



Chapter 12
Economic and Social



This page has been left intentionally blank



Contents

Abbreviations	iii
12 Economic and Social.....	12-1
12.1 Introduction	12-1
12.2 Methodology.....	12-1
12.3 Existing environment.....	12-3
12.4 Assessment of impacts during construction and operation	12-20
12.5 Assessment of impacts during closure and rehabilitation.....	12-35
12.6 Assessment of risk during construction, operation and closure and rehabilitation	12-35
12.7 Mitigation and monitoring.....	12-36
12.8 Summary of risk assessment.....	12-38
12.9 Conclusion.....	12-39

LIST OF FIGURES

Figure 12-1 Illustrative scenario using Tasman Global.....	12-2
Figure 12-2 Estimated Resident Population: Northern Territory and local region (2004 – 2014)	12-5
Figure 12-3 Age and gender profile: indigenous and non-indigenous people in the Northern Territory	12-6
Figure 12-4 Age and gender profile: indigenous and non-indigenous people for the local region ..	12-7
Figure 12-5 Age and gender profile: indigenous and non-indigenous people in Alice Springs	12-7
Figure 12-6 Age and gender profile: indigenous and non-indigenous people in Sandover Plenty SA2	12-8
Figure 12-7 Value of gross state product by state (2004-2015).....	12-9
Figure 12-8 Gross state product average annual growth	12-10
Figure 12-9 Unemployment rate: NT and local region.....	12-13
Figure 12-10 Industry of employment: NT and local region (percentage of total employed persons aged 15+)	12-14
Figure 12-11 Non-school qualification NT and local region (percentage of total persons with a qualification aged 15+)	12-15
Figure 12-12 Personal weekly income: NT and local region (percentage of total persons aged 15 and over)	12-16
Figure 12-13 Capital and operational expenditure on the Proposal	12-22
Figure 12-14 Direct employment during construction and operation of the Proposal.....	12-24
Figure 12-15 Contribution to gross product or real economic output.....	12-25
Figure 12-16 Contribution to real incomes.....	12-26
Figure 12-17 Employment creation (construction and operation)	12-28
Figure 12-18 Occupational classification of direct workforce	12-31

LIST OF TABLES

Table 12-1 Population estimates.....	12-4
Table 12-2 Population and population growth estimates	12-5



Table 12-3 Health care services in the vicinity of the Proposal	12-18
Table 12-4 Rates of offending per 100,000 population by crime (Darwin and Alice Springs)	12-20
Table 12-5 Key financial assumptions for the Proposal.....	12-21
Table 12-6 Key employment assumptions for the Proposal.....	12-23
Table 12-7 Projected cumulative change in gross product or real economic output	12-25
Table 12-8 Projected cumulative change in real income.....	12-26
Table 12-9 Direct and indirect job creation (construction and operation)	12-28
Table 12-10 Cumulative projected change in real government tax revenues, relative to the reference case (A\$ Million).....	12-29
Table 12-11 Mitigation and management measures (economic and social).....	12-36
Table 12-12 Summary of risk assessment (economic and social)	12-38



ABBREVIATIONS

ABS	Australian Bureau of Statistics
CEMP	Construction Environmental Management Plan
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Authority
LNG	Liquid Natural Gas
NT	Northern Territory
OEMP	Operational Environmental Management Plan
PFS	Pre-Feasibility Study
RCP	Rehabilitation Closure Plan
ToR	Terms of Reference



12 ECONOMIC AND SOCIAL

12.1 Introduction

This chapter assesses the likely economic and social impacts during construction, operation, and closure and rehabilitation of the Proposal. This chapter draws on a comprehensive economic and social impact assessment which is included as Appendix U. It also draws on the extensive community and government consultation undertaken during the development of the Proposal. This chapter describes the existing economic and social environment within the local region and the NT. The potential economic and social impacts are assessed and mitigation and management measures are identified to reduce potential impacts.

The assessment has been prepared with reference to the *Guidelines for the Preparation of an Economic and Social Impact Assessment* (NT EPA 2013) and with reference to various international guidelines developed by the International Association for Impact Assessment and the International Association for Public Participation. It has also been prepared in accordance with the Terms of Reference (refer to Appendix A).

12.2 Methodology

This section describes the methodology for the economic and social impact assessment. Further detail is provided in Appendix U.

12.2.1 Economic impact assessment

The methodology for the economic impact assessment included a review of publicly available economic data and economic modelling to estimate the economic impact from the construction and operation of the Proposal.

Data sources

Data regarding the description of the economy and key economic variables was obtained from publicly available sources. The primary source of data was from the Australian Bureau of Statistics (ABS) including the 2011 Census.

Data was collected for the following statistical areas which are referred to as:

- Local region – the Sandover Plenty SA2 area as defined by the ABS in addition to the Alice Springs Local Government Area.
- NT – as defined by the boundaries of the NT.

Guidelines

The economic impact assessment was prepared with reference to the *Guidelines for the Preparation of an Economic and Social Impact Assessment* (NT EPA 2013d).



Economic modelling

Computable general equilibrium modelling was used to estimate the economic impact from the construction and operation of the Proposal. The model used was ‘Tasman Global’ developed by ACIL Allen.

In this model, a reference case simulation forms a ‘business-as-usual’ basis with which to compare the results of various simulations. The reference case provides projections of growth in the absence of a proposed project in terms of gross product, population, labour supply, industry output and so on and provides projections of

endogenous variables such as productivity changes and consumer tastes. The policy case assumes all productivity improvements, tax rates and consumer preferences change as per the reference case projections but also includes the impacts of a proposed project. The two scenarios give two projections of the economy and the net impact of a proposed project is then calculated as deviations from the reference case (refer to Figure 12-1).

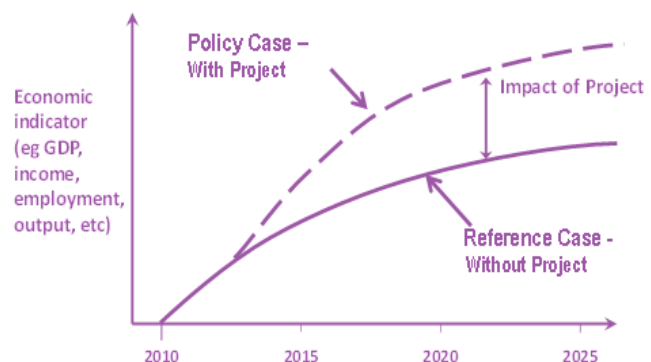


Figure 12-1 Illustrative scenario using Tasman Global

Economic modelling was undertaken concurrently for the construction and operational phases of the Proposal. In total, 25 years of data was modelled including four years of construction (the operational phase is able to start immediately and so the construction and operational phases run concurrently for the first four years). Three regions were modelled – the local region, the NT and Australia.

12.2.2 Social impact assessment

The methodology for the social impact assessment involved scoping key areas for study based on a risk and opportunity matrix that informed an initial grouping of social impacts. A baseline of the existing social environment was then developed based on qualitative and quantitative research, stakeholder consultation, and a literature review. The baseline was used to analyse the significance of potential positive and negative impacts of the Proposal.

Data sources

Data regarding the description of the existing social environment was obtained from publicly available sources. As with the economic impact assessment, the primary source of data was from the ABS including the 2011 Census. Workforce size and unemployment data was sourced from the NT Department of Employment, Education and Training. Data was collected for the local region and for the NT.



Guidelines

The social impact assessment was prepared with reference to the following guidelines:

- *Guidelines for the Preparation of an Economic and Social Impact Assessment* (NT EPA 2013d)
- *International Principles for Social Impact Assessment* (IAIA 2003).
- *Social Impact Assessment: Guidance for Assessing and Managing the Social Impacts of Projects* (IAIA 2015).
- *IAP2's Public Participation Spectrum and IAP2 Core Values* (IAP2 2014 and IAP2 2016).

Consultation

The social impact assessment draws on consultation with key stakeholders. The key stakeholders interviewed during the preparation of the social impact assessment are listed in Chapter 5 and in Appendix U.

12.2.3 Notes on the data

The following should be noted when reading and interpreting this chapter:

- All data is presented in calendar years.
- All data is presented in Australian dollars.
- All data is presented in real dollars (this means that its value has been adjusted for inflation).
- All operations employment figures exclude temporary employees associated with activities such as planned shutdown maintenance and ad hoc scopes of work.
- The four years of construction from 2017 to 2021 inclusive plus 25 years of operations from 2017 to 2041 is referred to as the 'life of the Proposal'.

12.3 Existing environment

This section provides an overview of the existing economic and social environment of the NT. An overview of the economic and social environment of the local region is also provided.

12.3.1 Population

The following sections describe the population of the NT and the local region as well as highlighting the contribution that the Sandover Plenty SA2 and the Alice Springs Local Government Area make to the local region.

Population density and distribution

The estimated resident population of the NT is currently just over 245,000 people with the majority of the population concentrated around the capital city of Darwin, and the central Australian town of Alice Springs. The current population of the local region is 33,164 which is around 14% of the population of the NT (refer to Table 12-1).



The local region comprises the Sandover Plenty SA2 area and the Alice Springs Local Government Area. The Sandover Plenty SA2 area is sparsely populated and has a current population of 4,497. The Alice Springs Local Government Area has a current population of 28,667 people of whom most live in the town of Alice Springs. This is equivalent to just under 12% of the population of the NT and 86% of the population of the local region (refer to Table 12-1).

There are a number of small population centres located in the areas surrounding the proposed Chandler Facility. These include the Aboriginal communities of Santa Teresa and Titjikala which are located in the Sandover Plenty SA2 area and Finke which is located to the south of Sandover Plenty SA2. Together, these towns have a population of just over 900 people of which 555 live in Santa Teresa (refer to Table 12-1).

In terms of population density, the NT is home to around 0.2 persons per square kilometre and the local region is home to 0.3 persons per square kilometre. However, in the areas outside of the Alice Springs Local Government Area, the population density is far less at 0.03 persons per square kilometre.

Table 12-1 Population estimates

Location	Population
Northern Territory (2014)	245,000
Local region (2014)	33,164
Local region (Sandover Plenty SA2) (2014)	4,497
Local region (Alice Springs Local Government Area) (2014)	28,667
Finke (2011)	162
Santa Teresa (2011)	555
Titjikala (2011)	201

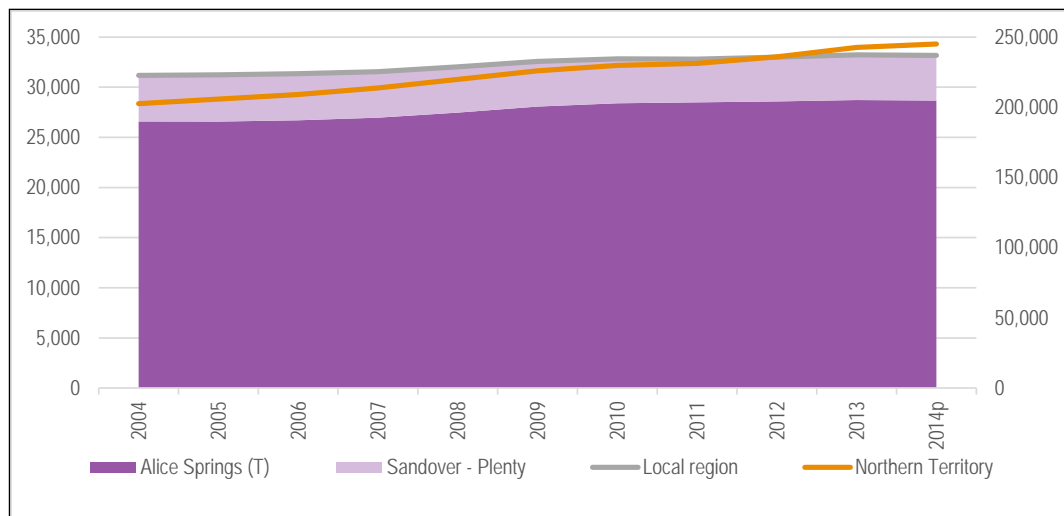
Source: Australian Bureau of Statistics

Historical population growth

The estimated resident population of the NT and the local region over the decade from 2004 to 2014 is shown in Figure 12-2. The population of the local region has experienced slight growth of around 0.6% per annum since 2004 which is equivalent to around 200 people per year. Nearly all of this growth has come from population increases in the Alice Springs Local Government Area which has recorded population growth of 0.7% per annum equivalent or just over 200 people per year.

In the areas outside of the town, there has been negative population growth of around 0.2 % or a loss in population of just under ten people each year. Population in the local region has plateaued since 2010 and has experienced a slight decline from 2013 to 2014 of 0.2 % as a result of population decline in the Alice Springs Local Government Area and in the Sandover Plenty SA2 area.

In comparison, the population of the NT has risen by an average of 1.7 % per annum over the decade to 2014 as a result of large increases in Darwin of around 1.6 %. However, NT population growth has also slowed in the year to 2014 to around 1.0 % per annum.



Source: Australian Bureau of Statistics

Figure 12-2 Estimated Resident Population: Northern Territory and local region (2004 – 2014)

Population forecasts

The population of the NT and the local region, along with their recent population growth and estimates of their expected growth is provided in Table 12-2. The population of the local region is expected to grow at around 1.3 % while the population of the NT is expected to continue to increase at around 1.7 %. The lower growth in the local region is a result of little to no growth expected in the Sandover Plenty SA2 area in line with 10-year historic growth rates.

Table 12-2 Population and population growth estimates

Location	Population	Population growth 2013-2014	Population growth forecast (2013-14 to 2018-19)	Population forecast (2018-19)
Northern Territory	245,000	1.0%	1.7% per annum	261,966
Local region*	33,164	-0.2%	1.3% per annum	35,775
Local region (Sandover Plenty SA2)*	4,497	-0.5%	0.0% per annum	5,000
Local region (Alice Springs Local Government Area)*	28,667	-0.2%	1.6 % per annum	31,280

Source: Australian Bureau of Statistics.

* Estimated by Acil Allen based on regional population projections published by the Northern Territory Government (NT Government 2015).

