

# ECONOMIC ASSESSMENT

21

## 21.1 INTRODUCTION

The proposed expansion would provide a direct economic contribution to both South Australia and the Northern Territory, although the bulk (80%) of the total operating costs for the expansion project would remain in South Australia.

South Australia has one of the smaller state economies in Australia, with 7.4% of the nation's workforce contributing 6.6% of gross domestic product (GDP) in 2006-07. The current Olympic Dam operation employs approximately 4,150 people and contributes approximately \$1.7 billion per annum (2.4% to gross state product (GSP). The Northern Territory economy is the smallest in Australia, contributing 1.3% of GDP in 2006-07, with the mining industry contributing \$3.3 billion (24.5%) to GSP.

The economic effects of the proposed expansion have been projected using a dynamic, multi-sectoral, multi-regional model of the Australian economy. The proposed expansion is a major undertaking both in the state and national context, and the direct and indirect economic benefits over the life of the project would be significant.

This chapter presents the potential economic and employment effects of the proposed expansion. It also explains the implications for capital and labour resources, government revenue, trade balances and housing affordability. The alignment of the proposed expansion with the economic and employment targets of the South Australian Strategic Plan 2007 and the Northern Territory Strategic Plan 2008–2011 are also addressed.

## 21.2 ASSESSMENT METHOD

### 21.2.1 MULTI-REGIONAL FORECASTING GREEN MODEL

The economic effects of the proposed expansion were projected using the Monash Multi-Regional Forecasting (MMRF) Green model. MMRF-Green is a dynamic, multi-sectoral, multi-regional model of the Australian economy developed and operated by the Centre of Policy Studies at Monash University. This computable general equilibrium model (CGE) provides

comprehensive estimates of the economic effects of major projects at regional, state and national levels.

Projections were made for the impact of the proposed expansion over a 30-year period. It assumes an initial seven-year construction phase (Year 0 to Year 6), a second phase of construction from Year 7 to Year 11, during which time some operations have commenced, and full operation from Year 12. Figures 21.1 and 21.2 present the estimated annual production rates of copper and uranium oxide, showing the ramp-up of

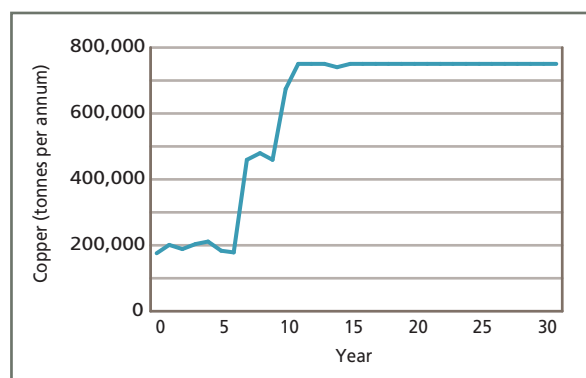


Figure 21.1 Estimated total copper production capacity

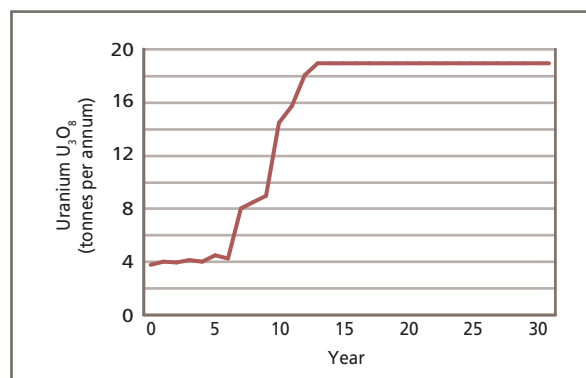


Figure 21.2 Estimated total uranium oxide production capacity

production during Years 7 to 11, with full production from Year 12. Although the economic life of the mine would extend beyond this, economic modelling results are not projected past Year 30 because the outcomes become increasingly uncertain over longer timeframes. The economic effects do not necessarily coincide with when BHP Billiton invests capital. There will be lags in investment which varies across different industries.

The project assumptions included in the model are:

- increasing the production of copper, uranium oxide, gold and silver from 235,000 tpa of refined copper plus associated products to 750,000 tpa of refined copper plus associated products (i.e. uranium oxide, gold and silver)
- increasing the amount of water used and sourcing the additional water from a desalination plant at Point Lowly
- increasing the amount of electricity used and sourcing the additional electricity either from the national electricity market (NEM) or an on-site combined cycle gas turbine power station and associated pipeline to Moomba (or a combination of both)
- transporting bulk materials to, and commodities from, Olympic Dam by rail (with some continued road transport)
- decommissioning the existing airport and building a new airport with increased capacity
- expanding the import and export facilities at Port Adelaide/Outer Harbor and utilising new facilities at the Port of Darwin
- constructing a new landing facility, approximately 10 km south of Port Augusta, for the import of pre-assembled and prefabricated components
- constructing a new 10 km access corridor from the landing facility to the Port Augusta pre-assembly yard for the transport of pre-assembled and prefabricated infrastructure
- constructing and operating a new intermodal road/rail terminal at Pimba
- upgrading the accommodation infrastructure to support the proposed Olympic Dam expansion. This includes the necessary economic and social infrastructure to support an estimated 10,000 people in Roxby Downs and separate contractor accommodation for up to 10,000 people at Hiltaba Village
- employment predictions have been based on the estimated number of employees required by BHP Billiton, and have been reported as the average increase in direct and indirect full-time equivalent (FTE) employment over the business-as-usual case as calculated by the MMRF-Green model.

