

Economic Impact Assessment of The Star – Modification 13

December 2017



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Executive summary

Background

Located on the waterfront of Sydney's Pyrmont Bay, The Star is New South Wales' premier integrated resort and entertainment destination, including the state's only casino. From 2009 to 2013, The Star underwent an \$870 million redevelopment and expansion program to integrate world class gaming with hotel, restaurant, theatre, conference and major event facilities to become a world class entertainment destination.

On completion of this transformation, The Star was named 'Australia's Leading Casino Resort' in the World Travel Awards and has been the recipient of a number of building and design awards as well as receiving culinary awards for excellence for its restaurants.

The transformation of The Star has driven increases to visitation and revenue, with The Star Entertainment Group Limited now planning additional investment in The Star.

Next phase of investment at The Star

The Star Entertainment Group Limited (SEGL) is an operator of integrated resorts catering to both local and international visitors and is the operator of The Star. Consistent with their commercial obligation to the NSW government to operate the site at a first class international standard, SEGL is proposing a revitalisation of the existing complex.

SEGL is embarking on a five year redevelopment journey to create a landmark, exemplar integrated resort. This proposed redevelopment will occur through the lodgement of two s75W applications lodged with the Department of Planning and Environment (Department), being Modification 14 and Modification 13. Modification 14 has now been approved. All works relating to Modification 13 are detailed within this report.

Under Modification 13, SEGL plans to invest approximately \$626 million of capital for the proposed The Ritz-Carlton Tower and associated works, to be undertaken between 2018-2023. This is proposed to meet the increasing demand of international leisure tourism.

The proposed The Ritz-Carlton Tower specifically includes:

- 220 hotel rooms
- 204 residential apartments
- retail and food and beverage facilities inside The Ritz Carlton Tower and in The Star complex
- a range of maintenance.

Our analysis includes all works encapsulated under Modification 13. There will be no expansion to gaming areas in Modification 13.

Scope of report

This report estimates the current and future economic contribution The Star is expected to make to the state of New South Wales (NSW). This is achieved through two key activities – assessment of the:

- ongoing economic contribution made by The Star in its current state based on the Economic Impact Assessment of The Star Sydney report provided in August 2016 (Modification 14)
- potential economic contribution made by the proposed Modification 13 investments in The Star including the combined and separate impacts.

The report analyses the potential impact of Modification 13, including The Ritz-Carlton Tower, under the assumption that the residential apartments will be half owned domestically and half owned internationally.

The additional planned investments in Modification 13 are aimed at securing the existing benefits The Star generates for NSW by maintaining the property at a level that is competitive with other integrated casino resorts in the Asia-Pacific region. Modification 13 investments are also expected to generate additional benefits to NSW from the further expansion and improvement of the product offering.

Key findings

The Star's ongoing operation makes a considerable economic contribution to the state of NSW. In its current state (including the 2009-2013 expansion and Modification 14), The Star is estimated to:

- create an additional 7,000 jobs (4,800 direct, 2,200 indirect) each year (on average from FY2017 to FY2030)²
- contribute \$6.9 billion to the NSW economy from FY2017 to FY2030 in additional gross state product (GSP) (in real, present value terms)
- contribute \$4.1 billion to NSW's exports from FY2017 to FY2030 (in real, present value terms)

Nominal tax revenue impacts directly generated by The Star include:

- a \$2.4 billion increase in direct nominal tax revenue for the NSW Government from FY2017 to FY2030 in present value terms
- a \$2.2 billion increase in direct nominal tax revenue for the Commonwealth Government from FY2017 to FY2030 in present value terms.

In estimating economic impacts, Modification 13 has been assumed to be a unique investment into the NSW accommodation market, given that the main addition is a '6 star' hotel in an integrated resort. The investment therefore brings a significant new demand into the market, with minor displacements in other areas of the accommodation sector. For example, some visitors to 5 star hotels in NSW may reveal their preferences towards a '6 star'

² The average additional jobs figure is a net result of entries and exits in employment in NSW as a result of The Star. This means that additional employment figures across the years are not additive. For example, if an individual is employed as a result of The Star in FY2017 and maintains their job over the forecast period, they would contribute to the additional jobs figure every year in the forecast period. This is assuming that this individual would have otherwise been unemployed.

hotel when The Ritz-Carlton Tower is built, causing a 'ripple effect' on other hotels. Noting this, the overall impact is growth in the Accommodation and Food Services industry, and associated industries.

The incremental benefits generated by the Modification 13 investments are estimated to make the following economic contributions to the NSW economy:

- an additional \$800 million in GSP to the NSW economy from FY2017 to FY2030 (in real, present value terms) and will create an extra 754 jobs on average every year (from FY2017 to FY2030)
- an increase in household consumption in the NSW economy by \$329 million from FY2017-FY2030 (in real, present value terms).

An industry breakdown of the economic impacts of Modification 13 shows that the most strongly impacted industries (measured in output, in real, present value terms) are:

- Construction: \$447 million
- Retail and Wholesale Trade: \$237 million
- Rental, Hiring and Real Estate Services; Professional, Scientific and Technical Services & Administrative and Support Services: \$232 million
- Accommodation and Food Services: \$217 million
- Manufacturing: \$163 million

Taking these incremental benefits into account, following the completion of Modification 13, The Star's total economic contribution to the NSW economy is expected to include:

- the creation of an additional 7,800 jobs each year (on average from FY2017 to FY2030)
- a \$7.8 billion increase in GSP from FY2017 to FY2030 (in real, present value terms)
- an additional \$4.3 billion in NSW exports from FY2017 to FY2030 (in real, present value terms)
- a \$2.4 billion increase in direct nominal tax revenue for the NSW Government from FY2017 to FY2030 in present value terms
- a \$2.3 billion increase in direct nominal tax revenue for the Commonwealth Government from FY2017 to FY2030 in present value terms.

1 Introduction

Located on the waterfront of Sydney's Pyrmont Bay, The Star is New South Wales' premier integrated resort and entertainment venue. From 2009 to 2013, The Star underwent an \$870 million redevelopment and expansion and now features world class gaming facilities, more than 20 restaurants, bars and cafes, three hotels and short stay accommodation venues, a 16 room spa, theatres, a high-end retail collection and an event and conferencing centre.

Through its provision of gaming, bar and restaurant activities, hotel and apartment accommodation, live performances, conferences and events, banquets and retail services to local, interstate and international visitors, The Star makes a considerable contribution to the NSW economy.

