20

Economics

20.1 Introduction

This chapter describes the range of potential positive and negative economic impacts of the proposed expansion of EAW on the community in the Darwin region, and presents the management controls proposed to reduce negative impacts and optimise the opportunities presented by the Project.

20.1.1 Objectives

As outlined in the Guidelines (NRETAS, 2009), the requirements of the economic assessment were to describe and evaluate the following:

- Baseline (existing environment)
  - Discuss the current local, regional, state and national economic viability (including economic base and economic activity, future economic opportunities and contribution to the NT economy).
- Potential impacts
  - Present a summary of the project's impact and significance on the local/regional/territory/national economies.
  - Describe the proposal's contribution to development of the industry sector.
  - Describe how the proposal will contribute to or detract from indigenous and / or regional economic development, and opportunities for employment and skills development. Highlight any specific local or indigenous businesses that could engage with the project. Include targets for levels of local and indigenous employment and any training programs that would be in place.
  - Indicate any specific regional or Indigenous groups who might be advantaged or disadvantaged.
  - Consider the effects of disturbance to existing land use, potential impacts to specific regional industries and threats to the surrounding environment such as the harbour, coastline and mangroves that may impact on current and future commercial activities.
  - Describe opportunities available to regional centres / communities based on the activity generated by the project, highlight synergies for regional industries, and the availability of the facilities and associated services to existing and potential customers.
- Safeguards, management & monitoring
  - Detail measures to minimise potential adverse impacts identified and maximise the beneficial impacts.
  - An industry participation plan (IPP) may be required for this project and this need should be identified in the DEIS.

Other considerations indicated in the Guidelines (NRETAS 2009), relevant to the economic assessment, was that the DEIS should:

- Contain a comparative analysis of the objectives, benefits, costs and justification for the project. This analysis must account for the impact on environmental values.
- Provide an estimate of the workforce numbers expected during the construction and operation phases.
- Consider alternatives to the proposed development, such as not proceeding with the proposal.

- Be undertaken with specific emphasis on identification, analysis and treatment of risks through a whole-of-project risk assessment. Through this process, the DEIS will:
  - acknowledge and discuss the full range of risks presented by proposed actions including those of special concern to the public
  - quantify (where possible) and rank risks so that the reasons for proposed management responses are clear
  - acknowledge levels of uncertainty about estimates of risk and the effectiveness of risk controls
  - extend risk assessment to problems in realising benefits, and
  - discuss the residual risks and their consequences expected to be borne by the community, providing better understanding of equity issues.

20.1.2 Assumptions

To undertake the above tasks a number of assumptions and necessary inputs were identified. These included having sufficient information describing the project design, construction activities, and operational activities, including:

- description of construction and operation workforce management plans (location, numbers, etc)
- description of potential operational activities, potential second round effects of development on economy, approaches to Indigenous employment and training, etc
- public domain data (ABS), Government information and strategies in respect, employment statistics, etc
- regional multipliers for determination of economic impacts for NT, and
- social and environmental data from other Stage 1 modules to be available for inclusion in the economic assessment.

It is noted that this DEIS is based on a concept design, and contracts for the ultimate project are not yet let. Detail design information is thus unavailable, including on final costings, workforce requirements and construction timing, which has constrained the economic assessment.

20.2 Baseline Economic Conditions

20.2.1 Current Facilities

The EAW is a multi-user berth designed to handle commodity ore exports, livestock exports, petroleum imports and bulk liquids, containerised import and export cargoes, specialised cargoes for the oil drilling industry in the Timor Sea, and general and heavy lift cargoes. Facilities include:

- 754 m of continuous quay line, 600 m of land backed berth and 154 m plus mooring dolphin for a bulk liquids berth with a vessel design capacity of 80,000 dwt
- a bulk materials handling facility with a capacity of up to 2,000 t/h which includes a travelling gantry shiploader, stockpile reclamation and stockpile conveyors
- a 1,500 t/h rail dump which has capacity to handle 25 ore trains per week
- a road dump which uses triple-side tippers direct from the stockpiles at a rate of one truck every three minutes
- onsite dry bulk transit shed with reefer storage
- 18 ha of sealed hardstand, plus a further 70 ha for future reclamation
- 70 t capacity heavy lift container crane

- quarantine and customs services including quarantine waste collection and disposal
- a berth that caters for Panamax Class and third generation container vessels and currently handles general cargoes, live cattle exports, liquids and dry bulk, containerised / breakbulk and specialised heavy lift cargoes, plus offshore rig tender service vessels
- a 16 m wide 2.5 km railway access causeway linking the Adelaide to Darwin railway and national rail network to an intermodal container facility, and
- biofuel and sulphuric acid handling facilities (DPC, undated).