The key assumptions applied to the model are:

- major initial capital expenditure to occur from Year 0 to Year 6, with a subsequent input of investment from Year 7 to Year 11, and with ongoing capital investments in the following 18 years

- all net present value (NPV) calculations were taken over a 30 year period (including the construction phase) discounted at a conservative real social discount rate of seven per cent per annum (NPV  $_{7\% \text{ Year } 0\text{--Year } 30}$ ). The NPV quantifies the present value of future revenues and expected costs associated with an investment. Discounting cash flows enables different investments to be compared on a like-for-like (present value) basis
- during the construction phase, a majority of inputs would be sourced from South Australia
- construction and operation workforce (FTE) figures were based on annual projections: all of the construction workforce would live in the Northern Statistical Division, whereas the operation workforce would be equally divided between Adelaide and the Northern Statistical Division
- operating phase non-labour input sources – 45% SA, 16% WA, 26% rest of Australia, 13% foreign sources
- 100% of product would be shipped overseas
- South Australian Government contribution of \$100 million to total capital expenditure costs for common user infrastructure (Note: this is an estimate for modelling purposes only and no commitments have been made by the South Australian Government)
- no commercial arrangements (i.e. capital and operating cost arrangements) have been determined for the Port of Darwin facilities, and therefore, for the purpose of the model, no expenditure from the Northern Territory Government is assumed. It is noted, however, that some investment by the Northern Territory Government would be required as part of land reclamation activities for the ongoing development at East Arm
- due to the uncertainty in capital cost arrangements for infrastructure at the Port of Darwin, a conservative approach has been adopted and the capital costs for this component of the project have not been included. As a consequence, the model results provide an underestimate of the economic benefit to the Northern Territory
- no expenditure from Australian Government assumed.

The assessment is based on a business-as-usual (BAU) assumption of global economic growth and current government policies. It does not include:

- changes in global demand for energy from historic rates of growth
- changes to global and Australian policies on climate change
- the potential impact of a market for carbon
- changes to domestic commodities' policies
- unforeseen long run movements in commodity markets
- shutdown workers for the expanded plant.

Any change to the BAU projection of the economy and/or policies may alter the expected economic effects.

### 21.2.2 IMPACT AND RISK ASSESSMENT

The assessment of impacts and risks for the proposed expansion has been undertaken as two separate, but related, processes (see Section 1.6.2 of Chapter 1, Introduction, and Figure 1.11).

Impacts and benefits are the consequence of a known event. They are described in this chapter and categorised as high, moderate, low or negligible in accordance with the criteria presented in Table 1.3 (Chapter 1, Introduction). A risk assessment describes and categorises the likelihood and consequence of an unplanned event. These are presented in Chapter 26, Hazard and Risk.

## 21.3 EXISTING ENVIRONMENT

### 21.3.1 SOUTH AUSTRALIA

South Australia is one of the smaller state economies in Australia with 7.4% of the nation's workforce and contributing 6.6% of GDP in 2006–07 (Australian Bureau of Statistics (ABS) 2007i).

In South Australia, the mining sector contributed \$2.8 billion to total factor income (i.e. the value of GSP before taxes and other subsidies) in 2006–2007 (ABS 2007i), and in 2007–2008 employed 9,600 persons or 1.2% of the state's workforce (Department of Trade and Economic Development 2008).

The northern part of South Australia provides a heavy industrial base for the region. Industries include mining, oil and gas, iron and steel, lead smelting, mineral processing and power

generation. There are significant mining operations at Olympic Dam, the Beverly uranium mine, Leigh Creek and Coober Pedy, and natural gas is piped from the Cooper Basin (see Plate 21.1). These mining operations and their supporting industries contribute a significant share of economic output and employment in the area.

Tourism and transport are the other major industry sectors in the northern parts of South Australia. The northern area is also well suited to defence training and military testing operations. There are emerging opportunities in alternative energy sources (e.g. geothermal), food production and the arts. However, pastoralism and farming, which traditionally formed the backbone of the region's primary industry base, are steadily declining (Northern Regional Development Board 2005).

Olympic Dam is located in the Roxby Downs Statistical Local Area, in the Northern Statistical Division, in South Australia. Data from the most recently available census indicates the economic structure of Roxby Downs differs significantly from the overall structure in South Australia (see Chapter 19, Social Environment). For example, it is a transient population and education and income levels are high.

At present production values, Olympic Dam contributes approximately \$2.0 billion per annum, or approximately 13% of South Australia's exports (South Australian Centre for Economic Studies 2008) and employs approximately 4,150 people.



Plate 21.1 Moomba gas plant processing natural gas from the Cooper Basin

### 21.3.2 NORTHERN TERRITORY

The Northern Territory economy is the smallest in Australia, contributing 1.3% of GDP in 2006–07 (ABS 2007i). In recent years, the Northern Territory economy has experienced strong growth, recording the second highest GSP growth in 2006–07 behind Western Australia. This growth has been primarily driven by international exports of goods and services from the Territory, which accounted for 35% of GSP, and the mining industry, which accounted for 24.5% of GSP in 2006–07 (NT Treasury 2008).

The Northern Territory economy is driven largely by an abundance of natural resources, relatively large tourism and public sectors, and a significant defence presence. The small size of the Territory economy and its commodity-focused base means that it is highly influenced by global economic conditions (NT Treasury 2008).

## 21.4 IMPACT ASSESSMENT AND MANAGEMENT

### 21.4.1 THE NATIONAL, STATE, REGIONAL AND LOCAL ECONOMIES

Based on the MMRF-Green modelling, the expansion project would have a substantial effect on the national economy. In net present value (NPV) terms, Australian GDP over the 30-year period would be approximately \$18.7 billion greater than the BAU-case projections (see Figure 21.3). Table 21.1 presents the average annual increase in GDP above the BAU-case for the three phases of the proposed expansion.

In South Australia, the equivalent figures for GSP are approximately \$45.7 billion in NPV terms above BAU-case projections (see Figure 21.3) with the average annual increase in GSP above the BAU-case also presented in Table 21.1. This gain would be shared largely between two regions within the state – the Northern Statistical Division (where Olympic Dam is located) and Adelaide.