12.3.2 Demography

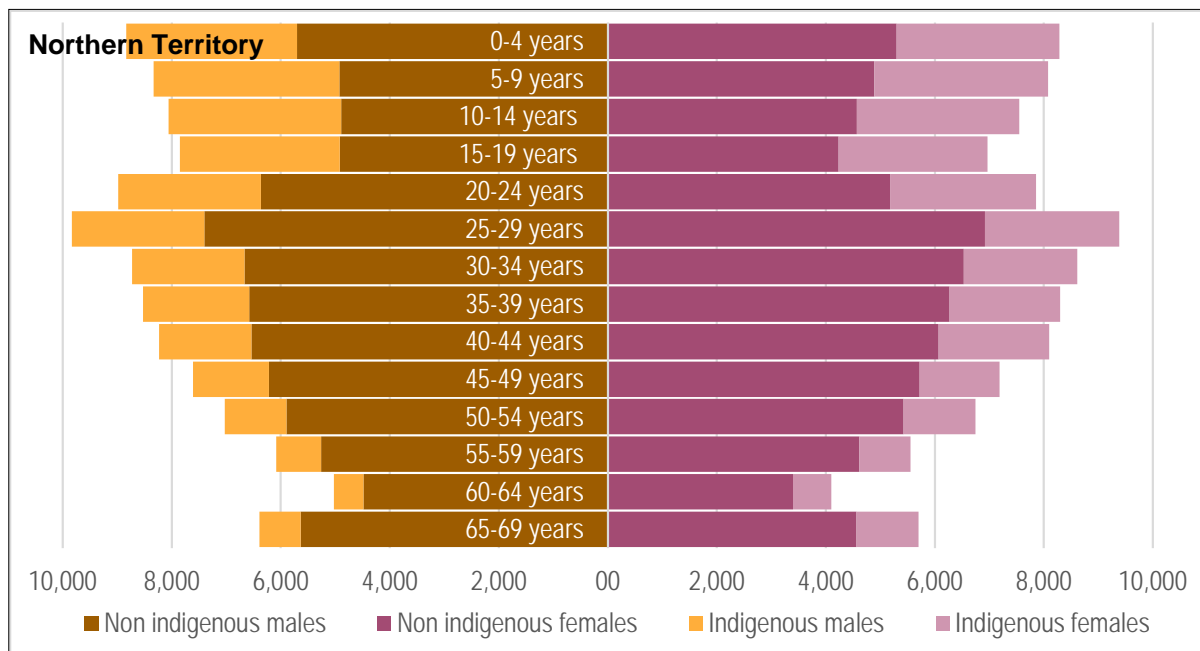
The age and gender profile of people living in the NT and the local region is presented in Figure 12-3 and Figure 12-4. The NT and the local region both have fairly standard population profiles which are characterised by a higher number of people of working age and are typical of larger populations. However, the demographic profile of the local region shows a comparative lack of population in the



20 to 29 age groups suggesting that people from this demographic leave the region to find employment and life experience elsewhere.

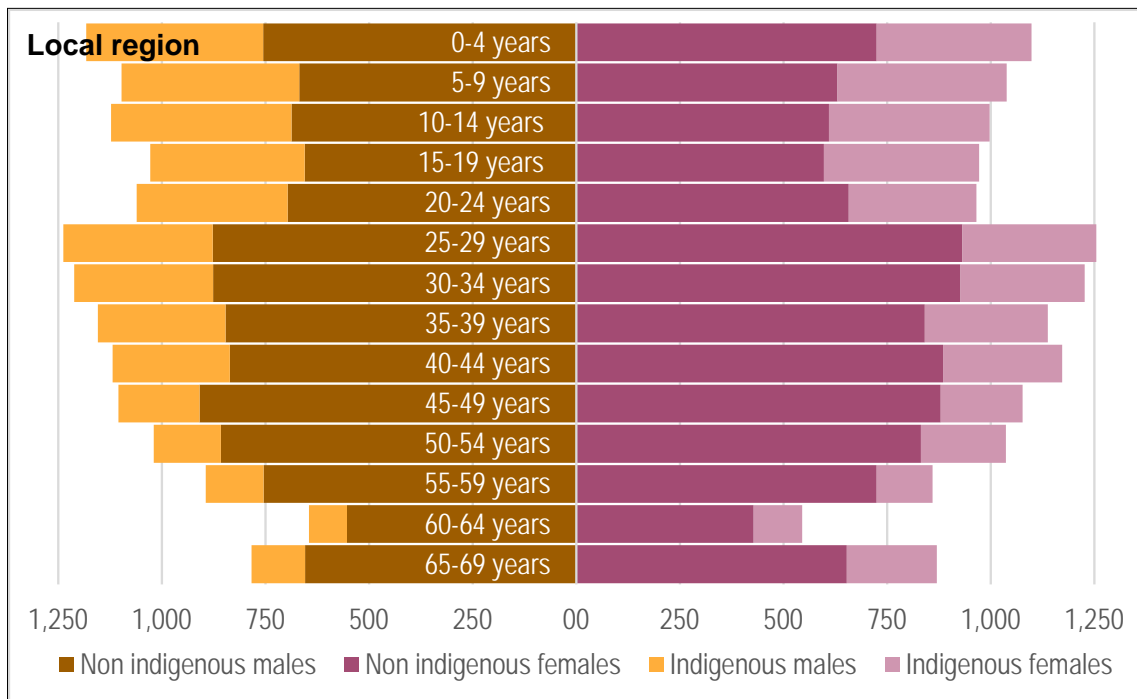
The profiles also show the large number of indigenous people that live in the NT, particularly in the local region. Around 27 % of the population of the NT is indigenous, while 28 % of the local region is indigenous.

The demographic profiles of the Alice Springs Local Government Area and the Sandover Plenty SA2 area are shown in Figure 12-5 and Figure 12-6 (respectively) to illustrate the differences in the two areas that make up the local region. The local region is dominated by the demographic profile of Alice Springs as this is where most of the population from the region lives. In contrast, the Sandover Plenty SA2 area has a very large Aboriginal population comprising 89% of the population. There is very large male population in the area and a higher number of people in the 20 to 29 age groups.



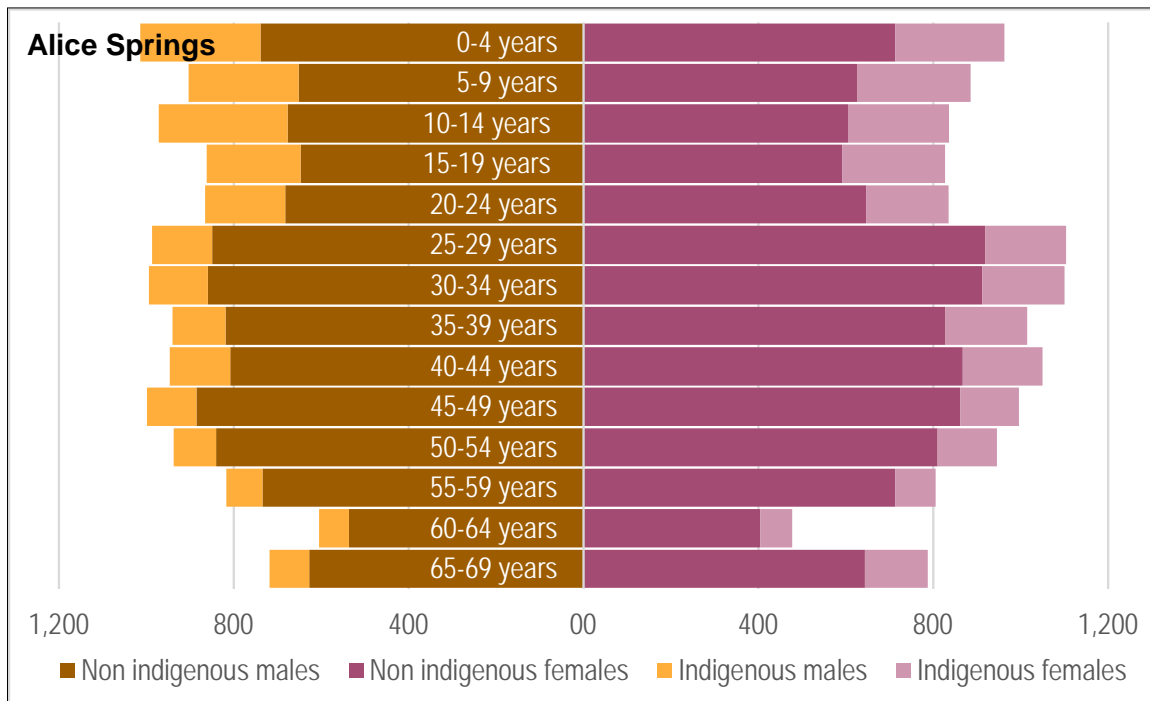
Source: Australian Bureau of Statistics

Figure 12-3 Age and gender profile: indigenous and non-indigenous people in the Northern Territory



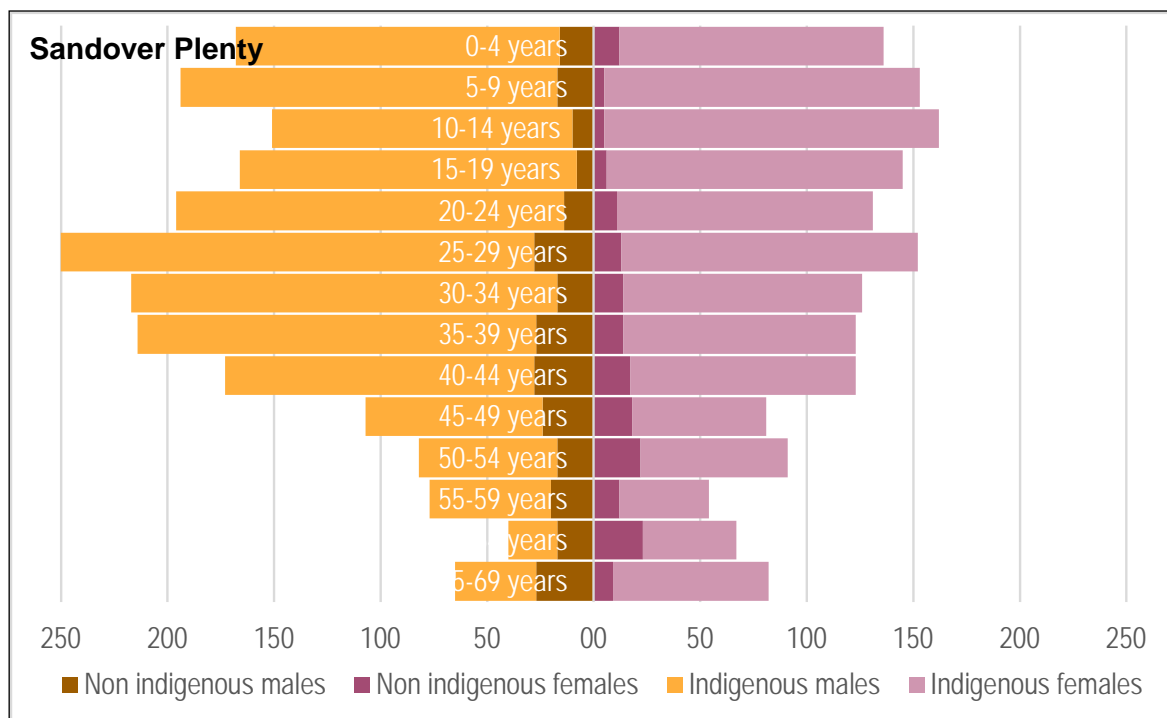
Source: Australian Bureau of Statistics

Figure 12-4 Age and gender profile: indigenous and non-indigenous people for the local region



Source: Australian Bureau of Statistics

Figure 12-5 Age and gender profile: indigenous and non-indigenous people in Alice Springs



Source: Australian Bureau of Statistics

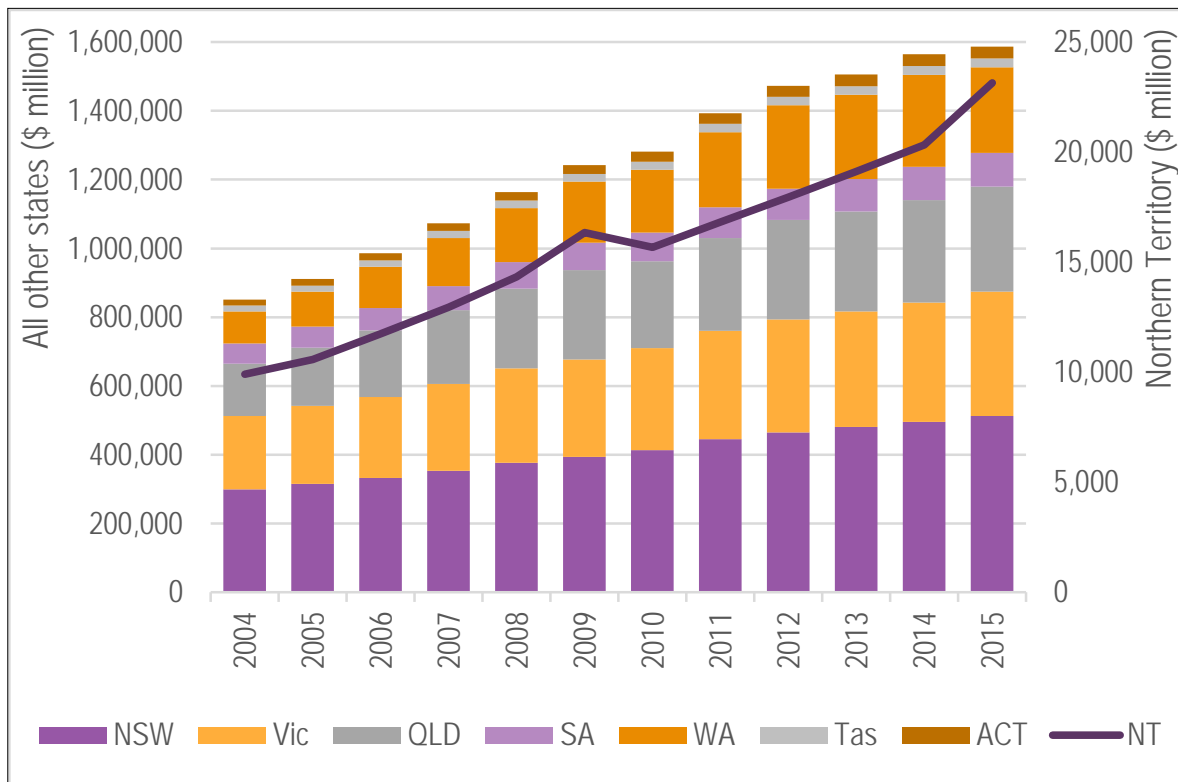
Figure 12-6 Age and gender profile: indigenous and non-indigenous people in Sandover Plenty SA2

12.3.3 Overview of the economy (NT)

This section provides information regarding the gross state product of the NT. Historic and forecast economic growth is also outlined.

