DBCT Master Plan 2019

Expansion Opportunities at the Dalrymple Bay Coal Terminal

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1 Executive Summary

In the 10 years since commissioning the last expansion of DBCT to 85 Mtpa in 2009, throughput has steadily increased, despite the GFC and the low coal prices which signalled the end of the commodities super-cycle. For most of that time, significant headroom existed between capacity and throughput, with demand for capacity being cyclic during this period. However, since late 2016, as a result of high global steel production and persistent disruptions to global metallurgical coal supply, the price of hard coking coal (**HCC**) has been above US$140/mt FOB. This improved outlook contributed to high turnover in coal tenements and a sustained increase in demand for capacity at DBCT, resulting in a number of new Access Agreements to service both new and existing metallurgical coal mine developments. Consequently, the headroom between capacity and throughput is expected to rapidly diminish over the next three years, putting pressure on the supply chain to deliver the capacity that is contracted and to respond to increased demand.

DBCTM is obliged by the Port Services Agreement (**PSA**) and the Access Undertaking (**AU**) to accommodate the actual and reasonably anticipated future demand for the use of DBCT's Users and access seekers. Accordingly, DBCTM has continued to plan post-85 Mtpa expansions to maximise DBCT's nameplate capacity to meet foreseeable demand.

While metallurgical coal demand growth is occurring and widely anticipated to continue, the timing of demand for expansions has historically proven difficult to forecast. The next wave of mine development is expected to be approached in a more measured way than during the previous commodities super-cycle. This measured approach will increasingly lead to a demand for incremental expansion capacity. This Master Plan builds on the previous two Master Plans to outline an incremental expansion pathway for DBCT while recognising the regulatory hurdles that need to be cleared prior to commencing any development works.

1.1 DBCT Background (Chapter 2)

Chapter 2 reviews DBCTM's involvement in the terminal and describes the asset in terms of land use and geographical location, including a brief history of the terminal and the progression to DBCT's current configuration. Various elements of DBCT's operations are discussed, including a description of the major plant, machinery and infrastructure that comprise the terminal to deliver contracted capacity. The region encompassing the terminal and the land leases that make up the terminal footprint are outlined for ease of reference.

The chapter also deals with the Master Planning process and DBCTM's alignment with the Whole of System Master Planning function of the Integrated Logistics Company (**ILC**). The regulatory framework is outlined in detail in this chapter, as is the current contractual position of the terminal.

Further, Chapter 2 briefly summarises the Access Regime in place for DBCT and highlights recent changes to the Access Undertaking which has introduced some additional hurdles to further development at DBCT.

1.2 Current Operations (Chapter 3)

This chapter provides an overview of the current operations of DBCT including cargo assembly and hybrid stockpiling, an overview of the remnant zone, and a summary of the independent capacity modelling results.

Additional topics addressed in this chapter include the impact of service provision, including non-common blending ratios, breakdowns, maintenance and smaller vessels that can all erode terminal and supply chain capacity.

1.3 Future Supply and Demand (Chapter 4)

This chapter assesses global demand and supply prospects in the context of triggering further expansions at DBCT. Previous forecasts, based on leading industry analysis have been unreliable, due to a range of factors including the global financial crisis and more recently, changes in Chinese government policy and the volatility of global coal markets.

DBCTM expects stability in demand from the usual importing regions including Japan and South Korea, continued high demand from China, while India and South-East Asia drive further growth for coal handled by DBCT.

Competing supply regions do pose a threat to DBCT's demand, particularly Mozambican and Indian domestic coal production, however these regions are not expected to materially impact the long-term growth of coal production in the Bowen Basin. Continuing demand out of the Bowen Basin is expected to drive demand for expansion capacity at DBCT and other coal terminals. While there is no way to reliably predict the timing of expansions, DBCTM has developed this Master Plan with the intent of having a clearly outlined development pathway that can be triggered when demand exceeds available capacity.

1.4 DBCT Expansion Options (Chapter 5)

This chapter outlines the proposed expansion pathway for DBCT. The expansion pathway has changed since Master Plan 2018 with the introduction of a new expansion step, shiploader SL4 on Berth 3. Detailed modelling has shown that this new project provides the best outcome from a cost benefit perspective making it a more attractive first step than Zone 4. Shiploader SL4 also provides significant benefit to non-expanding Users of the terminal by reducing future capex replacement costs and eliminating capacity losses associated with existing shiploader upgrades or renewals. It remains DBCTM's view that in addition to the SL4 project, the projects outlined in Master Plan 2018 are still required to satisfy the likely and foreseeable demand. These projects were referred to as Zone 4, 8X and 9X. A new naming convention is introduced in this Master Plan where 8X refers to all 4 expansion steps available to DBCT within the existing footprint and the 9X expansion remains unchanged.

With SL4 as the first step in the expansion pathway the relative attractiveness of each of the subsequent expansion steps changes leading to the Zone 4 project being delayed in the development pathway until the last step within the existing footprint.

The 8X (including SL4 and Zone 4) projects combined expand the current stockyard to its full potential. In previous Master Plans the capacity when the terminal reaches that point was estimated to be 102Mpta. The modelling that underpinned this estimate was not done by the ILC. Instead it was supported by dynamic capacity modelling undertaken by Ausenco and by static modelling by Aurecon and represented the estimated maximum capacity that could be expected from 3 outloading strings. Detailed modelling undertaken by the ILC during the preparation of Master Plan 2019 indicates that the maximum capacity available from the existing footprint at DBCT is limited to 97.5Mtpa by reclaim constraints in the stockyard. Any capacity requirement beyond 97.5 Mtpa would necessitate the development of a new stockyard, supported by a 4th outloading system. Development beyond the existing footprint is referred to as 9X. The relative viability of the expansion steps is explored in this chapter and the additional hurdles introduced by the 2017 Access Undertaking have been reiterated.

1.5 Environment (Chapter 6)

This chapter outlines the pertinent environmental issues relevant to the expansion projects identified.

It aligns with leading practice guidelines and policy settings by the Commonwealth & State Governments by ensuring early consideration of environmental values for development along the coast adjacent to the Great Barrier Reef.

It demonstrates that the preferred expansion options outlined in Chapter 5 are not expected to significantly compromise the anticipated environmental outcomes for terminal operations including existing Environmental Authorities, however advanced engineering work and re-modelling is recommended. Further, the enhancement of port environmental buffers will be a critical 'port-protection' issue for consideration during formal State Master Planning work (currently underway).

1.6 Stakeholder Consultation (Chapter 7)

Chapter 7 details how DBCTM has and will interface with stakeholders in terms of current operations and future expansion of the terminal.

2 Introduction and Background

2.1 Background to DBCT

DBCT was established in 1983 by the Queensland Government as a common user coal export facility. In 2001, the Queensland Government, represented by Ports Corporation of Queensland (**PCQ**, now **NQBP**) and DBCT Holdings P/L, awarded a long-term lease of DBCT (a 50-year term with a 49-year renewal option) to a consortium known as Coal Logistics–North Queensland (CL-NQ). Following a change of ownership in 2009 to Brookfield Infrastructure Partners (**BIP**), DBCTM has held management responsibility for the DBCT assets as the Secondary Lessee. For the purposes of this document, DBCTM represents the leaseholder and related entities responsible for fulfilling the duties related to the DBCT lease, the obligations contained in the Port Services Agreement (**PSA**) and any of the head leasing agreements.

The Port of Hay Point is approximately 38 km south of Mackay and includes two coal terminals - DBCT and Hay Point Coal Terminal (**HPCT**) (Figure 1).

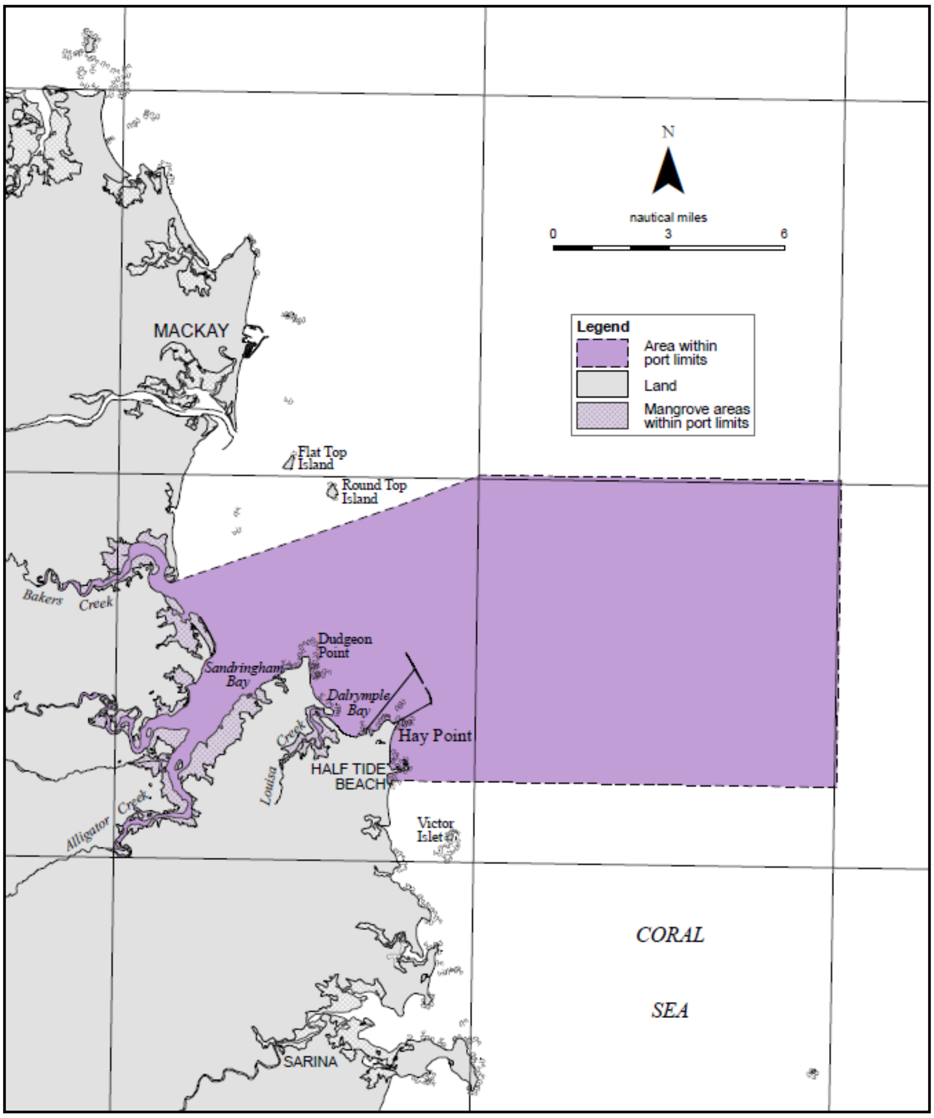

Figure 1: Port of Hay Point Port Limits – (Department Transport and Main Roads, 2013)

The port is administered by North Queensland Bulk Ports (**NQBP**) as the statutory Port Authority and strategic port land owner. The terminals are linked to the Bowen Basin coalfields (Figure 2) by the electrified Goonyella rail system operated by Aurizon Network. Figure 3 shows DBCT in the foreground.

Figure 2: Bowen Basin coalfields – (DNRME, 2016)

Figure 3: Port of Hay Point

The daily terminal operations and maintenance activities are undertaken by Dalrymple Bay Coal Terminal Pty Ltd (**DBCT P/L**), a third party service provider owned by a majority of DBCT's Access Holders. Terminal operations and maintenance activities are undertaken by DBCT P/L under an Operation and Maintenance Contract (**OMC**).

Additional information is available from dbctm.com.au and dbct.com.au.

The land use surrounding the port is a mix of agricultural, rural/residential and urban. The residential communities neighbouring DBCT and HPCT (Figure 4) are the communities of Louisa Creek, Half Tide, Timberlands, the Droughtmaster Drive area and Salonika Beach. Responsible and ongoing interaction with these communities is an important element of DBCTM's master planning and development process.

Figure 4: Position of DBCT relative to the local area

2.2 Current Asset Description

2.2.1 Basic Configuration

DBCT's basic configuration can be described as 3 rail receiving stations, a stockyard and 4 offshore berths all connected by a series of conveyor systems. DBCT is situated on approximately 214 hectares of strategic port land and 160 hectares of offshore sea-bed lease, primarily described by the following lots:

- Lot 126 on SP123776
- Lot 130 on SP105841
- Lot 131 on SP136318
- Lot 133 on SP136320
- Lot 134 on SP185573
- Lot 135 on SP185580
- Lot 41/42 on SP136319
- Lot 43 on SP185559
- Lot Part of 132 on SP136318 (Lease C on SP185554 and Lease D on SP185555)

The site stretches for more than 2.38 km from the rail inloading stations to the land side end of the jetty, with the wharves a further 3.8 km offshore. The theoretical standalone terminal capacity is approximately 94Mtpa, making it Queensland's largest standalone coal export terminal. Including the capacity of HPCT (55 Mtpa) the Port of Hay Point is one of the largest bulk export coal ports in the world.

DBCT is a common-user facility, handling a wide variety of coal types from nine coal producers. DBCT handles three commercial coal categories, including coking coal, Pulverised Coal Injection (**PCI**) coal, and thermal coal. Coal types can be further blended from the terminal's stockpiles to create many different "blended" products. The majority of DBCT's exports are shipped on a Free on Board (**FOB**) basis. The customers of DBCT's Users (i.e. the coal buyers) are responsible for organising and paying for sea transport. Coupled with the available stockyard capacity, the high number of products drives a cargo assembly and hybrid operating mode in the terminal.

DBCT uses the following plant and equipment to deliver contracted capacity:

- 3 rail receival stations - 2 x 5,500 tph (IL1 & 2); 1 x 8,100 tph (IL3)
- 4 stackers - 1 x 5,500 tph; 1 x 6,000 tph; 2 x 8,100 tph
- 3 reclaimers – 1 x 4,250 tph; 2 x 5,300 tph
- 5 stacker-reclaimers - stack rates from 4,250 - 5,500 tph and reclaim rates from 3,700– 5,300 tph
- 7.5 stockpile rows, each approximately 1,100 m in length (note that row 8 is a half row). Maximum designed volumetric yard capacity is 2.3 Mt
- 3 outloading systems (OL1, OL2 & OL3) and 3 shiploaders –7,200 tph (SL1); 7,600 tph (SL2); and 8,650 tph (SL3)
- 4 berths capable of receiving cape size vessels
- SL1 serves Berths 1 & 2; SL2 serves Berths 1 & 2; and SL3 serves Berths 3 & 4
- OL1 serves SL1 & SL3; OL2 serves SL2 & SL3; and OL3 serves SL2 & SL3

2.2.2 Inloading

DBCT has 3 inloading stations, feeding 3 inloading conveyor systems which deliver coal to the DBCT stockyard. The inloading stations can accept a number of different train configurations and wagon types from any one of 3 above-rail haulage operators (Pacific National, Aurizon National and BMA Rail). The coal wagons are bottom dump type, with the coal dropping out of the wagons and into the rail receival pits for transfer via inloading conveyor to the stockyard. Any of the inloading stations can feed coal to the stackers or stacker reclaimers in any part of the DBCT stockyard. This configuration gives DBCT's operator ultimate flexibility when planning the location of stockpiles in the DBCT stockyard.

2.2.3 Stockyard

The stockyard (Figure 5) consists of 8 machinery bunds which support 12 yard machines and 7½ stockpile rows. These rows are each divided into three "cells" containing stockpiles (separated by drainage pits). The 12 yard machines include 4 stackers, 3 reclaimers and 5 stacker-reclaimers laid out as per the following diagram:

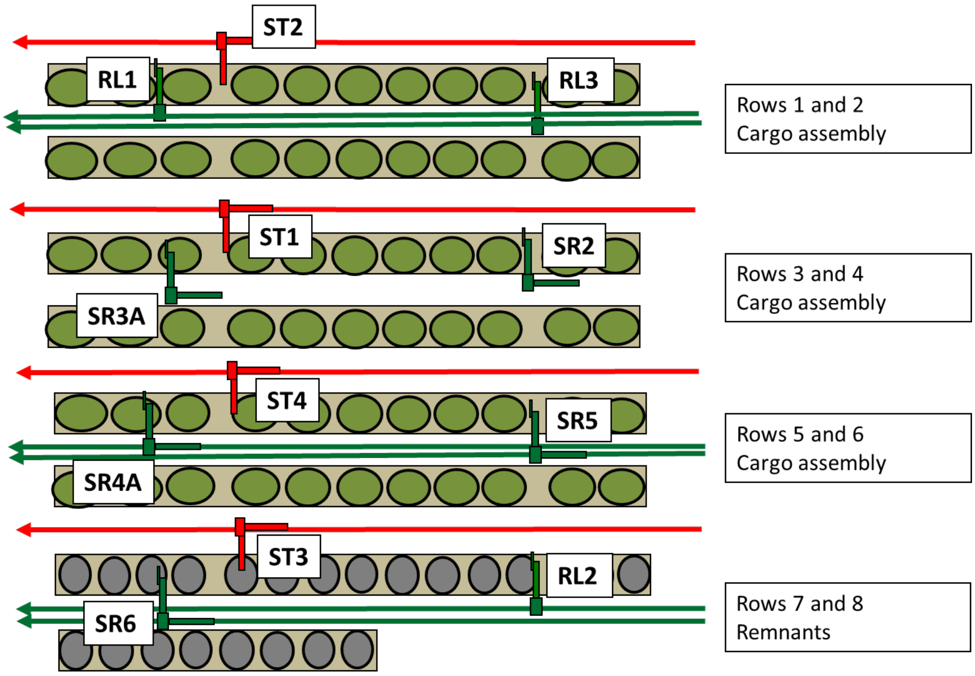

Figure 5: Stockyard layout of DBCT delivering 85 Mtpa – (DBCT Pty Ltd 2016)

The volumetric capacity of each of the stockyard rows is shown in Table 1 below. The actual working capacity of the rows at any time will be determined by the number of stockpiles in each row and their sizes.

	DBCT Stockyard Capacity								
Stockpile Row	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Total
Capacity (m³)	288,782	272,545	290,352	331,663	311,016	385,990	301,221	185,165	2,366,734

Table 1: Stockyard Row Volumes – (DBCT Pty Ltd, 2019)

The stockyard has de-linked inloading and outloading systems, meaning each arriving train can usually be stacked without interrupting or impeding vessel loading activities. The yard configuration and operating strategy maximises outloading performance by making 2 reclaiming machines available to each outloading system. Under normal operating circumstances, 2 reclaiming machines dig from 2 stockpiles simultaneously to complete one loading activity into the vessel. If the product is not a blend, both stockpiles will contain the same product.

Individual yard machine rates are as follows:

	ST1	ST2	ST3	ST4	RL1	RL2	RL3	SR2	SR3A	SR4A	SR5	SR6
Stacking rate	5,500	6,000	8,100	8,100				4,250	5,500	5,500	5,500	5,500
Reclaim rate (set-point)					5,300	5,300	4,250	3,700	5,300	5,300	4,500	4,300
Throughload rate						5,500	4,250	4,250	5,500	5,500	5,500	5,500

Table 2: DBCT yard machine rates – (DBCT Pty Ltd, 2016)

Operationally, the DBCT stockyard is divided into 4 independent zones, which are usually paired with a single outloading system and generally operate under the following configuration:

- Zone 1 includes the southern end of stockyard rows 3, 4, 5 and 6, and normally feeds the first outloading system. Zone 1 is shown in brown in Figure 6.
- Zone 2 includes stockyard rows 1 and 2, and normally feeds the second outloading system. Zone 2 is shown in green in Figure 6.
- Zone 3 includes the northern end of stockyard rows 3, 4, 5 and 6, and normally feeds the high rate third outloading system. Zone 3 is shown in blue in Figure 6.

Zone 4 includes row 7 and the half row 8 (shown in yellow in Figure 6). This zone contains only remnant stockpiles and can feed any of the outloading systems. The remnant zone and strategy is explained in further detail later in this Master Plan (Chapter 3).

Zones 1 to 3 are referred to as the dynamic zone, while Zone 4 is referred to as the static zone.

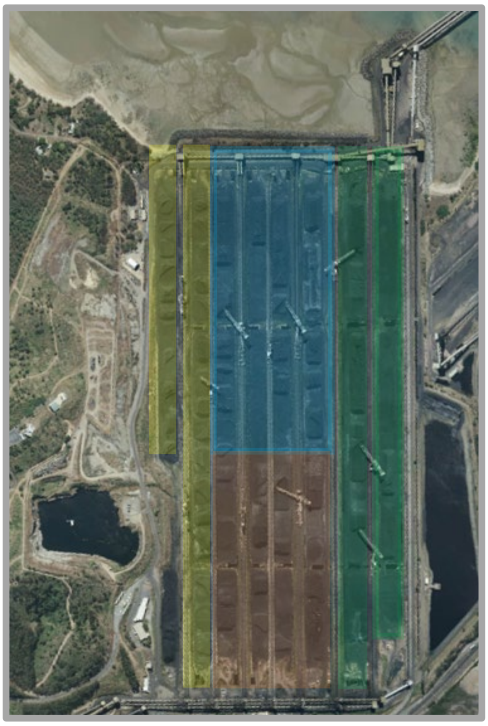

Figure 6: DBCT zonal configuration

2.2.4 Outloading

Each of the outloading conveyor systems is normally paired with a rate-matched shiploader. In this configuration, the pair of reclaiming machines, the outloading conveyor system and the shiploader have matched rates to maximise individual machine utilisation.

From time to time (usually during maintenance outages), the outloading systems can be reconfigured to feed different shiploaders. Generally, the following outloading systems feed the corresponding shiploaders:

- Outloading system OL1 feeds coal to SL1.
- Outloading system OL2 feeds coal to SL2.
- The high-rate outloading system OL3 feeds coal to the high-rate SL3.

SL1 and SL2 are normally dedicated to Berths 1 & 2 respectively with SL3 loading coal into vessels on both Berths 3 & 4.

2.2.5 Water Management Infrastructure

The water management infrastructure on the site is shown in Figure 7 and includes the following:

- An Industrial Dam (ID) with a capacity of 421 ML, which receives all run-off from the stockyard catchment area. The ID contains a series of concrete pits and containment cells designed to detain and remove coal fines that settle out from the stormwater inflows. Coal fines are periodically recovered and shipped from the terminal. A dedicated system of High Flow Transfer Pumps is also located at the ID to transfer incoming stormwater inflows to the Quarry Dam (QD) via an 800 mm pipeline through the stockyard.

The ID is maintained at a low level to maximise the available buffer storage, and to minimise the risk of an uncontrolled stormwater discharge to the local Sandfly Creek area.

- A Quarry Dam (QD) with a capacity of 837 ML, which receives the majority of its stored water as pumped flow from the ID, with only minor site run-off from the small catchment area local to the QD. The QD serves as the primary operational water storage dam at the terminal and has a floating pontoon pump system to transfer operational water to the site as required.
- A Rail Loop Dam (RLD) within the rail loop area that has a capacity 847 ML. It receives no run-off with the majority of its inflow via a gravity fed 800 mm pipeline from the QD during times when excess water is harvested from the ID during sustained heavy rainfall. Transfer pumps can also return water from the RLD through the same pipeline back to the QD in the dry season for operational reuse.
- A Rail Receival Dam (RRD) with a capacity of 22 ML, which stores and recycles the operational return water from the train unloading facilities and the local catchment.
- An additional dam known as Spindler's Dam, with a capacity of 59 ML, which receives runoff from the local catchment between the train unloading facilities and the stockyard that includes the three inloading conveyors. Water can be returned to the stockyard for reuse via a small diesel pump and pipeline system.
- A dedicated 2 ML industrial water storage tank and pump system located at the southern end of the stockyard provides a source of industrial and fire water to the entire site.
- A dedicated 1 ML industrial water storage tank and pump system located at the train unloading facilities to provide a source of moisture addition and dust suppression water to three unloading sheds.
- A Flocculent Plant located near the ID to treat stormwater inflows to the ID to further improve the coal fines sedimentation and recovery process.