1.1 Objective

The Australian Government is striving for an ambitious growth target to double overnight domestic and international visitor expenditure by 2020 (Tourism 2020). To facilitate this growth, the existing development pipeline needs to meet a target of 6,000 to 20,000 new rooms by 2020.³ In achievement of national tourism growth, the then Federal Tourism Minister, Andrew Robb, suggested a push towards the development of new five or six-star hotels, to promote Australia as a premium brand.⁴

At a national level, Tourism Research Australia forecasts the ten year average growth rate to be an estimated 4.1 per cent, with arrivals expected to reach 12.3 million by 2024-25.⁶ This growth is largely driven by China, which is expected to contribute 26 per cent of the growth in arrivals. As the state with the highest number of international visitors annually (3,649,000 visitors in June 2016),⁷ NSW stands to benefit from the tourism growth.

Within Sydney city, the hotel market recorded occupancy levels over 87 per cent for YTD August 2016, at 1 per cent higher than the same period in the previous year. The average room rates for the Sydney hotel market are at \$235, up six per cent on the previous year, resulting in revenue per available room (RevPAR) of over \$206, up seven per cent.⁸

With the targets for tourism and the focus on high-end accommodation, the contribution of The Star (including Modification 13) is crucial for success. Overall, The Star is a fundamental driver of economic growth through tourism in Sydney, with benefits flowing through to the rest of NSW.

PricewaterhouseCoopers Consulting (Australia) Pty Limited (PwC) has been commissioned by The Star Entertainment Group Limited (SEGL) to estimate The Star's contribution to the NSW economy. This report estimates the direct and flow-on (broader) economic contribution of The Star from FY2017 to FY2030, inclusive of its recent expansion (the 2009-2013 expansion and the proposed Modification 14 investment, which will be approved in October 2017). It also estimates the economic contribution of the proposed works in Modification 13, and the associated uplift in visitation and revenue.

³ Australian Trade and Investment Commission, For Tourism: Policy and Strategy, Australian Government

⁴ Robyn Ironside, Australia needs more five-star hotels to lure international tourists, says Federal Tourism Minister, News Corp Australia Network, March 17, 2015.

⁶ Tourism Research Australia, Tourism Forecasts, 2016, Austrade

⁷ Tourism Research Australia, International Visitors in Australia – Year ending June 2016, Austrade

⁸ Collier International, Research & Forecast Report: New South Wales, 2016

The capital investment proposed in Modification 13 consists of The Ritz-Carlton Tower, and alterations and additions to the existing The Star complex. The Ritz-Carlton Tower specifically includes:

- 220 hotel rooms
- 204 residential apartments of an average size of 100 square metres.
- retail and food and beverage facilities inside The Ritz Carlton Tower and in the Star complex
- a range of maintenance, for which approvals may or may not be required.

1.2 Scope

This PwC report draws on data provided by The Star Entertainment Group Limited (SEGL) and subsequent computable general equilibrium (CGE) modelling to estimate the economic contribution of The Star across the following areas:

- employment (FTEs)
- income/household consumption (\$)
- impact on gross state product (GSP) (\$)
- NSW tourism
- contribution to taxes, licence fees and other charges to the NSW and Commonwealth governments.

While this report does not specifically quantify the economic costs of The Star, it considers the net of benefits and dis-benefits on a state-wide level through the interactions between sectors and industries of the economy. This allows The Star's investment to flow through, generating an overall net impact.

1.3 Approach

The Star's contribution to the NSW economy has been modelled by a multi-regional CGE model that simulates the economic impact of The Star on the NSW economy each year.

The approach to modelling The Star's economic activity involved separating direct effects from indirect effects:

- *Direct effects*: the result of The Star operating in NSW, largely driven by overseas and interstate visitor spend at the venue, as well as the venue's direct contribution to employment measured by the number of people employed at The Star
- *Indirect effects*: flow-on impacts throughout NSW include the impact of
 - consumer spending in the economy by The Star Sydney employees, and
 - additional spending by businesses that supply goods and services to The Star.

The direct effects were derived by PwC from information provided by SEGL. Specifically, this information included:

- tax implications of the construction and operation of The Ritz-Carlton
- increased visitation through the operation of The Ritz-Carlton

- revenue generated through the operation of The Ritz-Carlton
- capital expenditure through the construction and maintenance of The Ritz-Carlton
- employment impacts (construction and operation) of The Ritz-Carlton
- hotel and apartments joint venture earnings estimates.

The indirect and total economic contribution of The Star draws on CGE modelling, applying the Victoria University Regional Model (VURM).

The VURM is a multi-regional CGE model that simulates the effects on the economy in each year, taking into account indirect and substitution effects; for example, the impact a development or activity might have on prices or resource constraints. It models the economic behaviour across multiple industry sectors in the eight states/territories of Australia. Relative to more simplistic input-output modelling (IO), this type of model is preferred by governments and treasuries because they have been peer reviewed, meaning the inputs and assumptions are fully and publicly documented.

The VURM produces estimates of standard economic measures, which serve as indicators of changes in economic activity. These are as follows:

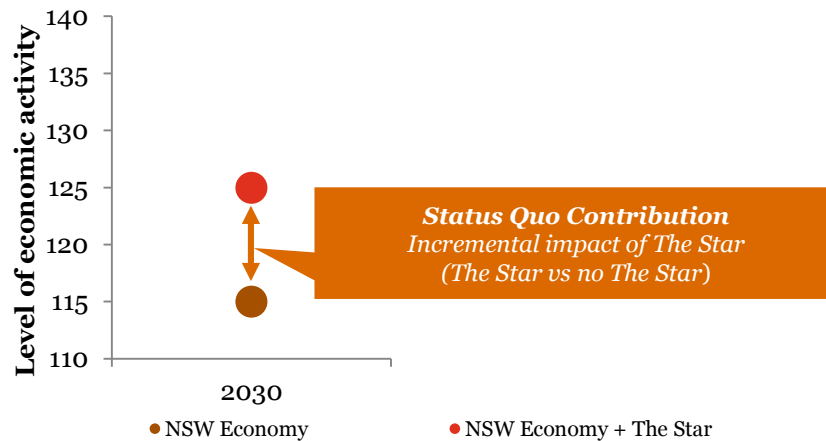
- value added and GSP
- employment
- household and government consumption.

The Star's contribution to NSW tourism expenditure and its contribution to taxes, licence fees and other charges to NSW Government have been modelled outside the CGE model.

The current and future economic contribution made by The Star in its current state (including Modification 14) has been derived through benchmarking The Star's current (and projected) operations against a theoretical case in which The Star does not exist. This scenario assumes that The Star does not undertake any expansionary capital investments over the 14 year period of analysis.