20.2.2 Operating Volumes

Total trade volume across the Corporation's facilities for 2009/10 increased by 21% from 802,894 t in 2008/09 to a record 4,577,532 t in 2009/10. Total trade since 2006/07 has increased by 3,116,368 t, or on average 71% per year across the EAW.

The major components of this increase are in dry bulk. A record for the number of trading vessels visiting the Port of Darwin was reached in 2009/10, totalling 1642 vessels. This was a 13% increase on the previous year. Since 2006/07 trading vessel visits to the Port of Darwin have grown on average 31% per annum (DPC, 2010).

The volume of total cargo passing though Darwin Ports is indicated in Figure 20-1, which highlights the rate of increase since 2006/07. Table 20-1 shows the volume by type, and indicates the dominance of dry bulk products which pass through the EAW facility.

In terms of export, dry bulk volumes increased by 817,024 t or 37% in 2009/10 over the previous year to reach a record 3,023,581 t. The key product increases were in iron ore, manganese and copper concentrates. Dry bulk exports have now increased for the 8th year in a row (DPC, 2010).

Source: DPC, 2010

Figure 20-1 Darwin Ports – Total Cargo Trade 2009/10 (Tonnes)

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Table 20-1 Darwin Ports – Cargo by Type 2009/10

Cargo	Total traded (tonnes)
Livestock	177,159
Foodstuffs	4,710
Building Supplies	11,118
Livestock Feed	14,541
Beverages	25,837
Dry Bulk	3,163,787
Metal Waste	17,792
Petroleum	821,152
Chemicals	181,084
Paper	3,049
Timber	231
Metal Products	26,810
0Machinery & Equipment	38,005
Motor Vehicles and Parts	10,927
Glass	752
Other	80,578
Total	4,577,532

Source: DPC, 2010

20.2.3 Demand for East Arm Port Services

Darwin is growing as an export port, currently for NT mines and potentially in the future for several SA mines (ACIL Tasman, 2009). Mining, including petroleum, contributes almost a quarter of the economic activity in the NT. Industry investment and production have expanded rapidly in recent years, and are forecast to grow further during the next decade.

The increasing value of exports from the NT is demonstrated by Figure 20-2 and Figure 20-3. The free on board (FOB) value of NT exports since 1988 is shown by Figure 20-2. This chart indicates a long term rising trend in the value of products. Figure 20-3, which shows the value of exports at current prices, indicates a real value peak in 2001 but with increases again since 2006. These data show the value, not the volume of exports. These figures highlight the value of the expanding NT economy and the need to provide capacity to facilitate that expansion.

The ACIL Tasman (2009) report describes a growth scenario which is based on proposed (as at 2009) minerals developments in the Darwin region and those likely to utilise Darwin as an export hub:

- Expansion of mining from current mineral projects over current rates, including iron ore, manganese, base metals, gold and uranium.
- Commencement of new minerals developments, including base metals, uranium, rare earths, iron ore, gold and phosphate.
- Commencement of rare earths processing near Darwin from ores mined near Alice Springs.
- Commencement of phosphate production at Wonarah east of Tennant Creek.