Figure 7: Water Management Infrastructure

2.3 Contractual Framework

2.3.1 Requirement for a Master Plan

The Port Services Agreement (**PSA**) requires DBCTM to submit a Master Plan to DBCT Holdings addressing any changes in circumstances, demand, technology or other relevant matters, no later than 31 March each year. Due to the uncertain timing of demand to trigger terminal expansion, there can be long periods where no expansion activity is required. DBCTM has therefore requested an amendment to the PSA to allow it to only submit a Master Plan where DBCTM (acting reasonably) determines that:

i. substantive changes are required to be made to the Master Plan; or

ii. the current Master Plan has been developed to its ultimate extent.

The Master Plan has been drafted to:

i. ensure that DBCT is developed in accordance with Access Seeker applications for terminal capacity, infrastructure planning best practice, principles of environmental sustainability, applicable laws and the balanced interests of its stakeholders;

ii. ensure the PSA requirement for any expansion to be both economic and reasonable is satisfied;

iii. ensure a responsible alignment of supply chain infrastructure based on a cargo assembly/hybrid methodology;

iv. ensure compliance with contractual commitments and statutory obligations for master planning which meet the requirements of the PSA;

v. ensure a continued 'leading practice' approach to port/terminal planning within the coastal zone, particularly within the GBRWHA.

2.3.2 Whole of System Master Planning

The Integrated Logistics Company (**ILC**) produces integrated, 10-year Master Plans (**MP**) for the Goonyella Coal Chain encompassing all mines in the Goonyella and Newlands System:

- The below rail infrastructure and operating methods and principles.
- DBCT infrastructure and operating methods.
- HPCT infrastructure and operating methods (modelled as confidential black box)
- Adani Abbot Point Terminal and operating methods
- Port Channel and vessel movement practices.

To prevent misalignment of infrastructure development, the ILC Master Plans seek to align future supply chain infrastructure expansions across all asset owners and operators by:

i. the development of a common set of inputs and assumptions for the determination of system capacity

ii. the development and maintenance of an integrated full system simulation model, which is used as a tool to assess system capacity and evaluate future capacity requirements, and

iii. aligning and assessing alternative infrastructure expansion options in the Dalrymple Bay Coal Chain

The development and implementation of the ILC MP was part of a longer-term solution to improve the performance of the Goonyella Coal Chain.

To ensure planning alignment within the Goonyella Coal Chain, DBCTM uses the ILC System Capacity Model for its capacity planning purposes. DBCTM has engaged the ILC Master Planning group to model the existing system in addition to various expansion scenarios to quantify capacity benefits and throughput losses during implementation. The modelling results have guided the development of this Master Plan.

The ILC modelling establishes the pre-expansion system capacity as 84.2Mtpa with the current theoretical standalone terminal capacity at 94Mtpa.

2.3.3 Contractual Position

Access to DBCT is contracted in accordance with the Standard Access Agreement (**SAA**) which forms part of the DBCT Access Undertaking. The SAA underpins negotiations between an Access Seeker and DBCTM for contracting capacity at DBCT. In order to secure evergreen five-year extension options, the Access Seeker is required to enter into a minimum 10-year Access Agreement. Within 12 months of the end of the initial term, the Access Holder has an option to nominate up to a five-year extension for all or part of the contract tonnage. Because of this mechanism, the contract expiry profile can at times appear to be imminent and substantial. Historically the majority of expiring contracts have been extended prior to expiry of the extension option. Recently Access Holders have optimised their take-or-pay obligations, leading to some contracts not being extended and additional capacity being made available to Access Seekers. Even so, DBCTM is now currently fully contracted and is unable to satisfy all demand received from Access Seekers. There are also no contract expiries due until 2022 and 2023 (May 2019 contract profile).

The contracted volumes, as at March 2018 and May 2019, are shown in Figure 8 and Figure 9 respectively.

2.3.4 Contractual Position

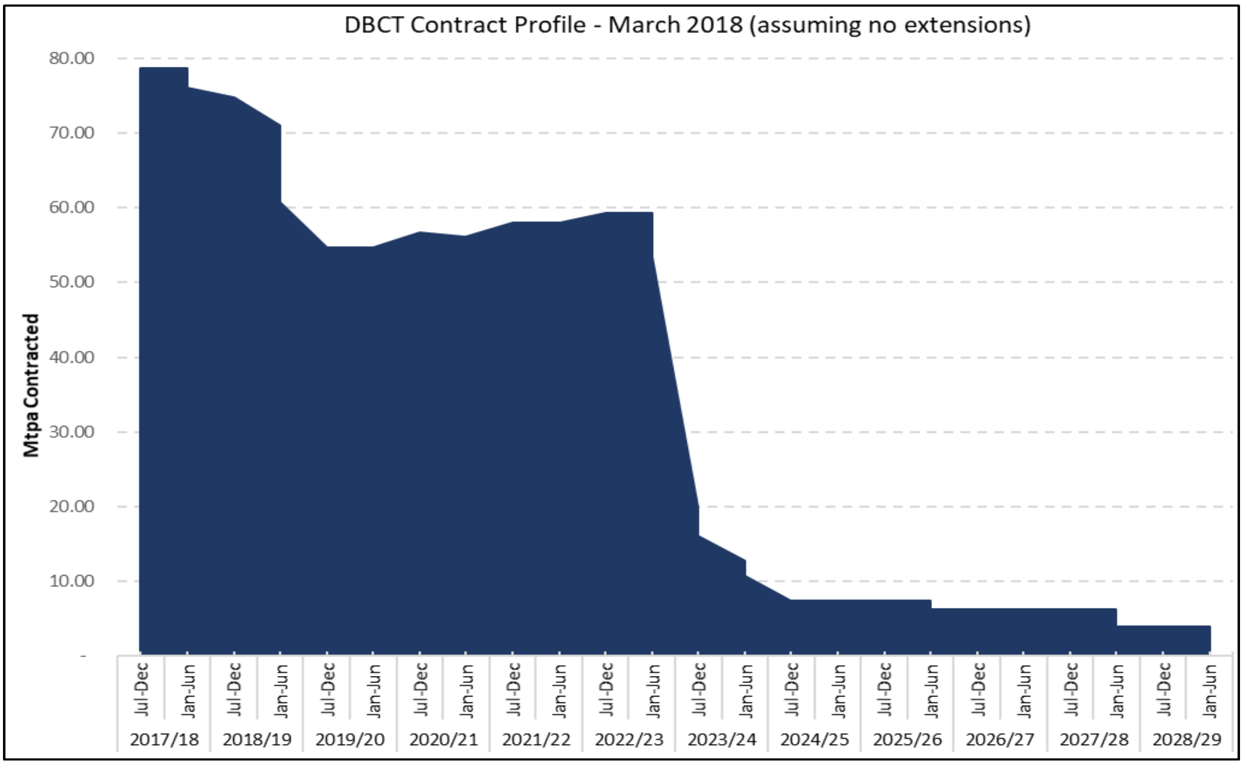

Figure 8: Contractual Position March 2018

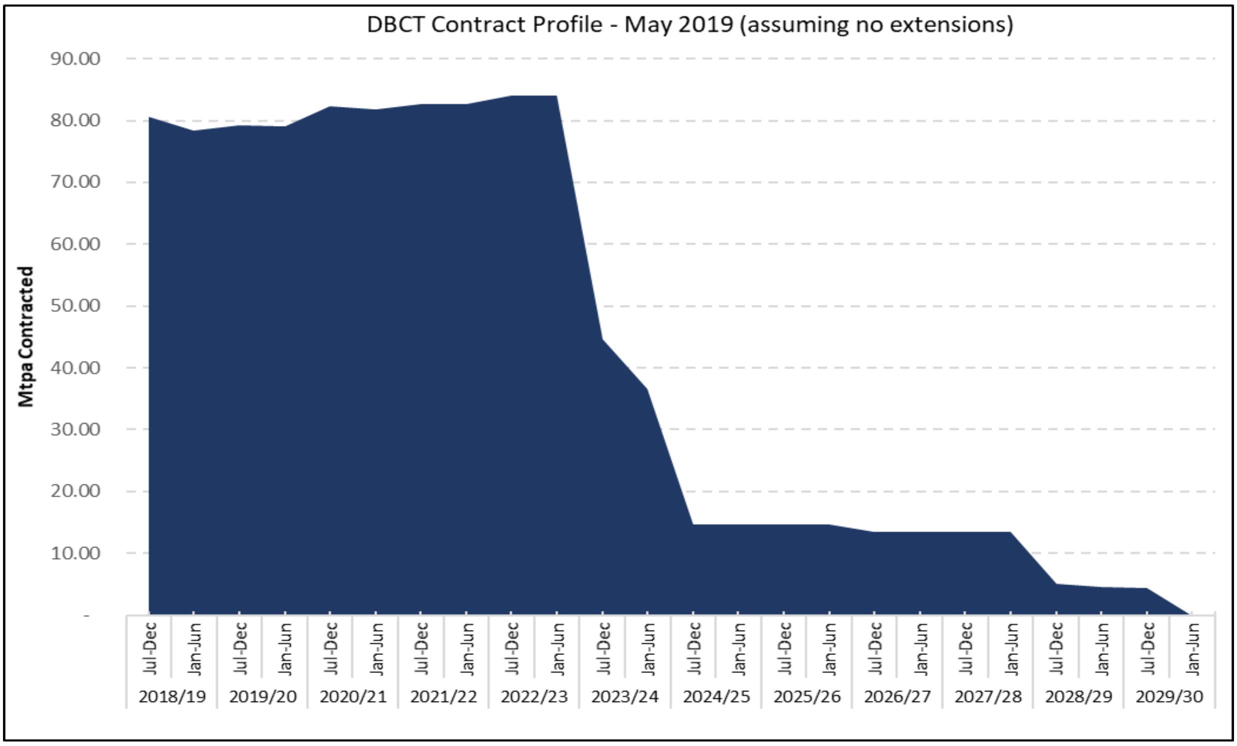

Figure 9: Contractual Position May 2019

2.4 Government Legislation

2.4.1 Government Legislation

In July 2011, the UNESCO World Heritage Committee requested the Australian Government undertake a comprehensive strategic assessment of the Great Barrier Reef World Heritage Area (**GBRWHA**) and develop a long-term plan for sustainable development that will protect the region's outstanding universal values. The assessment was completed by the Federal and Queensland Government and resulted in the development of the *Reef 2050 Long Term Sustainability Plan* (**Reef 2050**). DBCTM supports the direction of Reef 2050.

The Queensland Government has responsibility for protection of the State waters and is therefore committed to a number of Reef 2050 initiatives relating to port development. In 2015 the Queensland Government introduced new legislation, the *Sustainable Ports Development Act (2015)* which sets out the blueprint for port planning and management for certain ports in Queensland. The act aligns with the Commonwealth and State Government commitments under Reef 2050 developed in response to recommendations of the UNESCO World Heritage Committee.

This legislation outlines a number of initiatives including:

- identification of the Port of Abbot Point, Port of Gladstone, Ports of Hay Point & Mackay and the Port of Townsville as Priority Ports which require formal Port Master Plans to regulate development consistent with principles of ecologically sustainable development
- introduction of statutory Port Overlays to implement the master planning objectives
- protection of greenfield landside and marine areas through the prohibition of certain future development
- prohibition of certain capital dredging along the Queensland coastline, and
- prohibition of sea-based disposal of capital dredge material within the GBRWHA

Formal Port Master Plans will be prepared by the State in consultation with port entities, relevant local governments and other state entities such as State Development and the Department of Environment & Science.

DBCTM views this Terminal Master Plan as a critical input (an **informing document**) for the State Port Master Planning process, as shown in Figure 10 .

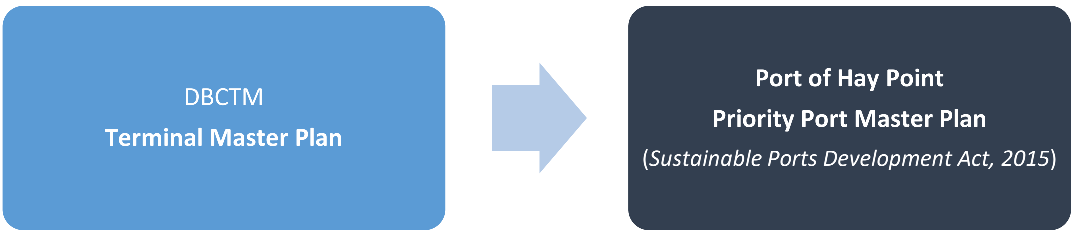

Figure 10: Queensland Planning Process

2.4.2 Proposals for Land Use and Site Development

Regulatory approvals will be required from Commonwealth and State Governments for the expansion pathway. The exact nature and extent of these approvals can only be precisely determined once engineering design is further progressed, exact development footprints are better understood and timing of expansion steps (i.e. individual developments or grouped expansion packages) is confirmed.

To diligently address Commonwealth requirements, referral of the expansion pathways (up to and including the 8X project) under the Environment Protection & Biodiversity Conservation Act, 1999 (**EPBC Act**) is recommended.

(A formal referral was previously made for the Zone 4 project under the EPBC Act (Ref: 2015/7541). On 12 September 2015, the Commonwealth advised that the Zone 4 project was deemed to be a Non-Controlled

Action and no approval under the EPBC Act would be required. The relevance of this referral will need to be discussed with Commonwealth officers given the change of order in expansion pathways).

The Commonwealth, through the EPBC referral process, will then determine the exact approval pathways under the EPBC Act.

At the State level, NQBP as the Assessment Manager for development on Strategic Port Land will coordinate approvals under Queensland legislation. It is anticipated that this will involve approvals under the following tier one legislation:

- Coastal Protection and Management Act 1995 & Fisheries Act 1994 (ie. Coastal Zone, Tidal Works & Marine Plant matters – via the State Development Assessment Provisions and relevant State Codes)
- Environmental Protection Act 1994 (i.e. Environmental Authority matters)

Further, under the Transport Infrastructure Act 1994 (**TIA**), a Port Authority is required to develop and review a Land Use Plan (**LUP**) to ensure the appropriate and sustainable development of strategic port land.

As the Port Authority for the Port of Hay Point, NQBP has the responsibility of preparing and revising the LUP and administering all Assessment Manager functions pursuant to the *Planning Act 2016* for all assessable development on areas classified as Strategic Port Land at the port.

Port Development Approvals will be required under the LUP for the various expansion steps. The grouping and/or consolidation of these approvals will be determined following further discussions with NQBP once engineering design and analysis has been advanced. Preliminary discussions have indicated consistency with the LUP for all expansion options.

The current Port of Hay Point LUP was approved in July 2010 and provides an overall framework for the appropriate regulation and management of the development of strategic port land. The LUP was prepared in accordance with the statutory provisions of the TIA. It sets out NQBP's planning and development intentions for its strategic port land at the Port of Hay Point, while giving careful consideration to core matters relevant to the local and regional area including environmental, economic and social sustainability.

It is anticipated that the existing LUP will be amended following (or concurrently with) the preparation of the formal State Port Master Plan under the *Sustainable Ports Development Act, 2015.*

As a point of reference, Figure 11 shows the current offshore and onshore areas defined as Strategic Port Land at the Port of Hay Point. Figure 12 shows DBCT more specifically.

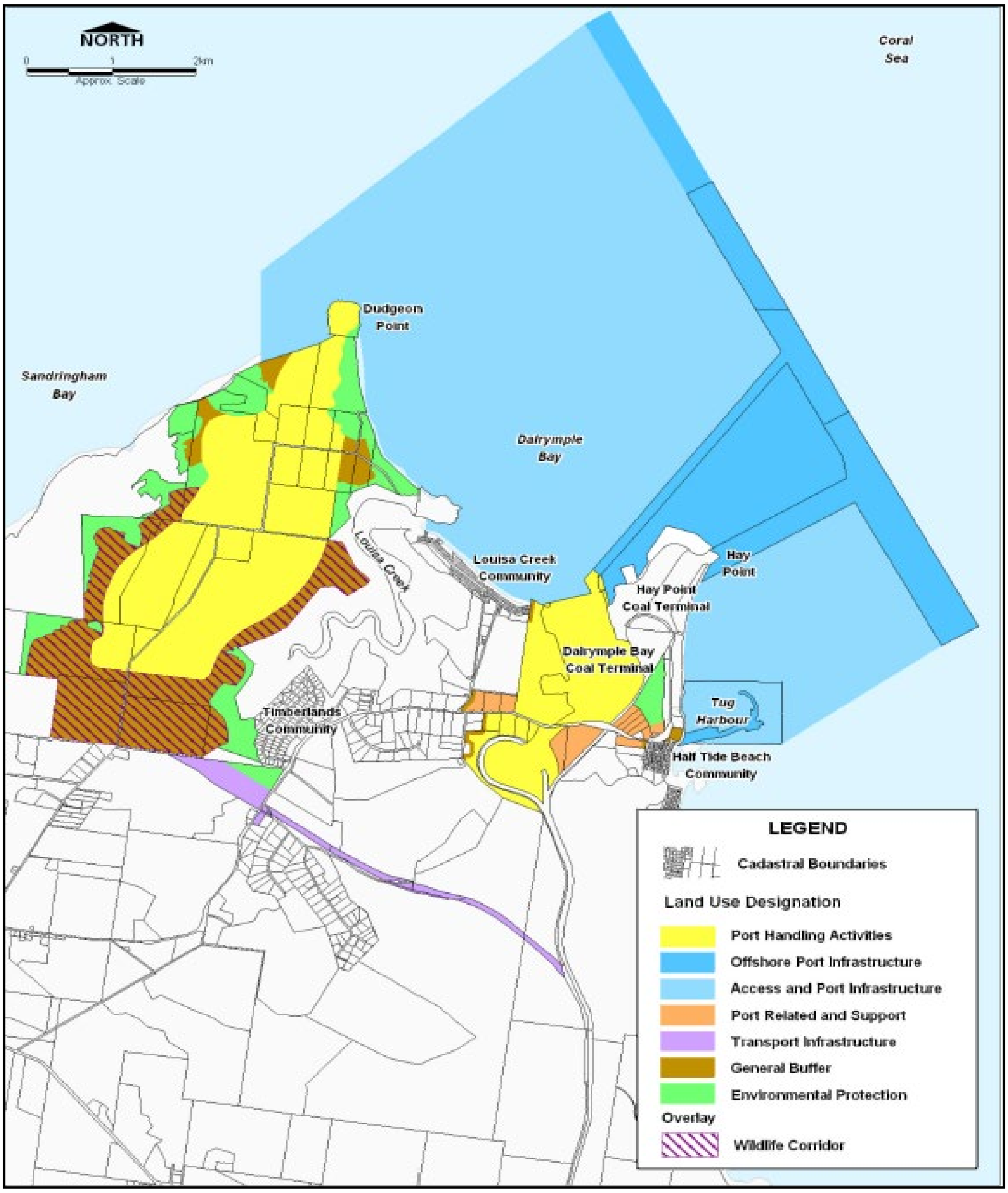

Figure 11: NQBP Strategic Port Land and Offshore Port Infrastructure Hay Point

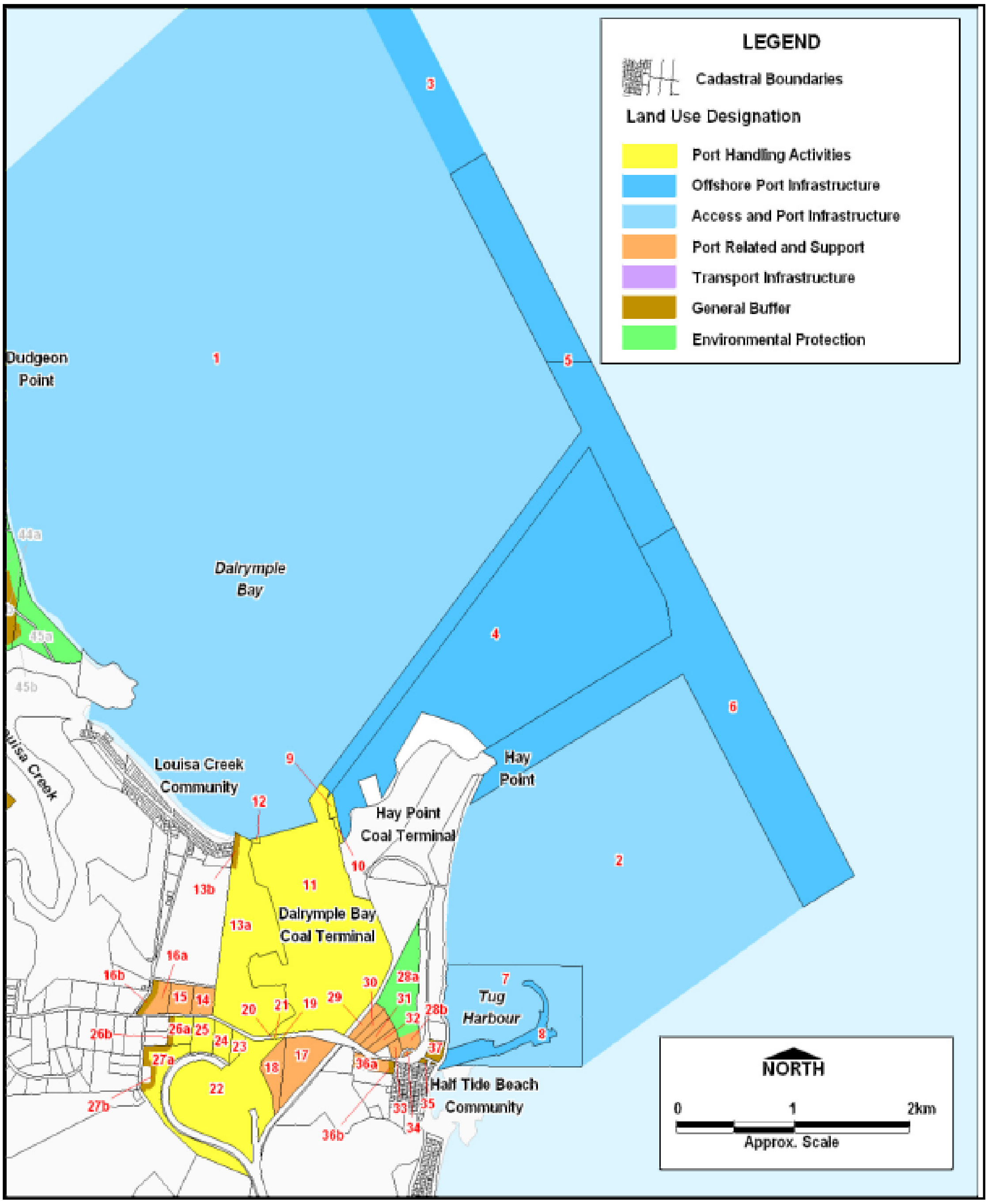

Figure 12: DBCT development on Strategic Port Land

2.5 Access Regime

The coal handling service at DBCT is declared for third party access under the Queensland Competition Authority Act 1997 (Qld) (**QCA Act**). An Access Undertaking (**AU**) details the terms and conditions (including the tariff that can be charged) under which third parties can access DBCT's services.

After the approval of the first AU (**2006 AU**), the existing Terminal User Agreements were replaced with a Standard Access Agreement (**SAA**). The SAA forms part of, and is based on, the terms and conditions set out in the AU. The revenue cap approach and the risk profile proposed in the QCA's final decision are reflected in subsequent approved AUs and SAAs as follows:

- The 2006 AU (including a new SAA) was approved on 15 June 2006 and backdated to 1 July 2004.
- The 2006 AU expired on 31 December 2010 and was replaced with the 2010 AU agreed with stakeholders and approved by the QCA in 2010.
- The 2010 AU expired on 30 June 2016 and was replaced with the 2017 AU which was approved by the QCA in February 2017 with new tariffs effective from 1 July 2016.