The difference between these cases has been taken as the economic contribution made by The Star in its current state, which is reported on an annual basis and as a cumulative amount over the 14 year period of analysis. This scenario is referred to as the 'Status Quo contribution' throughout this report. The approach to estimating the contribution in its current state (the Status Quo Contribution) is shown in Figure 1.

Figure 1: Estimating the contribution of The Star in its current state
(ILLUSTRATIVE ONLY)

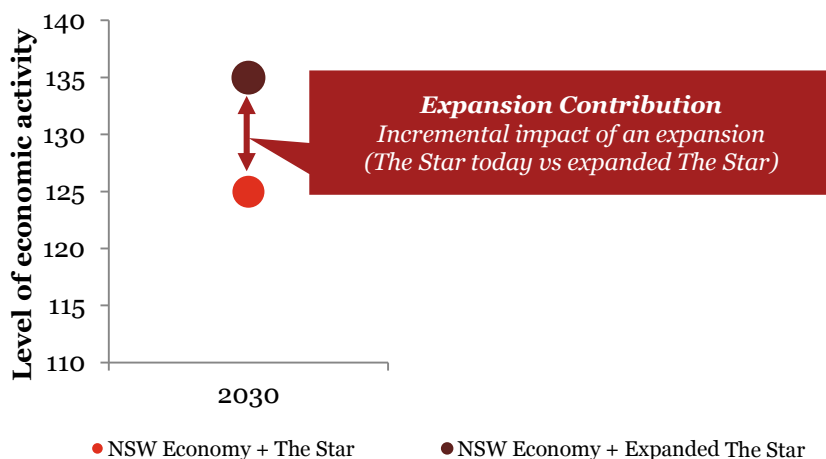


Source: PwC analysis

The direct contribution of Modification 13 in The Star has been derived from data supplied by The Star Entertainment Group Limited with CGE modelling being employed to estimate the total (direct and flow on) contribution of an expansion to The Star.

Under the expansion scenario, the economic contribution of an expansion to The Star is the incremental impact of Modification 13. It is the activity generated by the expansion only, which is the incremental difference between the economic contribution of an expanded The Star and the ongoing contribution made by The Star in its current state (the Status Quo Contribution).

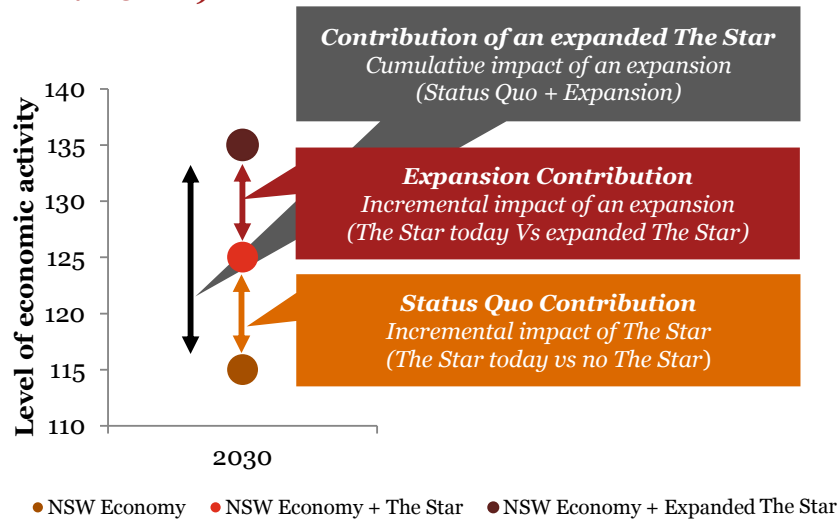
Figure 2: Estimating the incremental contribution of an expansion
(ILLUSTRATIVE ONLY)



Source: PwC analysis

In addition to the incremental contribution made by an expansion, the cumulative contribution made by an expanded form of The Star is also reported. The process for estimating the incremental contribution of Modification 13 and the cumulative contribution of an expanded The Star are shown in Figure 2 and Figure 3 respectively.

Figure 3: Estimating the cumulative contribution of an expanded The Star (ILLUSTRATIVE ONLY)



Source: PwC analysis

Distribution impacts

In this report, the results are presented from an ‘economy-wide’ perspective. That is, the model is indifferent as to which specific organisations are affected. For example, the model identifies that investment in The Star will generate a net gain in economic activity in NSW. In addition to a gain in economic activity at The Star, other organisations may see either increases in economic activity (e.g. where they provide complementary products or services) or a decline (where they provide competing products and services). Even when an organisation is providing potentially competing services (e.g. a restaurant in the vicinity of The Star), it may benefit from the attraction of additional patrons to the Pyrmont area.

Distributional impacts have been presented in two ways:

- The Star and the rest of NSW: this was done using estimates of direct expenditure by The Star, in conjunction with the economy-wide modelling results.
- Industry impacts: this was estimated through CGE modelling, to understand the industries that will benefit most from both the direct investment of Modification 13 and the flow-on supply chain effects. This includes industry impacts in both the construction and operation phase.

1.4 Report structure

The structure of the remainder of this PwC report is as follows:

- Chapter 2 provides an overview of The Star’s current operations
- Chapter 3 details The Star’s current and future economic contribution to NSW in its current state
- Chapter 4 outlines a potential expansion scenario for The Star and estimates the impact of this investment.

2 Overview of current operations

2.1 History

The Star commenced operations in FY1995 on a temporary site in Pyrmont Bay, under the banner of Sydney Harbour Casino. The permanent casino facility, named Star City Casino, opened in 1997 under the ownership of Star City Holdings Limited (SCY).⁹ The original licence granted to the casino in FY1995 was for 99 years, with exclusivity for 12 years.

Following a takeover bid in 1999, SCY and the Star City Casino were acquired by Tabcorp Holdings Limited. A demerger, effective June 2011, established the former casino division of Tabcorp Holdings as Echo Entertainment Group Limited. In November 2015, Echo Entertainment Group changed its name to The Star Entertainment Group Limited. The Group owns and operates three casinos – including The Star in Sydney, the Jupiter Hotel and Casino on the Gold Coast and the Treasury Casino and Hotel in Brisbane. The Star Entertainment Group Limited also operates the Gold Coast Convention and Exhibition Centre on behalf of the Queensland Government. The licence exclusivity arrangement for The Star was renewed for a \$100 million fee with the NSW Government during 2007 until 13 November 2019.¹⁰

Following expiration of The Star's exclusivity arrangements, Crown Sydney will commence operations that include VIP gaming facilities in Barangaroo, having obtained a 99 year NSW gaming license in 2013.¹¹ In doing so, Crown Sydney will compete with The Star for VIP visitation and gaming revenue.