Gross state product

The value of the gross state product of the NT was worth \$23.1 billion in 2014-15. This is equivalent to 1.4 % of Australia’s gross domestic product which was worth \$1.6 trillion in 2014-15 and is the smallest share of Australia’s total gross domestic product as shown in Figure 12-7.



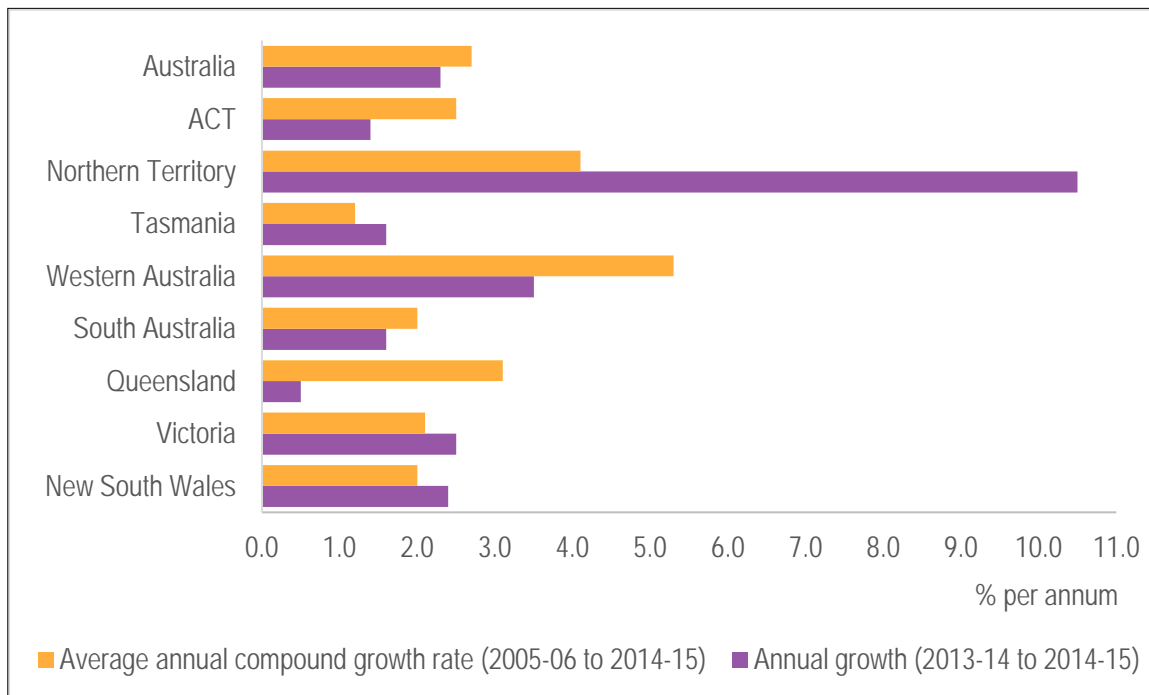
Source: Australian Bureau of Statistics

Figure 12-7 Value of gross state product by state (2004-2015)

Historic economic growth

Whilst the NT contributes only a small share of Australia’s gross domestic product, it is currently experiencing very high rates of growth, as shown in Figure 12-8. In the period from 2013-14 to 2014-15, the gross state product of the NT grew in real terms by 10.5% which was the highest growth rate of any state or territory in Australia and the highest rate of growth experienced by the NT over the past decade. The reason for this growth was the large investments associated with the construction of major projects such as the Ichthys Project Onshore LNG Facilities. In contrast, the gross domestic product of Australia grew by 2.3% over the same time period.

Growth in the NT gross state product is fairly volatile due to the small size of the economy and the comparatively large impact of major projects and global market conditions. Over the decade to 2014-15, the gross state product of the NT grew by an average annual compound growth rate of 4.1% per annum which is the second highest of any jurisdiction behind Western Australia whose economy grew by 5.3% per annum and far less than the 10.5% growth experienced by the NT over the last year. In comparison, the gross domestic product of Australia grew by an average of 2.7% per annum over period 2005-06 to 2014-15.



Source: Australian Bureau of Statistics

Figure 12-8 Gross state product average annual growth

Forecast economic growth

The NT Government forecasts economic growth in the NT to moderate from current levels to reach 4.5 % in 2014-15, where it will remain until 2016-17. This rate is above historical trend levels and reflects the ongoing effects of business investment in the NT. After 2015-16, the economy of the NT is expected to transition from one of high growth led by the construction of major developments including the Ichthys Project Onshore LNG Facilities, the Darwin Marine Supply Base and the Defence Support Hub to one of above trend growth of around 3 % per annum led by the production phases of these major investments (NT Treasury 2015).

In comparison, the Federal Government forecasts that gross domestic product growth in Australia will remain well below forecasts for the NT. Real gross domestic product growth is expected to remain constant in 2014-15 at 2.5 % before gradually increasing to reach 3.25 % in 2016-17 (The Treasury 2014).

12.3.4 Overview of the economy (local region)

The economy of the local region is driven by the town of Alice Springs as the major service and supply base for the population of Central Australia and particularly for the surrounding Aboriginal population. It also supports the mining and agricultural industries, the tourism sector, and the Joint Defence Facility at Pine Gap.

There are a range of industries including the government sector, the construction industry, the retail trade industry and the tourism sector in Alice Springs. Despite this, the town has a fairly limited economic base that is heavily skewed towards the government sector and the provision of



government services in the areas of public administration (e.g. police and welfare), education and training, health and the local government sector.

In the Sandover Plenty SA2 area, the economy is reasonably diverse, however, there are relatively few job opportunities for local people. As of the 2011 Census there were 1,260 people counted as working in the area. This number provides an indication of jobs because it includes people from outside of the area who work in Sandover Plenty SA2. However, the Census only records 655 people who live in the area as in employment. This would indicate that many of these jobs are staffed by people from outside of Sandover Plenty SA2.

A large number of jobs in Sandover Plenty SA2 are located at the Joint Defence Facility at Pine Gap with the other major employers being the government sector including the local government sector, and those that supply goods and services to the local population such as the retail trade and utility provision industries. Agriculture and mining are also relatively large employers in the area providing just over 8 % of jobs in the Sandover Plenty SA2 area.

12.3.5 Major industries (NT)

Mining, government, agriculture and tourism are the major industries in the NT. Together, these industries account for almost 40 % of the gross domestic product of the NT.

- **Mining.** The mining sector is the most significant industry in the economy of the NT. In 2014-15, the mining sector accounted for around 12.3 % of the gross state product of the NT. The major commodities are manganese, gas and liquids, and liquefied natural gas production. There are four major producing mines in the NT. These are the Alcan Gove Mine, Gemco Mine, McArthur River Mine and the Tanami Gold Mine. In 2014-15, the value of mining production in the NT was estimated to be \$3.2 billion.
- **Government.** The government sector provides a significant contribution to the economy through the provision of services such as government administration, defence, education and health. Together they account for around 18.3 % of the gross state product of the NT. The defence sector is a major contributor to the economy of the NT. It generates around 6.9% of the gross state product of the NT. Defence spending increased by 10.6 % or \$144 million to \$1.5 billion in the NT in 2013-14.
- **Tourism.** In 2013-14, the tourism sector accounted for around 4% of the gross state product of the NT. It is also one of the largest employers in the Northern Territory providing around 8,000 jobs or 5.7% of employment (NT Treasury 2015).
- **Agriculture, forestry and fishing.** The agriculture sector comprises cattle and other livestock (including buffalo, crocodiles, poultry, pigs and camels), horticulture (fruit, vegetables, nursery and cut flowers) and mixed farming (field crops, hay and seeds, and forestry). In 2014-15, the agriculture, forestry and fishing industry accounted for 1.8 % of the gross state product of the NT.

12.3.6 Businesses

Darwin is the main service centre for the NT supporting a wide range of industries including the government sector, the oil and gas industry, mining and the defence sector. It continues to position



itself as a strategic position for shipping, regional freight and as a distribution gateway. There are around 14,500 businesses in the NT as of June 2014 with the greater Darwin area home to around 71 % of businesses while nearly 16 % of businesses are located in Alice Springs (NT Department of Business 2015). A number of large projects have been constructed in the NT in recent years. These include the INPEX Ichthys LNG Project, the Darwin Marine Supply Base, the Defence Support Hub, and Darwin Waterfront Precinct which are all either in, or close to completion. The construction and operation of all of these projects have required businesses located in Darwin for the supply of goods and services. There are therefore a number of businesses located in Darwin with recent experience in supporting the construction and subsequent operation of a developments that are comparable to the Proposal.

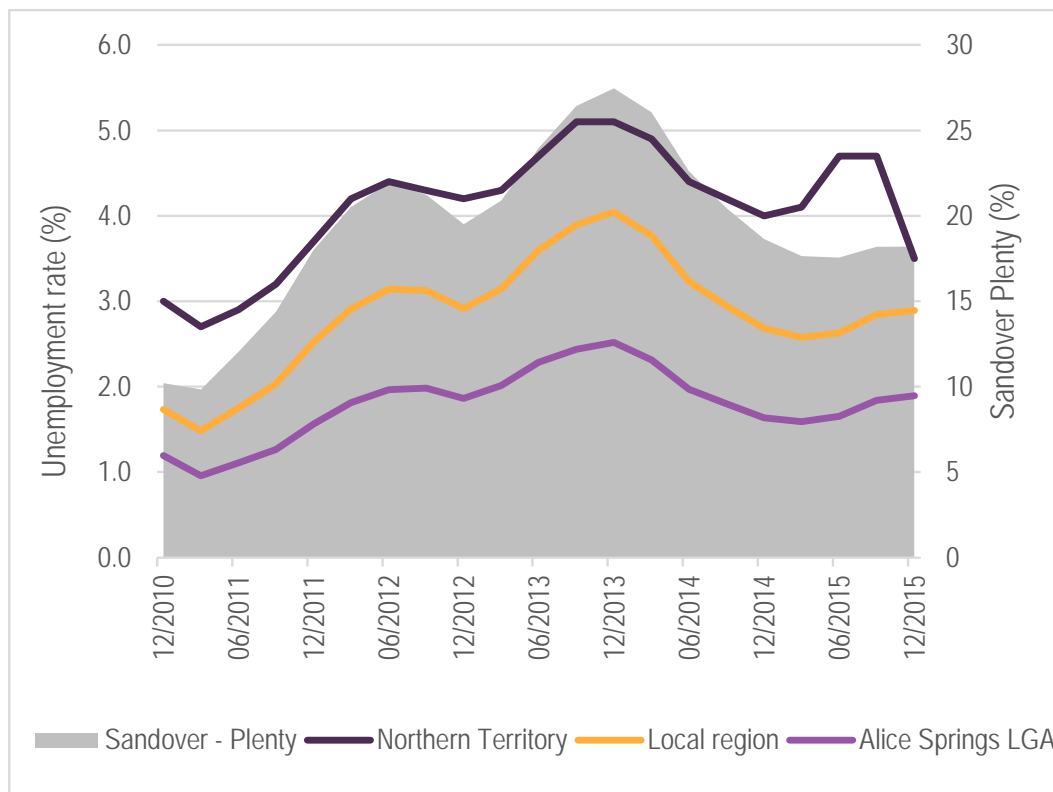
The business sector in the local region is dominated by the town of Alice Springs. Alice Springs supports nearly 2,300 businesses including those in the construction, food and accommodation, transport and logistics, financial services and so on. As the business hub for the surrounding region including the mining sector, there are businesses located in the town that can support the construction effort and the operations phase of the Proposal. There are very few businesses located in the local region that are located outside of Alice Springs. Most businesses are involved in the pastoral industry or in the provision of goods and services to local communities.

12.3.7 Workforce

There is a large workforce in the NT of nearly 122,000 people of which around 6,000 are currently seeking work. This equates to an unemployment rate in the NT of around 4.2% (2015).

The unemployment rate in the NT and in the local region for the period from December 2010 through to December 2015 is shown in Figure 12-9. The workforce in the local region comprises of around 20,500 people of which nearly 19,300 are located in the Alice Springs Local Government Area and the remaining 225 in the Sandover Plenty SA2 area.

The unemployment rate in the local region is currently 2.7 % which is well below the rate for the NT and indicates only 560 job seekers in the region. While around two thirds of these job seekers are located in Alice Springs, there is a comparatively higher number of job seekers in the Sandover Plenty SA2 area. This is represented by a much lower unemployment rate in Alice Springs of 1.7 % compared to an unemployment rate in Sandover Plenty of 17.9 %. This higher unemployment rate is reflective of the limited job opportunities in these areas and the difficulties that job seekers face in securing employment. Furthermore, it is likely that there are other people from the area that are not currently seeking work due to the low expectation of gaining employment resulting in an unemployment rate that is not reflective of the actual number of job seekers in the area.



Source: Department of Employment - Note: People aged 15 to 65

Figure 12-9 Unemployment rate: NT and local region

Industry of employment

The industry of employment for residents of the NT and the local region is shown in Figure 12-10. About 40% of the employees in the NT are employed in the industries of public administration and safety, education and training and health care and social assistance which largely reflect the industries that comprise the government sector including services provided by local, NT and federal governments. In comparison, 43% of the local region are employed in this sector.