Commencing with the 2010 AU, DBCTM may only contract available system capacity[1] rather than standalone terminal capacity as was previously required. In support of this principle, the terminal Master Plan is integrated with the System Master Plan, which is the framework for expansion of the System in the most logical and efficient way, determined collaboratively by all system participants.

2.5.1 Access Applications

Access Applications are a mechanism that provide the Access Seeker with an option to access DBCT capacity which may become available in the future. When capacity does become available, either due to expansion, an expiring contract, or a terminated contract, DBCTM must offer the capacity to the DBCT Access Queue (**access queue**). The access queue is formed when available capacity is not sufficient to satisfy the capacity requirements of one or more Access Seekers.

Capacity is offered and contracted in accordance with Section 5.4 of the AU.

If an access seeker does intend to contract the available capacity, the access seeker is required to sign an Access Agreement (**AA**). If an access seeker does execute an AA to contract for access to DBCT, the access seeker's Access Application will be reduced by the tonnage specified in the schedule of the AA. The Access Seeker will retain its position in the access queue, assuming the remaining tonnage under the access application is greater than zero and there is not sufficient available system capacity to service this remaining tonnage.

2.5.2 Expansion pricing under the 2017 Access Undertaking

The PSA requires the principle of average pricing to prevail for expansions of DBCT. It requires DBCTM to seek to have future Access Undertakings maintain Common User Charges (socialised pricing). In 2013, the QCA released a paper on Capacity Expansion and Access Pricing for Rail and Ports. In that paper, the QCA identified "key propositions based on economic efficiency, fairness and governance principles which constituted an averaging down/incremental up approach to expansion pricing".[2] The QCA required DBCTM to incorporate these principles in the 2017 AU.

With respect to expansion pricing, the 2017 AU includes the following[3]:

- Where Socialisation of a Terminal Capacity Expansion would decrease the Reference Tariff for users of the Existing Terminal, the Terminal Capacity Expansion should be treated as forming part of the Existing Terminal, such that a single Reference Tariff and Annual Revenue Requirement shall apply to the Existing

[1] System Capacity is the maximum reasonably achievable capacity of the system, being the components of the Goonyella Coal Chain infrastructure relating to transport of coal from mines whose coal is handled by DBCT

[2] QCA Capacity Expansion and Access Pricing for Rail and Ports April 2013 p. iv

[3] DBCT 2017 AU section 11.13 Expansion Pricing Principles

Terminal (including the Terminal Capacity Expansion) (a Socialised Expansion).

- Where Socialisation of a Terminal Capacity Expansion would increase the Reference Tariff for users of the Existing Terminal (a Cost Sensitive Expansion), subject to Section 11.13(c), the Terminal Capacity Expansion should be treated as a separate Terminal Component, with its own Regulated Asset Base, Reference Tariff and Annual Revenue Requirement (a Differentiated Expansion Component).
- A Cost Sensitive Expansion may be treated as forming part of the Existing Terminal (and therefore, not treated as a Differentiated Expansion Component) where circumstances exist that justify Socialisation. In determining whether there are circumstances that warrant Socialisation, consideration shall be given to:
    - the materiality of the increase in the Existing Terminal's Reference Tariff that would be affected by socialising the Cost Sensitive Expansion
    - the extent to which assets or infrastructure the subject of the Cost Sensitive Expansion will operate wholly or partly, in an integrated way with the Existing Terminal or as a stand-alone development
    - the extent to which the Cost Sensitive Expansion is likely to benefit users of the Existing Terminal (for example, such as through higher efficiency, reliability or flexibility of the Existing Terminal)
    - any differences in the risks of providing Access to users of the Existing Terminal in respect of additional Terminal Capacity created by the Cost Sensitive Expansion, and
    - any other factor that the QCA considers relevant.

The introduction of differential pricing will potentially have an impact on the viability of further expansions of DBCT. This issue is addressed in greater detail in Chapter 5.

2.5.3 Expansion timing under the 2017 AU

The 2017 AU introduced for the first time a detailed definition of Front End Loaded engineering (FEL) studies. This definition is more onerous than what is widely accepted within the industry thus requiring a greater level of detail than would normally be undertaken. The AU also introduced constraints around the funding of feasibility studies. Coupled with the delays associated with determination of expansion pricing, the net effect is that the current AU introduces material delay to future expansions which did not exist in prior undertakings. This actual impact is addressed in more detail in Chapter 5.

3 Current Operations

3.1 Mode of Operation

Bulk supply chains can be operated in a variety of configurations, however Australian coal terminals generally operate under one of three philosophies:

- cargo assembly
- dedicated stockpiling
- hybrid (a combination of dedicated stockpiling and cargo assembly)

The selection of operating mode depends on the number of discrete products to be accommodated and the available space for stockpiling the various coal products.

A dedicated stockpile terminal allows users to stockpile large amounts of product at the terminal without:

- a vessel waiting within the port limits to load that product
- a vessel being in transit to the loading terminal

In a dedicated stockpiling terminal, the User will typically rail coal to the terminal when the next train is available. This in turn should lead to a predictable railing schedule and greater visibility as to when train services will be required. Track infrastructure in a dedicated stockpile operation is designed to suit the regular and consistent mix of trains required to meet contractual obligations. The receiving vessel arrives at the port to load the coal from a dedicated stockpile, as do subsequent vessels chartered to load the same coal product. The railing system replenishes the stockyard by railing product evenly from the mine to the export terminal.

Because of the irregular demand pattern for an individual product and DBCT's available storage space in the stockyard, dedicated stockpiles cannot be maintained for all products handled by DBCT. DBCT has evolved to operate under a cargo assembly logistics philosophy. Unlike a dedicated stockpiling operation, a cargo assembly operation requires railings of products to meet the arrival of the vessel. In the DBCT cargo assembly operation, a vessel typically arrives and once all parcels to be loaded on the vessel are produced and available for railing, the above-rail operators bring the coal to the terminal where it is assembled in a space allocated to the parcel in the DBCT stockyard. Railings to complete the vessel are subject to the availability of the mine load-out, DBCT stockyard space, above-rail assets and below-rail pathing.

Under cargo assembly, the stockpile for each individual vessel and each parcel on that vessel needs to be separated from the other cargoes in the stockyard. This separation avoids product contamination between distinct parcels and cargoes. The space between individual products cannot be utilised. To reduce stockpile separation and the resulting unutilised space in the stockyard, particularly when the same product is required for multiple vessels, limited dedicated stockpiling (hybrid) was introduced for high volume products. The hybrid operating methodology is covered later in this chapter.

3.1.1 Dedicated Stockpiling Option

Dedicated stockpiling in the existing DBCT footprint is not a viable option for the following reasons:

- The additional land required to support dedicated stockpiling would consume all current expansion options for DBCT, yet still provide less than the contracted 84.2 Mtpa of terminal capacity.
- The capital cost of such additional stockyard space would need to include new bunds and additional yard machines.
- Current Access Holders would have to bear the full cost of the current operation and the terminal expansion required to create dedicated stockpiles to service less than currently contracted capacity.

3.1.2 Hybrid

Recognising the improved stockyard space utilisation of a dedicated stockpiling operation and the storage efficiency of a pure cargo assembly model, the supply chain identified an opportunity to implement a combination of both operating modes to best utilise supply chain assets.

The hybrid operating mode was designed with two objectives in mind:

1. Pre-railing for selected parcel builds where efficiencies can be gained across the supply chain.
2. Multiple parcel builds using the same stockpile space to improve the efficiency of the terminal stockyard.

By better utilising the space required to build cargoes for high volume products with the same coal characteristics, the supply chain can make better use of the available stockyard space. Pre-railing allows for a more even drawdown of cargo across the supply chain, therefore allowing a more efficient and effective use of all supply chain assets. In recognition of these potential benefits, stakeholders implemented a hybrid operating mode for the DBCT supply chain.

Under the hybrid operating mode, the supply chain planners look at upcoming demand and identify opportunities where the same product is required for multiple near-spaced vessels. Under cargo assembly, the planners would ordinarily plan to stack the cargoes for each vessel into distinct separated stockpiles. Under the hybrid system, planners have the ability to plan for the same product (required for two or more vessels) to be stacked into a single stockpile. This removes:

- the need for the stockpile separation between similar products for multiple vessels
- the amount of time the stockpile footprint is allocated but unutilised while the terminal waits for train deliveries to fill that allocated space
- the need for a remnant space for that product. If demand continues for long enough to justify the reallocation of the remnant space to the dynamic zone, a remnant may not be required for the hybrid product. The remnant stockpile would only be replaced by a hybrid stockpile for as long as the hybrid stockpile is justified by continuous shipping demand.

The hybrid operating mode attempts to address the shortcomings of a pure cargo assembly operation and is intended to be used for at least two vessels, or a long succession of vessels. The supply chain only needs to consider the arrival of vessels requiring the same product soon after one another prior to building the hybrid stockpile. The lifespan of the hybrid stockpile is then only limited by the continuing, near-spaced shipping demand for that particular coal type.

3.1.3 Remnant Management

To assist in vessel loading requirements, and without impacting the utilisation of the stockyard, the stockyard has been segregated into two distinct zones. Row 7 and the half Row 8 are used for the exclusive purpose of managing remnant coal (the **static zone**). Each Access Holder is allocated a portion of the total volume of the static zone in accordance with its share of Aggregate Annual Contract Tonnage. The remaining six rows of the stockyard operate in full cargo assembly or hybrid mode (the **dynamic zone**).

This vessel assembly strategy sees two cargo assembly or hybrid stockpiles allocated to each parcel in the dynamic zone (shown in Figure 6). The dynamic zone will ideally comprise one less than the total number of trains required to complete the parcel or cargo. Any remaining coal from the final train not required to complete the parcel or cargo will be stacked into the Access Holder's remnant stockpile.

If the Access Holder has suitable coal in its allocated remnant area, the amount of coal railed should ideally be less than the required parcel or cargo. The balance of the parcel is topped up from the Access Holder's remnant stockpile. If there is insufficient coal in the remnant area to complete the vessel, the remainder of the coal in the last train used to complete the parcel will be stacked into the Access Holder's remnant area.

Each Access Holder is responsible for managing the quantity and quality of remnant coal in its dedicated area, including separation requirements for different products.

3.2 Operations

3.2.1 Service Provision

Terminal capacity is calculated considering historical service provision and shipping mix (the capacity model accounts for the impact of differing service requirements). However, if future service requirements evolve beyond the current demands, the rated terminal capacity could be adversely impacted. Any detrimental impact of terminal service demands can also impact the upstream coal chain, causing individual supply chain assets to operate below their rated capacity, in turn compromising the overall system capacity at the time.

DBCT is required to meet varying service requirements in line with coal producer and coal end-user requirements. Different coal types present different handling characteristics, requiring a variety of handling strategies to ensure the product can be handled by the terminal without compromising coal quality. Reduction of normal equipment rates to cater for these individual products can degrade the capability of the supply chain.

Access Holders pay a common tariff per tonne of coal shipped, however different handling requirements will impact the terminal's performance (e.g. sticky coal, blending, dusty coal, wet coal). Some of these coal types and product blends consume more terminal capacity than others. The handling characteristics of individual coal types may also impact performance of the assets upstream of DBCT.

3.2.2 Vessel Trends

DBCT can load coal onto vessels ranging from 40,000 Dwt tonnes in size, up to 220,000 Dwt. DBCT is primarily exposed to five classes of vessels: Large Cape Size (140,000-220,000 Dwt), Capes (100,000-140,000 Dwt), Panamax and Japmax (65,000-100,000 dwt) and Handimax (40,000-65,000 Dwt). Due to limited deballasting capability in small vessels, loading times are not proportionate to the size of the vessel as demonstrated in table 3, which outlines the comparative load rates of the 689 vessels loaded at DBCT in the 2018 calendar year. The load rates show a clear bias towards faster loading performance into the larger vessels.

Vessel Type	Average load rate (tph)	Average load time (hours)	% of total vessels
VLC	5077	33	29%
Capesize	5014	22	4%
Japmax	4759	17	46%
Panamax	4349	17	16%
Handy	3275	15	4%

Table 3: DBCT ship arrivals 1 Jan 2018 – 31 December 201

DBCT's outloading capability has been enhanced by an industry trend towards larger vessels. Larger, newer vessels offer economies of scale and efficiency advantages to the charterer, while generally offering better deballasting performance for the loading terminal.

DBCT's average vessel size surpassed 100,000 Dwt in 2010 and has remained stable in subsequent years. Despite this consistent trend towards larger vessels, the arriving vessel mix can change from month to month in response to freight rate volatility. DBCTM must continually assess its terminal capacity assumptions using the latest vessel arrival size distribution data. Despite the month to month variations in freight rates for the various vessel classes, DBCT has consistently loaded vessels for days and weeks at rates well above 85 Mtpa.

3.2.3 Upstream Assets

The performance of rail and train loading infrastructure is the most significant influence on overall system capacity. The capability of mine load-out infrastructure and rail assets must be able to support the hybrid and cargo assembly requirements of DBCT. If the individual train load out and rail asset capabilities do not allow for a hybrid/cargo assembly build rate sufficient to maximise terminal capability, the capability of the entire supply chain will be compromised.

3.3 Contracted Capacity vs Throughput

The 7X Expansion was completed in 2009. That expansion produced a significant step up in the capacity of the terminal from 60Mtpa to 85Mtpa. Since then the terminal has had latent capacity as various factors have combined to limit throughput to a peak of 71Mtpa achieved in 2015. System Capacity constraints, low demand and the impact of significant weather events have all played a part in limiting throughput.

During the latest extended period of low coal prices, several existing Users relinquished excess capacity rather than maintain take-or-pay obligations on excess or peaking capacity. DBCTM recontracted this capacity during 2017 and 2018 and it is anticipated that almost all of this re-contracted capacity will be required by the Access Holders that have contracted it. The net effect of this will be a closing of the gap between contracted capacity and throughput as the related facilities ramp up production.

3.4 Terminal vs System Capacity

DBCTM contracts available terminal capacity with Access Seekers and Access Holders. Despite having a theoretical standalone terminal capacity of approximately 94 Mtpa (ILC, 2018), DBCTM is only able to contract terminal capacity up to the limit of system capacity. The ILC's capacity assessment determined that the DBCT supply chain has a long term, achievable system capacity of 84.2 Mtpa.

Standalone terminal capacity assessments will generally yield higher indicated throughput results than a system capacity assessment. A system capacity assessment necessarily introduces the constraining effects and the interface inefficiencies that result when the upstream assets are connected to the terminal. Standalone terminal capacity assessments instead look at the terminal in isolation and do not impose any of the upstream inefficiencies required by a system capacity assessment.

Standalone terminal capacity may be increased following a terminal capacity expansion, however any terminal capacity that exists in excess of system capacity is not accessible to Access Holders and therefore may not be contracted. Accordingly, the assessed system capacity is far more relevant than the assessed terminal capacity for the purposes of developing a terminal Master Plan and contracting available capacity.

4 Supply and Demand Expectations

The PSA requires DBCTM to:

- assess the current and future needs of Producers for services and facilities, and
- provide projections for the demand for services at DBCT

4.1 Throughput Growth

DBCT's highest recorded throughput in a financial year was 71.5 Mtpa in 2014/15. While a gap still exists between DBCT's highest throughput, current throughput (approx. 70 Mtpa) and system capacity (84.2 Mtpa), this has generally resulted from levels of demand and mine production which were below contracted capacity (refer Figure 13). While it is difficult to assess current mine capability, it is assumed that take-or-pay access agreements for rail, haulage and terminal capacity will contribute to the incentive for DBCT Users to ensure mine production meets contracted capacity.

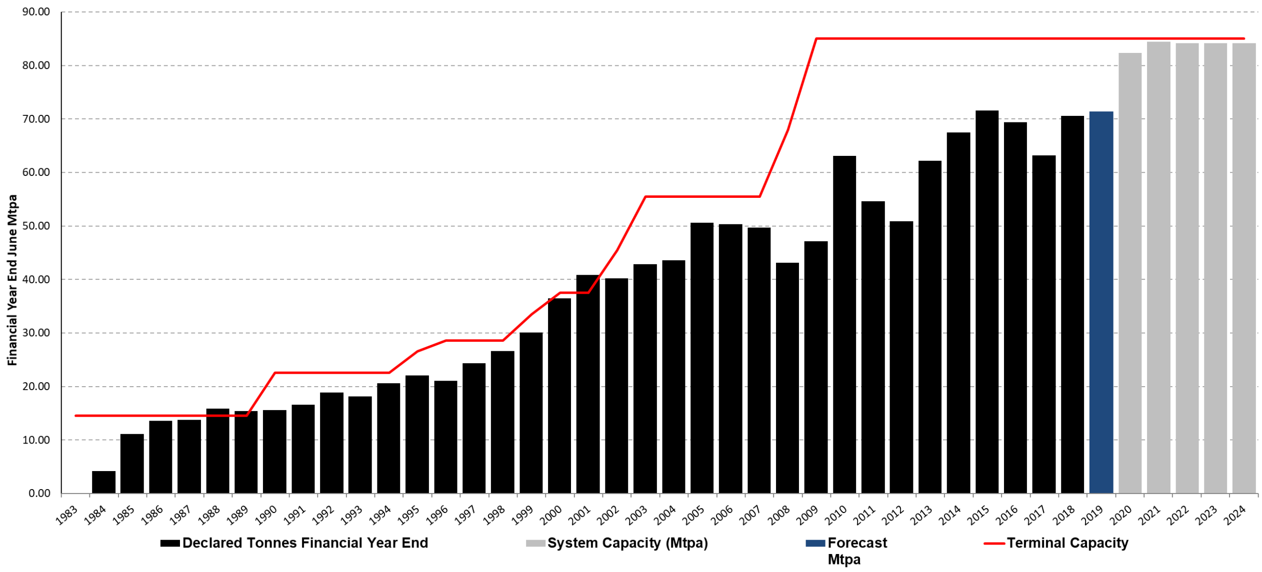

Figure 13: DBCT throughput and capacity growth history (DBCT PL, 2019)

In the depressed coal markets prior to late 2016, and with costs clearly under focus, miners are understood to have reduced their exposure to any excess take-or-pay obligations, particularly terminal capacity due to the shorter terms and ease of relinquishing capacity compared with rail capacity. This relinquished capacity has subsequently been recontracted to service brownfield and greenfield mine developments. Since 2017, DBCTM has been able to recontract approximately 15 Mtpa of previously relinquished long term capacity.

The current wave of coal mine development has occurred in a much more measured and controlled fashion than during the previous commodity super-cycle. Prior to DBCT expanding, it is expected that existing spare capacity at other ports will need to be contracted. Unutilised capacity at other terminals is already available and carries no approval, timing, or execution risks. Accordingly, DBCTM expects that to the extent it is physically and economically viable, other terminals may need to be fully contracted prior to Access Seekers triggering an expansion of DBCT.

4.2 Metallurgical Coal History

DBCT's predominant export product is metallurgical coal (PCI and coking), accounting for approximately 82% of total throughput. DBCTM's master planning is primarily focused on metallurgical coal demand and development, as this is the dominant resource within DBCT's catchment area.

Metallurgical coal is primarily used for steelmaking, with integrated steel mills requiring between 0.7 and 0.9 tonnes of metallurgical coal to produce one tonne of steel. After a decade of price growth in the 2000's, the price began to fall from 2012 onwards, culminating in a contract price of US$81/mt FOB in the January 2016 quarter. Following a sustained rationalisation of coal production globally, the prime hard coking coal spot price has stayed above US$140/t since September 2016. At times the HCC spot price has exceeded $US200/t for months at a time, indicating that the years of production rationalisation has returned the market to something resembling a balance of supply and demand.[4]

Changes to approach to contract pricing

A key change occurred in seaborne hard coking coal (HCC) contract pricing immediately following the arrival of Cyclone Debbie in 2017. This change was reportedly brought about by the price volatility that ensued following a sustained interruption to seaborne met coal supply. After long resistance to index-linked pricing, Japanese coal end-users finally accepted a move away from negotiated contract pricing. A new mechanism was agreed between buyer and seller which retrospectively pegs the HCC quarterly contract price to key daily spot pricing indices. The new index linked quarterly pricing mechanism utilises the daily average prime HCC spot price from three major coal indices (Argus, Platts and TSI). DBCTM is uncertain what impact this change might have on long term volatility in pricing and demand patterns. The HCC price history to 2007 is shown in Figure 14 below [5]

Figure 14: Spot FOB QLD met coal price history (Platts CTI & IHS, 2007-2018)

4.3 Supply

The supply of metallurgical coal into the seaborne market is currently dominated by five countries. In 2017, Australia supplied 54% of global exports, US based producers supplied 15%, Canada supplied 9%, Mongolia supplied 8% and Russia supplied 7%. Queensland metallurgical coal producers have a natural geographical advantage over other regions. During the mid to late 2000s, in response to an expectation of continuing Chinese demand growth, global metallurgical coal production reached historically high levels through the introduction of new coal mines and expansions of existing coal mines. Australian producers now supply approximately 178 Mt of coal per annum.

In response to subsequent falling coal prices between 2012 and 2016, many coal producers sought to reduce the unit cost of producing coal by maximising coal production rates. Increased production added extra coal supply to an already oversupplied market and depressed prices further. Many miners achieved significant cost savings at their operations to improve profitability and in some cases, ensure survival. Cost savings were achieved in a number of ways, but the main focus areas were capital discipline, reducing the cost of labour, and the exploration spend. DBCTM expects Australian producers to continue to benefit from the cost reductions achieved in the downturn between 2012 and 2016. At current coal prices, DBCTM expects that most of the coal production in the Bowen Basin is profitable and that sustained healthy pricing is likely to incentivise mine development.

During the 2012-2016 downturn, many coal producers in North America were forced to idle coal mines or seek bankruptcy protection under Chapter 11 provisions. In response to a healthier coal market, a number

[4] Platts CTI and IHS Inside Coal
[5] Argus website (http://www.argusmedia.com/news/article/?id=1477863)

of these operations have since resumed production and re-joined the export market. DBCTM expects that US coal suppliers will continue to provide swing capacity to the global seaborne markets.

Mozambican coal production has also faced delays and extra costs to repair, upgrade and build coal transport infrastructure. The country's most advanced and significant coal mine (Moatize) and accompanying infrastructure project (Nacala) in Mozambique is majority owned by Vale. Approximately 8 Mt of metallurgical coal was exported from Mozambique in 2018[6]. The Moatize mine project will export up to 18 Mtpa from Nacala Port at full capacity, utilising the Nacala Rail corridor for coal transportation. Given its proximity to India and Europe, Mozambique's coal production has the potential to displace some demand for Australian metallurgical coals to these regions.

In Mongolia, miners have recently faced issues with cash flow and profitability, however coal developments have the potential to displace demand for Australian coal, particularly demand from Chinese importers. Miners exported approximately 26 Mt of coal in 2017, most of this is understood to have been exported across the border to China. Infrastructure and border bottlenecks have typically provided a natural barrier to increased coal exports, particularly to the seaborne market. Because miners currently appear to be limited to selling into the Chinese market, it is understood that the sale price of this coal is typically well below the seaborne price.

After falling to US$81/t FOB in Q1 2016, HCC prices have been sustained above US$140/mt FOB since August-September 2016 and have been above US$200/t for long periods since. These improved market conditions appear to be the result of the recent rebalancing of global metallurgical coal supply and demand.[7]

Coinciding with sustained improving market conditions, DBCTM has observed an increase in demand for terminal capacity from developers of new and existing coal mines. This increased demand indicates that confidence has returned and miners are more willing to invest in coal mine developments in the Bowen Basin. Following years of cost cutting initiatives, combined with the advantages of well-developed infrastructure and proximity to Asian import destinations, Queensland miners are expected to maintain a substantial advantage over their global competitors.