The Northern Statistical Division would see gross regional product (GRP) increase by approximately \$22.6 billion in NPV terms over the BAU-case projections. The modelling predicts that the majority of this effect would occur in Roxby Downs, although positive economic effects should also be felt across the region (see Figure 21.4). As the closest major metropolitan centre and host to Port Adelaide, the Adelaide Statistical Division should also experience a strong increase in economic activity, with GRP projected to increase by approximately \$24.2 billion in NPV terms over the BAU-case (see Figure 21.4).

In the Northern Territory, the inclusion of a new export product (i.e. concentrate), from the Port of Darwin, would result in an estimated contribution to the GSP over the 30-year period of \$936 million above the BAU-case. Table 21.1 shows that the Northern Territory would experience the highest average annual increase in GSP (above the BAU-case) from Year 12, when the proposed expansion is at full production.

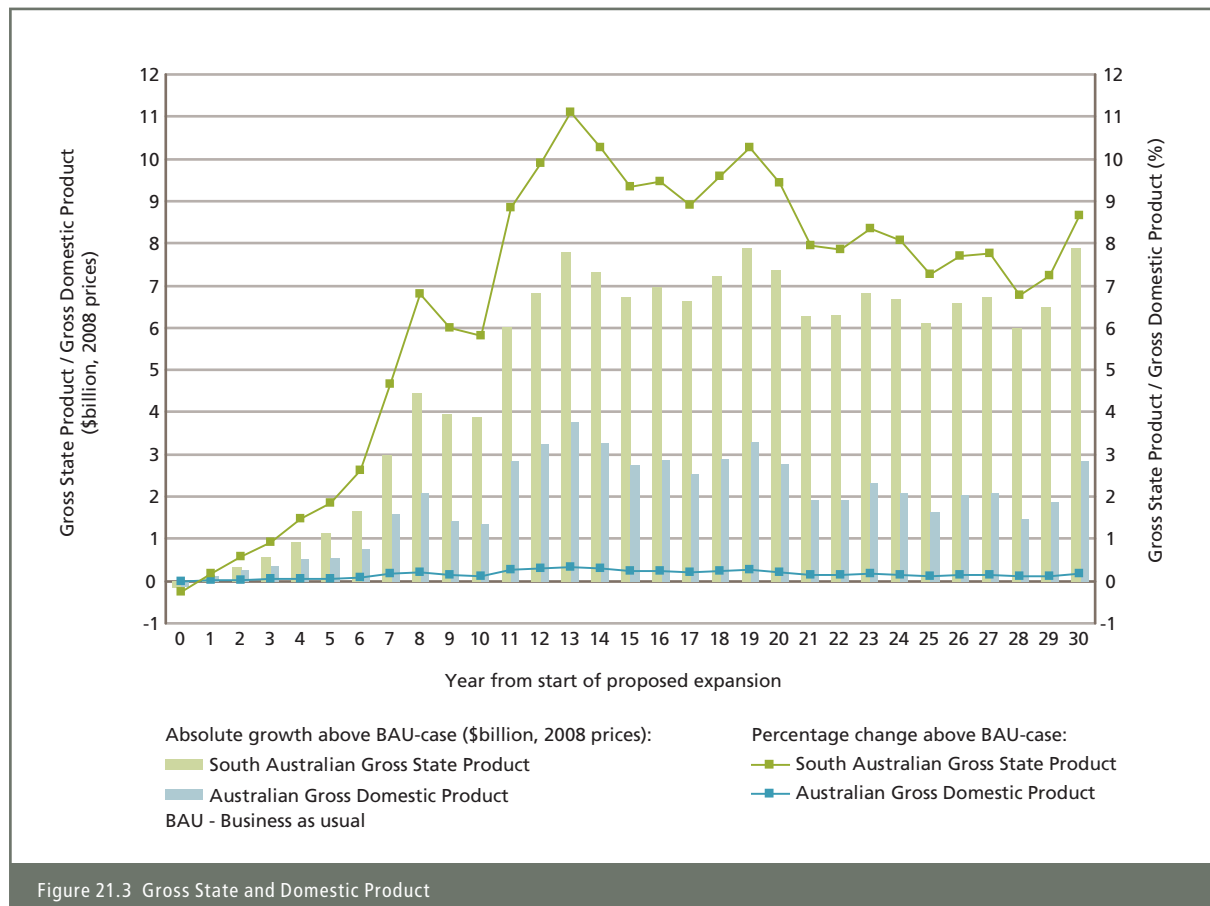


Figure 21.3 Gross State and Domestic Product

**Table 21.1 National, state and regional economic benefits<sup>1</sup>**

Region	Average annual increase and percentage change over BAU-case <sup>2</sup>		
	Year 0 to Year 6	Year 7 to Year 11	Year 12 to Year 30
Australia – GDP	\$350 million (0%)	\$1.9 billion (0.2%)	\$2.5 billion (0.2%)
South Australia – GSP	\$650 million (1%)	\$4.3 billion (6.4%)	\$6.9 billion (8.7%)
Northern SD – GRP	\$470 million (23%)	\$2.0 billion (93%)	\$3.2 billion (126%)
Adelaide SD – GRP	\$230 million (0.6%)	\$2.4 billion (6.0%)	\$3.7 billion (7.9%)
Northern Territory – GSP	\$18 million (0.1%)	\$93 million (0.5%)	\$125 million (0.5%)

<sup>1</sup> Sourced from MMRF-Green model.

<sup>2</sup> Where results for Australia are presented, they include the impact of the change in economic activity in South Australia and the Northern Territory. Likewise, the results for South Australia include the impact of changes (some of them very small) in all of the seven regions of South Australia. Therefore the addition of the change in projected GRP for just two of the seven regions, i.e. the Northern SD and Adelaide SD, will not equate to the overall change in the GSP for South Australia.