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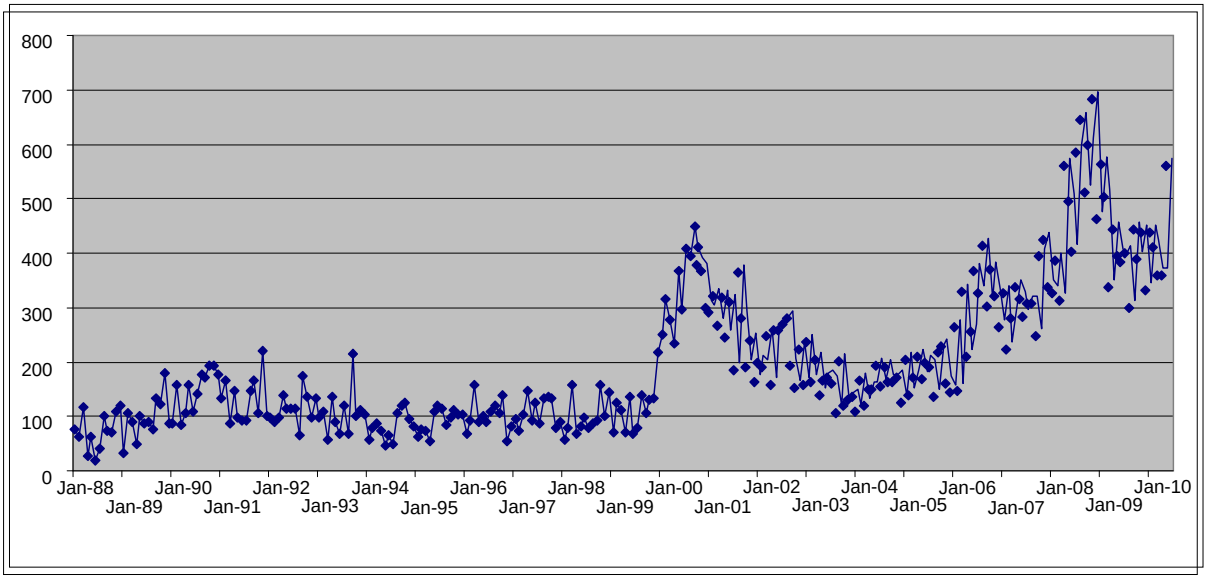
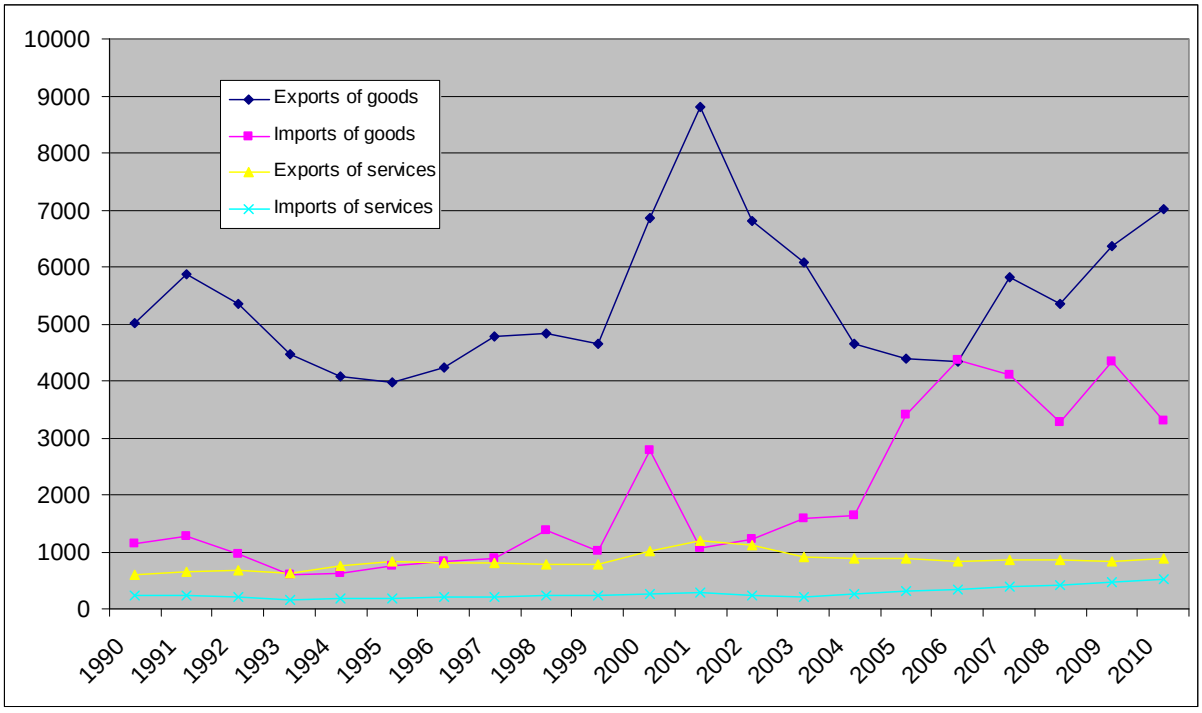
Strong growth of bulk exports through the Port of Darwin in the form of iron ore, manganese, base metal concentrates and phosphate.