Recent demand trends from DBCT's major coal import regions are shown in Figure 16.

4.3.1 Domestic Indian production growth

While India has abundant coal reserves and some of the lowest mining cash costs in the world, the coal reserves are generally a significant distance from end users. Indian metallurgical coal also tends to be of lower quality and with more impurities than Australian coals.

India's seaborne demand will largely depend on the performance of its domestic coal industry. New coal mine developments have historically been subject to delays while waiting for land acquisition and the award of the mining lease. With only Bharat Coking Coal Limited (a subsidiary of Coal India) currently producing substantial quantities of metallurgical coal in India, when combined with concerns about quality, Indian domestic metallurgical coal supplies are not expected to keep pace with India's ambitious steel production growth plans. Accordingly, DBCTM expects that India is likely to need to supplement its domestic metallurgical coal production with greater seaborne metallurgical coal or raw steel imports.

4.3.2 Chinese domestic production

Chinese domestic producers accounted for 537 Mt of metallurgical coal supply in 2018.[8] Much of China's coal production prior to 2018 was reportedly running at a loss. These coal mines were supplying metallurgical coal to steel mills which were also struggling with profitability and low levels of utilisation. To combat the perceived over-production of coal and steel, the Chinese government imposed policies designed to protect

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[6] Department of Industry, Innovation and Science Resources and Energy Quarterly March 2019 – Metallurgical Coal

[7] Platts Coal Trader International – Premium low vol. hard coking coal price (2007-2015). IHS Inside Coal – Australian prime hard coking coal (2015-2018)

[8] Mining Weekly 23 May 2019 India to surpass China as largest importer of coking coal by 2025

Chinese coal producers from competition from imported coals, while also removing unprofitable Chinese domestic production from the market.

The first of the key policies involved quality checks for trace elements. The second was a blanket tariff applied to imported coals which was subsequently removed. More recently, Australian coal miners were reporting that customs delays were preventing their coal exports from reaching Chinese coal buyers in a timely manner. This stoked fears in the media that a mandated slowdown had been placed on coal imports from Australia[9]. Despite the introduction of these policies, there appears to have been little effect on longer term exports from DBCT to China which were the highest on record in 2018 (15.3 Mt) (Figure 19).

Due to the high quality of metallurgical coals exported through DBCT, DBCTM expects Chinese demand for coal from DBCT to continue at high levels into the future.

4.4 Demand

Global crude steel production grew from 1,343 Mt in 2008 to 1,809 Mt in 2018.[10] DBCTM expects that India's infrastructure build program will continue to drive strong demand for DBCT's coal, particularly after the infrastructure-friendly Modi government was elected for a second term in a landslide victory in May 2019.

Notwithstanding changes in regulations to increase domestic coal consumption, China's dependence on seaborne coal is expected to continue to drive healthy demand for coal exports from Queensland. Japan and South Korea's steel production is expected to remain stable, and not materially alter demand levels for Australian coal.

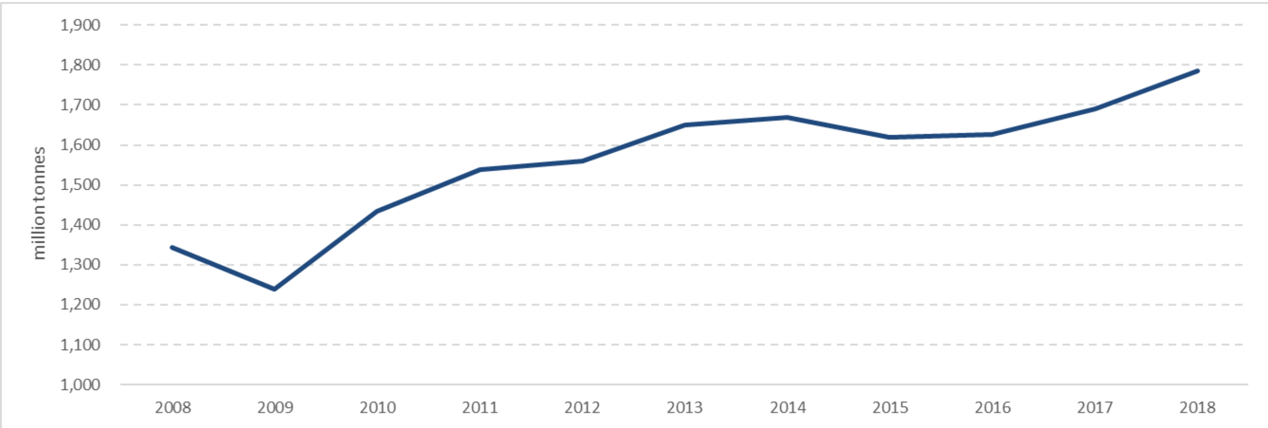

Figure 15: World crude steel production – World Steel Association, 2019

The comparatively mature economies of Japan, South Korea and Europe have well-developed steelmaking capacity, but do not have substantial domestic metallurgical coal reserves. These economies experienced growth in their steelmaking industries well before the recent rise of China and India as steelmaking leaders. South Korea and Japan experienced similar rapid growth in the early development phases of their economies but have stabilised at approximately 70 Mtpa and 105 Mtpa of crude steel production respectively. Chinese and Indian steel production and coal demand has grown rapidly and is expected to eventually mature and stabilise like the Japanese and South Korean economies before them. It is uncertain when this stabilisation will occur and at what level of annual production this is likely to occur, it is encouraging that Indian steel producers have ambitious growth plans and are seeking to expand steel production in accelerated timeframes.[11]

Other factors such as increased usage of recycled steel, or technologies that replace traditional metallurgical coal and iron ore production processes, such as POSCO's FINEX technology may pose a risk to long term metallurgical coal demand, or replacements for coking coal such as used car tyres[12].

[9] The Guardian 22 March 2019 Australia's coal bonanza at risk as Chinese import 'ban' spreads
[10] World Steel Association 25 January 2019 Global crude steel output increases by 4.6% in 2018
[11] World Steel Association 25 January 2019 Global crude steel output increases by 4.6% in 2018
[12] The Weekend Australian Magazine 4 May 2019 Turning trash into treasure

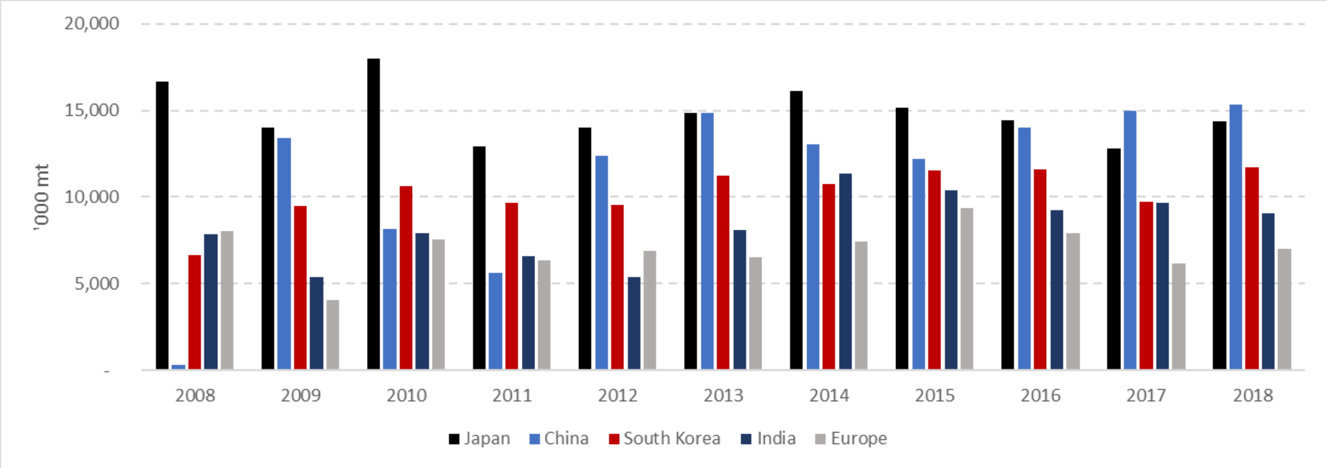

Figure 16: DBCT historical exports to key importing regions (DBCTM, 2018)

4.4.1 India

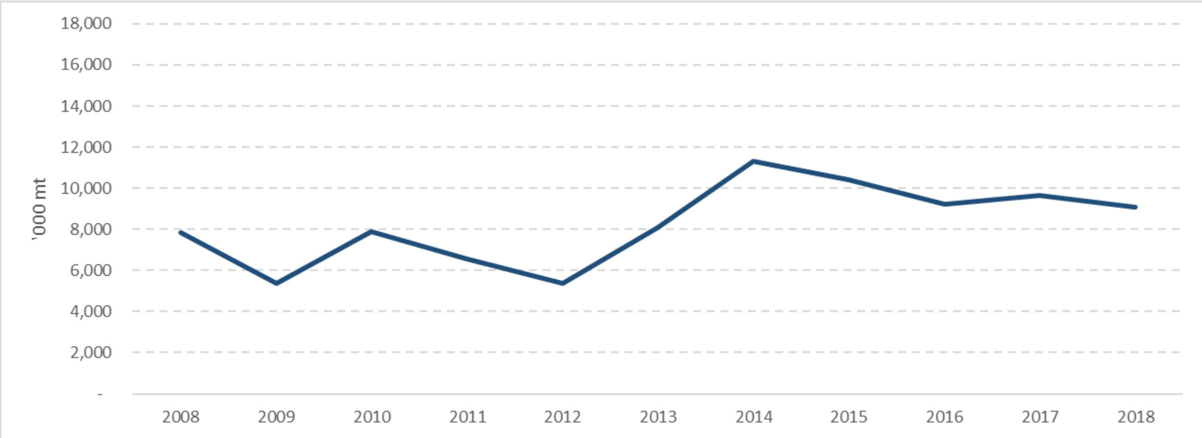

Figure 17: Indian imports from DBCT (DBCTM, 2018)

India's ambitions to increase domestic crude steel production from 100 Mtpa in 2017 to 300 Mtpa in 2030 is the most likely driver of Indian seaborne metallurgical coal demand growth in the coming decade. India increased steel production by 6% in 2017, and for the first time surpassed 100 Mtpa of crude steel production. Since 2015, Indian steelmakers have been able to increase crude steel production by 6 Mtpa, year on year, culminating in 106 Mt of Indian crude steel production in 2018.[13] A number of Indian steelmakers are currently undertaking steel production expansion projects, however, to reach the stated 300 Mtpa of crude steel production target by 2025, the pace of new capacity development will need to increase.

With supply channels to India already well established between coal producers and various Indian customers, DBCT Access Holders and Access Seekers are well positioned to satisfy some of this Indian coal demand growth. DBCT has already seen significant growth to India as an export destination in the past decade (Figure 17).

[13] World Steel Association 25 January 2019 Global crude steel output increases by 4.6% in 2018

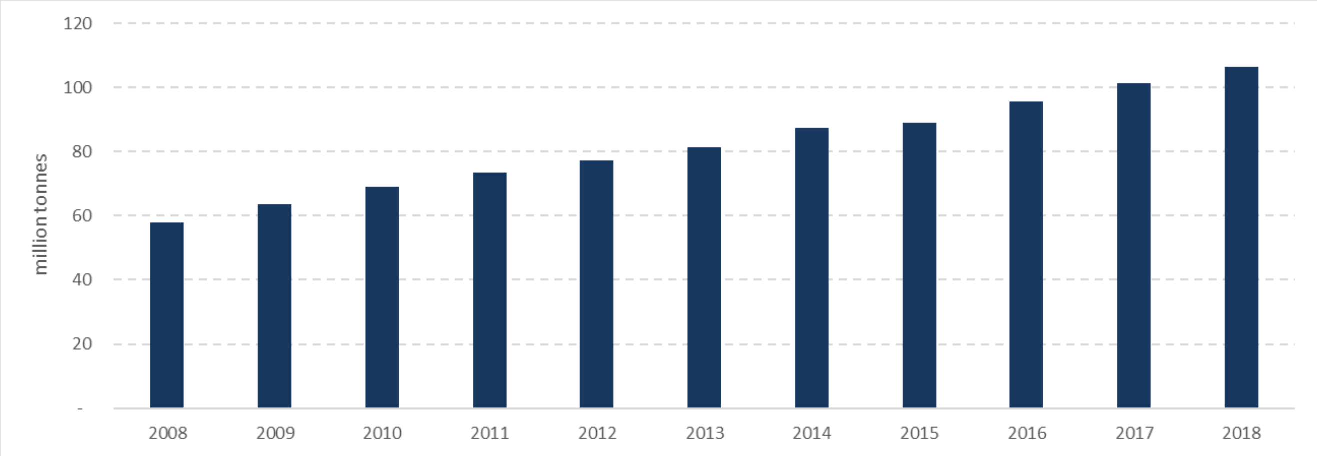

Figure 18: Indian crude steel production (World Steel Association, 2018)

4.4.2 China

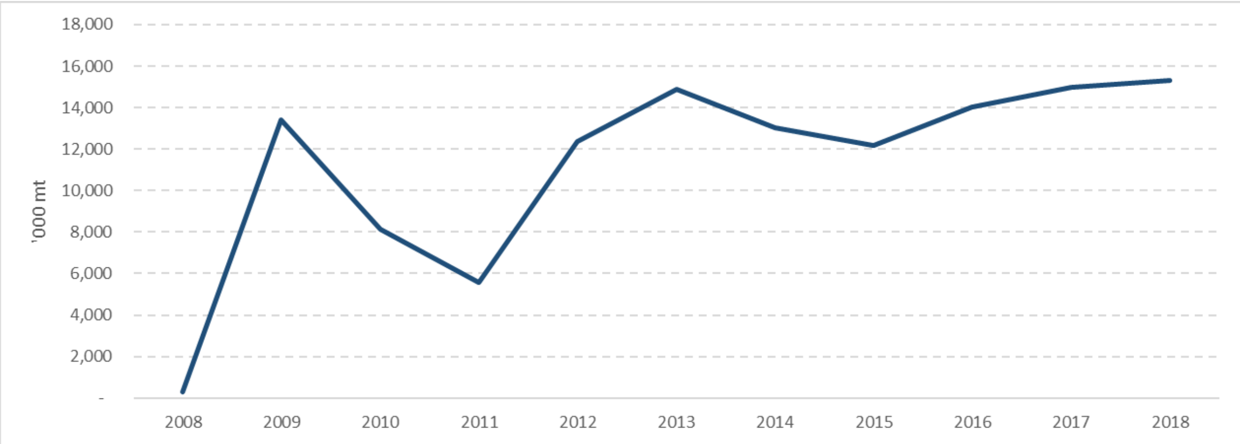

Figure 19: Chinese imports from DBCT (DBCTM, 2018)

After entering the seaborne market as an importer in 2009, China's demand for seaborne metallurgical coal has varied in line with the performance of its economy, steel markets, domestic metallurgical coal production and Chinese government policy. China's steelmakers are estimated to have imported 65 Mt of metallurgical coal in 2018.[14] Chinese steel producers recorded a decade or more of extraordinary crude steel production growth until 2014 (822 Mt), followed by a period of lower domestic consumption and growing crude steel exports in 2015 and 2016. Despite reported capacity rationalisation in 2016 and 2017, Chinese crude steel production was the highest on record in 2018 (926 Mt).

In addition to the reported removal of approximately 120 Mtpa of steel production capacity in 2016 and 2017, the Chinese government was targeting the reduction of another 30 Mtpa of steel production in 2018, bringing the three year target to approximately 150 Mtpa. Despite the official figures not supporting a claimed reduction in overall Chinese steelmaking capacity, global steel markets have remained strong.[15]

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[14] Department of Industry, Innovation and Science Resources and Energy Quarterly March 2019 – Metallurgical Coal
[15] SXCoal 12 March 2018 China overcapacity campaign faces its toughest challenge this year

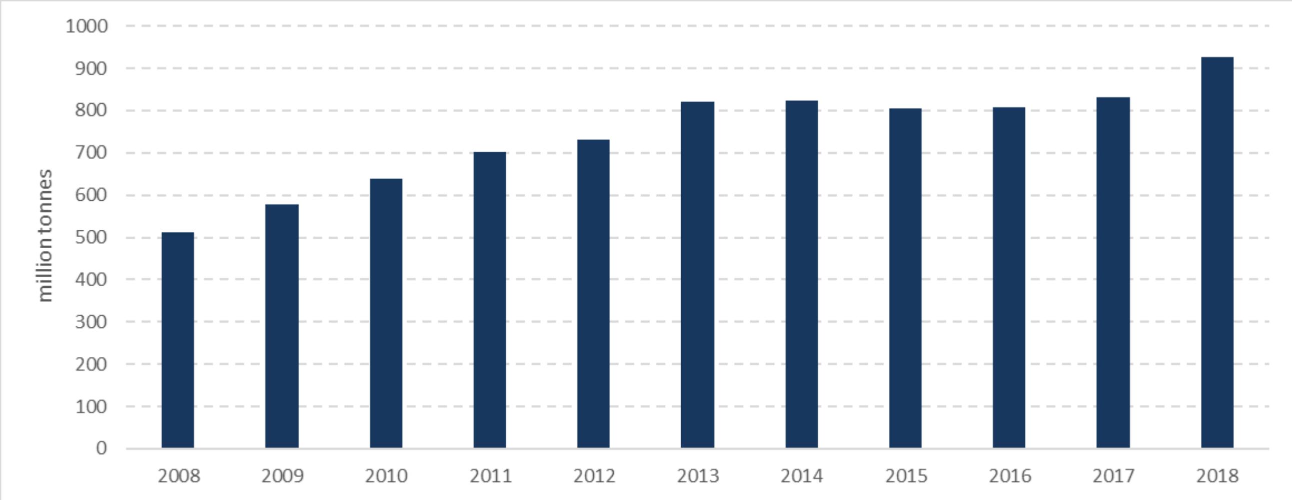

Figure 20: Chinese crude steel production (World Steel Association, 2018)

As can be seen in Figure 19, DBCT's exposure to Chinese imports has grown significantly over the past decade. Chinese buyers have typically only turned to imported coal when the price was lower than domestically delivered coal, meaning China's demand has been volatile and difficult to forecast.

4.4.3 South Korea and Japan

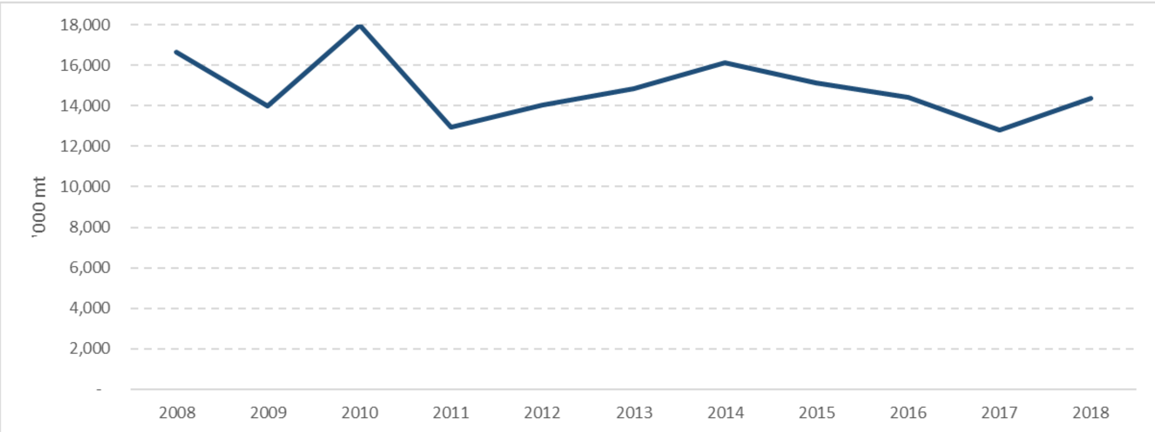

Figure 21: Japanese imports from DBCT (DBCTM, 2018)

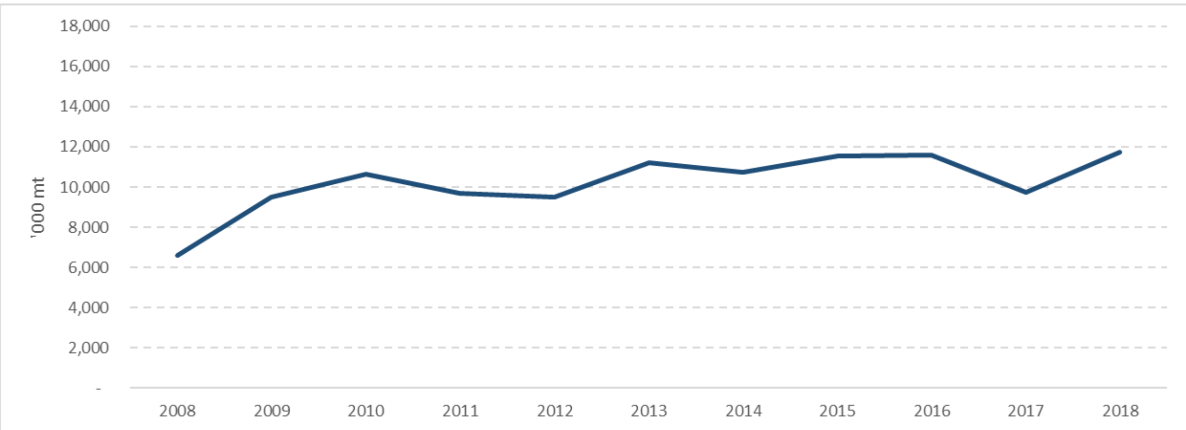

Figure 22: South Korean imports from DBCT (DBCTM, 2018)

DBCTM views South Korea and Japan as stable destinations for DBCT's metallurgical coal exports. While these nations are not expected to provide material growth in metallurgical coal demand, these two regions are expected to continue taking a substantial percentage of DBCT's coal, as has been the case for at least the past ten years. Many of the mines that export through DBCT have varying levels of Japanese joint venture ownership, which is expected to continue the long-term sourcing of coal by Japanese buyers from these mines.