2.2 Redevelopment and expansion (2009-2013)

Star City Casino underwent a redevelopment and expansion program called 'Project Star' from 2009 to 2013. The project aimed at transforming the casino from a gambling destination to a premium entertainment destination, and a truly integrated resort that would compete with comparable operations internationally.¹² The Project Star transformation involved the re-orientation of the building to embrace Sydney Harbour and the city skyline.

The redevelopment and expansion cost \$870 million and involved the development and opening of signature restaurants and bars, new VIP gaming suites, additional hotel rooms, gaming tables, seats and gaming machines. The project was completed when the 4,000 seat capacity Event Centre opened in January 2013. The Star, as it is now known, was officially relaunched on 15 September 2011.

Following redevelopment and expansion, The Star was developed into a world class integrated resort for Sydney, including the following key facilities:

- Harbour-side glass façade to embrace Sydney Harbour and the city skyline

⁹ Intelligent Investor, *Star City Holdings Limited (SCY)*, <http://shares.intelligentinvestor.com.au/company/Star-City-Holdings-Limited-SCY-251185/>

¹⁰ Casino Liquor and Gaming Control Authority, *Annual Report 2008/09*, 2009, p. 2

¹¹ Independent Liquor and Gaming Authority, NSW Government, http://www.ilga.nsw.gov.au/__data/assets/pdf_file/0020/42806/Section-5A-Ministerial-Direction-Barangaroo-RGF.pdf

¹² Tabcorp, *Project STAR – Marketing Brief*, http://www.tabcorp.com.au/resources.ashx/mediareleases/377/downloadableVersion/11DA8FF4DE20D8C57B81780B19A6F00D/10_October_-_Project_STAR.pdf

- more than 20 restaurants, bars and cafes
- signature restaurants, including BLACK by Ezard, Balla, Momofuku, The Century and Sokyo
- a new luxury boutique hotel and 16 room spa – Sydney’s first new build five star hotel since the 2000 Olympics (The Darling with 57 five star suites and 114 five star hotel rooms)
- the complementing Astral Tower and Residences bring the total room offering to around 630
- expanded premium retail collection comprising leading international and Australian brands including Gucci, Salvatore Ferragamo and Bottega Veneta
- luxurious new gaming areas, with significant investment made in the VIP offering to attract international and interstate visitation
- the brand new Event Centre, which can be configured up to a capacity of 4,000 for conferences, balls, banquets concerts and stage shows
- Sydney Lyric, one of Sydney's premier live entertainment venues and home to numerous musicals, theatre, concerts, opera and ballet and a 10-plus year history of welcoming legendary performers from all over the world.

2.3 Additional planned projects

Furthermore, The Star Entertainment Group Limited is embarking on a five year redevelopment journey to create a landmark, exemplar integrated resort. This proposed redevelopment will occur through the lodgement of two s75W applications lodged with the Department of Planning and Environment (Department), being Modification 14 and Modification 13.

The Modification 14 application, which has now been approved, included:

- the upgrade and expansion of the Sovereign Gaming area and complementary non-gaming facilities
- a range of upgrades on on-site infrastructure and public area upgrades
- other non-gaming and property specific upgrades
- internal upgrades to back-of-house facilities.

For the purposes of this engagement, both the 2009-2013 redevelopment/expansion and Modification 14 are assumed to be a part of the base case.

3 The Star's current state economic impact

The Star's recent transformation into an integrated resort and entertainment venue, including the scope of works in Modification 14, has driven visitation and revenue, enhancing its overall economic contribution to the state of NSW. In its current state, The Star's ongoing operation makes a considerable contribution to the NSW economy.

3.1 Current state economic impact

All total contributions to the NSW economy are reported in real dollars. These contributions have been reported as undiscounted amounts for annual totals but have been discounted for reporting the cumulative totals over the entire 15 year analysis period. Refer to Table 1 and Table 2 for the economic contribution of The Star in its current state, and the direct tax contribution of The Star in its current state.

Table 1 Total (direct and flow-on) economic contribution of The Star

<i>Economic Indicator</i> (2016-17 real dollars)	<i>FY2017</i>	<i>Cumulative total</i> (FY2017 to FY2030)
		<i>Present value (7% discount rate)</i>
Gross state product/Gross value added (\$ millions)	\$944	\$6,939
Exports from NSW (\$ millions)	\$565	\$4,117
Household consumption (\$ millions)	\$223	\$1,494
NSW Output (\$ millions)	\$1,705	\$12,519
Average annual employment (FTEs)	7,590	7,023

Source: PwC Australia, Economic Impact Assessment of The Star Sydney - Modification 14 report, August 2016. Analysis based on Monash University Centre of Policy Studies modelling (using dynamic VURM CGE model)
Note: Results have been scaled to 2016-17 dollars.

Table 2 Total direct tax contribution of The Star in the current state

<i>Economic Indicator</i> (2016-17 real dollars)	<i>FY2017</i>	<i>Cumulative total</i> (FY2017 to FY2030)
		<i>Present value (7% discount rate)</i>
Contribution to taxes, licence fees and other charges to NSW Government (nominal)	\$283	\$2,410
Contribution to taxes, licence fees and other charges to Comm. Government (nominal)	\$211	\$2,236

Source: PwC Australia, Economic Impact Assessment of The Star Sydney - Modification 14 report, August 2016.

4 Economic contribution of Modification 13

In addition to the contribution of The Star in its current state, in this chapter we present the potential economic contribution of planned investments in The Star. The incremental contribution of the additional planned investment itself and the cumulative contribution made by Modification 13 are outlined in the following sections.

This planned investment comprises of expansionary capital investment of \$626 million (real, undiscounted) assumed to take place over the investment period FY2018 to FY2023. The capital investment modelled under the expansion scenario will include the proposed The Ritz-Carlton Tower, and alterations and additions to the existing The Star. The hotel specifically includes:

- 220 hotel rooms
- 204 residential apartments
- retail and food and beverage facilities inside The Ritz-Carlton Tower and in the Star complex
- a range of maintenance, for which approvals may or may not be required.

Under the expansion scenario, we have assumed that the residential apartments will be equally owned by domestic and international investors. To measure the economic impacts of the residents, we have assumed that domestic residences will not contribute in economic activity because they would have spent elsewhere in NSW if they were not staying at The Ritz-Carlton Tower. Further, we have assumed that international ownership implies that owners will visit NSW for periods of the year, during which their expenditure will reflect the spending pattern of a traditional international tourist.