Source ABS (2010a)

Figure 20-2 FOB Value of NT Exports ($million)



Source ABS (2010b)

Figure 20-3 Components of Gross State Product, Northern Territory, at current prices ($million)

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The ACIL Tasman (2009) report describes a growth scenario which is based on proposed (as at 2009) minerals developments in the Darwin region and those likely to utilise Darwin as a service and export hub. The described growth scenario assumed:

- expansion of mining from current mineral projects over current rates, including iron ore, manganese, base metals, gold and uranium
- commencement of new minerals developments, including base metals, uranium, rare earths, iron ore, gold and phosphate
- commencement of rare earths processing near Darwin from ores mined near Alice Springs
- commencement of phosphate production at Wonarah east of Tennant Creek, and
- strong growth of bulk exports through the Port of Darwin in the form of iron ore, manganese, base metal concentrates and phosphate.

Given those outcomes, total mineral tonnages being shipped by road and rail and through the Port of Darwin could reach 10 Mt/a (ACIL Tasman, 2009). This is some three times greater than the dry bulk tonnages handled in the 2009/10 year. If infrastructure capacity is not expanded then this will constrain these potential developments.

20.2.4 Integration with Rail

The Adelaide to Darwin railway was completed in 2004. The Adelaide to Darwin railway is a key facility for the transport of mineral products both from the Darwin region and from as far away as SA. The operator began rail transport operations with five freight services a week capturing 85% of the competitive interstate freight market within three months of starting up. The line now carries 90% of the general freight between Adelaide and Darwin, and has four minerals projects as bulk freight clients (ACIL Tasman, 2009).

There are currently about 50 train movements per week (25 north bound and 25 southbound) to the terminal (see Table 20-2). Out of these 20 each way movements, 17 are carrying bulk minerals for exporting via EAW. Note the five trains carrying copper concentrate come up on the back of the normal freight train or even the Ghan if required (pers. comm. Matthew Phillips, DPC) (Note: Truck movements are not recorded by DPC).

The DPC (undated) Factsheet Number 2 states that the existing rail facility has a 1,500 t/h rail dump, which has capacity to handle 25 ore trains per week. At rates of increase in bulk mineral exports that have been demonstrated over recent years, an increase from 17 to the capacity of 25 trains per week might be realised.

Table 20-2 Train Movements Carrying Bulk Minerals to EAW

Train Movement Data	Iron ore	Manganese Concentrate	Copper Concentrate
Trains / week	8	4	5
Trains in 2009/10	401	197	312
Average wagons / train	78	72	70
Average freight / wagon (t)	72	65	11.9
Average freight / train (t)	5,616	4,680	833
Average freight / week (t)	44,928	18,720	4,165
Total bulk mineral rail freight 09/10 (t)	**1,949,588**	**840,878**	**259,896**

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Source: pers. comm., Matthew Phillips, DPC

The Adelaide-Darwin railway has acted as a catalyst for the development of the resources sector throughout the NT and SA by offering an alternative cost effective way to move large quantities of bulk ore and materials for shipment to overseas markets (ACIL Tasman, 2009). The ACIL Tasman (2009) report describes key resource operations which use, or could potentially use, the railway to export though EAW, including:

- OM Holdings Ltd (OMH) which operates the Bootu Creek manganese mine, located 110 km north of Tennant Creek. OMH was the first mine to enter into a contract to haul manganese concentrate by rail from the Bootu Creek operation to the Port of Darwin and is expected to produce more than 550,000 t/a of ore.
- Territory Resources Ltd's Frances Creek mine near Pine Creek commenced operations in July 2007, with rail carrying iron ore to the Port of Darwin bulk minerals discharge facility at the rate of about 750,000 t/a. Territory Resources aims to build shipments to 2 Mt/a.
- OZ Minerals transports copper concentrate by rail from its Prominent Hill mine, south-east of Coober Pedy, to the Port of Darwin, which commenced in 2009. Approximately 240,000 t of concentrate is shipped annually.
- Minemakers were conducting a feasibility study into the development of the Wonarah phosphate resource east of Tennant Creek. Production rates were projected at 1 Mt/a from 2010 building up to 3 Mt/a by 2011. It was expected that initial transport would be by road to Tennant Creek, then by rail to the Port of Darwin. A study was undertaken to assess the feasibility of a Wonarah – Tennant Creek rail link, which would be required at production rates of more than 3 Mt/a.