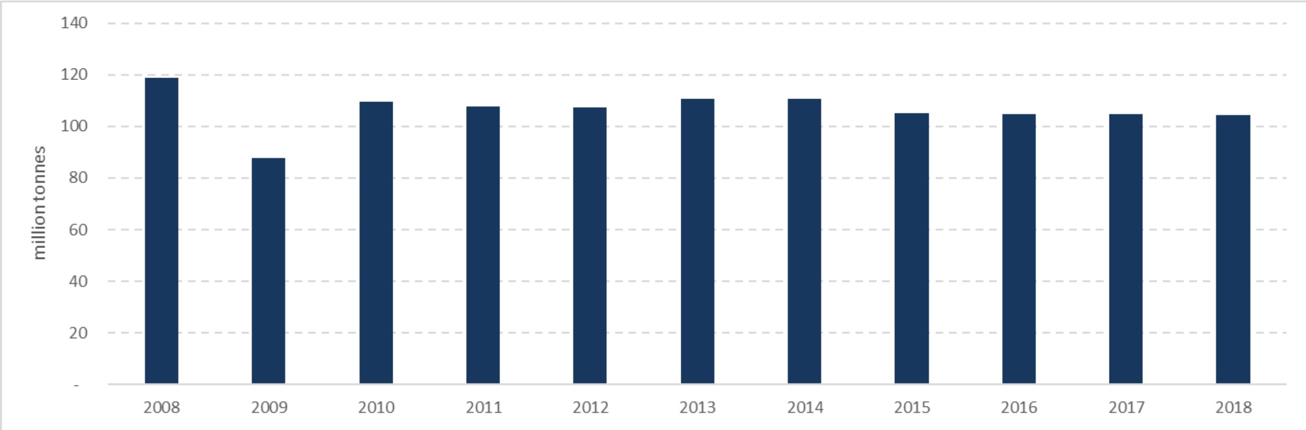

Figure 23: Japanese crude steel production (World Steel Association, 2018)

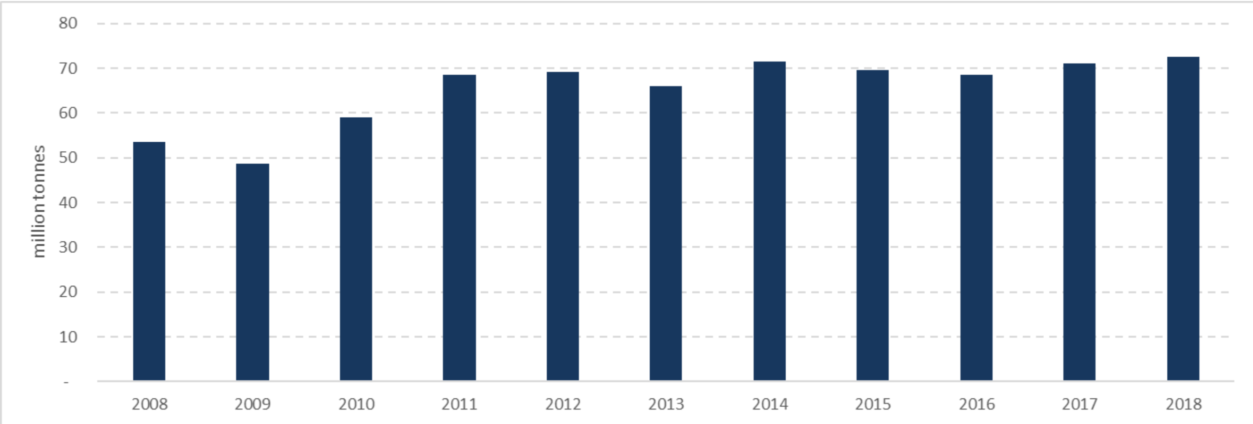

Figure 24: South Korean crude steel production (World Steel Association, 2018)

4.4.4 Europe

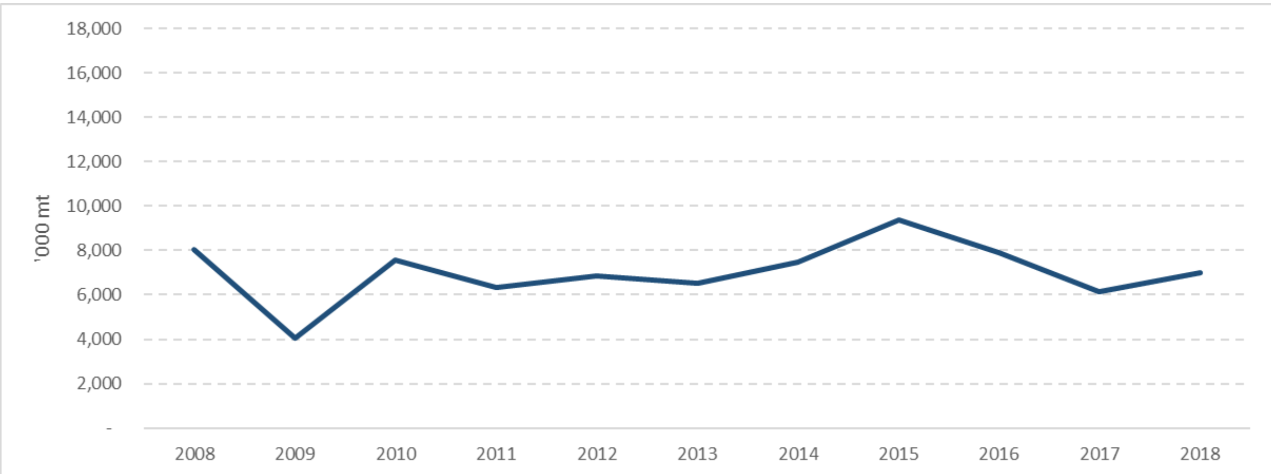

Figure 25: European imports from DBCT (DBCTM, 2018)

A number of steelmaking facilities have closed in the past 3 to 5 years in some of DBCT's usual European export destinations, however these closures represent a small percentage of Europe's overall steelmaking capacity. Following a reduction in crude steel output between 2012 to 2016, crude steel production from the

EU fell to 157 Mt in 2018 (Figure 26).[16]

Historically low freight rates have likely been a factor in the increasing volumes of exports from DBCT to Europe over the past decade. Europe's appetite for DBCT coal will continue to be responsive to freight rate volatility and the exchange rates of various currencies against the US dollar. Both factors have the potential to impact the ability of DBCT exporters to maintain their recently established foothold in the European markets. Australian producers were able to displace US coal production into Europe as the coal markets deteriorated between 2012 and 2016, however the recovery in US coal production is likely to have displaced Australian coal exports to Europe in 2017 and 2018.

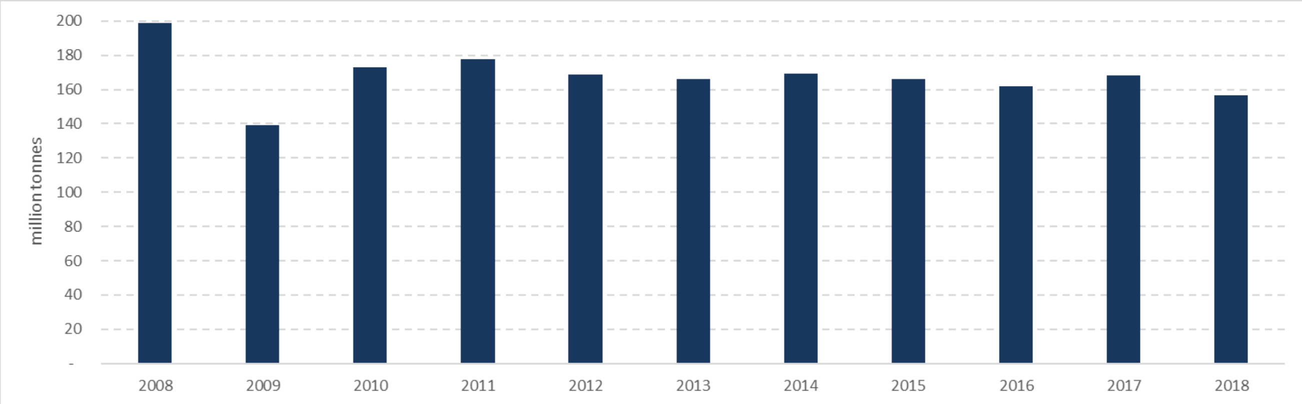

Figure 26: Eu-28 crude steel production (World Steel Association, 2018)

4.4.5 Thermal coal

DBCT's thermal coal exports comprise approximately 18% of total throughput. DBCTM expects demand for thermal coal exports out of Queensland to grow in the medium to long term. Accordingly, demand for DBCT's thermal coal exports are expected to continue from the traditional customers of the DBCT-exporting thermal mines. The growth in thermal coal demand from Queensland is expected to increase with continuing economic development in India and the South East Asian regions. In both regions, imports of thermal coal are expected to supplement domestic production.

4.5 Mine Development Expansion Triggers

In the first quarter of 2016, coking coal prices were below pre-boom levels. At that time there was no demand for expansion capacity at DBCT and existing system capacity was being relinquished for the first time in DBCT's history. By late 2016, metallurgical coal prices had surpassed US$100/mt and have remained well above that level ever since. In Master Plan 2016, DBCTM anticipated no further coal mine developments until coal prices were sustained above the incentive price. While DBCTM did not attempt to determine this incentive price, real demand for capacity has increased such that existing system capacity is not sufficient to satisfy all demand from genuine Access Seekers.

DBCTM was unable to satisfy all demand received in the form of Access Agreements in late 2018. Considering there are no further DBCT contract expiries due until 2022 and 2023, DBCTM's only option for satisfying the real demand in the DBCT Access Queue as shown in Figure 27 is by expansion of the terminal.

[16] World Steel Association 25 January 2019 Global crude steel output increases by 4.6% in 2018

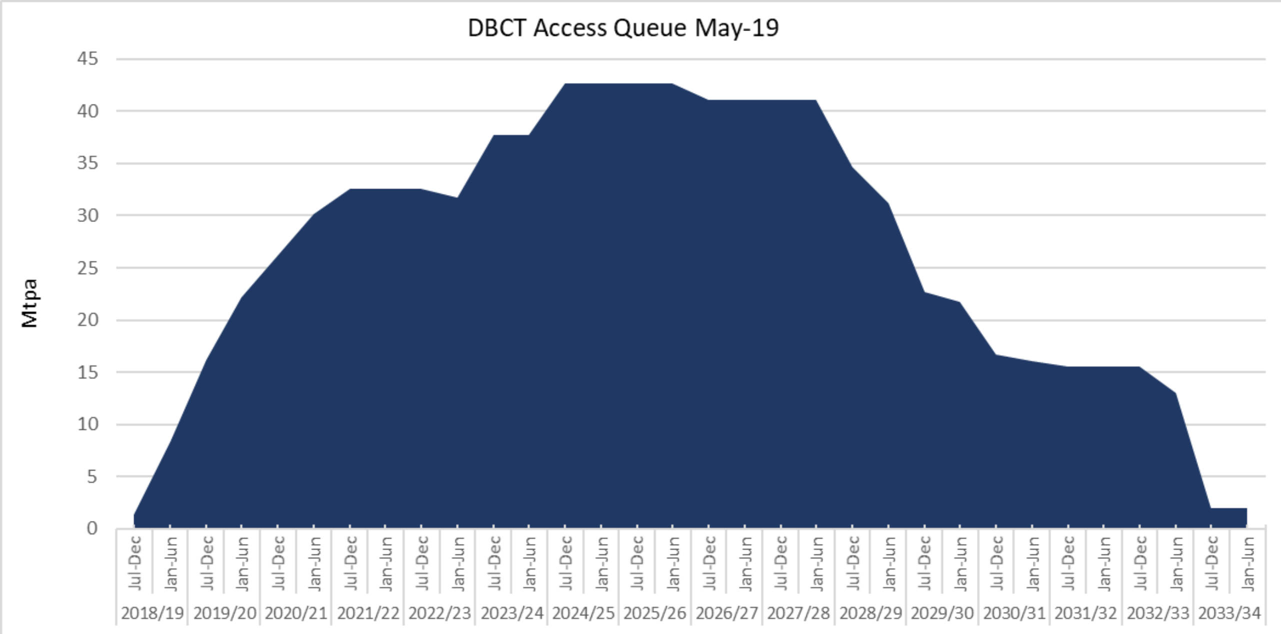

Figure 27: DBCT Access Queue (DBCTM May 2019)

5 DBCT Expansion Options

5.1 Development objectives for DBCT

DBCTM's development objectives for DBCT are as follows:

- Develop Master Plans that define strategies to ensure efficient and secure long-term operation of the DBCT facility to meet the needs of the existing terminal Users and Access Seekers.
- Develop an expansion pathway that is consistent with the *Sustainable Ports Development Act 2015* and Reef 2050 Long Term Sustainability Plan by promoting the incremental development of the existing facility to satisfy the growth needs of the coal industry.
- Continue to build relationships with all coal chain stakeholders in order to achieve mutually beneficial enhancements for the operation of the coal chain, including an equitable sharing of the costs and benefits of system improvements.
- Ensure that DBCT continues to be managed, operated and maintained at a standard consistent with the obligations set out in the PSA.
- Realize additional system throughput through improved process efficiency at the terminal and within the Goonyella Coal Chain.
- Support community involvement and engage in ongoing meaningful stakeholder consultation.
- Ensure a continued 'leading practice' approach to port/terminal planning within the coastal zone, particularly within the GBRWHA.

DBCTM uses the following key drivers to guide the ongoing planning for expansions at DBCT:

- system capacity yield
- lowest whole of life costs (maintainability, operational flexibility etc.)
- minimising operational loss of capacity during construction
- minimisation of environmental impacts
- integration with existing infrastructure
- providing an incremental expansion pathway to maximise the potential of existing infrastructure and match the anticipated incremental growth of the coal chain
- realisation of terminal capacity against User contracted requirements, and
- future upgrade/optimisation potential.

Any terminal expansion is integrally linked to other supply chain infrastructure which has been illustrated in previous DBCTM Master Plans. DBCTM has been working closely with the ILC to match infrastructure expansions with the other system components to provide for the efficient use of infrastructure and ensure capacity expectations are met and delivered across the system.

DBCTM is obligated under the PSA to accommodate the actual and reasonably anticipated future growth of demand for the use of DBCT by Access Holders and Access Seekers, as well as a regulatory obligation to address and accommodate Access Applications, subject to a reasonableness test. DBCTM has developed expansion options that address these obligations.

5.2 Recap of Master Plan 2018

The expansion pathway outlined in Master Plan 2018 was the same as the previous Master Plan 2016. It outlined an incremental expansion pathway that could take the terminal to an ultimate capacity of nominally 136 Mtpa. Detailed capacity modelling undertaken by the ILC underpinned the first expansion step, Zone 4, and the capacities outlined for 8X and 9X were approximations based on modelling by others. The expansion pathway that was proposed is summarised in Table 4 below.

Stage		Description	Capacity (Mtpa)
Zone 4		Completion of Row 8, additional elevated stacker bund and additional Stacker (Bund 7/ST5), replacement of existing Reclaimer RL2 with new Reclaimer RL4 with extended reach into Row 8.	89
8X	Phase 1	Stockyard Augmentation Project (including vertical concrete walls on existing bunds 1 and 3), Stacker ST2 upgrade, Stacker ST1 upgrade and an upgrade of Conveyors R1 & R2	94
	Phase 2	Rail Receival Pit 4, Inloading Buffer Storage, Upgrade to Inloading 2 and Outloading 2	102
9X (Implemented over 3 phases)		Additional Stockyard at Louisa Ck, Upgrades to Inloading 1, additional Outloading System 4 and up to 2 berths to the north, including significant land reclamation to accommodate dredge spoil	Up to 136

Table 4: Proposed expansion pathway (Master Plan 2018)

The revised expansion pathway described in this Master Plan includes all the incremental expansion steps outlined in Master Plan 2018[17] and also introduces a new expansion element, SL4 on Berth 3 as an initial incremental step. This new expansion step has two benefits. Firstly, it is the lowest cost per tonne expansion available to DBCT and secondly, it provides a longer-term solution to a shiploader availability issue that the terminal faces in the next 5 years.

To meet the throughput demands expected in the next few years shiploader availability needs to be sustained at unprecedented levels. This requirement for high availability coincides with shiploader SL1 reaching end-of-life closely followed by shiploader SL2. SL4 provides an opportunity to address the issue of shiploader end-of-life at a lower capital cost and without throughput losses.

[17] Except for the ST1 upgrade which is currently in progress as a NECAP project for the replacement of ST1 and the inloading buffer silos which have been deleted.

5.3 System Capacity Modelling

During 2015, DBCTM engaged the ILC to model the Zone 4 project using the ILC's original system capacity model that had been developed using the Rockwell Arena software. This original model was cumbersome to modify and was not suited for testing multiple scenarios in a short period of time which was required for the 8X FEL1 Concept Study that was underway at the time. Instead, DBCTM engaged Ausenco in Canada to model 8X using its Transport Logistics Simulation software which is far more suitable for testing various scenarios because it is simpler to modify than the ILC's Arena based software. Originally developed by Sandwell to model the Terminal during the planning for the 7X project the model was updated prior to Master Plan 2016 to include the Goonyella rail network and the Newlands rail connection. Confidential information, available to the ILC, was not available to Ausenco and therefore certain assumptions around cross system traffic, mine load out capacities and rail network capacities and limitations needed to be made in the development of the model. Commentary was included in Master Plan 2018 concerning the modelling for 8X which stated that it was "ultimately considered sufficiently robust for concept level studies". DBCTM highlighted the need to engage the ILC to undertake modelling works prior to any further work on 8X or 9X to verify the results.

Since 2015 the ILC has developed a new System Capacity Model. The new model is a Discrete Event Simulation (DES) model that uses stochastic methods to generate the randomness of operational events occurring over time. The model is capable of capturing the dynamic interactions within the system. The new model is much simpler to modify than the original model making it suitable for testing multiple scenarios as required in Master Planning.

The model was developed through a rigorous approach including stakeholder consultation to understand current operating methodologies and planning practices, in order to determine and apply operating logic definition. Input data has been sourced from various stakeholders, as well as the actual performance of the system as recorded in the Supply Chain Analytics (SCA) system. Detailed parameters of all infrastructure assets in the system are understood by the ILC and incorporated into the model making the ILC's model the most robust and reliable model available for the Goonyella System.

The model logic and input data are continually checked and verified to confirm their validity and currency. Producers and Service Providers regularly provide updated information to the ILC for simulation modelling purposes. ILC model results are published monthly and discussed at industry forums. The ILC's model is widely accepted as the most accurate system capacity model for the Goonyella Coal Chain.

In October 2018 the ILC issued a System Capacity Assessment which determined that the System Capacity is 84.2Mtpa. This System Capacity has been used as the baseline for the expansion pathway outlined in this Master Plan. The ILC has completed extensive modelling of expansion options on behalf of DBCTM during the development of this document. Capacity modelling was used to determine the relative benefits of each expansion step and, as expected, these benefits varied as they were applied in different combinations and in a different order of development. The expansion pathway presented in this Master Plan represents the most cost efficient expansion pathway and represents the order of development that delivers the best capacity gain for the lowest cost at each step along the way.

Unexpectedly, this modelling revealed a system limitation that will limit the ultimate capacity of the existing footprint of DBCT to 97.5Mtpa. Analysis of results from the ILC's model suggests that the terminal is limited by DBCT's reclaim capacity at 97.5Mtpa. At this stage there is no obvious expansion option that would increase the capacity of the existing footprint materially beyond 97.5Mtpa. Sensitivity modelling indicates that materially increasing reclaim rates could yield a further 1Mtpa of capacity however the significant investment required to achieve this outcome is likely to prove unwarranted. It is DBCTM's intention to investigate this further during further feasibility works.

5.4 Expansion Pathway

The expansion pathway, as depicted in Table 5, represents the maximum capacity that can be achieved through the ultimate development of DBCT. The existing footprint of the terminal can be exploited to yield a maximum capacity of 97.5Mtpa with the first four expansion steps. In Master Plan 2018, the maximum capacity that could be delivered by the existing footprint was estimated at 102Mtpa although that figure had not been determined using the ILC's dynamic system capacity model. The 102Mtpa represented the anticipated maximum capacity that could be achieved with 3 outloading strings all achieving 34Mtpa and this was broadly supported by the level of capacity modelling undertaken at the time.

<table>
<tr><th colspan="4">Expansion Step</th><th rowspan="2">Scope</th><th rowspan="2">Incremental Capacity</th><th rowspan="2">Capacity (Mtpa)</th><th rowspan="2">Cost ($m)</th></tr>
<tr><th>Within Footprint</th><th colspan="2">New</th><th>Old</th></tr>
<tr><td></td><td rowspan="4">8X</td><td>Phase 1</td><td>SL4 on Berth 3</td><td>New Shiploader 4 on Berth 3 plus outloading debottlenecking</td><td>4.3</td><td>88.5</td><td>240 (indicative)</td></tr>
<tr><td></td><td>Phase 2</td><td>8X Phase 1</td><td>Stockyard Augmentation Project (SAP) plus upgrade of Stacker ST2 and conveyors S5, S6A, S6, R1 and R2</td><td>2.7</td><td>91.2</td><td>175 (indicative)</td></tr>
<tr><td></td><td>Phase 3</td><td>8X Phase 2</td><td>Rail Receival Pit 4 & Inloading System 4 plus upgrade to Inloading 2 and Outloading 2</td><td>3.3</td><td>94.5</td><td>350 (indicative)</td></tr>
<tr><td></td><td>Phase 4</td><td>Zone 4</td><td>Completion of Row 8, vertical western wall, replacement of Reclaimer RL2 with a new Stacker Reclaimer to suit the new row 8 configuration, a new stacking conveyor and a new Stacker to the west of Row 8.</td><td>3</td><td>97.5</td><td>395</td></tr>
<tr><td>New Stockyard</td><td colspan="3">9X</td><td>New Stockyard at Louisa Creek, upgrades to Inloading 1, new Outloading System 4 and up to 2 berths to the north including significant land reclamation to accommodate dredge spoil</td><td>≈34</td><td>131</td><td>3,000 (indicative)</td></tr>
</table>

Table 5: Master Plan 2019 Expansion Pathway

The nomenclature adopted in previous Master Plans has evolved. Table 5 shows the proposed new expansion names that will be adopted during the feasibility and execution phases. To minimise any confusion that arises from renaming expansion steps this Master Plan contains references to both the old expansion step numbering and the new expansion step references.

No attempt has been made to quantify the changes in Operations and Maintenance costs associated with each of the expansion steps included. Further, no detailed analysis has been undertaken on secondary infrastructure such as car parks, office facilities, amenities etc that may be required as the terminal is further developed. The Operator is currently undertaking a Strategic Workforce Planning study that will help identify the need for some of these facilities in the longer term and this work will feed into any pre-feasibility or FEL2 studies.

5.4.1 Shiploader SL4 on Berth 3 (8X Phase 1)

Machine availability is the measure of time a machine is available to operate. That is, the percentage of time that it is not planned to be shut down for maintenance. Reliability is separate to availability. Reliability is a measure of the percentage of time the machine operates correctly when it is required to do so. Availability and reliability are related. To achieve the high reliabilities expected of equipment at DBCT the equipment must be routinely shut down and maintained. The more difficult a machine is to maintain the more difficult it is to achieve high reliability and high availability. It follows that the simpler the machine, the easier it is to meet the availability requirements.

Shiploader complexity, coupled with the access constraints, means that it is more difficult to achieve high levels of availability for the shiploaders than for the outloading conveyor strings. An average availability of 95% is achievable over the long term for the three outloading strings whereas achieving 91% average availability for the shiploaders is difficult. The current outloading configuration is based on 3 shiploaders being fed by 3 outloading conveyor strings as depicted in Figure 27. Currently, when a shiploader is being maintained a maximum of two outloading systems are available therefore limiting the terminal outloading system availability to no more than the shiploaders.

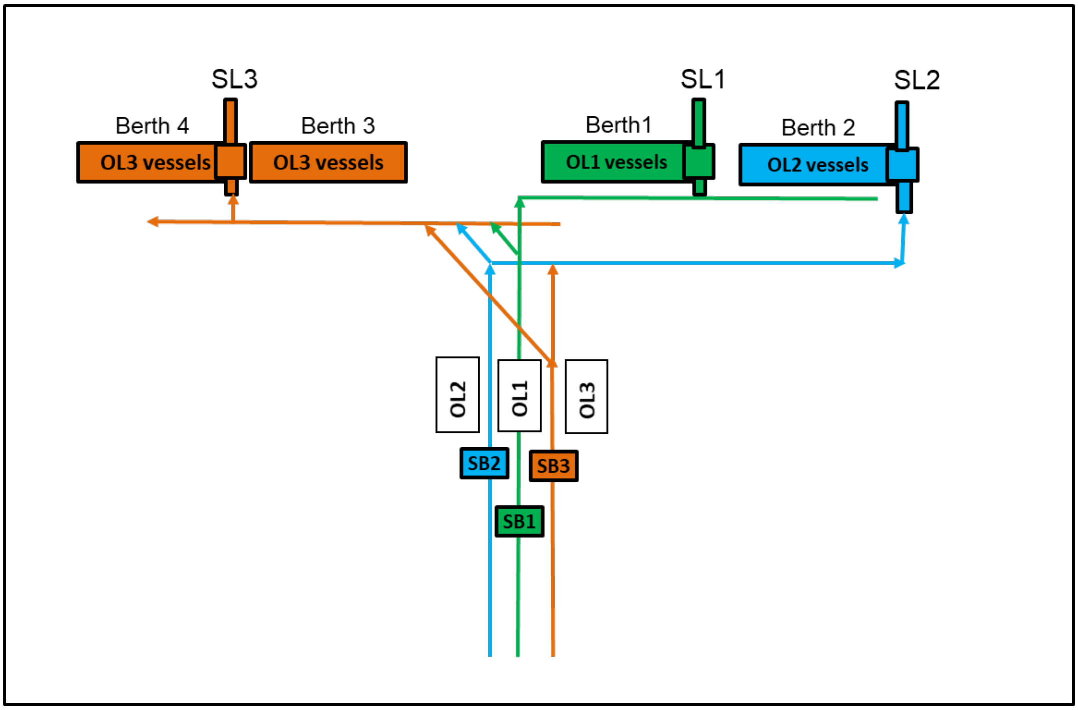

Figure 28- Existing Outloading to Shiploader connectivity

A fourth shiploader on Berth 3 allows for the existing outloading strings to operate independently of shiploader maintenance providing a 4% increase in outloading availability overall and a subsequent capacity increase. The proposed connectivity is shown in Figure 28.