4.1 Economic impact of Modification 13 investments - incremental

Through the Modification 13 investment, benefits are generated for The Star and flow through to the rest of NSW.

Overall, the investment generates an incremental \$793m in economic benefits (measured by gross state product) for NSW. This includes benefits stimulated by the construction phase through direct impacts to the construction industry and subsequent supply chain effects, as well as in operation phase, through spending in both The Star and the wider NSW, and flow-through effects to other sectors of the economy.

Table 3 Incremental contribution of Modification 13, relative to current state contribution

<i>Present value (FY2017 to FY2030, 7% discount rate)</i>		
<i>Economic indicator (2016-17 real dollars)</i>	<i>Current state impact</i>	<i>Incremental impact of Modification 13</i>
Gross state product (\$ millions)	\$6,939	\$800
Exports from NSW (\$ millions)	\$4,117	\$159
Household consumption (\$ millions)	\$1,494	\$329
NSW Output (\$ millions)	\$12,519	\$1,691
Average annual employment (FTEs)	7,023	754

Source: PwC analysis using dynamic VURM CGE model

Table 4 Incremental direct tax contribution of Modification 13, relative to current state contribution

<i>Present value (FY2017 to FY2030, 7% discount rate)</i>		
<i>Economic indicator (2016-17 real dollars)</i>	<i>Current state impact</i>	<i>Incremental impact of Modification 13</i>
Contribution to taxes, licence fees and other charges to NSW Gov. (\$ millions, nominal)	\$2,410	\$19
Contribution to taxes, licence fees and other charges to Comm. Gov. (\$ millions, nominal)	\$2,236	\$22

Source: PwC analysis using dynamic VURM CGE model

GSP rises significantly in the first five years during construction, due to new activity in the Construction industry and flow-on supply chain industries. Thereafter, GSP reaches a higher steady state as the hotel (and associated works) become operational. This trend is also reflected in NSW output (the total value of all goods and services produced in an economy), with the investment generating an incremental \$1.7 billion. A similar result occurs for employment impacts.

Household consumption improves in a similar trend to GSP and employment, demonstrating that households are better off overall as a result of the project.

Figure 4 Incremental NSW gross state product over time (\$m, 2016-17 real dollars)

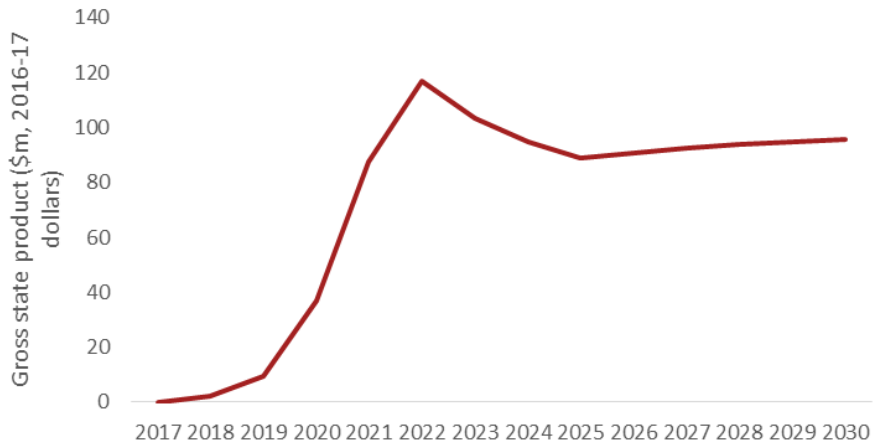


Figure 5 Incremental NSW employment impacts over time (FTEs)

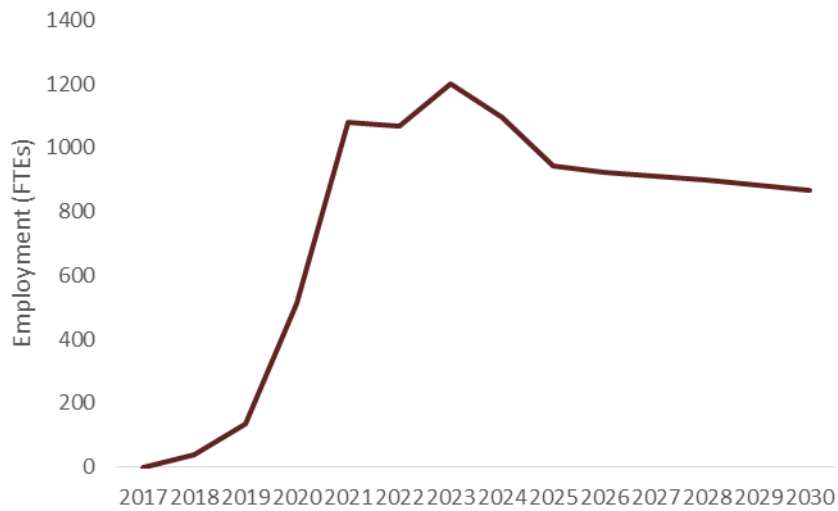
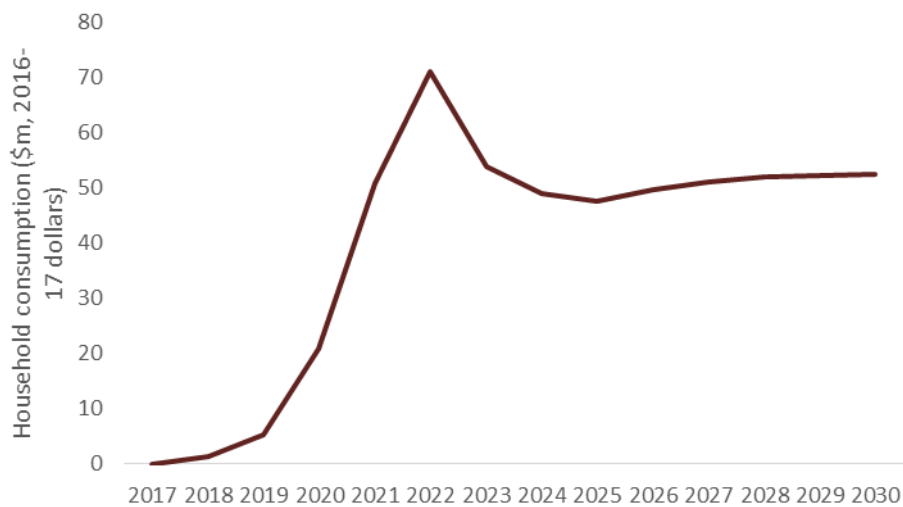


Figure 6 Incremental NSW household consumption impacts over time (\$m, 2016-17 real dollars)



4.2 Distributional impacts (industry)

The investment in Modification 13, including The Ritz-Carlton Tower, will not only impact the Accommodation and Food Services industry, but the flow-on effects will generate economic benefits for a number of other related industries.