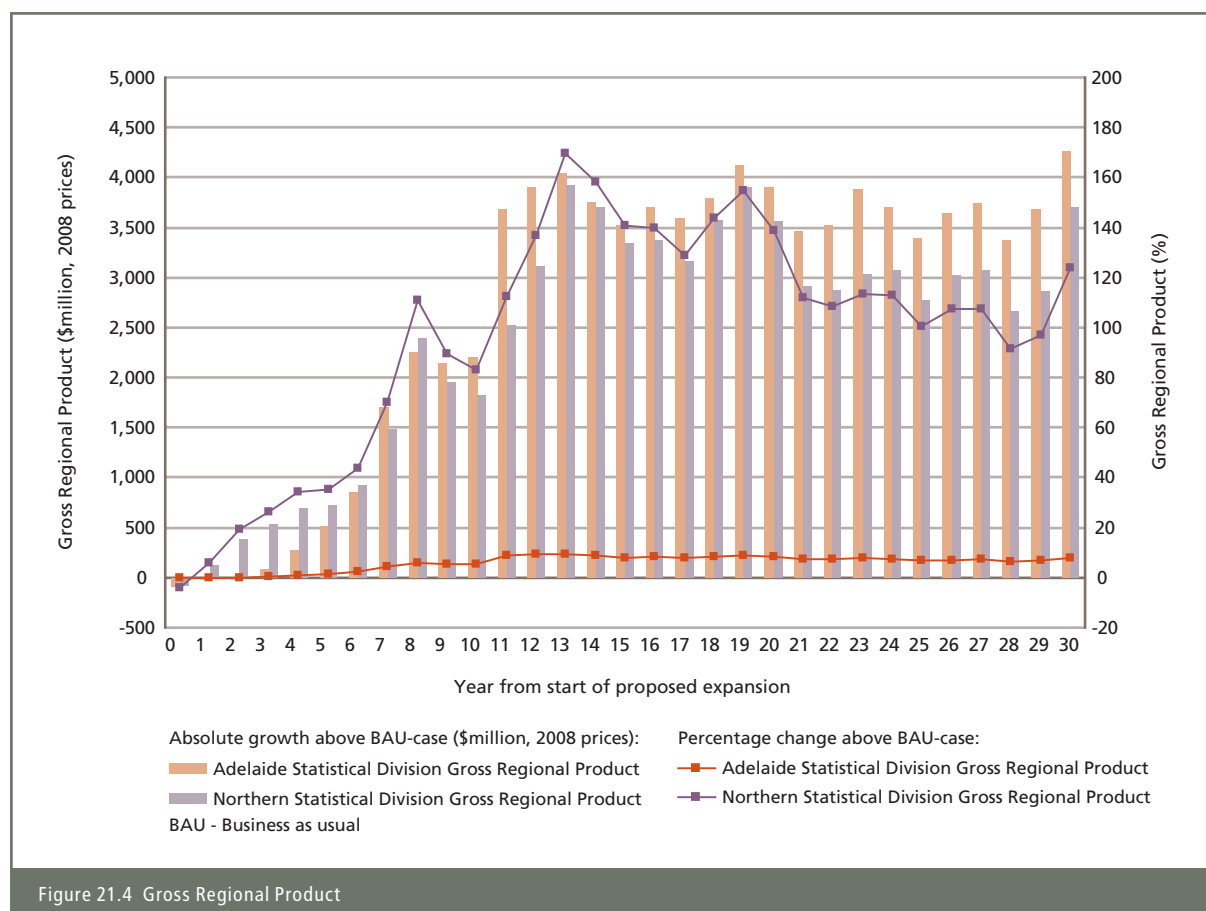


Figure 21.4 Gross Regional Product

The model predicts that initially, investment in construction activity would be the primary driver of the growth in GRP and GSP, and both would be stimulated over the longer term by the effects of:

- increased mining activity in South Australia as the ore is processed into its various end product components (copper, uranium oxide and gold and silver bullion – see Plates 21.2 and 21.3)
- increased net exports of refined copper and concentrate, uranium oxide, gold and silver from South Australia, the Northern Territory and Western Australia
- increased employment levels in South Australia and rising wage rates nationally. This would lead to higher levels of household income and consumption in Australia, and in South Australia and the Northern Statistical Division in particular.

The private consumption of goods and services is often used as a substitute for economic welfare. The model predicts that the proposed expansion would give rise to private consumption in Australia of around \$21.8 billion more than otherwise anticipated over the next 30 years in NPV terms. The benefits of this increase in living standards would be concentrated in South Australia, where consumption would increase by more than \$19.8 billion in NPV terms (see Figure 21.5). In the Northern Territory, consumption would be \$1.1 billion higher than the BAU-case over the 30-year period in NPV terms. Table 21.2 presents the average annual increase in consumption above the BAU-case for the three phases of the proposed expansion.