The employment profile of the local region is dominated by the workforce of Alice Springs where 95% of the employed workforce was located in 2011. In the Sandover Plenty SA2 area, the reliance on the government sector as the major employer is even more pronounced with 51% (335 of the 655 people employed) of the working population employed in this sector.

The three main industries of employment in the NT are the public administration and safety industry with 21% of total employment, the health care and social assistance industry (10%) and the construction industry with 8.2% of total employment. The three main industries of employment in the local region are the government related industries of public administration and safety (18%), health care and social assistance (15%) and education and training (10%). Retail trade is also an important employer in the local region employing just over 9% of employed persons that live in the region. These industries reflect the role of the town of Alice Springs as a regional service centre and population base.

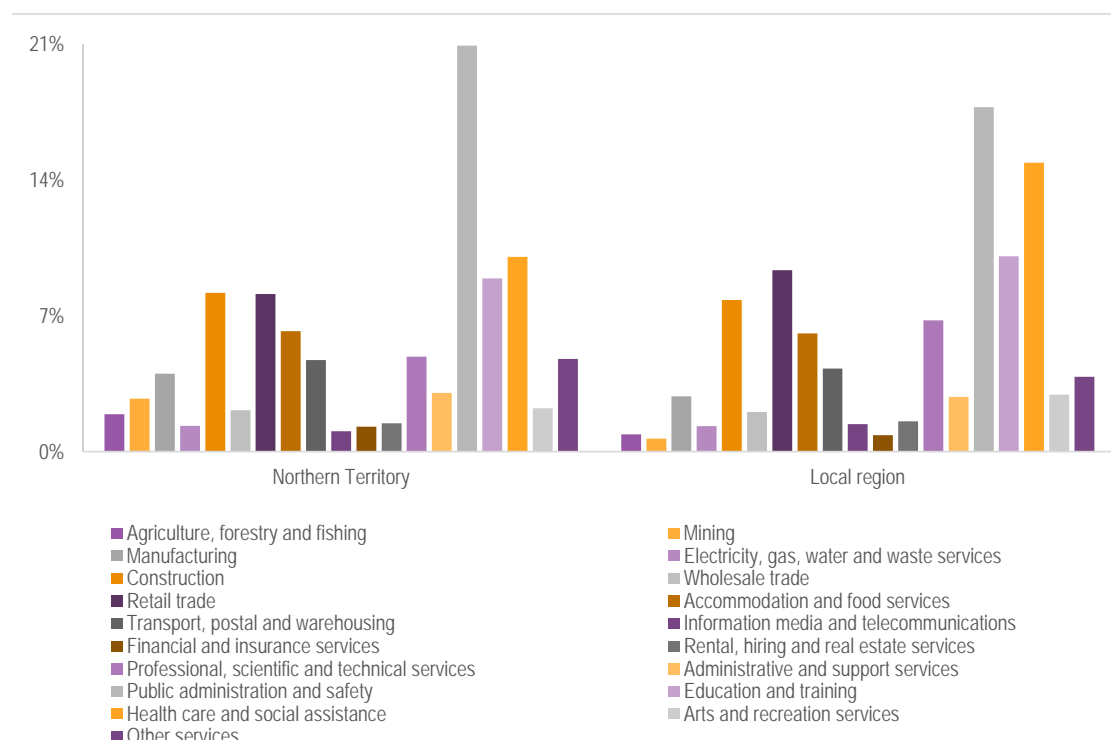
The employment profile of the local region largely reflects the profile of the Alice Springs Local Government Area. In the Sandover Plenty SA2 area, the employment profile is quite different with



the main industries of employment being public administration and safety (28 %), education and training (13 %), and agriculture, forestry and fishing (11 %). The other services (8 %) and retail trade (6 %) industries are also important employers where other services includes industries such as repairs and maintenance to vehicles and machinery, hairdressers, religious providers and household services. These key employers reflect the basic nature of the economy in the Sandover Plenty SA2 area that focusses on the provision of goods and services to the local community and the role of the pastoral industry in the economy.

As of the 2011 Census, the mining industry was a relatively small employer in the NT accounting for just under 3% of jobs compared to less than 1% of employment in the local region. Nevertheless, the industry provides good opportunities for local people employing 93 residents of the Local region in 2011 including 73 in the Sandover Plenty SA2 area.

In 2013-14 the mining industry directly accounted for 4.3% of total resident employment in the NT (NT Treasury 2015). Given the closure of several mines in the NT in recent years, including all of the NT's iron ore mines, it is likely that this share has fallen.



Source: Australian Bureau of Statistics 2011. Employed Persons aged 15 and over

Figure 12-10 Industry of employment: NT and local region (percentage of total employed persons aged 15+)

Skills level

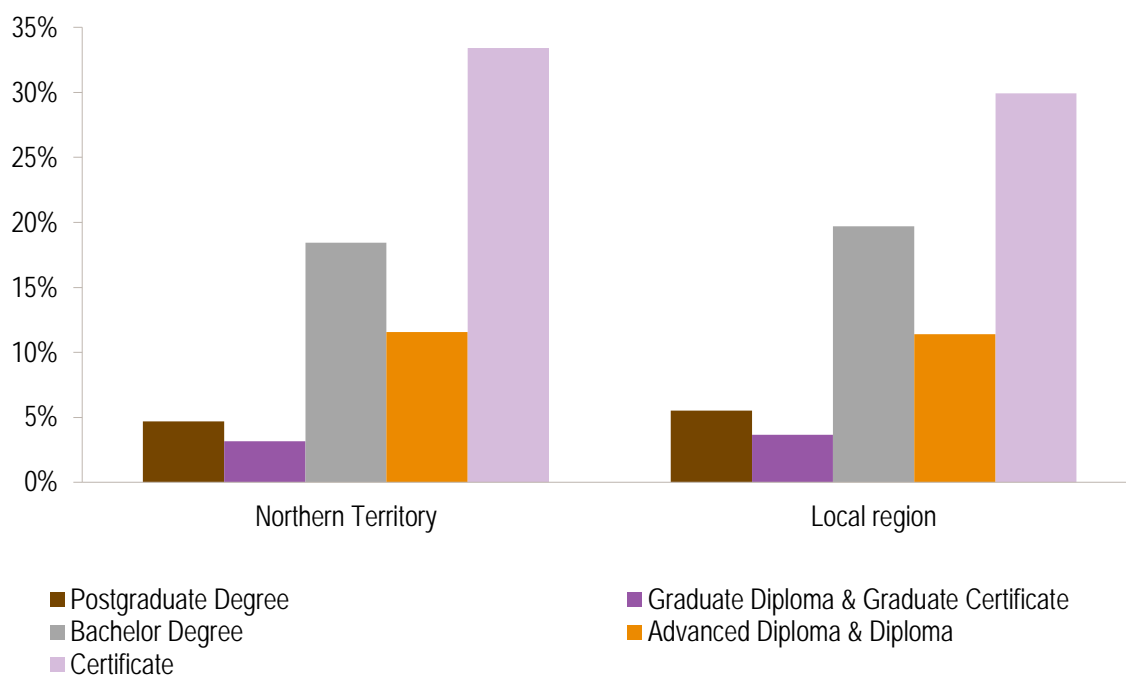
About 57% of people aged 15 and over in the NT hold a non-school qualification compared to 60% in the local region.

Figure 12-11 shows the non-school qualifications of people aged 15 and over who hold a qualification and who live in the NT, compared to those that live in the local region as of the 2011 Census. In both regions, the most commonly held qualification is a Certificate.



In the local region, 29% of qualified people hold a bachelor degree or higher (postgraduate degree, graduate diploma and graduate certificate, and bachelor degree) while the equivalent for the NT is 26%. The higher qualifications in the local region are a result of the occupation profile in the Alice Springs Local Government Area which supports a large number of government workers and other tertiary qualified people. In the areas outside of Alice Springs, only 7% of the population with a qualification hold the same level of qualifications compared to 31% in Alice Springs.

In terms of absolute numbers, the number of qualified people in the local region with a bachelor or higher degree is 3,860 people which is 16% of all the people in the NT with these qualifications. The Alice Springs Local Government Area accounts for 3,761 of these people. In contrast, the Sandover Plenty SA2 area has 99 similarly qualified people accounting for just 0.4% of the NT total.



Source: Australian Bureau of Statistics 2011

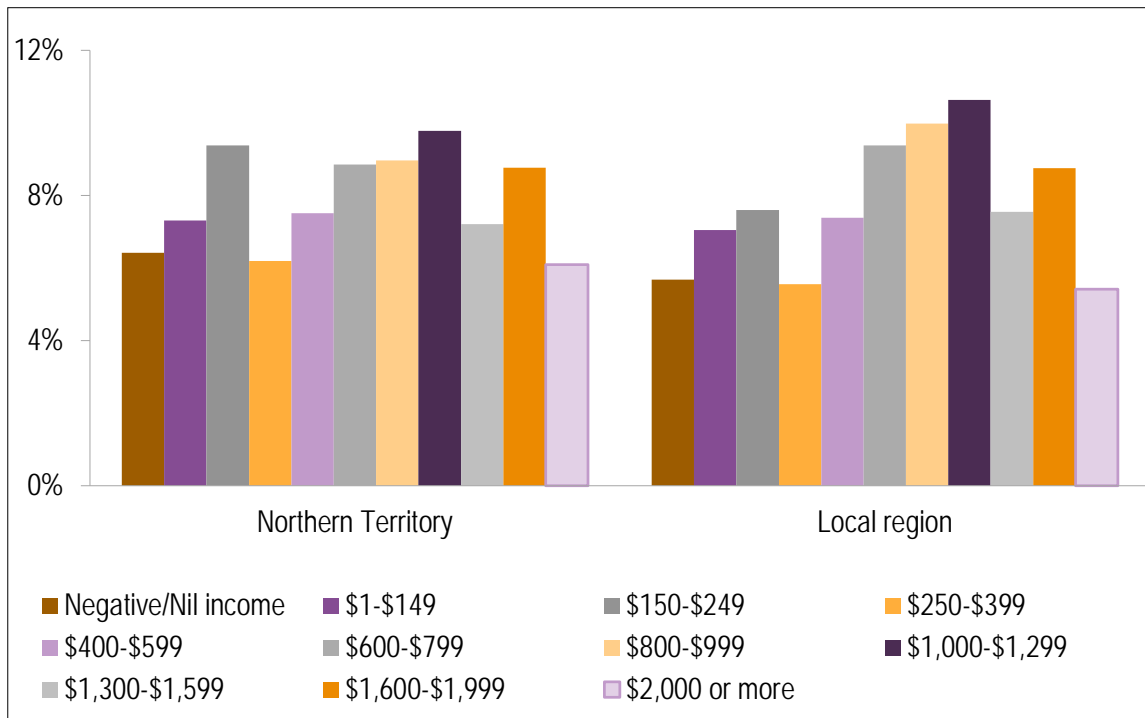
Figure 12-11 Non-school qualification NT and local region (percentage of total persons with a qualification aged 15+)

Income

The 2011 Census recorded 32% of the population in the NT earning in excess of \$1,000 per week and 6% of the population earn in excess of \$2,000 per week. The local region also recorded 32% of the population in the NT earning in excess of \$1,000 per week, however, 12% of the population earned in excess of \$2,000 per week (refer to Figure 12-12).

Incomes in the Alice Springs Local Government area are comparatively high with 36% of the population earning in excess of \$1,000 per week and 6% earning in excess of \$2,000 per week. This is equivalent to 14% of all of the people in the NT in this wage bracket. These higher earnings are because there are a high number of tertiary qualified people and people working in professional occupations who tend to earn higher incomes living in the town.

Just 5% of the population of the Sandover Plenty SA2 area earn in excess of \$1,000 per week and 1% earn in excess of \$2,000 per week.



Source: Australian Bureau of Statistics 2011

Figure 12-12 Personal weekly income: NT and local region (percentage of total persons aged 15 and over)

12.3.8 Infrastructure

The following sections provide a brief overview of the key economic and social infrastructure in Darwin and Alice Springs being the centres that are most likely to support the Chandler Facility through the provision of the majority of goods, services and labour.

Darwin

Darwin is the main population centre in the NT and is the key government and services sector for the NT. It offers a modern standard of living and a high standard of social infrastructure expected of a city.

The city is a significant part of the AustralAsia Trade Route, which includes: the AustralAsia Railway that links Darwin to the national rail network, an expanded East Arm Port, abundant industrial land at the adjoining Darwin Business Park and a growing number of shipping links with Asia.

Darwin is becoming an important supply, service and distribution base for major minerals and energy projects located in the north of Australia, the Timor Sea and South-East Asia. In the near term, significant investment from the INPEX Ichthys LNG Project which is nearing completion, the Darwin Marine Supply Base and the Defence Support Hub will continue to underpin the continued rapid growth in the Darwin economy. The operation of these developments will provide growing demand for employment and goods and services to support their production phases. At the same time, large lifestyle developments such as the Darwin Waterfront Precinct will enhance the social, cultural and general liveability aspects of the city for residents and tourists.



Alice Springs

Alice Springs is the largest population centre in central Australia and is the service centre for the surrounding region. It is well serviced by transport infrastructure due to its location on the Stuart Highway and the Adelaide to Darwin railway. The Alice Springs Airport is the major airport for the region providing air links to all of the mainland capital cities in Australia as well services to Cairns, Tennant Creek and Uluru.

Alice Springs is a modern and well catered for town with a good level of social infrastructure. Facilities include a teaching hospital, a university, childcare facilities, several high schools, numerous primary and preschools, a library and a variety of recreational facilities including two shopping malls and an aquatic centre. There are campuses of the Charles Darwin University and the Batchelor Institute located in town as well as a number of registered training providers. The town is the base of the Royal Flying Doctor service which provides 24-hour primary emergency retrievals and inter-hospital transfers. There is a public transport service that services areas within the town.

Finke, Santa Teresa and Titjikala

Finke, Santa Teresa and Titjikala are small Aboriginal communities that support a basic level of services and infrastructure. Finke is a very isolated community accessible by a 434-kilometre road that travels through Titjikala to Alice Springs. The community has a health care centre, school, church, community store, an airstrip and the NPY Women's Council Aboriginal Corporation that runs a number of services including a youth program and sport and recreation activities.