Other companies with proposed mining operations in NT and SA are also in discussion with Port of Darwin about rail shipments and export through this port. For example the Olympic Dam DEIS (BHP Billiton 2009) indicates export of concentrates from the EAW area. Thus the volume of minerals exported through the EAW facilities is expected to continue to increase,

Table 20-3 shows potential mining operations which could use rail to move their product to the Port of Darwin. Volumes of mineral products that are expected to be shipped by rail will be a major factor in improving the viability of the railway operations.

Table 20-3 Potential for Rail / East Arm Port to Support Mining Operations

Company	Project	Location	Product
Territory Iron	Frances Creek	Pine Creek	Iron ore
OM Holdings	Bootu Creek	Tennant Creek	Manganese concentrate
Territory Iron	Warrego	Tennant Creek	Magnetite
Peko Rehab	Peko Tailings	Tennant Creek	Magnetite
Arafura Resources	Nolans Bore	Alice Springs	Rare earths
Olympia Resources	Harts Range	Alice Springs	Garnet sands
Altona Resources	Arkaringa	Arkaringa SA	Coal
Goldstream	Cairn Hill	Coober Pedy SA	Magnetite/copper
Goldstream	Peculiar Knob	Coober Pedy SA	Iron ore
BHP Billiton	Olympic Dam	Roxby Downs SA	Copper concentrate

Source: ACIL Tasman, 2009

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The railway is currently operating below capacity (ACIL Tasman, 2009). If minerals projects in SA proceed with existing plans to export their production out of Darwin, some additions to rail infrastructure would be necessary. Similarly, the potential development of the Mount Isa to Tennant Creek rail link may have implications for the volume of traffic on the railway into Darwin and necessitate infrastructure upgrades (ACIL Tasman, 2009).

20.2.5 Demand Projections

AECOM (2010) provided estimates of demand for port services against different commodity price scenarios for mining and oil and gas to estimate low, medium and high demand scenarios. The projected demand volumes are shown in Table 20-4.

20.2.6 Operational Capacity to Meet Increased Demand

The data in Table 20-4 suggest increasing use of Darwin Port facilities, but do not provide specific information on operating efficiency or detailed information on how demand for services (other than rail handling facilities) relates to current capacity of the existing facilities at EAW.

The ACIL Tasman (2009) report suggests the port bulk handling facilities will be inadequate for increased volumes above 2.5 Mt/a. This is less than the low scenario projection in the AECOM (2010) report.

As noted in Section 1, the EAW facility was originally designed and constructed as a general cargo container and bulk liquids port. However, bulk solids have turned out to be the major driver for expansion. This is emphasised by the addition of a bulk loader and the development of a first stage minerals stockpile area. Forecast berth utilisation rates indicate the need to expand port infrastructure (DPC, 2010).

The use of the current rail line to the EAW precinct is nearing capacity, and additional capacity is limited by the exiting layout. As noted in Chapter 2, the current layout is a ‘one way in-out’ design. This restricts the ability of rail cars to trains to manoeuvre within the EAW precinct, and also restricts the number of trains which can enter the precinct and be loaded / unloaded at any given time.

The above factors are key drivers in the need for upgrade of the rail and wharf facilities at EAW.

20.2.7 Proposed Project

To facilitate trade growth and local and regional economic development, a Masterplan was prepared for managing land and sea-based activities at EAW to the year 2030 (GHD, 2009). The opening of the Adelaide to Darwin railway in 2004 increased the demands on the EAW for export of bulk minerals. Increased storage area requirements have led to the decrease in available space for traditional cargoes. In addition, further berth space is required for the increased throughput as trade increases.