Plate 21.2 Copper cathodes produced at Olympic Dam

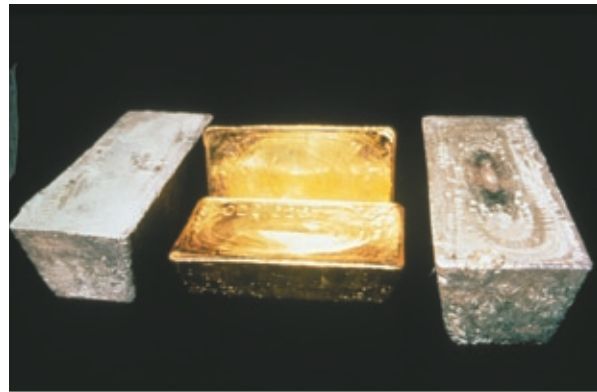


Plate 21.3 Gold and silver bullion produced at Olympic Dam

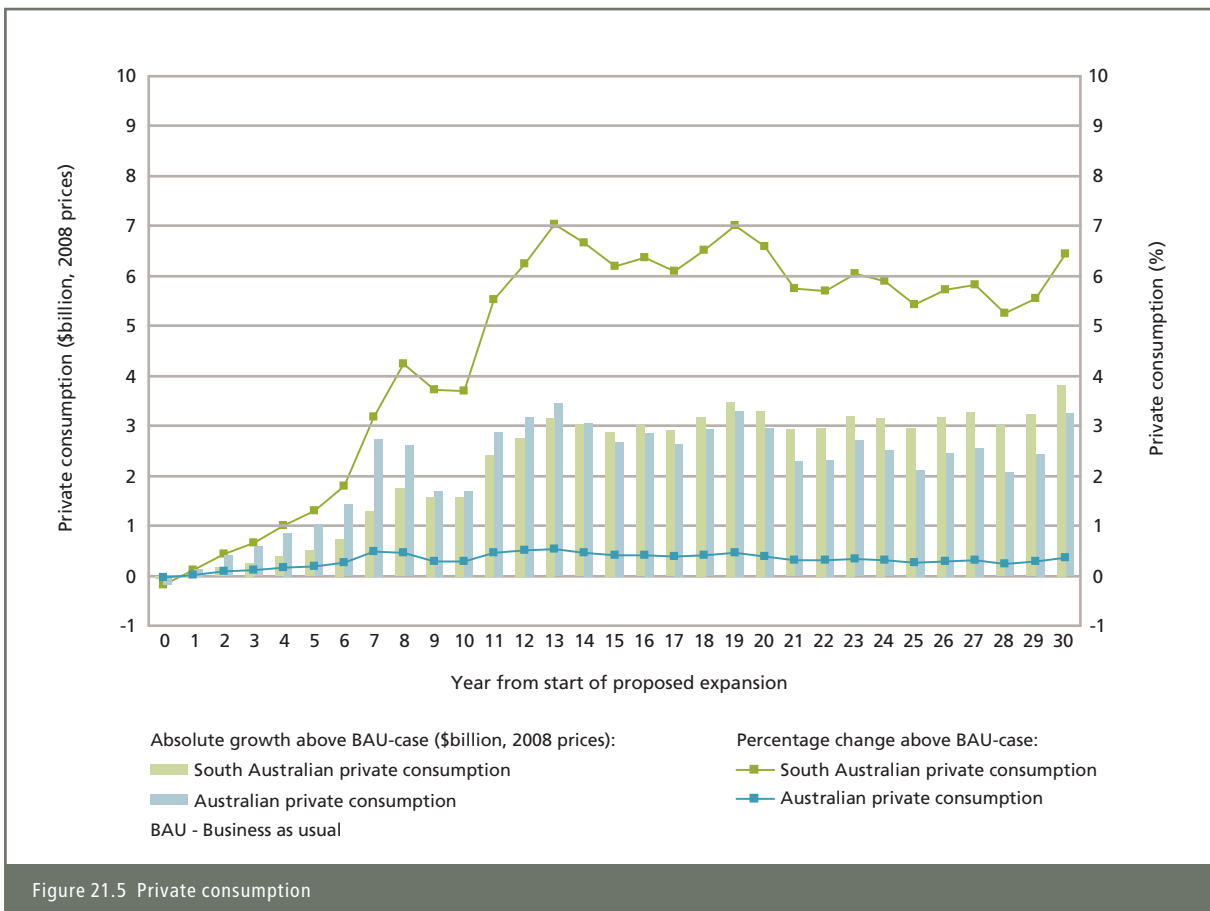


Table 21.2 Predicted increase in consumption<sup>1</sup>

Region	Average annual increase and percentage change over BAU-case		
	Year 0 to Year 6	Year 7 to Year 11	Year 12 to Year 30
Australia	\$600 million (0.1%)	\$2.3 billion (0.4%)	\$2.7 billion (0.4%)
South Australia	\$280 million (0.7%)	\$1.7 billion (4.1%)	\$3.1 billion (6.1%)
Northern Territory	\$30 million (0.4%)	\$116 million (1.4%)	\$136 million (1.2%)

<sup>1</sup> Sourced from MMRF-Green model.

An assessment of financial risk of major hazards was undertaken. Potential costs of major hazards, such as major natural catastrophes, business disruptions or major incidents could be significant to BHP Billiton or one or more affected parties. BHP Billiton has insurance arrangements in place to meet external liabilities borne by third parties (see Chapter 26, Hazard and Risk). As such, the economic model does not include the cost of a major hazard.

The proposed expansion would result in long-term contribution and stimulation to the national, state, regional and local economies and as such is categorised as a high residual benefit.

#### 21.4.2 CAPITAL AND LABOUR RESOURCES

The proposed expansion would be expected to draw resources (capital and labour) from other Australian states and territories to South Australia. This means that while economic outcomes in South Australia would be better than under the BAU-case, there may be some cost to other states and territories.

The overall net projected impact of the proposed expansion on the national economy is positive. Strong employment growth, which would provide a stimulus to wages, consumption and export growth, would provide an ongoing boost to the local, regional, state and national economies.

##### Capital

Based on the modelling results, the proposed expansion would result in a strong initial, and ongoing, increase in investment. The total increase in investment across South Australia would be greater than the direct investment in the proposed expansion alone. Table 21.3 shows the NPV of predicted capital investment expenditure. Changes at the national level are driven by investment in South Australia. Investment in the Northern Territory would be more than \$1.2 billion higher in NPV terms than otherwise anticipated over the next 30 years.

**Table 21.3 Predicted increase in investment over 30 years<sup>1</sup>**

	Investment increase \$ billion (NPV)
Australia	24.9
South Australia	33.0
Northern Territory	1.2

<sup>1</sup> Sourced from MMRF-Green model.

**Table 21.4 Employment effects<sup>1</sup>**

Region	Average increase FTEs and percentage change over BAU-case		
	Year 0 to Year 6	Year 7 to Year 11	Year 12 to Year 30
Australia	1,900 (0%)	400 (0%)	-400 (0%)
South Australia	5,400 (1.5%)	15,700 (6.1%)	15,200 (6.4%)
Northern SD	3,900 (11.7%)	7,600 (22.5%)	7,400 (21.1%)
Adelaide SD	1,600 (0.3%)	8,800 (1.5%)	8,500 (1.4%)
Northern Territory	250 (0.2%)	250 (0.2%)	250 (0.2%)

<sup>1</sup> Sourced from MMRF-Green model.