Santa Teresa which is the largest of the three communities is located approximately 85 kilometres south-east of Alice Springs. The town has several retail outlets including a general store, fuel supply, and art and craft centre. There is also a primary school, health clinic, police station a church and an airstrip.

Titjikala is located approximately 130 kilometres south of Alice Springs and supports an airstrip, a community store, primary school, art centre, health clinic and church.

12.3.9 Health services

Health care services located in the vicinity of the Proposal (Alice Springs, Titjikala, Finke and Santa Teresa) are listed in Table 12-3.



Table 12-3 Health care services in the vicinity of the Proposal

Health service	Description	Managing authority
Alice Springs Hospital	Services include general medicine, rehabilitation medicine, palliative care, nephrology, emergency medicine, anaesthesia, intensive care, surgery (including ophthalmology, orthopaedics and ear, nose and throat), psychiatry, paediatrics, obstetrics and gynaecology.	NT Government
Titjikala Health Clinic	Services include emergency care, medical evacuations (by road), preventable chronic disease, childhood and adult immunisations, men's and women's health checks, infectious and communicable disease prevention.	NT Government
Aputula Health Clinic (Finke)	Staffed by two registered nurses, two Aboriginal health workers and a visiting doctor. It has nine rooms with separate men's and women's waiting areas and consulting rooms. There is an emergency treatment room, pharmacy, office and laundry.	NT Government
Mpwelarre Health Aboriginal Corporation (Santa Teresa Health Centre)	Staffed by a community doctor who is non-resident but provides 24 hour telephone support to the clinic staff. The clinic is staffed by two remote area nurses and four Aboriginal health workers. There are also a range of health professionals in different fields that visit the community at varying intervals.	Private

12.3.10 Education services

Education services located in the vicinity of the Proposal (Alice Springs, Titjikala, Finke and Santa Teresa) are described below.

Alice Springs

Ten primary schools (seven government and three private) and five secondary schools (three government and two private) are located in Alice Springs. Tertiary education is provided by the Charles Darwin University, and the Batchelor Institute of Tertiary Education and the Centre for Appropriate Technology (brought together as the Desert Peoples' Centre). There is also a campus of the Flinders University for Remote Health in Alice Springs.

Finke, Santa Teresa and Titjikala

There are primary schools located in Finke, Santa Teresa and Titjikala and middle schools located in Finke and Santa Teresa:

- Finke – Finke (Aputula) School, current enrolment of 29 students.
- Santa Teresa – Ltyentye Apurte Catholic School, current enrolment of 140 students.
- Titjikala – Titjikala School, current enrolment of 25 students (including pre-primary students).

Once students from these communities reach senior years, they have the option of boarding in Alice Springs or going interstate to complete their education.



Vocational education training is provided in Santa Teresa and Titjikala by the Batchelor Institute of Tertiary Education.

12.3.11 Housing market

There is a high rental vacancy rate in privately owned accommodation and an easing in the private sales market in Alice Springs. However, there is a shortage of public housing availability with wait times for this type of housing more than doubling over the past decade in Alice Springs (NT Shelter 2016). There are no official statistics available regarding public housing in Santa Teresa, Finke or Titjikala. However, housing in remote areas is a key issue for people living in these communities because of critical shortages and overcrowding problems (Central Land Council 2016).

The median house price was \$467,500 in Alice Springs in 2015. This compares to a median house price of \$608,750 in Darwin in 2015 (Real Estate Institute of Northern Territory Inc 2016). The growth in median house prices is currently experiencing rates of around 1% per annum for houses and units in Alice Springs. There were no recorded house sales in the MacDonnell Regional Council area in 2015 (which includes Finke, Santa Teresa and Titjikala).

12.3.12 Social amenity

This section describes the social amenity of Alice Springs. There is very little publicly available information regarding the social amenity in the communities of Finke, Santa Teresa and Titjikala.

Alice Springs

Alice Springs supports a large population many of whom are Aboriginal. There is a growing middle-class of Aboriginal people in the town who are better educated and engaged in the workforce. At the same time, there is a large disadvantaged and more mobile population of Aboriginal people who tend to live in town camps, public housing and temporary accommodation. Many are transient and visit Alice Springs from remote communities to visit relatives, for recreation purposes such as to attend sporting events, or to access services.

There is a high crime rate in Alice Springs, as shown in Table 12-4. The rates of offending in Alice Springs are significantly higher than those experienced in Darwin (particularly those that relate to assault, domestic violence and alcohol related assault). Despite these very high levels, there has been a decline in offending rates for these crimes over the past year.



Table 12-4 Rates of offending per 100,000 population by crime (Darwin and Alice Springs)

Crime	Alice Springs			Darwin and Palmerston		
	Nov, 2014 - Oct, 2015	Nov, 2015 - Oct, 2016	% change	Nov 2014 - Oct 2015	Nov 2015 - Oct 2016	% change
Assault	5,915.9	5,522.4	-6.7	2,169.3	2,005.9	-7.5
Domestic violence related assault	3,461	3,246.1	-6.2	822.9	781.3	-5.1
Alcohol related assault	3,864.8	3,342.8	-13.5	1,268.9	1,115.6	-12.1
Sexual assault	251.5	286.3	13.8	157.4	145.8	-7.4
House break-ins	1,438.2	1,073.7	-25.3	766.8	787.2	2.7
Commercial break-ins	949.4	1,288.4	35.7	421	669.8	59.1
Motor vehicle theft	1,176.1	1,374.3	16.9	1,295.1	1,040.9	-19.6
Property damage	5,334.9	6,409.9	20.2	2,838.3	2,840.5	0.1

Source: Northern Territory Police

Titjikala

Titjikala comprises a number of family groups including Traditional Owners. Other Traditional Owners are dispersed between Alice Springs, Titjikala, Santa Teresa, Finke and other Arrernte communities such as Hermannsburg. Many Traditional Owners also live on traditional homelands at Walkabout Bore, Mt Peachy, John Holland Bore and Oak Valley.

In general, the community is well-functioning and proud with families mostly living in harmony. There is strong leadership in the town which has resulted in lease money being reinvested into community facilities.

There is no permanent police presence in Titjikala, although there is a strong night patrol that works from about 6 PM to midnight most days. Police patrols located at Finke and Santa Teresa currently service the community of Titjikala.

12.4 Assessment of impacts during construction and operation

This section summarises the financial and employment assumptions used in the economic and social impact assessment. Potential economic and social impacts that would arise during construction and operation are also presented. There would be significant economic and social benefits to the economy through direct spending associated with the construction and operation of the Proposal. There would also be indirect benefits which would result from the additional spending in the economy on goods, services and wages. Further detail is provided in Appendix U.

12.4.1 Key financial assumptions

The key financial assumptions for the Proposal are presented in Table 12-5. These assumptions are also discussed in further detail below.



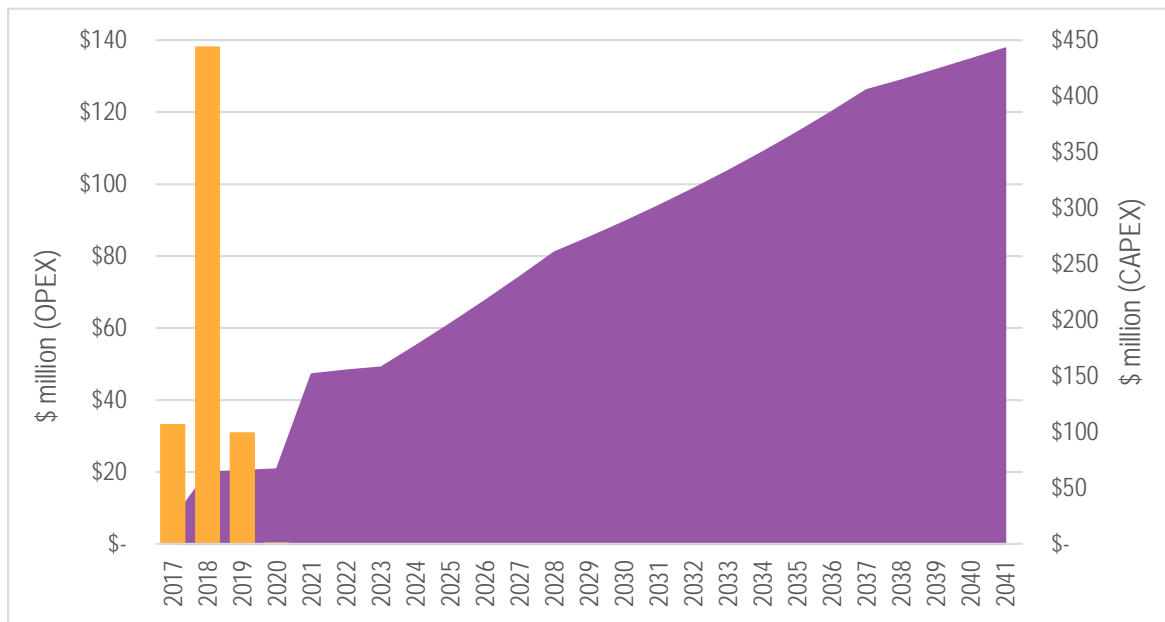
Table 12-5 Key financial assumptions for the Proposal

Item	Assumption	
Capital expenditure (2017-2020)	\$676 million	
Operations expenditure (2017-2041)	\$81 million per annum average	
Local content assumptions (construction expenditure)	Local	18%
	NT	36%
	Australia	67%
	Overseas	33%
Local content assumptions (operation expenditure)	Local	32%
	NT	52%
	Australia	64%
	Overseas	36%
Tax and royalty payments (directly paid by Chandler Facility)	\$40 million per annum average	

Capital and operations expenditure

It is estimated that there would be a capital expenditure of around \$676 million over a four year period from 2017 to 2020 on the Proposal. The majority of expenditure would occur in the first three years of construction, with peak construction expenditure occurring in the second year. On average, there would be a capital expenditure of \$162 million in each of the four years of construction (refer to Figure 12-13).

Operations expenditure would start in the first year, which is also the first year of construction (2017). The amount of operations expenditure in the first few years would be small at around \$20 million per annum but would continue to rise, reaching \$137 million by 2041. On average, there would be spending of just under \$81 million per annum to operate the Proposal (refer to Figure 12-13).



Note: Orange represents capital expenditure (CAPEX), purple represents operational expenditure (OPEX).

Figure 12-13 Capital and operational expenditure on the Proposal

Revenue

Revenue would be raised from salt sales, but the majority of revenue would be received from the storage of waste. Revenue would be realised from the first year of operation in the form of stored waste revenue and would continue to rise over time as the tonnage of stored waste increases.

Revenue estimates are considered commercial in confidence and have not been reported in the EIS. They have, however, been used to estimate the economic impact of the Proposal.

Local content assumptions

There would be high local content during both construction and operation of the Proposal. Around 67% of all construction costs would be spent in Australia. About 36 % of the total construction cost (just over \$231 million) would be spent in the NT and 18 % of the total construction cost (just over \$118 million) would be spent in the local region. Around 64 % of the total operation costs (including labour) would be spent in Australia. About 52 % of the total operational cost would be spent in the NT and 32 % would be spent in the local region. This is equivalent to spending in Australia of over \$1.2 billion over the 25 modelled years of the life of the Proposal, including just over \$1 billion in the NT. Of this, over \$600 million would be spent in the local region with the majority of that expenditure expected to be spent in Alice Springs.



Tax and royalty payments

It is expected that \$1 billion of direct taxation revenue would be paid to the NT and Federal Government over the life of the Proposal. This is equivalent to around \$40 million per annum in direct taxation payments.

12.4.2 Key employment assumptions

The key employment assumptions for the Proposal are presented in Table 12-6 and in Figure 12-14. Over the construction period, it is expected that 1,299 full time equivalent workers would be employed. At peak construction there would be a full time equivalent workforce of around 720 workers. During steady state operations it is expected that 150 full time equivalent workers would be employed at the proposed Chandler Facility and Apirnta Facility (2021-2041).