The DPC, LDC and DLP are managing the staged expansion of EAW. As detailed in Chapter 2, the proposed expansion of EAW broadly comprises four separate developments within the EAW precinct. The scope of this DEIS includes the four main developments, along with required works associated with these developments. The four main proposed developments within the scope of this EIS are:

- Barge ramp and hardstand area.
- Marine supply base.
- Rail loop spur.

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- Tug and small vessel berths.

The objective of the proposed expansion is to facilitate efficient operation of the port into the future. The objectives and desired benefits of the four development components are:

Table 20-4 Mining and LNG Export Scenarios

Mining Project	Low Case	Medium Case	High Case
Direct Shipping Ore (DSO) & Beneficiated Iron Ore			
Territory Resources (existing)	Remain at 2.3 Mt/a to 2012	Remain at 2.3 Mt/a to 2013	Remain at 2.3 Mt/a to 2014
Batavia Mining (high grade)	Ramp up from 2014 to 5 Mt/a in 2016-30	Ramp up from 2013 to 5 Mt/a in 2015-30	
Western Desert Resources (high grade)	Ramp-up from 2012 to 2 Mt/a in 2017-21	Ramp-up from 2012 to 2 Mt/a in 2017-24	Ramp-up from 2011 to 3 Mt/a in 2013-21
Magnetite Tailings			
Aard Metals	Ramp up from 2016 to 0.6 Mt/a in 2017-21		Ramp up from 2012 to 0.6 Mt/a in 2013-17
Peko Rehabilitation	Never	0.25 Mt/a in 2015-21	0.25 Mt/a in 2012-18
Phosphate Rock			
Minemakers	Never	Ramp up from 2016 to 3 Mt/a in 2020-30	Ramp up from 2016 to 3 Mt/a in 2019 to 5 Mt/a in 2022 and 7 Mt/a in 2030
FSL Phosphate	Never	2 Mt/a in 2021-30	
Copper Concentrate			
BHP Billiton	Never	1.85 Mt/a 2017-30	
Oz Minerals (existing)	50% of tonnage through Port of Darwin (0.12 Mt/a)		100% of tonnage through Port of Darwin (0.24 Mt/a)
Manganese			
OM Manganese (existing)	Increase to 1 Mt/a in 2011-30		
Total Bulk Dry Solid Exports	Increase from 5 Mt/a in 2012 to 6 Mt/a in 2020-30	Increase from 5Mt/a in 2012 to 10Mt/a in 2020 and 15 Mt/a in 2030	Increase from 6 Mt/a in 2012 to 11 Mt/a in 2020 and 17 Mt/a in 2030
Gas Field			
Bayu-Undan (existing)	3.2 Mt/a to 2012		
Icthys	Never	8.4 Mt/a to 2016-30	
Barossa-Caldita	Never		Ramp up from 1.75 Mt/a in 2018 to 3.5 Mt/a in 2019-30
Greater Sunrise	Never		
Total LNG Exports	Remain at 3.2Mt/a to 2030	Increase from 3.2Mt/a in 2012 to 12Mt/a in 2020-30	Increase from 3.2 Mt/a in 2012 to 15 Mt/a in 2020-30

Source: AECOM, 2010

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Barge Ramp and Hardstand Area

The need for a barge ramp, suitable for both military and civilian use, and operable 24/7, was identified by the current EAW Masterplan (GHD, 2009). Land use in the vicinity of the Fort Hill wharf precludes 24/7 operations. The proposed barge ramp facility at EAW will also include a hardstand area that will be suitable for temporary storage of loads and limited maintenance of vessels using the facility.

Marine Supply Base

The construction and operation of the proposed marine supply base is considered a strategically important development for the NT. The lack of such a facility constrains the forecast growth of the offshore oil and gas industry. If the support industry cannot be run efficiently from Darwin, it is possible that a competitor country could develop a more efficient industry base and detract from the NT's and Australia's future growth opportunities to support for the offshore oil and gas industry.

Rail Loop

The Adelaide-Darwin railway provides both freight and passenger transport services. The passenger service (the 'Ghan') runs twice a week, and Darwin-Adelaide freight services operate six times per week. In addition to Adelaide-Darwin freight, 25 bulk trains also operate per week between various mine sites and the Port of Darwin (Genesee & Wyoming, 2010). Export volumes are expected to increase and efficient operation of the railway, including loading / unloading of carriages, is a critical element of supporting this growth.