The increase in employment and wages arising from the proposed expansion would stimulate demand for other goods and services generally. In turn, this would fuel growth in these industries. As demand for these goods and services grows, so would production, investment and profitability in those industries. The proposed expansion would also result in significant investment in infrastructure in the Northern Statistical Division and a strong increase in economic activity in Adelaide and its primary site for imports, Port Adelaide.

During the construction phase, the Adelaide Statistical Division would see a greater absolute increase in economic activity relative to the BAU-case. Adelaide would get a comparatively stronger stimulus because it is assumed that many of the construction firms and other building sector businesses would be based there, even though the work would be undertaken in Roxby Downs. The Northern Statistical Division, and Roxby Downs in particular, would be more strongly stimulated in the longer term once the processing of additional ore commenced (i.e. Year 7).

The modelling shows that other regions in South Australia would be expected to grow at marginally slower rates relative to the BAU-case due to the probable migration of labour to Olympic Dam. Overall, the proposed expansion would result in an ongoing injection of capital into the economy and is categorised as a high residual benefit.

##### Labour

Apart from the direct employment benefits, the proposed expansion would stimulate significant growth in employment in the wider South Australian economy. While the model does not predict regional rates of unemployment, the proposed expansion would be expected to reduce unemployment in the Upper Spencer Gulf region due to the increasing demand for labour arising from the boost to economic activity.

Table 21.4 presents the average increase in FTE employment for the expansion scenario. The increases reflect both the requirement for direct jobs at Olympic Dam and indirect employment stimulated by the proposed expansion. It is important to note, however, that the project does not reduce employment outside South Australia; it just means that employment outside South Australia grows at a slightly lower rate than in the BAU-case.

The MMRF-Green model assumes that as the economy expands, more jobs are created and there is also some increase in the productivity of people already employed. The total increase in hours worked is assumed to be largely met by a combination of full and part-time jobs and some improvement in the productivity of existing workers. The model assumed that for every 1% change in the number of hours worked, there was a 0.7% increase in the number of hours worked per person already employed and a 0.3% increase in the number of persons employed.

The growth in employment over the long-term as a result of the proposed expansion is categorised as a high residual benefit. Specific labour requirements and effects beyond economics for the proposed expansion are discussed further in Chapter 19, Social Environment.

### 21.4.3 POTENTIAL EFFECTS ON INDUSTRY

During the initial construction phase (Year 0 to Year 6), construction services, equipment suppliers, road transport services, cement manufacturers and rail transport services would be expected to grow strongly in South Australia, and this would contribute to net growth nationally for these industries. The initial construction phase would not be expected to contribute to the contraction of other industries, with all industries expected to grow within 1% of BAU projections at both a national and state level.

During the second construction phase (Year 7 to Year 11), road and rail transport services, electricity suppliers, construction services and equipment suppliers would be expected to grow strongly in South Australia. Nationally, there would be only a small effect on other industries with most expected to grow within approximately 1.5% of BAU projections, with the exception of the road transport industry

which would expand by 2% on average (above BAU projections), driven by the strong growth in South Australia.

During the operation phase (Year 12 onwards), export-oriented industries would be expected to grow at a slightly slower rate than BAU projections, as a result of the appreciation of the Australian dollar (see Section 21.4.7). In South Australia, the iron ore, oil and beverages industries would be expected to see a mild reduction in growth. This would largely be a function of the movement of resources out of these industries, and this may initially result in slower growth, however, over time they would continue to grow. Overall, Australia would be better off because the sum of all industry growth would change, including the faster than expected growth at Olympic Dam, and would be greater than if the proposed expansion did not take place.

Over the modelled period (Year 0 to Year 30), the main industries that would benefit from the proposed expansion, apart from the associated mining and processing industries, would be those that provide inputs to the expansion. Tables 21.5 and 21.6 show the top five expanding industries in South Australia and the Northern Territory respectively in terms of projected increases in compound annual growth rate (CAGR) compared to the BAU-case and the real value added as a result of the industry expansion. These are significant industry expansions, particularly in South Australia, and reflect the size of the proposed Olympic Dam expansion.

The modelling predicts that there would be no significant adverse economic effects as a result of product being shipped from the Northern Territory to overseas markets. The MMRF-Green model shows that some export-focused and import-competing industries in the Northern Territory would be expected to grow effectively in line with the BAU-case.

**Table 21.5 Top five expanding industries – South Australia (Year 0 to Year 30)<sup>1</sup>**

Industries	BAU-case projected CAGR (%)	Expansion scenario projected CAGR (%)	Real value added (NPV)
Rail transport industry	1.4	2.2	\$570 million
Electricity supply industry	1.7	2.5	\$730 million
Water transport services industry	1.0	1.6	\$30 million
Chemical production industry	1.5	1.8	\$90 million
Road transport industry	1.3	1.8	\$2.1 billion

<sup>1</sup> Sourced from MMRF-Green model.

**Table 21.6 Top five expanding industries – Northern Territory (Year 0 to Year 30)<sup>1</sup>**

Industries	BAU-case projected CAGR (%)	Expansion scenario projected CAGR (%)	Real value added (NPV)
Rail transport industry	1.4	1.4	\$12 million
Electricity supply industry	1.7	1.8	\$14 million
Water transport services	1.0	1.1	\$1 million
Construction transport services	1.1	1.1	\$68 million
Road transport industry	1.3	1.3	\$46 million

<sup>1</sup> Sourced from MMRF-Green model.

The effect on industry from the proposed expansion is categorised as a high residual benefit given the long-term state-wide benefits.