Table 12-6 Key employment assumptions for the Proposal

Item	Assumption
Construction period	4 years or 48 months (2017-2020)
Peak construction	Year two (2018)
Construction workforce	1,299 full time equivalent jobs over four years
Peak construction workforce	720 full time equivalent jobs
Operational life	25 years (2017-2041)
Steady state production workforce	150 full time equivalent jobs

Note: FTE = Full time equivalent jobs per year

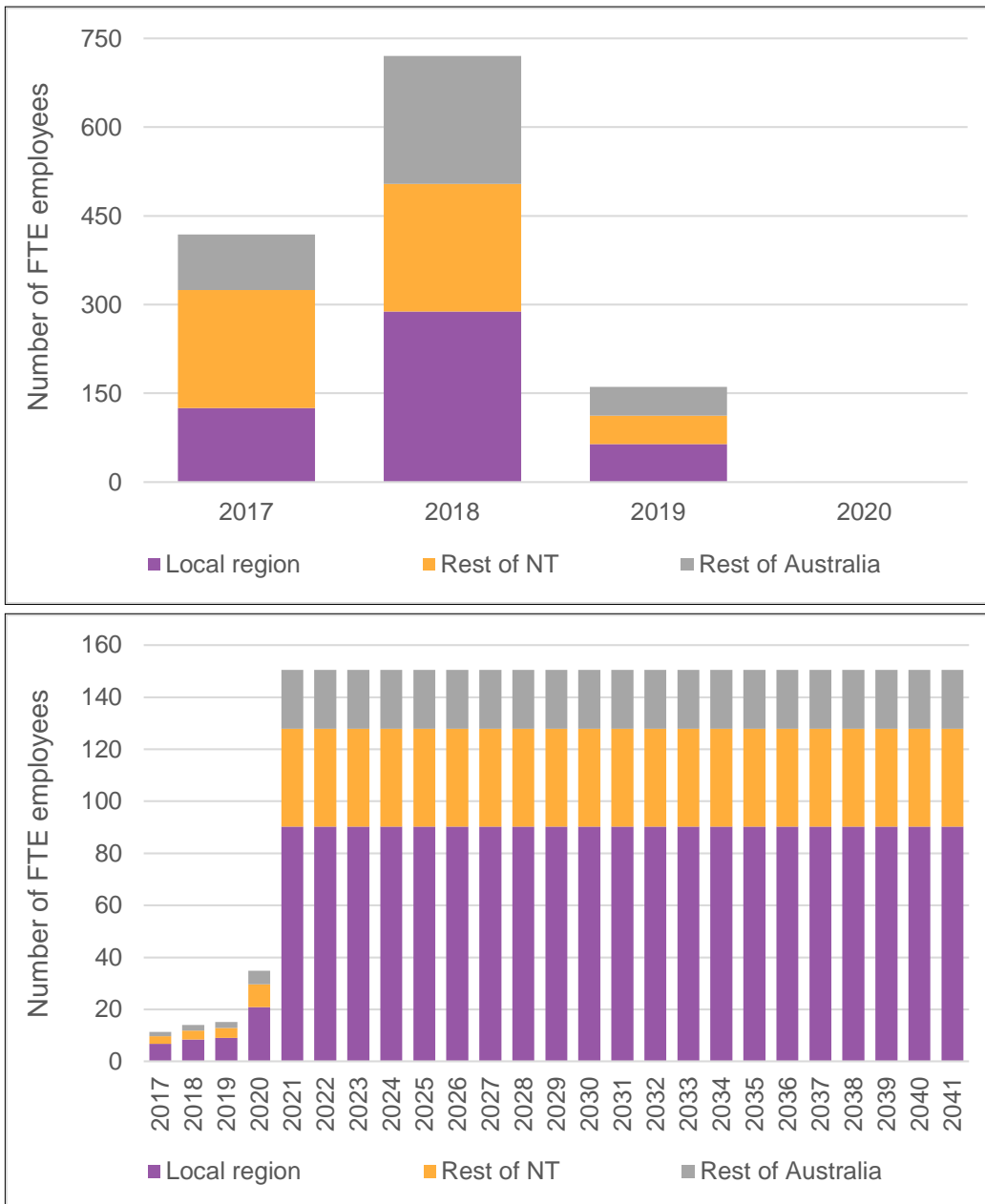


Figure 12-14 Direct employment during construction and operation of the Proposal

12.4.3 Contribution to gross product

Gross product or real economic output is a measure of the increase in the size of an economy. Real economic output is a measure of the output generated by an economy over a period of time (typically a year). It represents the total dollar value of all goods and services produced over a specific time period and is considered as a measure of the size of the economy.

About \$3.6 billion or an average of \$144 million per year would be generated over the life of the Proposal to the gross state product of the NT. This would result in a significant annual contribution to the gross state product of the NT and is equivalent to around 0.6% of the current gross state product of \$23.1 billion (refer to Table 12-7).



Nearly all of the economic benefits would be realised in the local region, as shown in Figure 12-15. This is because production would occur in the local region and because it is where a large share of the labour is located.

The gross domestic product of Australia would rise by about \$4.1 billion or an average of \$166 million each year over the life of the Proposal (refer to Table 12-7).

Table 12-7 Projected cumulative change in gross product or real economic output

Location	Real economic output		
	Total (2017 to 2041)	Net present value	
		4%	7%
	2016 A\$m	2016 A\$m	2016 A\$m
Local region	3,600	1,990	1,350
Rest of NT	-17	1	8
Rest of Australia	560	310	210
Total NT	3,590	1,995	1,360
Australia	4,150	2,300	1,570

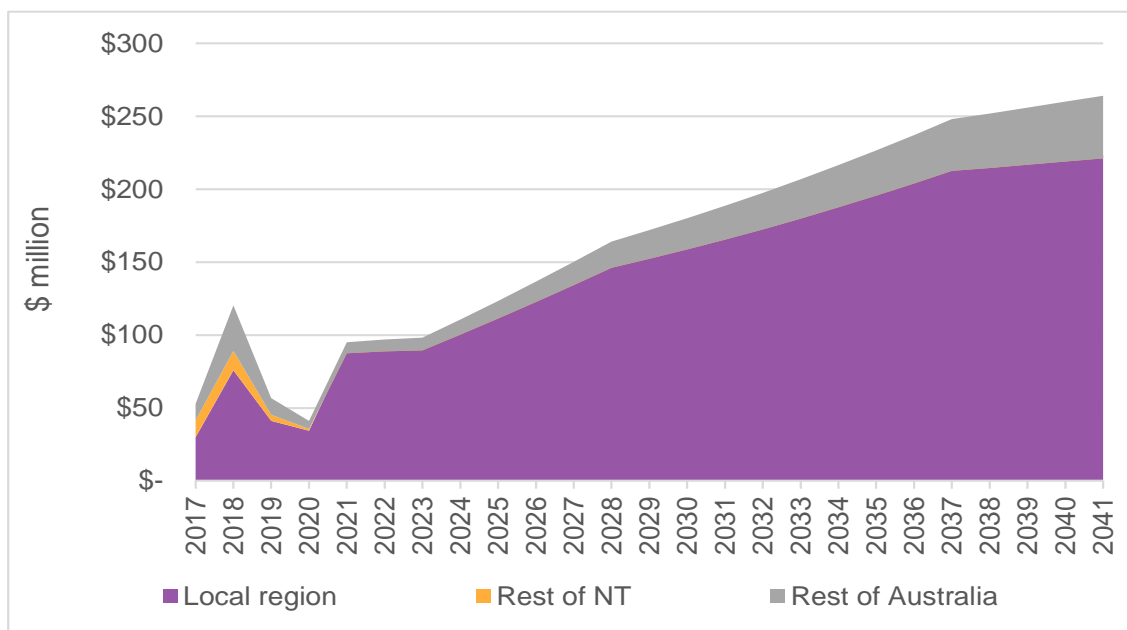


Figure 12-15 Contribution to gross product or real economic output

12.4.4 Contribution to real incomes

Real income is a measure of the welfare of residents in an economy or the increase in ability to purchase goods and services and to accumulate wealth. The change in real income from a development is a measure of the change in welfare of an economy.

Almost \$3.4 billion would be contributed to the real incomes of Australians over the life of the Proposal. This includes an increase of \$441 million to real incomes in the NT. The contribution to the



local region would be higher at \$476 million for the life of the Proposal (refer to Table 12-8 and Figure 12-16).

The reason that the majority of the impact on real incomes is realised in the rest of Australia is that only a small portion of the Proposal is assumed to be owned by local residents of the NT, with a significant portion of the wealth generated by the economic activity transferred outside of the local region and the NT to shareholders who are assumed to be evenly disbursed across Australia. In addition, the distribution of federal taxes generated by the Proposal is assumed to primarily occur in the rest of Australia.

Table 12-8 Projected cumulative change in real income

Location	Real income		
	Total (2017 to 2041)	Net present value	
		4%	7%
	2016 A\$m	2016 A\$m	2016 A\$m
Local region	475	295	220
Rest of NT	-35	-10	-0
Rest of Australia	2,950	1,615	1,090
Total NT	440	285	220
Australia	3,390	1,900	1,310

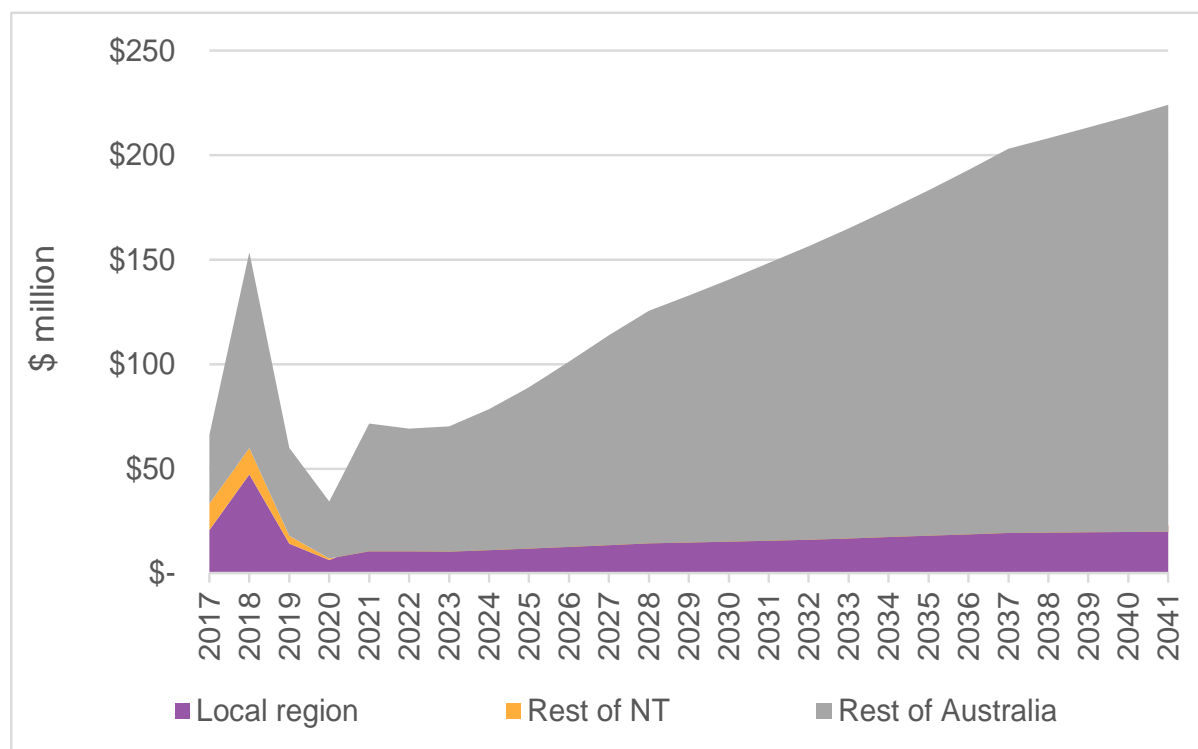


Figure 12-16 Contribution to real incomes



12.4.5 Job creation

Construction and operation of the Proposal would result in both direct and indirect employment. Direct employment is the number of workers directly employed by the Proposal. Indirect employment is the number of workers employed as a result of additional spending in the local economy by the Proposal.

Direct employment

Over the construction period it is expected that 1,299 full time equivalent workers would be employed. At peak construction there would be a full time equivalent workforce of around 720 workers (refer to Section 12.4.2). Around 477 workers (or 37 % of the construction workforce) would be sourced from the local region. In total, about 940 workers (or 72 % of the construction workforce) would be sourced from the NT (including the local region) and the remaining 360 workers (or 28 % of the construction workforce) would be sourced from the rest of Australia.

During steady state operations it is expected that 150 full time equivalent workers would be employed at the proposed Chandler Facility and Apirnta Facility (refer to Section 12.4.2). Ninety jobs (or around 60% of the operational workforce) would be sourced from the local region. In total, it is expected that nearly 128 workers (85% of the operational workforce) would be sourced from the NT and the remaining 22 workers (15% of the operational workforce) would be sourced from the rest of Australia.

Total (direct and indirect) employment

Just over 5,400 full time equivalent job years would be created over the life of the Proposal, an average of 217 full time equivalent job years per annum (refer to Table 12-9).

The Proposal would deliver long term job creation in Australia, particularly in the NT where most of the job creation would be realised. An estimated 3,600 full time equivalent job years would be created in the NT over the life of the Proposal. This is equivalent to an average of 146 full time equivalent job years per annum. Around 2,600 of these or an average of 100 per year would be located in the local region. This equates to 30 % of the current number of unemployed people in the Alice Springs Local Government Area or 18 % of the unemployed people in the local region (refer to Table 12-9 and Figure 12-17).



Table 12-9 Direct and indirect job creation (construction and operation)

Location	Total (2017-2041)	Annual average (2017-2041)
Local region	2,596	104
Rest of NT	1,072	43
Total NT	3,665	71
Australia	5,430	217

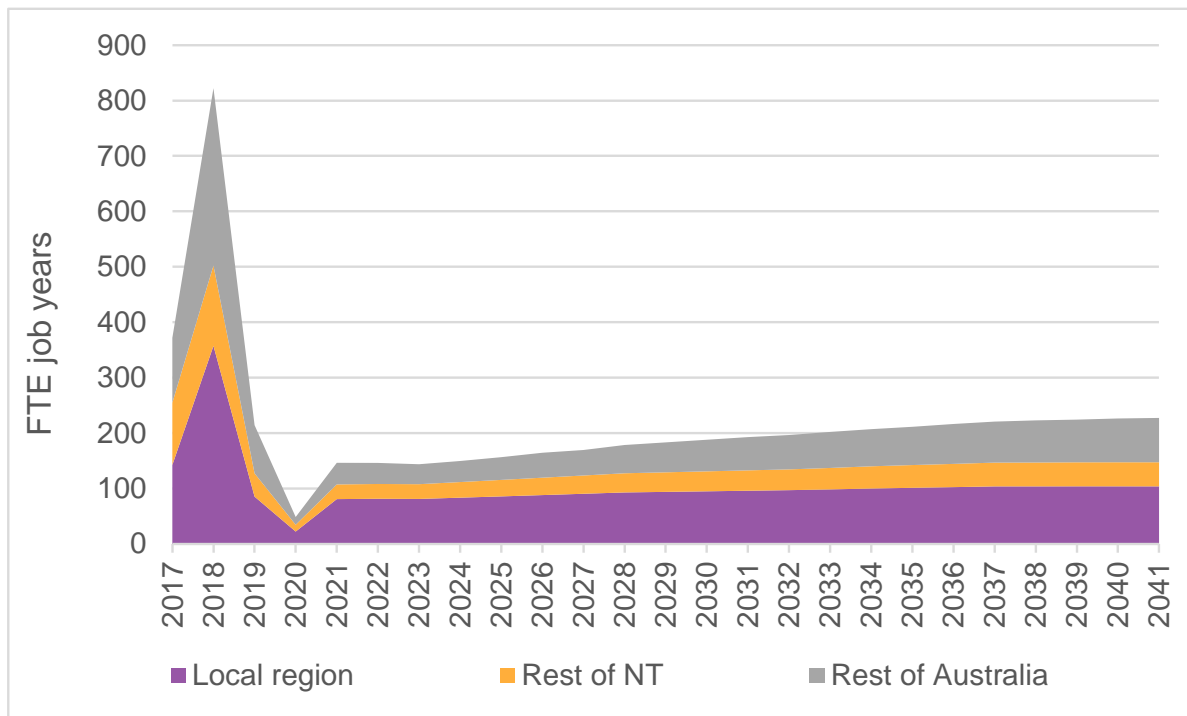


Figure 12-17 Employment creation (construction and operation)

12.4.6 Contribution to government revenue

Over \$165 million in wages would be paid during the four years of construction of the Proposal. Just over \$540 million in wages in Australia would be paid over the life of the Proposal. Assuming no deductions, these payments would result in estimated payroll taxation payments to the NT Government during the construction and operation of the Proposal in the order of \$29 million or an average of just over \$1.1 million in each year of the modelled life of the Proposal.