Use of the current rail line to the EAW precinct is nearing capacity, and (as noted above) additional capacity is limited by the exiting a 'one way in-out' layout which restricts manoeuvrability within the EAW precinct, and the number of trains that can be loaded / unloaded at any given time. The proposed rail loop will provide additional standing and manoeuvring space for trains and will incorporate an additional rail dump facility adjacent to the existing facility, significantly increasing dry bulk unloading speeds – two trains will be able to unload dry bulk concurrently.

Tug and Small Vessel Berths

There are currently dedicated berths for two tug boats at EAW and there is no room for additional tug boats, which are required to deal with the growing volume of traffic using EAW. The proposed quay line extension will provide dedicated, sheltered berths for tug boats and various other smaller vessels.

The expanded mooring area is proposed to accommodate up to 13 tugs (35 m length, 10.6 m beam and 6 m draft), and nine smaller vessels (DPC pilot boats, security boats, work boat, NT Police vessels). There will also be sufficient space to berth up to two customs boats (60 m length, 11 m beam and 3 m draft) as required.

As noted previously, the layout in Figure 2-3 and description in Section 2.1.4 is concept only, as the contracts for the ultimate project are not yet let. Detail design information is thus unavailable, including on final costings, workforce requirements and construction timing,

20.3 Potential Impacts - Economic

Economic impacts are usually described for construction and operational phases of a project. The potential economic impacts of this project might be classified as follows:

- Investment cost of the project.
- Disruption to port services, local community and businesses - short term disruptions to existing port services during construction, and such as traffic impacts, and cross sectoral competition for labour.
- Short and long term environmental and social costs caused during construction, and operation of the facility.
- Port operational efficiency gains – reduced per unit operating costs, and reduced berthing times that might come with improved infrastructure and operating systems.
- Port capacity gains – increased port revenues that come with increased capacity and throughput.
- Macro effects on the NT economy – short and long term.

Each impact should be considered against the do nothing option – the consequences of not proceeding with the project. The level of each effect is considered using the current port operations as the benchmark. As discussed in Chapter 3, there are not multiple options for the EAW development. This assessment compares the project description described in this report against the outcomes arising from the current port operations and capacity.

Project Cost

At this stage the design and investment cost of the overall project is uncertain, as contracts for the construction of the proposed facilities have not yet been let. Direct employment during construction and operation has not yet been confirmed, although it is expected that employment during construction would be about 200, and during operation about an additional 20.

Disruption to Port Services, Local Community And Businesses

Impacts to existing port services during the construction phase can be managed but there may be some additional costs from doing so. It is expected that these costs will be minimal. Aggregate impacts on the local community and businesses during construction have yet to be determined.

Short and Long Term Environmental and Social Costs

Environmental and social impacts are addressed in other sections of this DEIS.

Port Operational Efficiencies

It is anticipated that expansion activities proposed for EAW will improve operational efficiency as well as its capacity. There may be some internal cost savings per unity of cargo handled. This will provide an economic benefit to the Port and potentially to its customers in the long term. The rail loop will be expected to provide greatest improvement in capacity and also in operational efficiencies, reflected in reduced costs and turnaround times.

Port Capacity Gains

When the final designs are available for each of the four main project components, it would be possible to show more accurate capacity gains against each major cargo classification, and where any constraints to development have been released.

20.3.2 Macro Effects of Port Operation and on the NT Economy

Three studies were available to provide some indication of economic impact or net benefit of the proposed EAW expansion. AECOM (2010) provides a business case assessment for increasing port capability in land-based infrastructure and channel access to provide for potential increases in exports of dry bulk minerals through the port and in exports of LNG from processing plants located in Darwin.

ACIL Tasman (2010a) is a benefit-cost analysis of the MSB component of the EAW expansion, and the ACIL Tasman (2010b) report provides an assessment of the economic impacts of this component.

AECOM (2010) provides estimates of demand for services against different commodity price scenarios for mining, oil, and gas. The prices and corresponding low, medium and high demand scenarios were then interpreted against port operating volumes and changes and flow-on effects on the NT economy.