During the construction phase of the project, Construction and Manufacturing primarily benefit from building and support services. As the hotel (and associated works) becomes operational, Accommodation and Food Services, and Retail and Wholesale Trade benefit from tourist accommodation and spending. Rental, Hiring and Real Estate Services; Professional, Scientific and Technical Services & Administrative and Support Services generates benefits throughout both the construction and operation phases.

Table 5 Incremental NSW output of top five industries by scenario (\$m, FY2017 to FY2030, 2016-17 real dollars, discounted at 7%)

<i>Industry</i>	<i>Output (\$m)</i>
Construction	447
Retail and Wholesale Trade	237
Rental, Hiring and Real Estate Services; Professional, Scientific and Technical Services & Administrative and Support Services	232
Accommodation and Food Services	217
Manufacturing	163

Source: PwC analysis using dynamic VURM CGE model

Table 6 Incremental NSW employment of top five industries by scenario (average FTEs, annual)

<i>Industry</i>	<i>Employment (FTEs, average annual)</i>
Retail and Wholesale Trade	183
Construction	182
Transport, Postal and Warehousing	100
Arts and Recreation Services & Other Services	89
Rental, Hiring and Real Estate Services; Professional, Scientific and Technical Services & Administrative and Support Services	76

Source: PwC analysis using dynamic VURM CGE model

The approach we have undertaken to estimate the economic impacts of Modification 13 assumes that the hotel is a unique investment into the NSW accommodation market. The Ritz-Carlton Tower has a niche target market as a '6 star' hotel, which is new to the NSW accommodation sector. The investment therefore brings a significant new demand into the market, causing minor direct displacements in other areas of the accommodation sector. Through this investment, complementary services will receive flow-on economic benefits, while competing services may be impacted by slight dis-benefits. For example, some visitors

to '5 star' hotels in NSW may reveal their preferences towards a '6 star' hotel when The Ritz-Carlton Tower is built causing a 'ripple effect' on other hotels. Noting this, the overall impact is growth in the Accommodation and Food Services industry, and associated industries.

The new demand induced by the hotel flows on to other amenities developed in Modification 13. This means that any expenditure undertaken by this new demand (transport, food and beverage, entertainment, etc.) is treated as new demand in the respective industries.

As a result of indirect impacts caused by the Modification 13 investment, some industries will experience minor dis-benefits due to competing resources and appreciation of the Australian dollar at the margin. This includes the Mining and Agriculture, Forestry and Fishing sectors, with the total output loss across losing industries at \$31 million. While some industries experience negative impacts, the amount is immaterial relative to the output gain of \$1.7 billion across all other industries. To provide a sense of scale, the Mining industry in NSW is most negatively impacted, at a trivial \$30 million (discounted at 7%, 2016-17 dollars) change on the current state scenario across 2017-2030.

Table 7 Incremental NSW output of all negatively impacted industries by scenario (\$m, 2016-17 real dollars, discounted at 7%)

<i>Industry</i>	<i>Output (\$m)</i>
Mining	-30
Agriculture, Forestry and Fishing	-1

Source: PwC analysis using dynamic VURM CGE model

In terms of employment, Accommodation and Food Services is slightly negative due to lower demand in the construction phase. Mining also exhibits a minor loss in employment due to flow on effects; in particular, the increased expenditure of international tourists causes a slight appreciation of the Australian dollar, which subsequently affects the demand of mining exports. The fall in demand results in minor employment losses.

Table 8 Incremental NSW employment of all negatively impacted industries by scenario (average FTEs, annual)

<i>Industry</i>	<i>Average FTEs</i>
Accommodation and Food Services	-7
Mining	-4

Source: PwC analysis using dynamic VURM CGE model

4.3 Economic impact of The Star and the rest of NSW

Modification 13 investments at The Star generates economic benefits for the rest of NSW. Table 9 demonstrates that the additional economic impacts generated by Modification 13 benefits NSW (excluding The Star) by \$1.5 billion through the investment (output, present value FY2017 to FY2030, 7 per cent discount rate). This is also reflected in jobs, with between averages of almost 500 jobs flowing on to the rest of NSW annually. This is largely generated in the Construction industry.

Table 9 Economic impacts of The Star and the rest of NSW

<i>Present value (FY2017 to FY2030, 7% discount rate)</i>		
<i>Economic Indicator</i>	<i>Incremental impact of Modification 13</i>	
	<i>The Star</i>	<i>Rest of NSW</i>
Output (\$ millions, 2016-17 real dollars)	\$155	\$1,536
Average annual employment (FTEs)	245	509

Source: PwC analysis using dynamic VURM CGE model

4.4 The total contribution of an expanded The Star

The contribution of an expanded The Star is the sum of the incremental contributions of Modification 13 and the contribution made by The Star in its current state.

After the construction of Modification 13, The Star is estimated to make the following direct and flow-on contributions to the NSW economy.

Table 10 Total NSW (direct and flow-on) contribution of an expanded The Star

<i>Present value (FY2017 to FY2030, 7% discount rate)</i>		
<i>Economic Indicator (2016-17 real dollars)</i>	<i>Current state impact</i>	<i>Cumulative impact of Modification 13</i>
Gross state product (\$ millions)	\$6,939	\$7,738
Exports from NSW (\$ millions)	\$4,117	\$4,276
Household consumption (\$ millions)	\$1,494	\$1,823
NSW Output (\$ millions)	\$12,519	\$14,210
Average annual employment (FTEs)	7,023	7,777

Source: PwC analysis using dynamic VURM CGE model

Table 11 Total direct NSW and Commonwealth Government contributions of an expanded The Star

<i>Present value (FY2017 to FY2030, 7% discount rate)</i>		
<i>Economic Indicator (2016-17 real dollars)</i>	<i>Current state impact</i>	<i>Cumulative impact of Modification 13</i>
Contribution to taxes, licence fees and other charges to NSW Gov. (\$ millions, nominal)	\$2,410	\$2,429
Contribution to taxes, licence fees and other charges to Comm. Gov. (\$ millions, nominal)	\$2,236	\$2,259

Source: PwC analysis using dynamic VURM CGE model

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Appendix A Model assumptions