Almost \$1.9 billion in direct and indirect taxation would be paid over the life of the Proposal (or an average of around \$75 million each year over 25 years). The majority of this taxation would be in the form of company taxes paid by the proponent as well as other personal and company income taxes paid to the Federal Government (refer to Table 12-10).

In total, the NT is likely to receive \$34 million in payroll taxes as a result of direct and indirect state revenues from the Proposal, or an average of \$1.4 million per annum (refer to Table 12-10).



Table 12-10 Cumulative projected change in real government tax revenues, relative to the reference case (A\$ Million)

Item	Total (2017 – 2041)	Net Present Value 4%	Net Present Value 7%
Proposal company taxes	\$902	\$455	\$266
NT payroll taxes	\$34	\$22	\$16
Other taxes on income	\$599	\$358	\$242
Other taxes	\$344	\$207	\$141
TOTAL	\$1,879	\$1,041	\$664

12.4.7 Opportunities for regional centres

There would be a significant contribution to regional development that would result during construction and operation of the Proposal. These contributions are summarised below.

Business development

The proponent has made a commitment to support businesses in the local region and in the NT. Examples of the types of local businesses that could be involved during the construction stage include earthmoving and civil engineering companies, trades such as electricians, plumbers and gas fitters, caterers, suppliers of fresh food and household consumables. Local businesses would also have the opportunity to enter into long term agreements to provide goods and services during operation of the Proposal. These would include those businesses that provide cleaning, maintenance, catering, grading, electrical, plumbing and other services.

Local job creation

The proponent has committed to an ongoing target of reducing fly-in-fly out work practices and encouraging drive-in-drive-out work practices from Alice Springs and the surrounding area. This commitment would result in the creation of direct employment opportunities for people living in the local region. In addition, indirect employment would be created via spending in the local economy by the Proposal.

As discussed in Section 12.4.5, around 37% of the construction workforce would be sourced from the local region and during steady state operations it is expected that around 60% of the operational workforce would be sourced from the local region. This is equivalent to around \$61 million per annum in wages in construction and \$24 million per annum in wages during steady state operations. It also represents significant opportunities for local job seekers in terms of the skills required in construction and operation. In construction, there would be a large requirement for labourers which would allow local job seekers access to fairly long term, low skilled employment. The operational phase would require a higher level of skills which would have a number of benefits including assisting in attracting skilled workers to the area, providing employment opportunities for skilled job seekers already living in the area, and providing opportunities for local people to upskill. Further detail regarding employment and training is provided in Section 12.4.8.

Population retention

Job creation is expected to increase employment in the local region by an average of 100 full time equivalent years per annum over the life of the Proposal (refer to Section 12.4.5 and Table 12-9).



This increase in employment could result in new people moving to the area in the form of workers and their immediate families. It is likely that this population would reside in the Alice Springs Local Government Area which currently has a population of 28,667 and is experiencing population growth of around -0.2% per annum with forecast population growth expected to remain low (NT Government 2015).

Local content estimates for employment and purchases

During construction, there would be a high local content with an estimated 67 % of all construction costs to be spent in Australia. This is equivalent to \$436 million of spending in Australia during the four years of construction. Around \$231 million or 36 % of the total construction cost would be spent in the NT and 18 % of the total construction cost would be spent in the local region. In the local region, \$118 million would be spent during the four years of construction of which nearly \$73 million would be spent in 2018, the peak construction year.

During operation, \$1.2 billion or 64% of the total operation spend (including labour) would be spent in Australia. A total of 52% of the total cost to operate the Proposal would be spent in the NT and 32% would be spent in the local region. This is equivalent to spending in Australia of over \$1.2 billion over the 25 years of the Proposal including just over \$1 billion in the NT. Of this, over \$600 million would be spent in the local region (an average of \$24 million per annum) with the majority of that expenditure expected to be spent in Alice Springs.

Opportunities for indigenous participation

The proponent has committed to sponsorship of sporting and academic programs in the nearby community of Titjikala.

Land use agreements are currently under negotiation with the government and with the Central Land Council. It is anticipated that the land use agreements would generate a range of potential opportunities for businesses in the local region and in the NT in the areas of agribusiness, tourism and conservation including ranger services and cultural and traditional tourism ventures.

There would also be financial commitments to local Aboriginal groups under the *Native Title Act 1993*.

12.4.8 Employment and training

The expected direct and indirect jobs created during construction and operation of the Proposal is discussed in Section 12.4.2 and Section 12.4.5. This section presents the occupational classification of workers that would be directly employed by the Proposal. Indigenous employment, training and the expected level of overseas employment is also discussed.

Occupational classification of workforce

The occupational classification of workers that would be directly hired during construction and operation of the Proposal is provided in Figure 12-18. The most common occupations that would be directly employed during construction include labourers, and technicians and trades workers. Together these two occupations would employ 70 % of the construction workforce, a total of



900 workers. The high share of labourer occupations will be important as they would allow less skilled job seekers access to employment opportunities over a relatively long construction period.

During operation, the required occupations would have a higher skill level than during construction. The most common occupation would be machinery operators and drivers who would account for around 45 % of the workforce, or 70 of the 160 required workers.

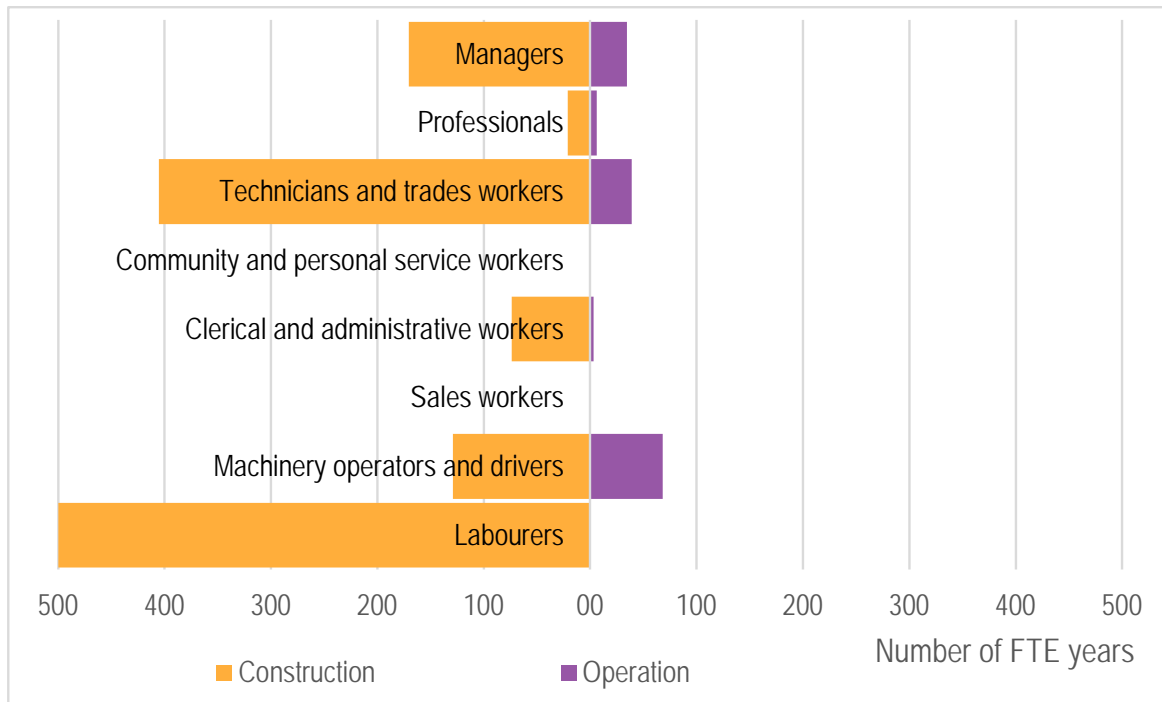


Figure 12-18 Occupational classification of direct workforce

Indigenous employment

The proponent has set a target of 10% indigenous employment sourced from the local region during construction and operation of the Proposal. This is equivalent to an average of around nine indigenous workers in each year of construction and 10 in operation.

Training

Training would be provided for employees in order to provide them with the skills to work in a safe and productive way during the construction and operational phases of the Proposal. This training would focus on trade-related skills, as well as on skills required by the general workforce such as driver training, cultural awareness, occupational health and safety and so on.

Overseas recruitment

The proponent would not actively seek employees from overseas for the construction or operational phases of the Proposal.



12.4.9 Residual infrastructure

Infrastructure that could be used by third parties once the Proposal has reached the end of its operational life include the Chandler Haul Road and Henbury Access Road. The roads would be made available to pastoralists post closure and rehabilitation of the Chandler Facility and Apirnta Facility.

Sections of the existing Maryvale Road would be upgraded as part of the Proposal. These upgrades would benefit users (primarily tourists and local residents) during operation of the Proposal. These upgrades would also benefit users beyond the end of the operational life of the Proposal.

12.4.10 Population

As discussed in Section 12.4.7, job creation is expected to increase employment in the local region. This increase in employment could result in new people moving to the area in the form of workers and their immediate families. It is likely that this population would reside in the Alice Springs Local Government Area. This conclusion is a result of a number of factors including the high level of social and economic services and infrastructure available in Alice Springs and its relative proximity to the Proposal.

Alice Springs currently has a population of 28,667 and is experiencing population growth of around -0.2% per annum with forecast population growth expected to remain low (NT Government 2015). This has resulted in a favourable private housing market which is currently characterised by affordable and available rental and sales properties. Together, these factors make Alice Springs an attractive and affordable place to relocate to.

It is possible that some population would also seek to move to the communities of Santa Teresa, Finke and Titjikala. It is likely that in this event, these people would be Aboriginal people who are returning to country to take up employment opportunities that arise as a direct and indirect result of the Proposal. Given that Titjikala is the closest of these communities to the proposed Chandler Facility, it is reasonable to expect that most people would move to this community, however, family links and other demands may influence potential workers to move to other communities (Santa Teresa and Finke). The likelihood of this occurring is not expected to be great.

12.4.11 Community health and well-being

There would be a positive contribution to community health and well-being (in the form of education and training, business opportunities, and health benefits) that would result during construction and operation of the Proposal. These contributions are summarised below.

Education and training

As discussed in Section 12.4.8, the proponent has set a target of 10% indigenous employment sourced from the local region during construction and operation of the Proposal. This is equivalent to an average of around nine indigenous workers in each year of construction and 10 in operation. This commitment would ensure that, where possible, local people are employed particularly those from the nearby communities of Santa Teresa, Finke and Titjikala where employment opportunities are limited due to their remote locations. This commitment would allow local people to gain skills from education, training and work experience, thereby improving their employment prospects.



The proponent has committed to the sponsorship of academic programs in the nearby community of Titjikala. This would also assist local people in gaining education and employment opportunities.

Business opportunities

As discussed in Section 12.4.7, land use agreements are currently under negotiation with the government and with the Central Land Council. It is anticipated that the land use agreements would generate a range of potential opportunities for businesses in the local region and in the NT in the areas of agribusiness, tourism and conservation including ranger services and cultural and traditional tourism ventures.

Health impacts

There would be health benefits associated with the sponsorship of sporting programs in the nearby community of Titjikala. In addition, long term employment and business opportunities would provide for greater certainty for those people wishing to engage which would have positive mental health and well-being benefits.

There is the potential for road safety issues associated with increased vehicle movements on shared roads as a result of vehicles accessing the proposed Apirnta Facility and Chandler Facility during construction of the Proposal. During operation, a private access and haul road (the Henbury Access Road and Chandler Haul Road) would be used to access the Apirnta Facility and Chandler Facility. These impacts would be mitigated and managed through workplace education programs and through a Traffic Management Plan that would be incorporated into the CEMP, OEMP and RCP for the Proposal.

12.4.12 Culture and way of life

The Southern Arrernte or Pertame people are the Traditional Owners of the land on which the proposed Chandler Facility is located. These Traditional Owners mainly live in the community of Titjikala as well as in Alice Springs and in remote outstations. In addition, there are large populations of Aboriginal people living in the nearby remote communities of Finke and Santa Teresa. There are very few visitors to the area apart from tourists and visitors to Maryvale Station.

There would be very little disruption to the culture and way of life of visitors to the area. There would be some minor impacts from increased vehicle movements along shared roads which would create impacts in the form of increased road safety risks. There would also be some change to the visual landscape of the area in the form of the construction of the proposed Chandler Facility and its ancillary infrastructure (the proposed Apirnta Facility and the Chandler Haul Road and Henbury Access Road). Visual impacts are discussed in Chapter 17.

Remaining on-country

Employment and business opportunities created by the Proposal and its flow on impacts would assist in allowing Traditional Owners and other Aboriginal people to remain on country or to relocate back to country. This would allow the culture and way of life of these people to continue.



Vehicle movements

There would be some disruption to the culture and way of life of the Traditional Owners of the land on which the proposed Chandler Facility would be located and to the people living in the communities of Finke, Santa Teresa and Titjikala. These impacts would result from increased vehicle movements along shared roads and the construction of the Chandler Facility and its ancillary infrastructure (the proposed Apirnta Facility, Henbury Access Road and Chandler Haul Road). The proponent has been in consultation with Traditional Owners since 2012 in order to minimise disruption during construction, operation and closure and rehabilitation of the Proposal.

