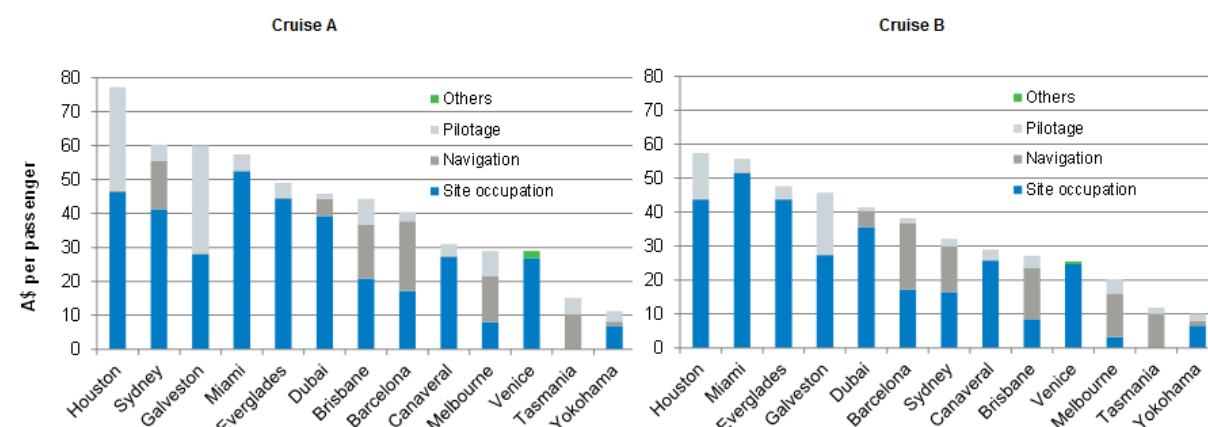
**Note:** For Tasmania, information on site occupation (or equivalent) charge was not available. Currency conversion is based on the 2015 Purchasing Power Parity factor calculated by the World Bank.

**Data source:** Schedule of port charges in various ports and World Bank.

We also estimated the total site occupation, pilotage and navigation charge per passenger in Sydney based on our recommendation, and compared it with the equivalent charges in other ports.

As shown in Figure G.3, for Cruise A, the total cruise ship charge in Sydney is the fourth highest among the ports analysed. However, for Cruise B, Sydney's total cruise ship charge per passenger is less than most international ports we considered in this analysis.

**Figure G.3 Comparison of total site occupation, pilotage and navigation charges (A\$ per passenger)**



**Note:** The total charge for Tasmania does not include site occupation or equivalent charge. 'Others' in Venice include 'Assistance to Passenger Ships'. Currency conversion is based on the 2015 Purchasing Power Parity factor calculated by the World Bank.

**Data source:** Schedule of port charges in various ports.

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We are not able to consider the rate of return implied by charges at other locations, as noted in our terms of reference. To do this we would need to obtain information about port costs in a similar way to how we have assessed efficient costs in this review. Because we do not have access to this information, we are also unable to consider whether charges at other locations are subsidised or if any negotiated discounts are provided.