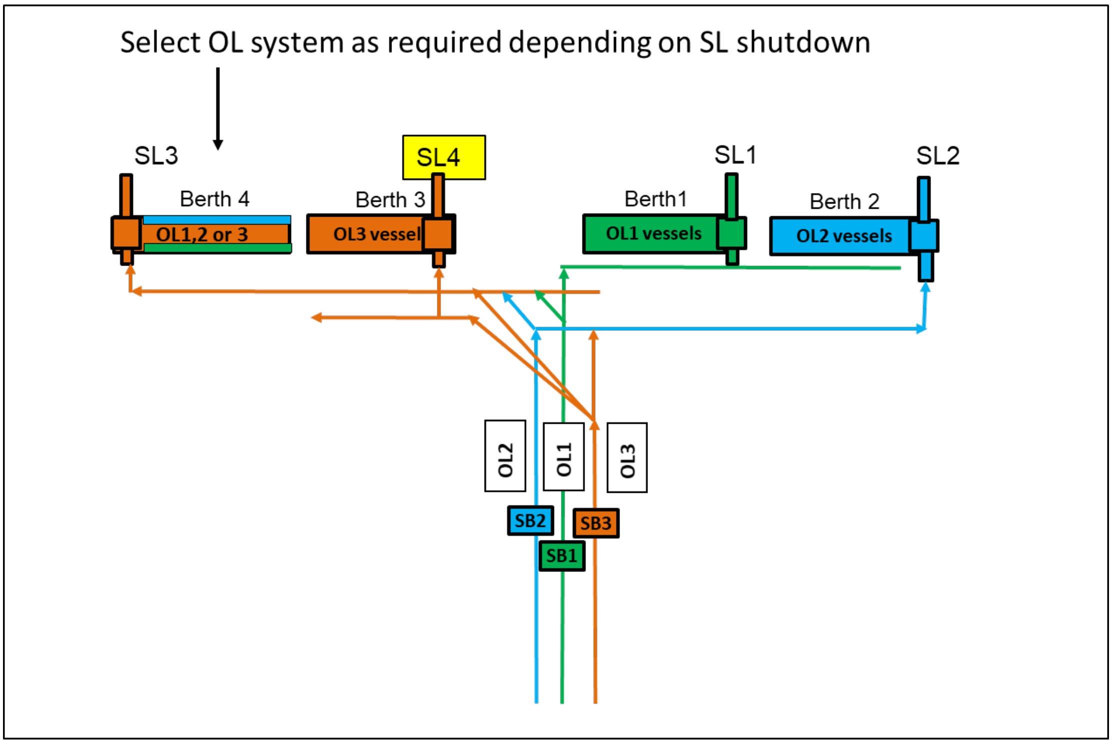

Figure 29- Proposed Outloading to Shiploader connectivity with SL4

Current outloading availability is masked or hidden to some extent by shiploader availability. Once that constraint is relaxed all impacts on outloading availability will have an impact to capacity. As a part of the SL4 project DBCTM intends to work closely with the Operator to identify and eliminate unnecessary additional delays to outloading availability and also identify debottlenecking opportunities to maximise the benefits that can be achieved by the introduction of SL4. At present, only some of these issues are understood but others are yet to be investigated. A nominal allowance has been made in the capital estimate for this debottlenecking. The initiatives will be developed further and prioritised in terms of cost/benefit during the next phase of feasibility.

The ILC model estimates the additional capacity associated with SL4 on Berth 3 (8X Phase 1) is 4.3Mtpa as shown in Table 6.

Stage	Description	Capacity (Mtpa)
Baseline	ILC System Capacity Assessment October 2018	84.2
8X Phase 1 (SL4 on Berth 3)	The provision of a new SL4 on Berth 3 plus the implementation of various outloading debottlenecking initiatives to maximise outloading utilisation	88.5

Table 6: SL4 Capacity Increment

5.4.1.1 Operational impacts during implementation of SL4 Project

No material throughput losses are expected during the implementation of this project as the cut-in to allow feed from outloading system OL3 was considered in the development of 7X and is relatively simple. In fact, the SL4 project reduces long term capacity outages especially in relation to shiploader replacements or major refurbishments.

5.4.2 **Old 8X Project (**8X **Phases 2** and **3)**

As the next incremental step beyond SL4 (8X Phase 1) the elements previously named 8X Phases 1 & 2 now become 8X Phases 2 & 3 respectively. The newly named Phase 2 (Stockpile Augmentation Project and Stacker Upgrade) includes vertical concrete walls to Bunds 1 and 3 to increase stockyard storage volume plus a series of minor upgrades to the existing machines and systems. The newly named Phase 3 is the effective replacement of Inloading System IL1 with IL4 and the upgrade of IL2 to ultimately yield 3 high capacity systems as well as the upgrade of Outloading System 2 and shiploader SL2.

Since Master Plan 2018 the first of these expansion steps has become relatively more attractive from a cost/benefit perspective because a significant component of the cost, the replacement of ST1, has already been committed as a non-expansionary capex (NECAP) project. This has had the effect of making this project more attractive than Zone 4 as the next step after the SL4 project.

During the preparation of this Master Plan, the ILC has undertaken detailed modelling work on expansions increments other than Zone 4 for the first time. This modelling has included sensitivity modelling around the previously proposed inloading buffer storage silos. The modelling indicates that the silos only provide a marginal benefit if the scope of the new inloading IL4 conveyor system is extended to allow more stacking connections to the yard. Given the large capital cost, and the inherent ongoing maintenance issues associated with the silos, they have been deleted from the proposed scope of 8X in favour of adding IL4 connectivity to the stacker reclaimer yard conveyors.

5.4.2.1 Stackers ST1 and ST2 Upgrade

Inloading system 3 has a rate of 8,100 tph but is limited to lower rates of 6,000 tph and 5,500 tph when used to stack via ST2 and ST1 respectively. Figure 29 shows the relative locations of these machines in the stockyard

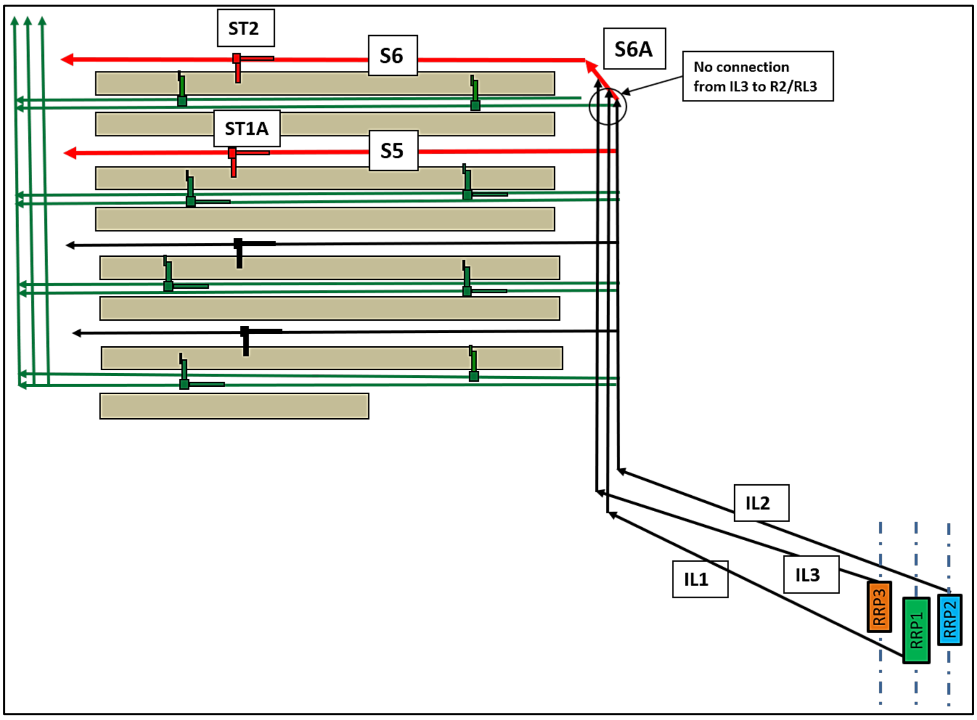

Figure 30- ST1 and ST2 Upgrade – Conveyors S6, S6A and S5 also require upgrade

In the case of ST2, a rate of 8,100 tph can be achieved with only conveyor speed increases for conveyor S6A, S6 and the ST2 boom conveyor. The ST2 upgrade has been separately studied within an earlier 8X study completed by Aurecon Hatch in 2009.

In the case of ST1, a replacement of this machine with new ST1A stacker is currently underway and that project is due for completion by June 2021. The new ST1A machine geometry is suitable to accommodate the vertical bund walls, however the machine will require a minor upgrade to accommodate the proposed higher rate.

The associated S5 yard conveyor can be upgraded to 8,100 tph by fitting an 1,800 mm belt to the existing stringers and operating it at 6.6 m/s. Alternatively, a slightly lower capacity of 7,500 tph could be adopted if the current maximum conveyor speed of 6.2 m/s for the site was observed. A parallel 2,000 mm wide yard conveyor could also be constructed to achieve the target 8,100 tph with slower belt speeds.

5.4.2.2 Stockpile Augmentation Project (SAP)

The Stockyard Augmentation Project (SAP) is the first component of the 8X project that will deliver an increase in stockyard storage volume. The primary benefit of SAP comes from increasing the available storage volume. This additional volume delivers an efficiency gain in the existing coal chain by allowing parcels to be sourced from more mine load outs and accommodated in the stockyard at any one time. This improved efficiency, in turn, provides additional system capacity by reducing the peaking congestion at points in the network. The infrastructure provided in SAP will operate in a wholly integrated way with the existing facility, meaning that existing Users will necessarily have the same access to the facilities built as part of this expansion as expanding Access Seekers.

The key elements of the SAP project are highlighted in Figure 30 and are summarised as:

- Addition of concrete walls to Bund 1 and Bund 3 to improve storage volume in Rows 1, 2 and 3. The constructed walls allow wider stockpiles to be stacked against the walls, like those developed for Bunds 4A and 5A during the 7X Expansion. Vertical walls will also improve the average reclaim rates on machines RL1, RL3, SR2 and SR3A. Volume improvements are approximately 20 to 30% compared to existing earthen bund walls, depending upon the mix of parcel sizes utilising this space. Larger parcel sizes lead to a larger percentage change.

- Upgrade of R2 conveyor to allow RL3 to be reset at its full reclaim rate potential (from 4200 tph to 5300 tph).
- A potential 'Zone swap' involving an alternative allocation of stockyard zones to outloading systems to better align the high volume, highest reclaim rate Zone 1 with the highest performing outloading system OL3.

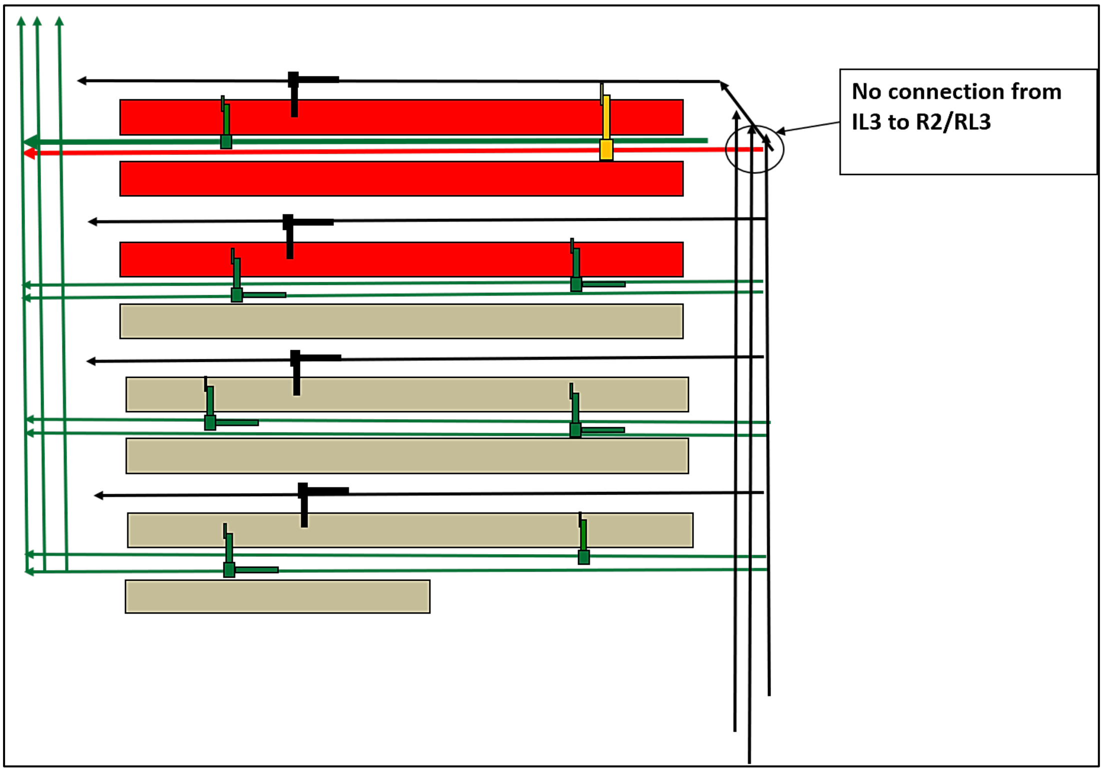

Figure 31: Schematic indicating scope of SAP project including upgrade of the RL3 yard machine and conveyor R2.

The proposed allocation of stockyard zones to outloading systems following the SAP project are shown in Figure 31.

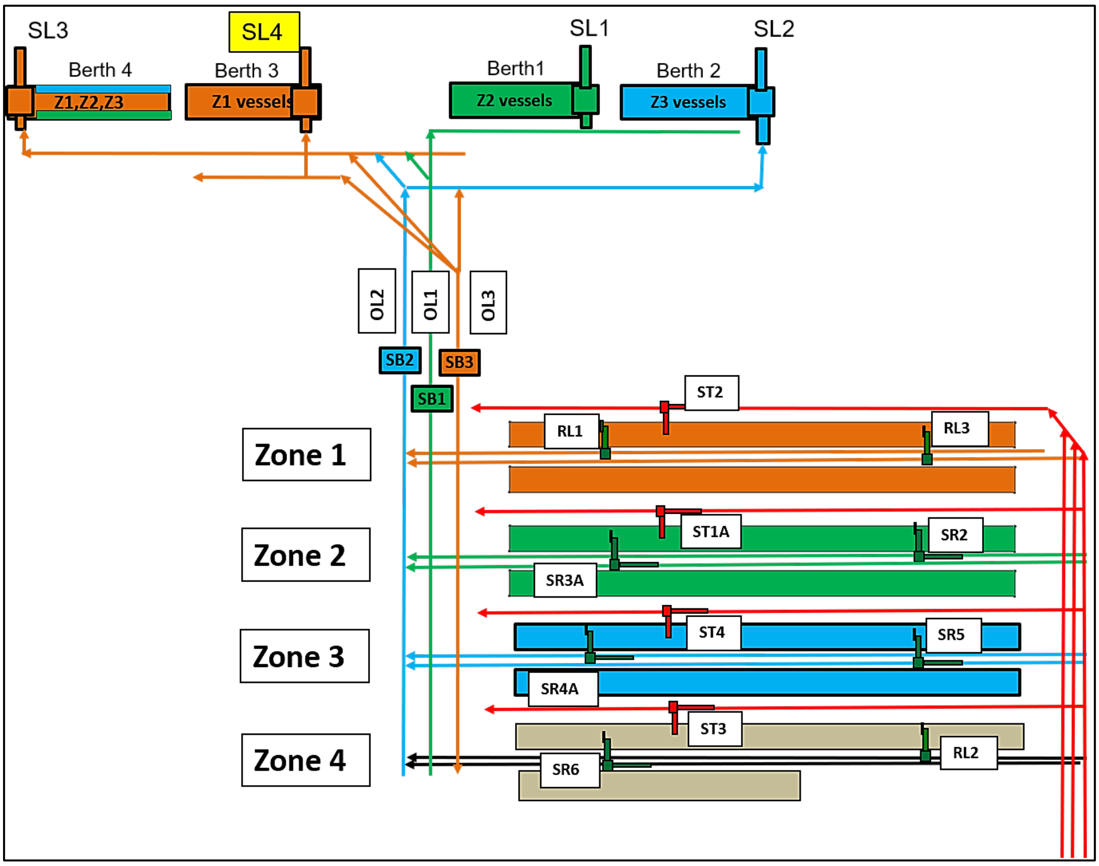

Figure 32: Proposed re-allocation of stockyard zones to OL systems following the SAP project

5.4.2.3 New IL4 and IL2 upgrade

The upgrade of the existing IL1 and IL2 systems from 5,500 tph to 8,100 tph would be expected to achieve a significant boost to inloading capacity. Such an upgrade would require substantial modifications to the two rail receival pits RRP1 and RRP2 and the associated conveyors. These upgrades have been previously investigated by Aurecon Hatch.

It is technically feasible to upgrade these systems, however the shutdown durations to complete the works are prohibitive. RRP2 would need to be shut down for approximately 6 months and RRP1 would likely need to be shut down for considerably longer. The RRP1 pit would require extensive modifications to the receival hoppers and feeder system, as well as the conveyor systems. Completing both upgrades before building a 4th system would reduce the terminal capacity to around 60 Mtpa for more than a year.

A new high capacity 4th inloading system (like inloading IL3 developed in 7X) could be built to replace one of the existing inloading systems to provide a capacity improvement. This option would allow for the existing systems to be upgraded without capacity loss because the capacity is replaced before the losses are incurred. The upgrade of RRP2 is feasible by replacing the existing 1600 mm belts with wider 1800 mm belts, operating at a maximum speed of approximately 6.4 m/s to minimise dust lift-off. The IL2 upgrade would only be carried out once the new IL4 was commissioned.

It is envisaged that the IL1 system would not be upgraded in 8X and would be decommissioned after IL2 is returned to service. If required, IL1 would be upgraded and returned to service as a part of the 9X project.

DBCT will only have three inloading systems in operation at the completion of the 8X project. Therefore, there is no need to develop a 4th rail loop as part of 8X.

Considering the approaches described above, a potential sequence for upgrade of inloading systems during the 8X expansion and progressing to the potential future 9X development is described in Figure 32 and Figure 33.

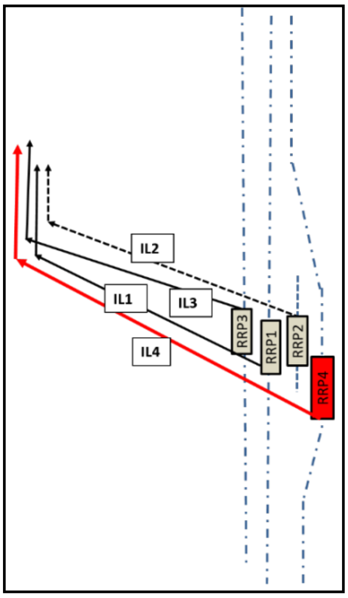

Figure 33: IL system upgrade – Step 1 - Establish new IL4 and RRP4, relocate existing RRP2 loop to service the new RRP4 and shutdown RRP2 and IL2 for refurbishment.

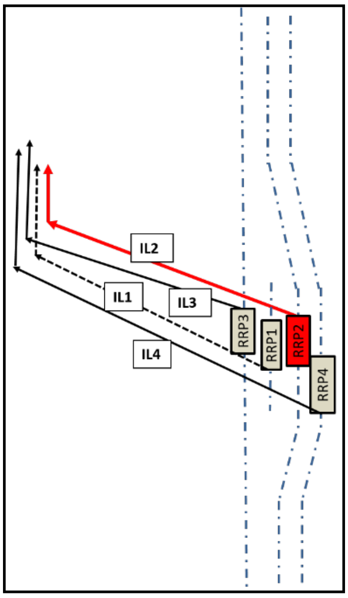

Figure 34: IL system upgrade – Step 2 - Re-commission upgraded RRP2 and IL2, relocate RRP1 loop track to service RRP2, shutdown RRP1 and IL1. IL1 would likely remain shut-down until the future 9X expansion phase.

The proposed 4th inloading system would run across the southern end of the stockyard on an alignment which is north of the existing systems as shown in Figure 34

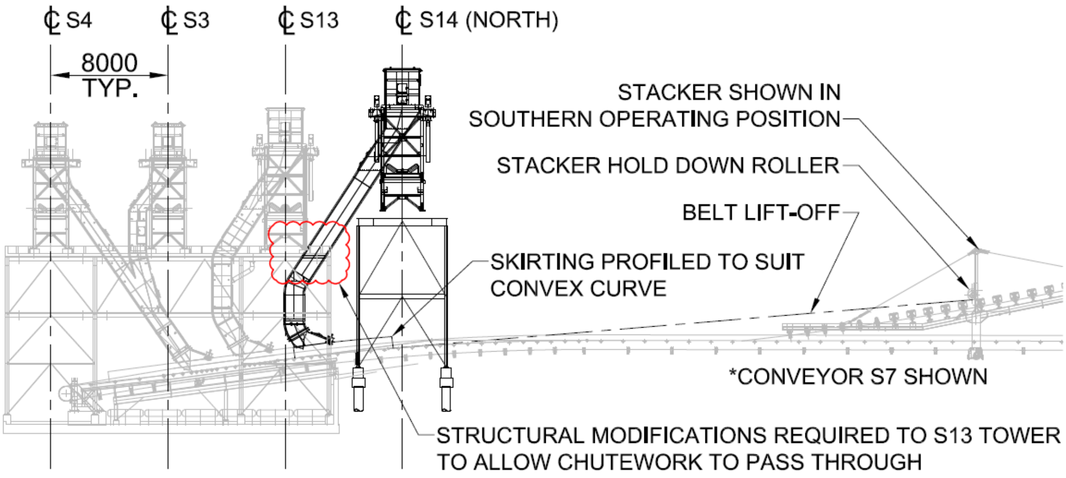

Figure 35: Proposed alignment of IL4 conveyor S14 at the southern end of the yard

With the deletion of the proposed inloading silos from this version of the Master Plan it is now proposed to connect the new IL4 system to all the stacking lines in the yard and the yard conveyors associated with the stacker reclaimers. This will allow the Stacker Reclaimers to stack any train that cannot be handled by the dedicated stackers and will also allow throughloading from the IL4 system.

5.4.2.4 OL2 Upgrade

The rate limitations of the outloading conveyor systems and surge bin capacities contribute to "full bin" events during ship loading. "Full bin" events impose delays on yard machines that would normally be avoided by matching outloading rates to surge bin capacities and reclaim rates.