Direct impacts assumptions

The Star Entertainment Group Limited provided PwC with data relating to the forecasted impacts of Modification 13 to The Star. This included:

- Tax implications of the construction and operation of Modification 13
- Increased visitation through the operation of Modification 13
- Revenue generated through the operation of Modification 13
- Capital expenditure through the construction and maintenance of Modification 13
- Employment impacts (construction and operation) of Modification 13
- Hotel and apartments joint venture earnings estimates

A number of assumptions were made in translating the above data provided into inputs for CGE modelling. These include:

Table 12 Model assumptions

<i>Model input</i>	<i>Value</i>	<i>Source</i>
Number of hotel rooms and residential apartments	220; 198 respectively	The Star Entertainment Group Limited
Percentage of residential apartments owned internationally	50%	The Star Entertainment Group Limited
Percentage of tourists assumed to be international at the hotel	100%	The Star Entertainment Group Limited
Hotel percentage of international ownership	33%	The Star Entertainment Group Limited
Number of hotel rooms to estimate increase in foreign/domestic ownership – 2006, 2016 and 10 year compounded growth	68,249; 75,235; 0.98% respectively	Australian Bureau of Statistics, 8635.0 - Tourist Accommodation, Australia, 2015-16 - Rooms; Hotels Motels and Serviced Apartments with 15 or more rooms ; New South Wales; Total (Accommodation class)
		PwC calculation
Number of residential dwellings to estimate increase in foreign/domestic ownership – 2011, 2016, 5 year compounded growth	2.8m; 3.2m; 2%	Australian Bureau of Statistics, Census of Population and Housing 2011 Australian Bureau of Statistics, 8731.0 – Building Approvals, Australia, Nov 2016
To ensure that the results do not overstate the benefits, all spend from visitors that reside in NSW has been removed as it is assumed that if they did not spend at The Star they would spend elsewhere in the state, therefore there would be no impact		PwC assumption

<i>Model input</i>	<i>Value</i>	<i>Source</i>
on GSP. This means only the interstate and international visitor spend at The Star has been considered for the purposes of this modelling.		

CGE modelling assumptions

The direct impacts generated by The Star were translated into economy wide impacts by deriving 'shocks' to the economy, allowing for input into the VURM CGE model. These shocks will stimulate the model economy, and therefore provide estimates of the direct impacts of the investment, as well as the flow-on impacts to the rest of the economy.

The shocks undertaken in modelling both scenarios included:

- investment in the Accommodation and Food Services industry in New South Wales
- employment in the Accommodation and Food Services industry in New South Wales, during the operation phase
- exports in the Accommodation and Food Services industry in New South Wales, for the additional revenue generated by international tourists.
- foreign share shock to the Accommodation and Food Services industry in New South Wales, during the operation phase. This assumes an increase in foreign ownership due to the partial international ownership of the hotel
- foreign share shock to the Ownership of Dwellings industry in New South Wales, during the operation phase.

In terms of foreign investment considerations, the modelling approach taken allows total investment to vary and for it to be determined by rates of return. Since the model assumes domestic saving is fixed as a proportion of GDP (i.e. that households' average propensity to save is set over the business cycle), if new investment opportunities occur in the economy they will be financed by foreigners rather than by reduced investment elsewhere in the economy or increased saving by domestic residents. In the long term, mechanisms exist in the model that stabilise the ratio of payments to foreigners to GDP. This recognises that an increase in total foreign investment in Australia is 'good' only insofar that it increases payments to Australians in the form of higher payments to Australian owners of capital, labour and land, taxes or via some sort of technological transfer mechanism. Foreign capital must be paid for over time, and might be thought of as loans to finance profitable projects without having to save up for them first.

Appendix B Application of CGE modelling

As discussed in Chapter 3, PwC has drawn on computable general equilibrium (CGE) modelling undertaken by the Centre of Policy Studies (CoPS) at Monash University to quantify the economic contribution of The Star.

What is a CGE Model?

The Victoria University Regional Model (VURM) is a multi-regional Computable General Equilibrium (CGE) model of Australia's eight regional economies — the six States and two Territories. Each region is modelled as an economy in its own right, with region-specific prices, region-specific consumers, region-specific industries, and so on. There are four types of agent: industries, households, governments and foreigners.

Based on the model's current database (which was recently updated, see below), in each region 79 industries produce 83 commodities. The database can be disaggregated to more industry/commodity pairs if required and each industry can produce a variety of commodities. Capital is industry and region specific. In each region, there is a single household sector and a regional government. There is also a Federal government. Finally, there are foreigners, whose behaviour is summarised by demand curves for regional international exports and supply curves for regional international imports.

In recursive-dynamic mode, VURM produces sequences of annual solutions connected by dynamic relationships such as physical capital accumulation. Policy analysis with VURM conducted in a dynamic setting involves the comparison of two alternative sequences of solutions, one generated without the policy change and the other with the policy change or 'shock' in place. The first sequence, called the base case projection, serves as a control path from which deviations are measured to assess the effects of the policy shock.

VURM is a flexible model and can be easily modified to suit particular tasks. Its origins lie with the Monash Multi Regional Forecasting (MMRF) model.

The model comprises: a CGE core incorporating input-output production and consumption relationships, foreign accounts and the modelling of product and factor markets and a number of satellite modules providing more detail on the model's government finance accounts, household income accounts, population and demography, and energy and greenhouse gas emissions.

Each of the 'satellite' modules is linked into other parts of the model, so that, projections from the model core can feed through into relevant parts of a module and changes in a module can feed back into the model core.

The model also includes extensions to the core model theory dealing with links between demography and government consumption, the supply and interstate mobility of labour, and export supplies.