The financial modelling was undertaken for a particular staged development which may or may not be directly comparable to current options. The AECOM (2010) analysis suggested that:

- "Option 3B is financially viable at $4.00/t wharfage in the Low and High cases, and at $4.60/t wharfage in the Medium case. The internal rates of return (IRRs) at these wharfage rates are calculated at 19% (Low case), 11% (Medium case) and 12% (High case).
- The results in the Medium and High cases are sensitive to project capital cost increases, with a 20% increase reducing net present values (NPVs) to negative. For financial viability in this situation, the wharfage rate would have to increase from $4.60/t to $5.40/t (Medium case) and from $4.00/t to $4.20/t (High case).
- The results in the Medium case are sensitive to the inclusion in Stage 2 of a new train unloader and out loading conveyor circuit, with NPV becoming negative. For financial viability, the wharfage rate would have to increase from $4.60/t to $5.20/t.
- The current wharfage charges for bulk minerals are in the range $2.50-$3.50/t (these rates exclude the cost of trucking from stockpiles to the truck dump station and Berth 2 feed conveyor, likely to be around $1.00/t)."

The AECOM (2010) report suggests mine development facilitated by the port expansion will create flow-on economic impacts in the NT in terms of "additional value added, employment, household income (through wages and salaries) and taxation (royalty payments and payroll tax)". The report suggests that these effects will to contribute to the NT economy over 20 years up to an additional:

- $8.4 billion of value added (in present value terms). This represents an annual value of $765 million, which is equivalent to about 4.7% of NT Gross State Product for 2008-09 ($16.3 billion).
- $1.7 billion of household income (in present value terms) through the payment of wages and salaries over the 20 year analysis period, representing an annual value of $156 million. This represents about 1.8% of estimated household income for NT (based on gross household income per head of $38,433 and population of 227,000 persons).

- $1.4 billion in payments of royalties and payroll tax to the NT Government, representing an annual value of $129 million. This represents about 34% of payments of royalties and payroll tax budgeted for 2010-11.
- 370 jobs (full-time equivalent) in 2015, representing about 0.3% of estimated total current full-time equivalent jobs in NT (based on 96,045 full-time jobs and 23,218 part-time jobs).

The benefit-cost analysis of the MSB (ACIL Tasman, 2010a) assessed:

- net revenues from the MSB
- increases in port revenues
- increases in land sales, and
- improved manufacturing outcomes.

ACIL Tasman (2010a) recognises that a MSB would expand on services already provided by EAW and to some extent reflects a transfer of services to allow increased capacity from other infrastructure and enable a better focus on the key growth business of minerals exports. The report suggests the MSB, and the business it is expected to enable, is likely to stimulate demand for industrial land in and around Darwin.

The ACIL Tasman (2010b) report analyses the potential economic impacts associated with the construction and operation of a new dedicated MSB in Darwin. It first assesses additional NT local content generated from the offshore petroleum sector as a result of the MSB. The report then examines macroeconomic impacts of the MSB's construction and operation.

For this analysis, ACIL Tasman used a computable general equilibrium (CGE) model to estimate the impacts of the construction and operation activities associated with the MSB.

The construction phase of the MSB is shown to provide a larger boost to real income since the investment is increasing the demand for NT goods and services used in the construction of MSB which results in an improvement in the NT's teams of trade.

This report suggests that “as well as creating additional long term employment in the NT economy (and most likely in the Darwin region), the construction of the MSB in Darwin will generate a substantial number of short-term jobs”. In addition to the direct jobs generated on-site, the construction and operation phases will “require significant quantities of NT sourced goods and services. Production of these inputs will further increase the demand for labour across the NT economy”.

20.3.3 Risk Assessment

The key risks to delivering positive economic benefits will arise primarily from construction cost overruns and from changing commodity prices. Demand for increased utilisation of the EAW is expected to continue with increasing demand for mineral, oil and gas exports. These demands are subject to international economic forces.

The AECOM (2010) report suggests the financial modelling to show a positive net financial return to be sensitive to capital cost increases with a 20% increase reducing the net value to negative. In this event, increases in wharfage charges would be necessary to maintain a net positive value.

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