The potential throughput gains that might be obtained from improved conveying rates downstream of the surge bin were examined in previous studies completed by Aurecon Hatch.

These studies resulted in the upgrade of the conveyors between the stockyard and surge bin as a part of the 7X project completed in 2009. The studies also concluded that further capacity gains were available through upgrades to the OL1 and OL2 conveying systems downstream of the surge bins.

Approximately 1.0 Mtpa was estimated to be available from OL2 and only 0.5 Mtpa available from OL1 due to the limitations of the smaller surge bin. That conclusion was based on an outloading rate change from 7,200 tph to 8,650 tph for both systems, whereas the outloading rate for OL2 has already been increased to 7,600 tph. The further gains are expected to be approximately 0.8 Mtpa for OL2.

The cost and operational impact to upgrade OL1 is significantly greater than that of OL2. Upgrading OL1 is not considered viable based on the current level of study and is therefore not included in the 8X Scope.

5.4.2.5 Indicative cost of the 8X Phases 2 and 3

An indicative capital cost estimate for the 2 phases of the project are as follows.

Phase	Capacity (Mtpa)	A$m
Phase 2 – ST2 upgrade, SAP and R2/RL3 upgrade (formerly 8X Phase 1)	2.7	175
Phase 3 – IL4, OL2 upgrade, IL2 upgrade (formerly 8X Phase 2)	3.3	350
Total	**6.0**	**525**

Table 7: 8X Phases 2 & 3 Indicative cost

This estimate is concept level only and is based on the following:

- Target accuracy in the range -25% to + 35% at 80% confidence intervals.
- The estimate is presented in Australian dollars with a base date of June 2019 with no allowance for forward escalation.

The facilities proposed for the 8X Phases 2 and 3 projects are also wholly integrated into the existing facility and are in no way separable in operation.

5.4.2.6 Operational impacts during implementation of the 8X Phases 2 & 3

The extent to which operational losses occur as a result of the implementation of 8X Phases 2 and 3 will depend on several factors including the detailed engineering and the actual target throughput requirements at the time certain elements are being built. There are potentially three main areas of disruption

SAP: This project could potentially cause significant disruption to Operations but this can be minimised by adopting a program that deliberately targets a slow construction that disrupts only a minor portion of the yard at any one time over an extended duration. In 2013 the ILC undertook detailed brown-out modelling to quantify the losses associated with SAP. At the time the ILC confirmed that there would be zero losses if the terminal was shipping at a rate of 70Mtpa and up to a total of 1.1Mt total throughput loss if the terminal was shipping 85Mtpa during the implementation.

OL2 Upgrade: When Outloading 2 was originally designed an upgrade from 7200tph to 8650tph was considered. In general the conveyor belt sizes, installed power and structures can accommodate the upgrade with a gearbox ratio change. Upgrade impacts can be minimised through various strategies which will be pursued in the next feasibility phase (FEL2).

IL4 cut-ins: This project could potentially be quite disruptive as each yard conveyor tie-in potentially quarantines the receiving yard conveyor. Several strategies have been identified for minimising this impact and these will be further developed in the next phase of feasibility.

Overall, the losses associated with the 8X Phases 2 & 3 appear to be manageable and containable to acceptable levels. Detailed engineering throughout the feasibility studies and into the design will focus on minimising this impact.

5.4.3 Zone 4 (Now 8X Phase 4)

The proposed Zone 4 Project involves expansion of the existing stockyard Row 8 to enable both Rows 7 and 8 to operate together as a 4th operating zone (Zone 4). Zone 4 would be utilised for storage of remnants and selected high-throughput coal types in dedicated stockpiles.

The project includes the following key components:

- Extension of Row 8 and the provision of a vertical walled bund (Bund 7) on the western side of the stockyard.
- Relocation of hybrid stockpiling (currently in use throughout the yard) with storage of selected high-volume products in dedicated piles in Zone 4 and another in a dedicated pile in Zone 2.
- Provision of an independent stacking path to Row 8 via the new Bund 7 and a new Stacker ST5 to improve the availability of the Zone 4 reclaim machines to attend to reclaim tasks.
- The replacement of the existing Reclaimer RL2 with a new Reclaimer with different geometry and a longer boom to ensure that it can reach all coal stored in Row 8 after the expansion.
- The relocation of the existing Western Site Access Gate and the Western Access Road.

The above aspects of the Zone 4 Project are illustrated in Figure 32 below.

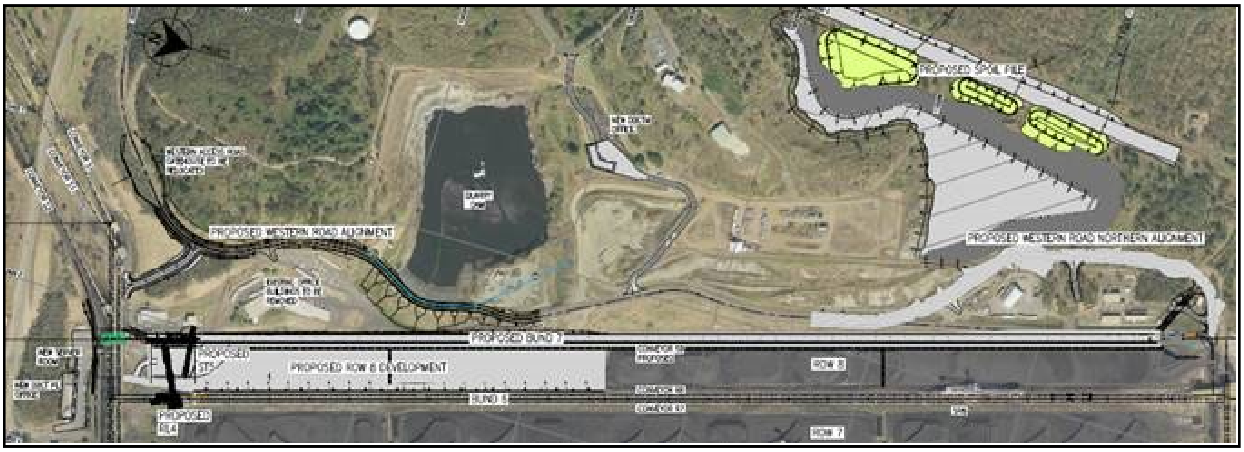

Figure 36: Extent of Works for Zone 4

The Zone 4 project delivers an increase in stockyard storage capacity and some minor improvements in stacking and reclaiming efficiency.

Like SAP, the Zone 4 expansion is not focused on provision of more coal handling equipment but instead focuses on increasing the storage volume available for cargo assembly and hybrid operations. This additional volume delivers an efficiency gain in the existing coal chain by allowing parcels to be sourced from more mine load outs and accommodated in the stockyard at any one time. This improved efficiency, in turn, provides additional system capacity by reducing the peaking congestion at points in the network. The infrastructure provided in Zone 4 will operate in a wholly integrated way with the existing facility, meaning that existing Users will necessarily have the same access to the facilities built as part of this expansion as expanding Access Seekers. The Zone 4 Project effectively closes the gap between Goonyella system capacity and nameplate DBCT capacity, while at the same time increasing overall system capacity to 89 Mtpa.

The proposed increase in the DBCT stockyard storage volume is to be achieved by an increase in width and length of row 8. The upgraded row 8 will feature a high retaining wall on the western side to allow greater storage efficiency than has been achieved in any other existing walled row.

The increased stockyard volume also facilitates an important change to the efficiency of the hybrid stockyard mode. In the context of the Zone 4 expansion project, the increased volume in Row 8 allows two of these dedicated product stockpiles to be moved out of the cargo assembly zones and into rows 7 and 8, coexisting with the remnant stockpiles. This allows rows 7 and 8 to be treated as a 4th stockyard Zone that will handle the two dedicated high-throughput coal brands as well as all remnants. The products in the Zone 4 dedicated piles are then not required to be handled via any of the other three cargo assembly zones or outloading systems. Coal from Zone 4 can then be proportioned across the 3 outloading systems in a way that allows Zone 4 to act as an extension, at various times, of each of the other three zones.

The effective storage ratio for the cargo assembly portion of throughput is increased and the increase in storage ratio is distributed more evenly across the stockyard zones than can be achieved prior to implementation of the Zone 4 project.

Minor improvements in overall stacking and reclaiming performance are also achieved in the Zone 4 Project via:

- replacement of the existing RL2 reclaimer with a longer boom RL4 reclaimer. RL4 will achieve higher average reclaim rates due to its ability to reclaim from wider stockpiles
- addition of a new high capacity stacker ST5 to facilitate independent stacking into row 8 without disrupting reclaim operations

These equipment improvements contribute to the overall throughput capacity gain that will be achieved because of the Zone 4 project.

The modelling results indicate that the system capacity increases from 94.5 Mtpa to 97.5 Mtpa as a result of the Zone 4 project being implemented as the last step of 8X. The stockpile areas are proposed to be utilised as shown below (Figure 33).

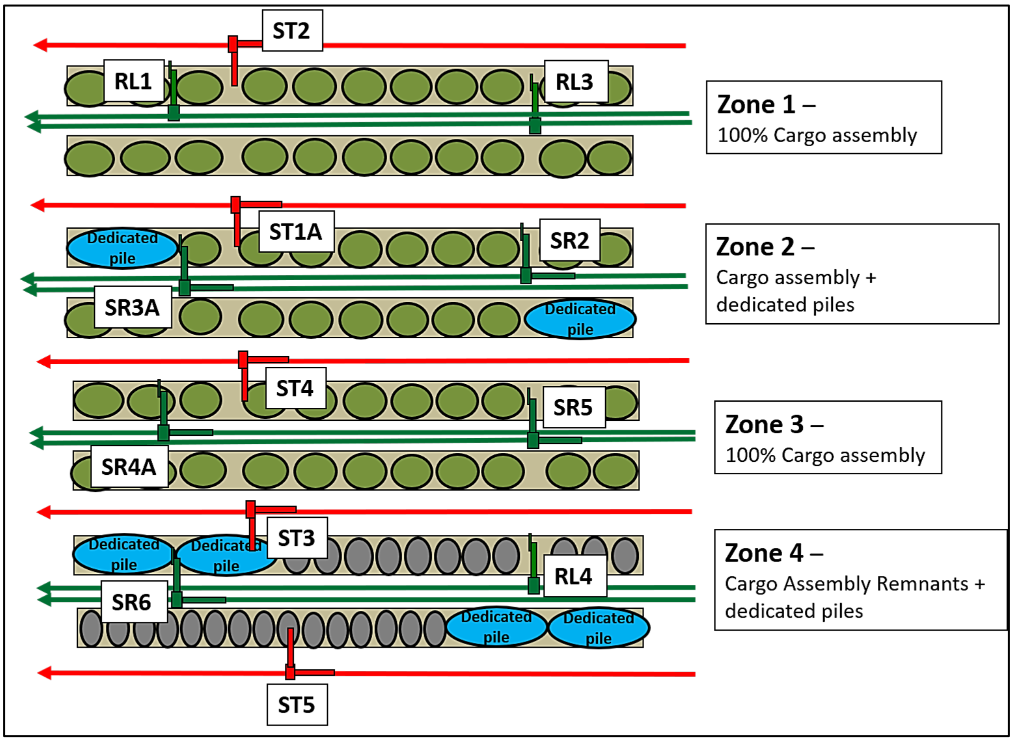

Figure 37: DBCT Stockyard following Zone 4 expansion

Use of the Zones can be described as follows:

- Zone 1 – This zone remains a cargo assembly zone.
- Zone 2 – This zone remains largely as a cargo assembly zone but will also accommodate two dedicated stockpiles with total 120 kilotonne (**kt**) capacity for a high throughput coking coal (shown in blue). This is expected to handle most of the total throughput of this coal type.
- Zone 3 – This zone remains a cargo assembly zone.
- Zone 4 – This zone, including Rows 7 and 8, was previously used only as a storage area for dedicated remnant stockpiles to support the cargo assembly operation. Following the extension of Row 8, this zone will now also accommodate 2 new dedicated stockpiles for each of two high throughput coal types.

The use of dedicated stockpiles allows cargoes destined for several vessels to be stacked together without separation between piles, meaning that these cargoes would consume much less stockyard area over time per tonne of throughput. This approach leaves more space for storage of other lower throughput coals that remain in separate cargo assembly stockpiles.

The Row 8 development within the Zone 4 project achieves a higher storage volume potential in Row 8 in comparison to other existing walled rows on the site. This occurs because of the increased height of the wall on the western side of Row 8 in comparison to the wall height on other rows at DBCT. This benefit is able to be utilised by the new large dedicated storage piles where significant length savings are achieved. Savings in stockpile length for the smaller remnant stockpiles are also possible, however the benefit is not as great as it would be for the larger, dedicated stockpiles. Further volume benefits are also achieved in Row 8, because being the western most stockyard row, there is no requirement for cross drains in Row 8 and no consequent loss of stockpile space.

5.4.3.1 Indicative cost of the Zone 4 Project

A capital cost estimate was compiled for Zone 4 during the 2015 feasibility study. Direct and indirect costs were generally compiled in detail with Material Take-offs (MTOs) produced through engineering and applied to detailed unit rates. The estimate was prepared using CCS Candy software - an analytical, resource-based estimating system.

During the study, budget pricing was sought for approximately 75% of the direct costs which was included as the basis for the stacker, reclaimer, civil construction, structural steel supply and fabrication and mechanical supply estimates. Contingency was included in the capital estimate following a Quantitative Risk Analysis (QRA) at P90 confidence. Estimate accuracy has been evaluated at approximately -15% to +20% at 90% confidence intervals.

Contingency was established in the QRA process which ranged components of the estimate at a summarised level. The resulting estimate at a P90 confidence level is A$395.3m.

The estimate base date is June 2019 with no allowance for forward escalation.

DBCTM understands that all of the 8X Phase 1, 2, 3 & 4 expansions fall into the category of Cost Sensitive Expansions as defined by the 2017 AU in Section 11.13(b). However these expansions are fully integrated, may have the effect of lowering Handling Charges per tonne, and potentially improve overall efficiency and risk to existing Users.

5.4.3.2 Regulatory approvals for Zone 4

Although Zone 4 is now not the first stage of the expansion pathway under Master Plan 2019, it is worth noting that relevant State approvals were gained for this expansion prior to Master Plan 2016, namely:

- DBCT P/L as the terminal operator, holding an existing Environmental Authority (**EA**) (Permit EPPR00504513), granted on 19 October 2015 and authorising the undertaking of ERA 50 (Bulk Material Handling up to 89 Mtpa. This EA includes the proposed Zone 4 expansion and ERA 63 (Sewage Treatment (more than 100 but less than 1500 Equivalent Persons design capacity)); and
- DBCTM as terminal owner, holds an existing EA, granted on 27 April 2015, which authorises the undertaking of ERA 16 – Extractive Activities (extracting and screening, other than dredging of more than 100,000t but not more than 1,000,000t in a year) across the DBCT terminal site (Permit EPPR02825115). The EA authorises the undertaking of blasting as part of the extractive activities.

These Environmental Authorities were issued by the Queensland Department of Environment & Science and cover the full extent of Zone 4 up to the terminal capacity of 89 Mtpa.

A formal referral was also made for the Zone 4 project under the *Environment Protection & Biodiversity Conservation Act, 1999* (**EPBC Act**) (Ref: 2015/7541). On 12 September 2015, the Commonwealth advised that the Zone 4 project was deemed to be a Non-Controlled Action and no approval under the EPBC Act would be required.

On 15 December 2015, NQBP issued a conditional Port Development Approval under the Port of Hay Point LUP (approved under the TIA), relating to the full extent of Zone 4 works.

As Zone 4 will no longer be the first stage of the expansion pathway under this Master Plan, discussions with State and Commonwealth officers will be required to determine the timing, nature and extent of both Commonwealth Referrals - and possible approvals - under the EPBC Act and State based approval requirements.

5.4.4 9X Project

The existing footprint at DBCT is limited to the Zone 4 capacity of 97.5 Mtpa. Any expansion materially beyond that capacity would require an additional stockyard for which DBCTM does not currently have sufficient land. Additionally, any expansion beyond Zone 4 will require additional berths to the north, which will necessitate capital dredging for both the berth pockets as well extensions to the departure path and aprons. Gaining the required approvals from GBRMPA for capital dredging has become materially more difficult in recent years, thereby making delivery of the 9X Project substantially more difficult.

The 9X development will incorporate the following key elements:

- Reactivation and upgrade of RRP1 dump station which would be in care and maintenance mode after the 8X expansions works. The tail section of S1 conveyor will need to be upgraded to operate at 8100 tph capacity to deliver the additional required train unloading capacity.

- A new fourth rail loop that would service RRP4 with the existing RRP4 loop re-aligned to RRP2, and RRP2 loop re-aligned to RRP1, as discussed in the 8X development report.
- Provision of link conveyors from the 4 Rail Receival Pits to feed the new 9X stockyard.
- A stockyard with enough storage capacity to match the proposed 34-35 Mtpa capacity expansion. Consideration needs to be given to the variety of potential operating modes, while also ensuring that the storage ratio is the same or greater than that proposed for the 8X development.
- A new fourth outloading system OL4 including; conveyors, surge bin, sample plant with the same operating capacity as the OL3 system. Suitable link conveyors are also required for connectivity between the new stockyard and the outloading systems.
- Berths 5 and 6 to the north of the existing Berth 4, serviced by shiploader SL3 with shiploader SL4 travel range extended to include Berth 4

It is not currently possible to predict how the new stockyard might be utilised within the expanded terminal operation. There are 2 main options for stockyard strategy which require different configurations.

The stockyard could be either:

- Operated as an integrated part of the existing facility to allow an extension of existing cargo assembly operations. This would suit incremental growth in throughput of the existing coal types combined with the addition of new coal types. All products could be loaded onto vessels in any combination.
- Operated as a stand-alone terminal that would be dedicated to handling a select group of coal types. Following this approach, coal stored in the 9X stockyard would not be able to be loaded onto vessels being loaded from the existing stockyard. This application would tend to be more favourable to higher throughput coals stored in dedicated storage stockpiles.

Considering these two potential operating approaches, a number of configuration options are possible. These were documented in more detail in Master Plan 2018. They are highly dependent on the commercial arrangements that underpin such an expansion and would be further developed in any future feasibility studies that include 9X.

5.4.4.1 Offshore configuration

It is proposed that the new OL4 outloading string would load to vessels via shiploader SL3 that would operate on new Berths 5 and 6. The travel range for shiploader SL4 would be increased to include Berth 4 at that stage.

There may be some transitionary steps possible in the offshore development and these will be pursued in later stages of feasibility.

5.4.4.2 Physical arrangements for stockyards and conveyors

Stockyard layouts have been prepared to demonstrate how the configuration options could be accommodated within the Louisa Creek site. Two potential site arrangements have been prepared including a short and long stockyard option.

The standalone terminal operation at Louisa Creek would best suit the long stockyard arrangement.

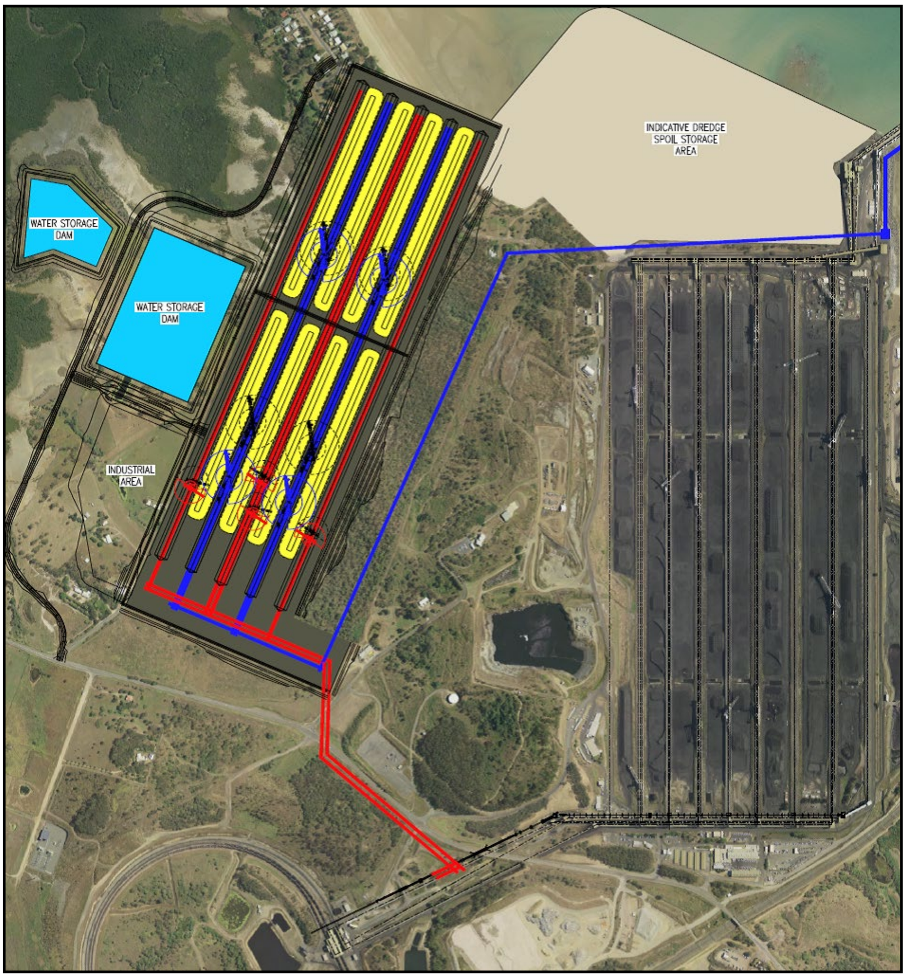

Figure 38: Long stockyard arrangement

The outloading conveyor arrangements need to be varied according to the required level of integration between the Louisa Creek stockyard and the existing DBCT stockyard, and the way in which the Louisa Creek stockyard will be utilised.

The single outloading conveyor string shown for the long stockyard in particular is suitable in the case of Louisa Creek being developed as a virtual standalone terminal, assuming that 8X operations continue unchanged within the existing stockyard. Any other case will require the construction of some additional outloading conveyors.

5.5 Rail Infrastructure

The rail track infrastructure in the vicinity of the terminal does not form part of the asset managed by DBCTM. The current rail track arrangements are understood to contribute to delays in the process of directing full trains to dump stations. Delays have also been observed in clearing empty trains from the loop after unloading to allow uninterrupted unloading of subsequent trains. Some relatively minor rail track improvements would likely address these issues and provide a throughput gain.

Potential modifications that would be expected to avoid train delays and improve utilisation of the dump stations are indicated in red in Figure 36 below. It is proposed that these improvements would be carried out at the time of establishing the RRP4 during the 8X phase i.e. when RRP4 is fed from a diverted loop 2 and prior to establishment of the 4th rail loop.

The green lines in Figure 36 indicate the proposed establishment of the fourth rail loop. It would likely not be established until much later, coinciding with a later 9X expansion phase as described in Section 5.3.4.

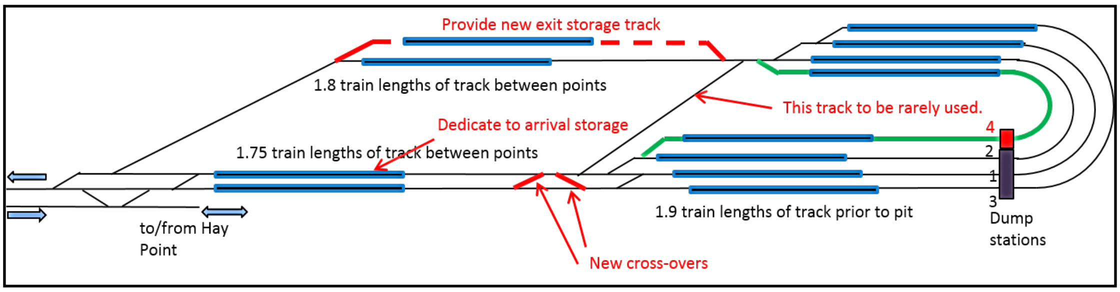

Figure 39: Proposed 8X rail loop modifications shown in red as proposed to be constructed with the IL4 dump station. The fourth rail loop in green would be constructed only at the later 9X stage.