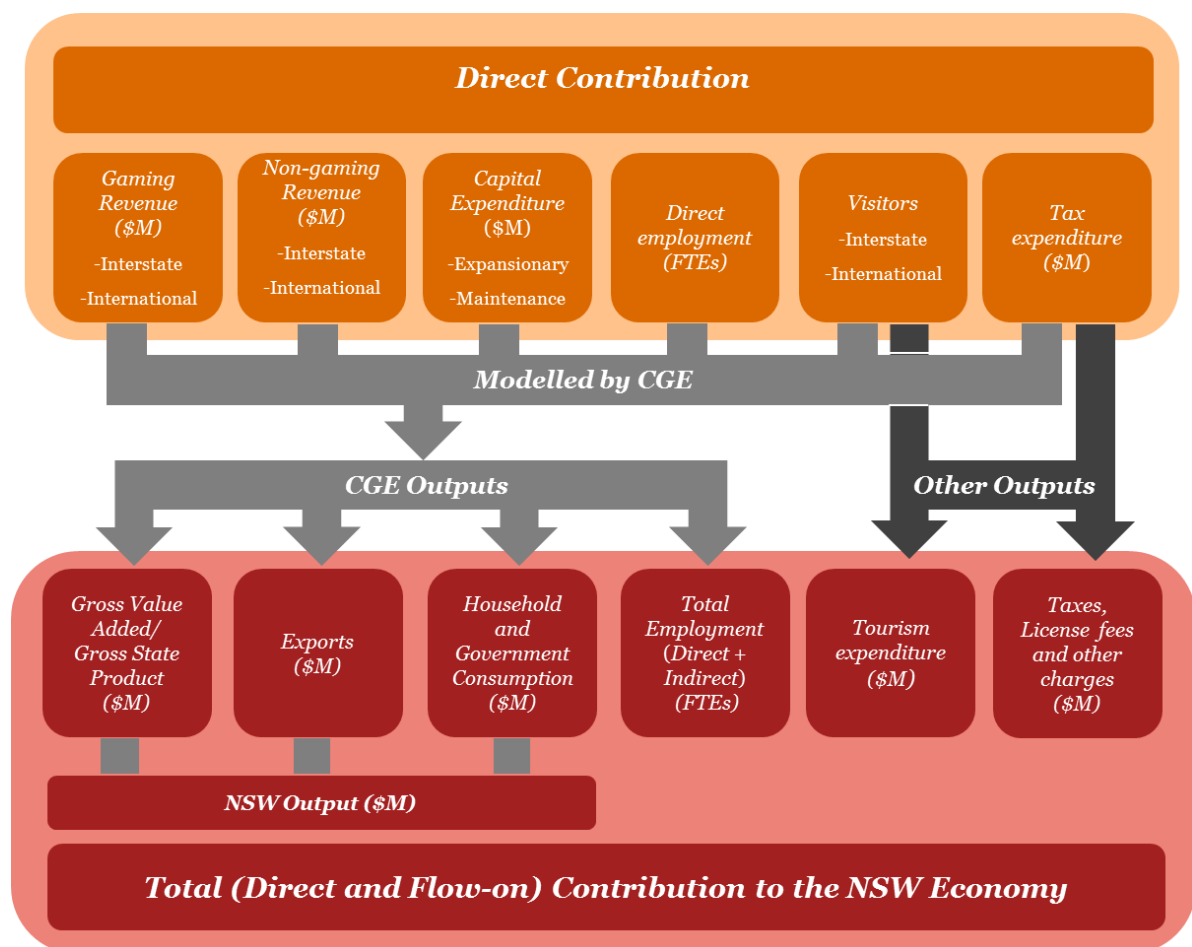
Full electronic documentation of the VURM is available at:
<http://www.copsmodels.com/elecpr/g-254.htm>

Estimating the economic contribution of The Star

The economic contribution The Star makes to the NSW economy has been reported in terms of its direct and total (direct and flow-on) contribution. Figure 4 displays this distinction, depicting how data provided by The Star Entertainment Group Limited were used to derive the direct contribution of The Star before flowing through the CGE model to determine the total economic contribution to the NSW economy.

The economic impact of The Star can be both positive and negative. Industries that provide goods and services to The Star will mostly benefit from The Star's operations. However, some sectors of the wider state and national economy may be adversely affected, due to competition for labour, competition for other business inputs, and a higher Australian dollar exchange rate.

Figure 7: Estimating the economic contribution of The Star



Source: PwC analysis

The CGE model produces estimates of standard economic measures, which serve as indicators of changes in economic activity. These are defined as follows:

- **Value added and gross state product (GSP)** - The measure of economic value used in this report is 'value added', which is the gross value of production less the cost of intermediate inputs used in production. Value added represents the returns to primary factor inputs – capital, labour and land. The sum of value added for all Australian industries is approximately equal to Gross

Domestic Product (GDP). At the State level, the equivalent measure of economic value is referred to as Gross State Product (GSP). Where the economic benefit is incurred offshore, through for example the payment of dividends to foreign shareholders or repayments of foreign debt, the benefit is not included in GDP and GSP measures. For the purposes of this modelling it has been assumed that 80 percent of The Star is domestically owned and 20 percent foreign owned.

- **Employment** - Estimates of indirect and induced employment (in FTE terms) are made by the CGE model. Indirect employment impacts refer to changes in employment across regions and industry sectors that are a result of The Star's purchase of goods and services and the flow on impacts. Induced employment impacts refer to the number of jobs generated as a result of wages expenditure – for example, the increased demand for goods and services by households.
- **Household and government consumption (welfare)** - Change in household and government consumption expenditure is reported as an output of the CGE model. This is a proxy measure of the effect on living standards, or welfare, of households.

Appendix C Abbreviations and glossary

Table 13 Abbreviations

Abbreviations	Term
CGE	Computable General Equilibrium
CoPS	Centre of Policy Studies
FTE	Full-time Equivalent
FY	Financial Year
GSP	Gross State Product
IO	Input Output model
MMRF	Monash Multi-Regional Forecasting
NSW	New South Wales
PwC	PricewaterhouseCoopers Consulting (Australia) Pty Limited
RevPAR	Revenue per available room
SCY	Star City Holdings Limited
VIP	Very Important Person
VURM	Victoria University Regional Model

Table 14 Glossary of terms

Item	Definition
Employment	Estimates of indirect and induced employment (in FTE terms) are made by the CGE model. Indirect employment impacts refer to changes in employment across regions and industry sectors that are a result of The Star's purchase of goods and services and the flow on impacts. Induced employment impacts refer to the number of jobs generated as a result of wages expenditure – for example, the increased demand for goods and services by households.
Household and government consumption (welfare)	Change in household and government consumption expenditure is reported as an output of the CGE model. This is a proxy measure of the effect on living standards, or welfare, of households.
Output	The total value of all goods and services produced in an economy.
Value-added and gross state product (GSP)	The measure of economic value used in this report is 'value added', which is the gross value of production less the cost of intermediate inputs used in production. Value added represents the returns to primary factor inputs – capital, labour and land. The sum of value added for all Australian industries is approximately equal to Gross Domestic Product (GDP). At the State level, the equivalent measure of economic value is referred to as Gross State Product (GSP). Where the economic benefit is incurred offshore, through for example the payment of dividends to foreign shareholders or repayments of foreign debt, the benefit is not included in GDP and GSP measures. For the purposes of this modelling it has been assumed that 80 percent of The Star is domestically owned and 20 percent foreign owned.