#### 21.4.4 GOVERNMENT REVENUES AND EXPENDITURE

Substantial additional government revenue would be generated at both the national and state levels as a result of the proposed expansion. Table 21.7 presents the average annual increase in government revenues above the BAU-case for the three phases of the proposed expansion. As would be expected, higher revenues are generated from Year 7 as production rates increase following the intersection and mining of ore and the commissioning of new and upgraded metallurgical plant. The increase in revenues is categorised as a high residual benefit given the long-term benefit to the state and national economies.

In NPV terms over the 30-year modelling period, the increase in taxes (e.g. payroll, State and local taxes) paid to the South Australian Government compared to the BAU-case would be approximately \$2.1 billion. The average royalty revenues from the mine, above the BAU-case projections (in real terms), is estimated to be \$190 million per annum to the state (during the operation phase).

In NPV terms over the 30-year period, the Northern Territory and Australian governments would be expected to see revenues increase by approximately \$47 million and \$2.6 billion, respectively.

In addition, GST revenue collected from South Australia would increase and GST revenue from other States would be in line with the BAU-case. The MMRF model predicts that GST revenues would be collected from South Australia in the order of \$1.3 billion in NPV terms from Year 0 to Year 30. The MMRF-Green model does not estimate how GST revenue would be redistributed among the states and territories because this redistribution is determined by the Commonwealth Grants Commission (CGC) through a complex process designed to equalise the capacity of each jurisdiction to provide an average level of services to all Australians.

The proposed expansion would increase the South Australian Government's capacity to raise revenues, including royalties and other taxes and charges. This would be expected to result in a reduction in the state's share of the GST revenues. Among the revenue raising categories, mineral royalties represent the

largest source of difference in revenue raising capacity among the states. Partly offsetting this, however, the proposed expansion would increase South Australia's share of the Australian population as well, which would increase its share of the GST pool relative to what would have otherwise occurred.

On balance, it is expected that the net effect of the CGC process would result in less GST revenue being provided to South Australia than the gross figure projected by MMRF-Green. The CGC process acts with a lag, however, so the net impact over time is also dependent on the timing of non-GST revenue increases and population migrations into the State.

The SA Department of Treasury and Finance has advised that if South Australia's own revenues (royalties and other taxes) grow in per capita terms, a reasonable proxy assessment of what South Australia would retain is approximately its population share of this additional revenue in the long run, with the remainder redistributed to the other jurisdictions through fiscal equalisation.

Sharing the expansion project benefits through the CGC on this basis with other States and Territories does not put South Australia at a disadvantage, as South Australia similarly shares in benefits from projects in other states and territories through this mechanism. Overall, South Australia would see a net increase in revenues as a result of the proposed expansion.

The total additional revenue (including royalties) collected in South Australia over the 30-year modelling period would be \$4.7 billion in NPV terms before the CGC impacts.

With regard to government expenditures, no incentives from the South Australian, Northern Territory or Australian governments were included in the MMRF-Green model. However, \$100 million in South Australian Government expenditure was assumed in the model to be a contribution to common-user economic and social infrastructure in Roxby Downs, for items such as schools, hospitals and police stations (see Chapter 19, Social Environment for details). This was modelled as a budget neutral 'shock', which means that no additional taxes were raised, and government spending on other items was reduced by the same amount.

Table 21.7 Government revenues (excluding potential GST revenues)

Region	Average annual increase and percentage change over BAU-case		
	Year 0 to Year 6	Year 7 to Year 11	Year 12 to Year 30
Australia	\$40 million (0%)	\$240 million (0.1%)	\$380 million (0.1%)
South Australia	\$30 million (0.4%)	\$320 million (3.9%)	\$520 million (4.9%)
Northern Territory	\$0.9 million (0.9%)	\$4.7 million (2.2%)	\$6.3 million (1.6%)

<sup>1</sup> Sourced from MMRF-Green model.

#### 21.4.5 SOUTH AUSTRALIA'S STRATEGIC PLAN

The MMRF-Green modelling shows the proposed expansion would enhance the state's economic values and would generate outcomes that are strongly aligned with South Australia's Strategic Plan 2007. The proposed expansion is a key initiative of Objective 1: Growing Prosperity, and would contribute to achieving the following targets:

- exceeding the national economic growth rate by 2014 (Target 1.1)
- exceeding Australia's average labour productivity growth rate in trend terms by 2014 (Target 1.6)
- exceeding the Australian average employment growth rate by 2014 (Target 1.10)
- maintaining equal or lower than the Australian average unemployment rate through to 2014 (Target 1.11)
- increasing the value of minerals production and processing by 2014 (Targets 1.18 and 1.19)
- matching the national average in terms of investment in key economic and social infrastructure (Target 1.21)
- maintaining regional South Australia's share of the state's population (Target 5.9).

The modelling predicts that the proposed expansion would provide a net long-term economic benefit to the state, and is categorised as a high residual benefit. It would not affect the ability of the state to achieve the other targets set in the plan (see Appendix D).

#### 21.4.6 NORTHERN TERRITORY'S STRATEGIC PLAN

One of the strategic priorities of the Northern Territory's Strategic Plan 2008–2011 is to grow the Territory economy through:

- identifying and facilitating key economic opportunities
- attracting investment and developing new trade opportunities.

The MMRF-Green modelling shows the proposed expansion would provide a positive stimulus to the Northern Territory economy should the NT Transport Option go ahead, with increases in GSP, investment and employment above the BAU-case.



Plate 21.4 New housing at Roxby Downs

#### 21.4.7 TRADE BALANCES

Effectively, the Olympic Dam expansion would have no impact on the national trade balance in the long run. This is because the Australian dollar would appreciate with the rise in investment and exports, which would cause some Australian exports at the margin to grow more slowly than they otherwise would have. However, because Australia has such a large exporting base, the overall impact would be negligible. Hence Australia, relative to South Australia, may not see a great rise in exports and, over time, national exports would be no greater compared to the BAU-case. Australia would also be more likely to import extra goods and services compared to the BAU-case, as a result of the appreciating Australian dollar and a corresponding rise in Australia's purchasing power. However, the model projects that both national imports and exports would be expected to grow within 0.5% of the BAU-case and there would be no effect on the national trade balance in the long term.