Sensitive areas

In consultation with the Traditional Owners, several sensitive areas have been identified which have designated as cultural heritage exclusion zones within the vicinity of the proposed Chandler Facility. These areas (and their exclusion zones) have been cleared with the Central Land Council. These areas would be avoided during construction, operation, and closure and rehabilitation of the Proposal.

Further discussion of cultural heritage is provided in Chapter 10.

12.4.13 Social infrastructure and services

The impact on social infrastructure and services such as health, emergency services and housing in the local region has been assessed as a result of the direct impact of the Proposal. It is predicted that the majority of impacts on social infrastructure from the Proposal would be realised in Alice Springs. The impact on the social services and infrastructure in Alice Springs is predicted to be minimal given the capacity of the social infrastructure in the town. These impacts are discussed below.

Health services

Medical personnel would be stationed within the accommodation village in the area of the proposed Chandler Facility. In the event that staff require further medical assistance, they would be transported by road to Alice Springs Hospital or evacuated by the Royal Flying Doctor Service. Medical facilities in the towns of Santa Teresa, Finke and Titjikala would not be used during construction, operation, or closure and rehabilitation of the Proposal.

Emergency services

Emergency response facilities would be established on-site to enable an appropriate, fast response in the event of an emergency such as a fire or hazardous spill. These facilities would include emergency communication devices, firefighting equipment and spill clean-up equipment. An emergency phone system would also be established. The system would be independent of power and communications systems in order to remain functional in the unlikely event of a breakdown. The emergency response facilities would be situated at both at the proposed Chandler Facility and Apirnta Facility.

The Chandler Haul Road would also be appropriately designed to allow for light aircraft (operated by the Royal Flying Doctors Service) to land on-site in the event of a medical emergency. The section of



road would be designed to relevant standards for remote airstrips, including those specified by the Royal Flying Doctors Service.

Given the above, it is unlikely that outside emergency services would be required at the proposed Apirnta Facility or the Chandler Facility. However, the closest emergency services that may be required for assistance in the event of an emergency situation are those located in Alice Springs.

Housing market

If there is an increase in the population of Alice Springs as people move to the town to take up work opportunities created by the Proposal, there could be some pressure in the availability and affordability in the private housing market within the Alice Springs Local Government Area. This situation could result in some tenants being displaced from the private housing market which would put further stress on the public housing market. This probability is expected to be low as the situation in the current private housing market suggests that there would be little impact of the Proposal on the availability and affordability of private housing unless there is a cumulative impact from other developments. Cumulative impacts are discussed in Chapter 19.

Whilst no official statistics are available regarding the housing market in Santa Teresa, Finke and Titjikala, the Central Land Council noted that housing in remote areas governed by the Council is a key issue for people living in these communities because of critical shortages and overcrowding problems. Any increase in population in these communities is, therefore, likely to add to housing stress.

12.5 Assessment of impacts during closure and rehabilitation

Closure and rehabilitation would require the employment of people in specialist areas of mine closure and rehabilitation. While this would see a reduction in employment numbers, the long term annuity of employment over the 25 plus years operating life is considered to outweigh any impact of jobs being reduced to meet the requirements during closure and rehabilitation of the Proposal.

12.6 Assessment of risk during construction, operation and closure and rehabilitation

There are a number of economic and social benefits that would be created by the direct and indirect spending in the local region required during construction and operation of the Proposal. These benefits have been described in detail in Section 12.4 and in Appendix U.

It is possible that the proposed level of spending in the local region would not be able to be achieved in the event that goods and services, including labour, is not available. In this case, goods and services would have to be purchased from elsewhere and the social and economic benefits highlighted herein may not be fully realised. This risk, however, is considered to be low. The local region includes the town of Alice Springs which is the key population and service centre in central Australia. It is a modern town with a good level of social infrastructure and it supports a large population. It also supports a large number of business which service the local population and the surrounding region including the construction industry and the resources sector. The high level of



social and economic infrastructure and experience in the construction industry and the mining sector would indicate that the town is well equipped to provide the goods and services, including labour, required for construction and operation of the Proposal.

Alice Springs should be able to absorb an increase in demand for goods and services even if other developments come online at the same or similar times as the Proposal (refer to Chapter 19). Furthermore, the tight labour market in the town could result in additional people moving to Alice Springs to take up job opportunities offered by the Proposal and other proposed developments which would serve to boost the economy of Alice Springs.

12.7 Mitigation and monitoring

Mitigation and management measures proposed to minimise economic and social impacts are listed in Table 12-11. These measures would be incorporated into a CEMP, OEMP and/or RCP for the Proposal. A draft Social Impact Management Plan has also been prepared for the Proposal (refer to Appendix U).

Table 12-11 Mitigation and management measures (economic and social)

ID	Outcome	Mitigation/management measure	Timing
ES.1	Management of expectations and maintenance of good working relationship with stakeholders.	Continue to engage in stakeholder consultation to inform stakeholders of forced or unpredicted delays. In particular, work with the NT Chamber of Commerce, the NT Government and the Industry Capability Network through the progression of the Proposal.	Pre-construction and construction
ES.2	High local content during construction and operation	Commit to spending in the local region. Spending would directly benefit local businesses and their employees. It would also indirectly benefit other businesses in the local region through the spending on goods and services by these businesses.	Construction and operation
ES.3	Direct employment opportunities during construction and operation	Commit to local employment. Provide opportunities to gain experience in construction and also long term work experience during operation.	Construction and operation
ES.4	Creation of opportunities for indigenous people from the local region to gain long term employment in a new industry	Set target of 10% indigenous employment from the local region during construction and operation.	Construction and operation
ES.5	Creation of opportunities for employment of local people as well as indirect opportunities from flow on impacts	Commit to local employment. This would increase job creation within the local region and NT.	Construction and operation
ES.6	Creation of large economic flow on impact from the Proposal. Some drawing of resources away from the rest of the local region and NT.	Commit to spending and employment in the local region. This would increase the economic value created in the local region and in the NT.	Construction and operation
ES.7	Increase in the ability of local people to purchase goods and	Commit to local employment.	Construction and operation



ID	Outcome	Mitigation/management measure	Timing
	services and to accumulate wealth.		
ES.8	Boost to payroll taxation in the NT	Commit to local employment. This would increase revenue from payroll taxation.	Construction and operation, and closure and rehabilitation
ES.9	Minimisation of stress on housing market (however there would be a low risk of impacting this market).	Commit to maximise the use of drive in – drive out employment over fly in – fly out employment which may encourage additional population to Alice Springs.	Construction and operation, and closure and rehabilitation
ES.10	Increased demand for goods and services through direct and indirect spending in the local region and NT.	Commit to local spending and employment as well as commit to ongoing consultation with local business organisations and government to maximise benefit to NT.	Construction and operation, and closure and rehabilitation
ES.11	Opportunities for new and existing businesses (e.g. agribusiness, tourism and conservation including ranger services and cultural and traditional tourism ventures) to support the Proposal	Execute land use agreements with relevant parties. Land use agreements would generate a range of potential business opportunities for businesses in the local region and in the NT.	Pre-construction
ES.12	Opportunities for education and training of local people, in addition to new business opportunities for local businesses involved in the education and training sector	Develop a Workforce Management Plan. Measures included in the plan would include a commitment to conduct training for employees in the local region and to also source training providers from the local region.	Pre-construction
ES.13	Benefits to local road users including tourists from residual road infrastructure (including the Henbury Access Road, Chandler Haul Road and upgrades to Maryvale Road)	Ensure Henbury Access Road and Chandler Haul Road are made available to pastoralists post closure and rehabilitation of the Proposal.	Closure and rehabilitation
ES.14	Positive health and education impacts within the local region	Commit to the sponsorship of sporting and academic programs within the community of Titjikala.	Construction and operation, and closure and rehabilitation
ES.15	Reduced impacts from increased vehicle movements on Maryvale Road, Chambers Pillar Road, Stuart Highway	Commit to workplace programs regarding road safety and develop and implement a Traffic Management Plan.	Pre-construction, construction and operation, and closure and rehabilitation
ES.16	Protection of culturally important sites	Maintain and respect cultural heritage exclusion zones. Continue consultation with Traditional Owners and nearby residents throughout the life of the Proposal.	Construction and operation, and closure and rehabilitation
ES.17	Some interaction between workers and local residents possible, but unlikely.	House workers in accommodation village. Maintain strict workplace regulations which minimise interaction	Construction and operation, and closure and rehabilitation



ID	Outcome	Mitigation/management measure	Timing
		with local residents and promote responsible behaviour.	

12.8 Summary of risk assessment

A summary of the risk assessment undertaken for economic and social during construction, operation, and closure and rehabilitation of the Proposal is provided in Table 12-12.

Table 12-12 Summary of risk assessment (economic and social)

Hazard	Pre-mitigated risk			Post-mitigated risks			Risk outcome
	Likelihood	Consequence	Risk ranking	Likelihood	Consequence	Risk ranking	
Community acceptance of the Proposal (Titjikala)	Possible	Major	High	Remote	Moderate	Low	Risk reduced
Community acceptance of the Proposal (Alice Springs)	Likely	Major	High	Unlikely	Moderate	Medium	Risk reduced
Regional acceptance of the Proposal (NT/Australia)	Unlikely	Major	Medium	Remote	Moderate	Low	Risk reduced
Not mining salt (no product export)	Eliminated	Insignificant	Eliminated	Eliminated	Insignificant	Eliminated	Risk same
Not mining salt (no product local)	Eliminated	Insignificant	Eliminated	Eliminated	Insignificant	Eliminated	Risk same
Not mining salt (tourism)	Eliminated	Insignificant	Eliminated	Eliminated	Insignificant	Eliminated	Risk same
Not mining salt (employment)	Eliminated	Insignificant	Eliminated	Eliminated	Insignificant	Eliminated	Risk same
Not mining salt (royalties)	Eliminated	Insignificant	Eliminated	Eliminated	Insignificant	Eliminated	Risk same
Employment opportunities - construction	Almost certain	Major	Extreme (beneficial opportunity)	Almost certain	Major	Extreme (beneficial opportunity)	Risk same
Employment opportunities - operations	Almost certain	Major	Extreme (beneficial opportunity)	Almost certain	Major	Extreme (beneficial opportunity)	Risk same
Employment opportunities - ancillary employment	Almost certain	Moderate	High (beneficial opportunity)	Almost certain	Major	Extreme (beneficial opportunity)	Risk improved



12.9 Conclusion

There would be a significant benefit to the economy of the local region, the NT and to the economy of Australia as a result of the Proposal. There would also be significant social benefits associated with the Proposal.

The capital expenditure is estimated to be around \$676 million for the Proposal. The construction period would have a high local content - around 67 % of all construction costs would be spent in Australia (36 % spent in the NT). Over the construction period it is expected that 1,299 full time equivalent workers would be employed (all sourced from within Australia). Around 477 workers (or 37% of the construction workforce) would be sourced from the local region. In total, about 940 workers (or 72% of the construction workforce) would be sourced from the NT (including the local region) and the remaining 360 workers (or 28% of the construction workforce) would be sourced from the rest of Australia.

Operation would occur concurrently with construction. On average, there would be spending of just under \$81 million per annum to operate the Proposal. Of this, 64 % would be spent in Australia (a total of 52 % would be spent in the NT, 32 % of which would be spent in the local region).

The local region would benefit significantly from the Proposal. Around \$118 million of capital expenditure would be spent in the region during construction and an average of \$26 million per annum in operation. Local employment would receive a boost with 477 construction workers sourced from the region and an average of 90 full time equivalent workers per annum in operation.

The gross domestic product of Australia would rise by about \$4.1 billion or an average of \$166 million each year over the life of the Proposal. Most of this impact would be realised in the NT (the majority of which in the local region). About \$3.6 billion (or an average of \$144 million per year) would be added to the gross state product of the NT over the life of the Proposal. This would result in a significant annual contribution to the gross state product of the NT and is equivalent to around 0.6% of the current gross state product of \$23.1 billion.

Almost \$3.4 billion would be contributed to the real incomes of Australians over the life of the Proposal. This includes an increase of \$441 million to real incomes in the NT. The contribution to the local region would be higher at \$476 million for the life of the Proposal.

Job creation would be significant. Over the construction period it is expected that 1,299 full time equivalent workers would be employed. During steady state operations it is expected that 150 full time equivalent workers would be employed by the Proposal. Just over 5,400 full time equivalent job years would be created over the life of the Proposal, an average of 217 full time equivalent job years per annum. The Proposal would deliver long term job creation in Australia, particularly in the NT where most of the job creation would be realised. An estimated 3,665 full time equivalent job years would be created in the NT over the life of the Proposal. This is equivalent to an average of 71 full time equivalent job years per annum.

Almost \$1.9 billion in direct and indirect taxation would be paid over the life of the Proposal (or an average of around \$75 million each year). The majority of this taxation would be in the form of company taxes paid by the proponent as well as other personal and company income taxes paid to



the Federal Government. In total, the NT is likely to receive \$34 million in payroll taxes as a result of direct and indirect state revenues from the Proposal, or an average of \$1.4 million per annum.

In addition to the modelled economic benefits, there would be other social benefits (particularly to the local region) during construction and operation of the Proposal. These benefits include the creation of new employment opportunities for local job seekers and new business opportunities for businesses wishing to support the Proposal. These opportunities would assist in retaining and attracting people to the local region and particularly to the town of Alice Springs. This would aid in addressing the current population decline in the local region and in Alice Springs.

Indigenous people would have a number of opportunities as a result of the Proposal. The proponent has set a target of 10% indigenous employment as well as other commitments that would benefit local indigenous people such as the sponsorship of sporting and academic programs in the nearby community of Titjikala. Land use agreements are currently under negotiation with the government and with the Central Land Council. It is anticipated that the land use agreements would generate a range of potential opportunities for businesses in the local region and in the NT in the areas of agribusiness, tourism and conservation including ranger services and cultural and traditional tourism ventures. There would also be financial commitments to local Aboriginal groups under the *Native Title Act 1993*.