The value of South Australian exports would increase by \$28.7 billion in NPV terms above BAU-case projections due to the higher rates of production associated with the proposed expansion. Imports would increase by \$12.4 billion in NPV terms above the BAU-case, resulting in a net increase of \$16.3 billion in NPV terms in net exports from South Australia from Year 0 to Year 30. On average, over the life of the proposed expansion, exports from South Australia would increase by 36%, while imports would also increase by 8.5%. Overall, the model shows that exports from the Northern Territory would be expected to grow in line with the BAU-case (within one per cent of BAU-case projections on average from Year 0 to Year 30), with the long run deviation from the BAU-case expected to be 0.1% of BAU-case projections. The increase in net exports over the long term is categorised as a high residual benefit.

#### 21.4.8 POTENTIAL EFFECTS ON HOUSE PRICES IN ROXBYS DOWNS

The current housing shortage in Roxby Downs has created inflated rental prices and limited choice within the market (see Chapter 19, Social Environment for details). The current housing market in Roxby Downs is the result of artificial influences created through:

- the mix of BHP Billiton and private ownership
- leasing by BHP Billiton from private owners
- BHP Billiton land allocation policies.

The Roxby Downs Draft Master Plan incorporates the provision of new properties, including apartments, houses and contractor accommodation (see Plates 21.4 and 21.5) to meet the needs of the proposed expansion (see Chapter 19, Social Environment and Appendix F4).



Plate 21.5 Construction of new contractor accommodation at Olympic Village

As the supply of housing increases and assuming the conditions of demand (growth in real incomes, consumer confidence in the market, and employment) remain constant, downward pressure on prices and a move towards market equilibrium would be expected. Furthermore, as rental prices are a function of housing supply and demand, an increase in the number of houses available should result in declining rental prices. The Draft Master Plan also allows for a five per cent vacancy rate in Roxby Downs, which would further contribute to lowering the price of accommodation.

#### 21.4.9 LOCAL BUSINESS OPPORTUNITIES AND EMPLOYMENT

An increase in the Roxby Downs population would lead to a rise in demand for goods and services. In a competitive market, this is beneficial for local businesses, and provides opportunities for local competition (see Plate 21.6). The challenge would be to provide benefits without adversely affecting the existing economy through rising prices and crowding out. The aim would be to develop sustainable, long-lasting economic activities in Roxby Downs.

In addition to direct employment at Olympic Dam, considerable opportunities should arise as a result of the proposed expansion in supporting services and industries such as engineering, equipment supply and maintenance, and training and education.

In 2006, the South Australian Government established the Olympic Dam Taskforce. The aim of the taskforce is to maximise the regional and state benefits from the project, particularly in terms of skills development, local content, regional development, infrastructure and indigenous economic development (Department of Treasury and Finance 2006). Chapter 19 (Social Environment) discusses this and other initiatives to maximise the business development opportunities for the Northern Statistical Division and South Australian companies (see Section 19.5.1).

In terms of commercial and retail development, the results of a retail economic assessment undertaken for the Roxby Downs Draft Master Plan show that the expansion of the Roxby Downs population would be able to support additional retail floor space and total turnover at local shops, including allowance for spending by non-resident visitors. The Roxby Downs Draft Master Plan (see Appendix F4) incorporates the requirements for the expansion of commercial and retail facilities and a strategy to ensure timely and efficient expansion is being developed by the South Australian Government and Roxby Downs Council.

The proposed expansion is also likely to lead to an increased demand for non-retail commercial services such as real estate agents, accountants and solicitors. Demand for entertainment facilities (e.g. taverns and bistros) as well as sports and leisure facilities are also likely to increase (see Appendix F4).



Plate 21.6 New shopping precinct at Roxby Downs

## 21.5 FINDINGS AND CONCLUSIONS

The key findings of the economic assessment for the proposed Olympic Dam expansion are presented in Table 21.8. The estimates represent the impacts relative to the current situation (BAU-case), that is, the existing mine continues at current production rates.

The proposed expansion would be a major undertaking and the direct economic effects from BHP Billiton's initial and ongoing expenditure over the life of the project would be significant. The MMRF-Green model anticipates substantial stimulus (categorised as a high residual benefit) to the national, state and regional economies that are expected to remain robust even as the project progresses. Overall, the model predicts that this project is of great importance to South Australia's future. It is no exaggeration to suggest that the Olympic Dam expansion has the potential to effect a transformation in the State's economic performance.

**Table 21.8 Key findings<sup>1</sup>**

<b>Economic measure</b>	<b>Outcomes under the expansion scenario (Year 0 to Year 30)</b>
<b>GDP (NPV)</b>	\$18.7 billion
<b>GSP South Australia (NPV)</b>	\$45.7 billion
<b>GSP Northern Territory (NPV)</b>	\$936 million
<b>GRP (NPV)</b>	
Northern SD	\$22.6 billion
Adelaide SD	\$24.2 billion
<b>Consumption/economic welfare (NPV)</b>	
Australia	\$21.8 billion
South Australia	\$19.8 billion
Northern Territory	\$1.1 billion
<b>Full-time equivalent employment – Year 0 to Year 30 (average absolute and percentage change over BAU-case)</b>	
Australia	230 (0%)
South Australia	13,100 (5.2%)
Northern SD	7,000 (19.0%)
Adelaide SD	6,600 (1.2%)
Northern Territory	250 (0.2%)
<b>Government revenues<sup>2</sup> (NPV)</b>	
Australian Government	\$2.6 billion
South Australian Government	\$3.4 billion
Northern Territory Government	\$47 million

<sup>1</sup> Sourced from MMRF-Green model.

<sup>2</sup> Does not include royalties or potential GST revenues.