5.6 Effect of Expansion Pricing on the Likelihood of Expansion.

The 2017 AU introduced the concept of differential pricing for future expansions. Under previous undertakings, and prior to privatisation of the terminal, all expansions of DBCT were priced on a socialised basis. An expansion that is socialised has a lower risk profile than an expansion that is priced differentially. This is because Access Holders have agreed that in the unlikely event of default of any Access Holder, the remaining Access Holders would incur a proportionate increase in their terminal access charges to cover the shortfall. This makes the risk profile of an expansion acceptable to both the lessee of the facility and potential project financiers. All previous expansions of DBCT were financed on this basis and all current Users benefitted to some degree from this arrangement.

Differential pricing, by comparison, necessarily requires both lessee and project financiers of any expansion to underwrite their investment purely on the basis of the capacity of the Access Seeker to meet their commitment to the post-expansion access charges. In an environment where future developments are likely to be incremental in nature, there is a strong likelihood that these charges will be supported by only one, or perhaps two, Access Seekers. Where these Access Seekers have high creditworthiness, the project may still be bankable, provided longer term take-or-pay contracts were negotiated to effectively return DBCTM's capital during the term of the contract. However, if the Access Seekers have lower creditworthiness, it is highly unlikely that either the lessee or potential financiers would accept the related risk and the project would not proceed.

These issues will need to be considered by DBCTM before deciding whether to proceed past FEL2.

5.7 Impacts of the 2017 Access Undertaking on Expansion timing

The 2017 Access Undertaking defines the process to be followed to continue with Feasibility works and ultimately progress to an Expansion. The process steps are outlined below in Figure 37.

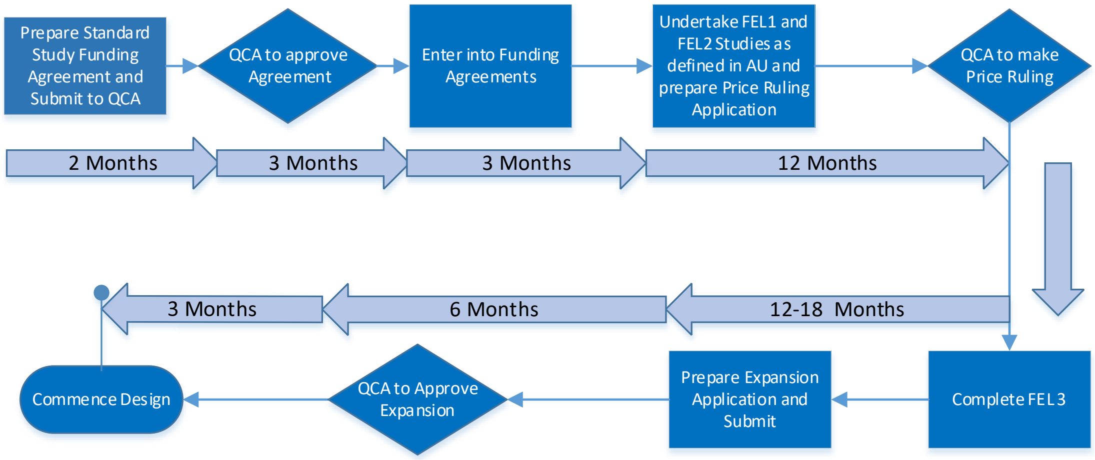

Figure 40: Expansion Approval process and indicative timeframes

During 2019 DBCT will be working through the initial steps of this timeline so that Access Seekers can enter into approved Feasibility Underwriting/Funding Agreements by April 2020. Once these steps are complete then the Standard Underwriting/Funding Agreement can be used for any expansion steps identified in this Master Plan.

The 2017 Access Undertaking requires greater certainty around the estimated capital cost than normally would be achieved from a FEL2 or FEL3 study completed to a standard consistent with normal industry practice. This will add cost and time to the process. Targeting a higher accuracy for FEL2 and FEL3 capital estimates is potentially inefficient because additional accuracy does little to assist with key decisions regarding project viability, but they necessitate significantly higher costs being incurred before a project is considered feasible or viable. The targeted level of accuracy can be varied by agreement between Access Seekers and DBCTM prior to commencement of a feasibility study but DBCTM expects that the AU may require amendment in the case of FEL3. The timeframes in Figure 37 are highly dependent on the actual scope of the project being studied (i.e. how many expansion elements are included) and also assume that Access Seekers and DBCTM will agree on the FEL estimate accuracy being in line with Industry standard as opposed to the current AU definition.

Table 8 shows the anticipated dates for each of the 8X Phases to reach Project Approval and Completion assuming immediate and sustained demand for capacity and assuming that the FEL studies target accuracies in line with Industry standards as opposed to the current AU definition. Also assumed is that the QCA will accept that FEL1 is already completed for all expansion steps and that work will proceed directly into FEL2. Requiring estimate accuracies in accordance with the AU will add significant delays to both the "best case" and "worst case" approval durations. The "best case" expansion completion date is based on "best case" approval. Completion would be delayed by the same duration if the "best case" approvals were not achieved.

The "worst case" approvals assume that the process is delayed at each point that the existing AU allows a non-participating party to delay the process.

Expansion Step		Scope	Best Case Project Approval	Worst Case Project Approval	Best Case Expansion Completion
8X	Phase 1	New Shiploader 4 on Berth 3 plus outloading debottlenecking	Sep 21	Sep 23	Jan 24
	Phase 2	Stockyard Augmentation Project (SAP) plus upgrade of Stacker ST2 and conveyors S5, S6A, S6, R1 and R2	Sep 21	Sep 23	Jan 24
	Phase 3	Rail Receival Pit 4 & Inloading System 4 plus upgrade to Inloading 2 and Outloading 2	Mar 22	Mar 24	Aug 25
	Phase 4	Completion of Row 8, vertical western wall, replacement of Reclaimer RL2 with a new Stacker Reclaimer to suit the new row 8 configuration, a new stacking conveyor and a new Stacker to the west of Row 8.	Jun 22	Jun 24	Mar 27

Table 8: Indicative Expansion step timing

6 Environment

6.1 Overview

The Queensland Government has responsibility for protection of the State waters and is therefore committed to a number of Reef 2050 initiatives relating to port development. The *Sustainable Ports Development Act (2015)* sets out the blueprint for port planning and management for certain ports in Queensland. The act aligns with the Commonwealth and State Government commitments under Reef 2050.

DBCTM will continue to discharge its environmental responsibilities carefully and recognises that operating in the GBRWHA requires robust environmental systems.

Environmental management within the coastal environment, and particularly within the GBRWHA requires two fundamental considerations:

1. Robust consideration of existing environmental values as part of terminal and/or expansion planning – ensuring that environmental values are examined and managed using the well understood mitigation hierarchy of: avoidance, mitigation and offsets; and
2. Ensuring robust Environmental Management Frameworks are in place for the ongoing management of operations consistent with the requirements of Environmental Authorities for terminal operations and/or construction activities.

DBCTM supports the position of the Queensland Government in requiring robust Port Master Plans including greater transparency of Environmental Management Frameworks at Queensland's Priority Ports and a stronger focus on port protection measures including appropriate environmental buffers.

Under the *Sustainable Ports Development Act (2015)*, master planning for the priority Port of Hay Point/Mackay formally commenced with a 'notice of proposal' issued on 27 October 2017.

Preliminary master planning processes are now currently underway with NQBP liaising with DBCTM as appropriate.

This section of the Master Plan outlines the particular environmental issues and the corresponding management responses.

6.1.1 Existing Environmental Authorities/Regulatory Processes

It should be noted that existing Environmental Authorities relevant to the terminal site and/or operations include:

- DBCTPL as the terminal operator holds an existing Environmental Authority (**EA**) (Permit EPPR00504513) granted on 19 October 2015 which authorises the undertaking of ERA 50 Bulk Material Handling (up to 89 Mtpa) and ERA 63 (Sewage Treatment (more than 100 but less than 1500 Equivalent Persons design capacity)); and
- Additionally, DBCTM as terminal owner holds an existing EA granted on 27 April 2015 which authorises the undertaking of ERA 16 – Extractive Activities (extracting and screening, other than dredging of more than 100,000t but not more than 1,000,000t in a year) across the DBCT terminal site (Permit EPPR02825115). The EA authorises the undertaking of blasting as part of the extractive activities.

6.2 Preliminary Environmental Impact Assessment

Zone 4 Expansion project

The EAs outlined above were issued by the Queensland Department of Environment & Science (**DES**) and covered the full extent of the Zone 4 Expansion up to the terminal capacity of 89 Mtpa.

It should also be noted that a formal referral was made for the Zone 4 project under the EPBC Act (Ref: 2015/7541). On 12 September 2015, the Commonwealth advised that the Zone 4 project was deemed to be a 'Non-Controlled Action' and as such, no approval under the EPBC Act would be required.

On 15 December 2015, NQBP issued a conditional *Port Development Approval* under the Port of Hay Point

LUP (approved under the TI Act), relating to the full extent of Zone 4 works.

However, as discussed in Chapter 5, the Zone 4 project is not the first expansion step for the terminal under this Master Plan.

The expansion pathway outlined in this Master Plan is staged and incremental – consistent with the policy direction prescribed under Commonwealth and State regulatory frameworks regarding a sensible approach to coastal development within the GBRWHA.

While expansion options outlined in this chapter must be examined from complex engineering and operational perspectives, the important environmental and social aspects have also been addressed as part of the core justification of the expansion, as required by the PSA, the AU, and various state and national legislation. Because of DBCT's geographical location within the GBRWHA, a preliminary assessment of ecological and social values of each of the preferred projects has been undertaken.

Subject to more detailed engineering design work being undertaken, each expansion step will need to be examined against various criteria and suitability including:

- Air Quality
- Noise & Vibration
- Underwater / Marine Noise
- Visual Amenity
- Cultural Heritage
- Local Maritime Operations
- Community & Social Impacts
- Coastal Processes
- Marine Ecology
- Terrestrial Ecology
- Soil & Geology
- Surface Water Quality & Hydrology
- Transport & Access
- Waste Management
- Land Tenure & Other Stakeholder Interests

Each of the above are described in the following sub-sections.

6.2.1 Air Quality

All potential air quality impacts will need to be examined and considered for the expansion steps.

Increased volumes of coal to be stored at an expanded terminal may increase the likelihood of dust emissions affecting neighbouring rural/residential community areas. As such, ongoing compliance with relevant Environmental Authorities will be critical in the forward management of operations as will ensuring participation in the broader 'port-wide' air quality monitoring programs managed by NQBP as the port authority.

DBCTM is continuously monitoring air emissions at and around the terminal in accordance with normal operational environmental management practices.

Work will continue and in conjunction with the port entity, NQBP, the operator will proactively adjust and adapt management practices as appropriate.

Ensuring appropriate port buffers is also a fundamental and strategic requirement for the Port of Hay Point over the longer term. This will be a critical issue under formal State Port Master Planning now underway for the port. DBCTM will work with the State and NQBP in the preparation of this strategic planning document.

Initial Impact Assessment: It is anticipated that there will not be a significant increase in air quality impacts as a result of either the new Shiploader 4 (8X Phase 1) or SAP (8X Phase 2) Expansion Works. The 8X Phase 3 works, involving a new rail receival pit and inloading system, will be reviewed at the time of advanced engineering design. All stages of expansion must ensure any emissions and/or impacts are minimised, with regulatory compliance always remaining critical.

6.2.2 Noise and Vibration

All potential noise and vibration impacts will need to be examined and considered for all expansion steps.

At present, DBCT P/L undertakes noise monitoring at 4 locations around the Port of Hay Point (internally and externally to the terminal) in accordance with the existing EA under the *Environmental Protection Act, 1994* (EP Act).

Noise assessment monitoring is undertaken continuously.

A number of noise control and management measures are incorporated across the DBCT site, and for the 2014-2015 period, noise levels were compliant with the limits under the existing EA.

Intensification of existing terminal operations, largely within existing terminal footprint areas will ensure the minimisation of noise emissions from the site. Further, upgrading operational equipment over time as development continues will also assist in noise and vibration management.

Initial Impact Assessment: It is anticipated that there will not be a significant increase in noise and vibration impacts as a result of any of the 4 phases of 8X. All stages of expansion must ensure any emissions and/or impacts are minimised, with regulatory compliance being critical at all times.

6.2.3 Underwater / Marine Noise

The piling works associated with new Shiploader 4 may result in increased underwater noise during construction. Following discussions with NQBP, it is clear that impact assessment work will be required to determine the level and extent of potential underwater noise associated with piling and construction activity.

Initial Impact Assessment: Due to the short term nature of works, it is anticipated that construction noise can be managed appropriately within the marine environment. Risk assessment will need to be carried out to consider seasonal issues such as whale migration periods along the Great Barrier Reef coastline.

6.2.4 Visual Amenity

All potential visual amenity impacts will need to be examined and considered for all expansion steps.

DBCT is an existing, long established land use, which forms part of the Port of Hay Point. Since operations first began at the port in October 1971, the Port of Hay Point has become Queensland's largest export port with exports in the 2017-18 financial year of 120 Mtpa across both DBCT and the adjoining Hay Point Coal Terminal.[18] The designation of the Port of Hay Point as one of Queensland's 'Priority Ports' (thereby being a 'relevant port' under the *National Ports Strategy, 2012*) acknowledges that the visual amenity of the node is recognised and part of the landscape of this part of the Queensland coastal zone.

The Port of Hay Point is also recognised in local, regional and state-wide planning instruments as a major infrastructure node along the Queensland coast.

Initial Impact Assessment: Expansion of the terminal as proposed under this Master Plan up to the 9X project (ie. all works within existing terminal and/or operational footprint) is consistent with the well accepted visual amenity of the local environs.

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[18] NQBP Port Throughputs – Hay Point

6.2.5 Cultural Heritage

A search of the Cultural Heritage Database maintained by the Department of Aboriginal and Torres Strait Islander Partnerships (DATSIP) was undertaken as part of Zone 4 regulatory applications that did not identify any recorded indigenous cultural heritage sites within the area of the proposed works. It is not expected that alternate expansion steps of 8X would encounter any relevant issues due to works occurring within existing terminal footprints and operational areas.

As always acknowledged, all future expansion would be required to proceed in line with relevant State and Commonwealth legislation regarding Cultural Heritage matters to ensure compliance with the Cultural Heritage Duty of Care under the *Aboriginal Cultural Heritage Act 2003.*

Initial Impact Assessment: Expansion of the terminal as proposed under this Master Plan up to the 9X project (ie. all works within existing terminal and/or operational footprint) is not expected to trigger any material cultural heritage requirements. Regulatory compliance will be required at all times with the Cultural Heritage Duty of Care provisions prescribed under the *Aboriginal Cultural Heritage Act 2003.*

6.2.6 Local Maritime Operations

All expansion options up to and including 9X would not entail any material alteration to local maritime operations. The Shiploader 4 (8X Phase 1) works are localised and within operational tenured areas and no marine development is proposed for any of the 8X Phases 2, 3 and 4.

The 9X expansion may entail up to two new offshore berths and reclamation within the World Heritage Area. Development of this kind would need to be closely examined in terms of interactions with local maritime operations such as recreational and commercial fishing activities and is likely to trigger the need for extensive environmental impact studies.

Initial Impact Assessment: Expansion of the terminal as proposed under this Master Plan up to the 9X project (ie. all works within existing terminal and/or operational footprint) is not expected to trigger any material local maritime issues.

6.2.7 Community and Social Impacts

All potential community and social impacts will need to be examined for all expansion steps.

All elements of the proposed 8X expansions works entail development within the existing terminal footprint and/or existing operation areas.

Initial Impact Assessment: It is not expected that any social or community impacts are likely as a result of terminal operations under these scenarios. Management of construction impacts will be required particularly with regard to construction noise, traffic impacts and general movements around the terminal environs.

6.2.8 Coastal Processes

There are no anticipated coastal process impacts as a result of either the 8X Phases 2,3 or 4 expansions, as marine works are not included in these phases.

The Shiploader 4 (8x Phase 1) project involves minimal localised coastal impacts (vertical piles to be driven alongside the existing Berth 3 structure), however these potential impacts are to be managed via the Queensland State regulatory approval processes to be coordinated by NQBP.

Additionally, the 9X proposal entails development within the coastal zone. Potential impacts associated with this expansion would be fully examined once more detailed engineering assessments have occurred in the course of normal project feasibility work.

Due to recently introduced legislation at both Commonwealth and State government levels, ‘at-sea’ relocation of capital dredge material is prohibited. The 9X concept therefore includes a proposal to reclaim land using material from necessary berth dredging consistent with the principles of ‘beneficial re-use’.

Given the preliminary nature of the 9X design, the extent of material for this area and size of area is unable to be confirmed. This Master Plan commits to design principles being based on a *Working with Nature* ('WwN') philosophy - as advocated by the World Association for Transport Infrastructure known as 'PIANC'.

As PIANC states:

'Working with Nature requires that a fully integrated approach be taken as soon as the project objectives are known – i.e. before the initial design is developed. It encourages consideration of how the project objectives can be achieved given the particular, site-specific characteristics of the ecosystem.

Working with Nature is about more than avoiding or mitigating the environmental impacts of a pre-defined design. Rather, it sets out to identify ways of achieving the project objectives by working with natural processes to deliver environmental protection, restoration or enhancement outcomes'.

6.2.9 Marine Ecology

There are no anticipated marine ecology impacts as a result of any of 8X Phase 2, 3 or 4 expansions.

Initial Impact Assessment: Potential impacts associated with the new Shiploader 4 proposal would need to be examined once engineering design concepts have progressed. It is likely that marine surveys will need to be undertaken to determine the likely nature and extent of seagrass and/or marine ecology within the development footprint.

Increased shipping movements would also need close examination although the increased size of average export parcels per vessel is equating to lower overall vessel movements per export tonne than what was originally approved under the 7X expansion assessment.

6.2.10 Terrestrial Ecology

Potential impacts associated with the expansion options outlined within this Master Plan will be fully examined once more detailed engineering assessments have occurred in the course of normal project feasibility work. It is clear though that existing terminal environs are highly disturbed in nature.

Initial Impact Assessment: No material issues anticipated up to the 9X expansion, as development is largely within highly disturbed footprint.

6.2.11 Soil and Geology

Potential impacts upon soil and geology are to be assessed in greater detail prior to development proceeding. Existing groundwater bores (subject to existing state government licence conditions) will continue to be monitored/reported as part of the terminal Environmental Management System.

Initial Impact Assessment: It is unlikely that soil and/or geological issues will restrict the expansion pathway.

6.2.12 Surface Water Quality and Hydrology

Works undertaken in 2015 as part of the Water Quality Improvement Project (WQIP), (including the construction of the new Rail Loop Dam) have significantly improved water quality management on site through increased water storage capacity across terminal lands.

The future expansion pathway outlined in this Master Plan is likely to benefit from such water quality management improvements.

Initial Impact Assessment: No adverse impacts envisaged.

6.2.13 Transportation and Access

Transportation and access issues are unlikely to significantly change under expansions outlined within this Master Plan. Changes to inloading rail receival pits would occur within highly disturbed environments. The 9X expansion would however, trigger changes to terminal access and significant changes to rail and road infrastructure.

6.2.14 Waste Management

Waste management under all future expansions would be captured in relevant construction and operational environmental management plans as per usual operations.

6.2.15 Land Tenure and Other Stakeholder Interests

All expansion options up to 9X utilise existing DBCTM held lands as they largely involve augmentation of existing terminal areas.

The 9X expansion would require further land acquisitions in the immediate port environments for both terminal area and associated infrastructure corridors (road/rail etc.).

6.3 Comparison of Expansion Projects

Table 9 outlines the qualitative risk assessment of environmental and planning issues for the proposed expansion pathway.

It should be noted that all regulatory approvals are in place for the Zone 4 expansion, hence its lower risk rating.

Issue/Impact	8X Phase 1 SL4 on Berth 3 Expansion (85-88.5Mtpa)	8X Phases 2 and 3 Expansions (88.5-94.7 Mtpa)	8X Phase 4 Zone 4 Expansion (94.7-97.5 Mtpa)	9X Expansion (97.5^{+} Mtpa)
Air Quality	L	L	L	H
Noise & Vibration	L	L-M	L	H
Underwater Noise	M	L	L	H
Visual Amenity	L	L	L	M
Cultural Heritage	L	L	L	M
Local Maritime Operations	L	L	L	M
Community & Social Impacts	L	L-M	L	H
Coastal Processes	L	L	L	H
Marine Ecology	L-M	L	L	M
Terrestrial Ecology	L	L	L	M
Soil & Geology	L	L	L	H
Surface Water Quality & Hydrology	L	L	L	H
Transport & Access	L	L	L	H
Waste Management	L	L	L	L
Land Tenure & Other Stakeholder Interests	L	L	L	M

L	**Low:** Limited (if any) delays are likely to be experienced during the approval process as a result of the issues identified
M	**Moderate:** Delays are likely to be experienced during the approvals process as a result of the issues identified, however issues are expected to be managed / addressed sufficiently to obtain approval without significant design changes.
H	**High:** Significant delays are likely to be experienced during the approvals process due to the issues raised. Resolution of these issues is likely to involve design changes.

Table 9: Qualitative comparison of environmental and planning risks for the proposed expansion pathway

Robust management of the construction phase will be required for all expansion steps. Close regulatory liaison is recommended ensuring a “no surprises” culture and partnership approach.

The location of the terminal within and adjacent to the GBRWHA, necessitates an absolute focus on impact avoidance of environmental values as part of planning and design processes, and ensuring robust environmental management systems are in place for ongoing operations.

For 9X, the following is a list of key issues requiring further investigation in order to provide a more accurate assessment closer to the time of development:

- Cultural Heritage assessments of potential sites outside the existing DBCT footprint
- Likelihood of impact on marine water quality, including impact on local beaches
- Potential impacts to coastal processes as a result of reclamation works and any new marine infrastructure (9X)
- Obtaining the necessary land for 9X
- Reclamation and construction impacts upon local turtle nesting sites
- Potential impacts upon seagrasses and other marine plants
- Impacts to existing mangrove communities and the need for setbacks
- Impact to tidal flow regime of Louisa Creek during 9X expansion works
- Traffic assessment study to determine impacts upon Hay Point Road and the local road network
- Any relevant amendments to Reef 2050 including implementation policies
- Any relevant amendments to the *Sustainable Port Development Act, 2015*
- Quantitative noise and dust assessments based on enhanced engineering design parameters closer to the time of development
- Enhanced examination of port buffers around the Hay Point priority port precinct

In order to better understand potential noise and dust emissions, DBCTM previously commissioned preliminary studies of dust and noise modelling to ensure critical issues are factored into preliminary design and feasibility studies.

6.4 Air Quality Environment - Post Expansion

Due to their past experience with DBCT, Katestone Environmental (**Katestone**) were previously commissioned to undertake predictive modelling for terminal expansions. The air quality assessment assumed that the terminal capacity had reached 102 Mtpa – albeit under a differing expansion pathway.

Particulate matter is the main air pollutant associated with operation of coal terminals. Emissions of other air pollutants will be low and therefore will have a negligible potential for impact compared to particulate matter. Particulate matter was the primary focus of the Katestone air quality assessment and other air pollutants have not been considered further.

It is assumed that the neighbouring coal terminal is operating at its approved capacity (55 Mtpa). The air quality assessment was based on the following items:

- Development of a three-dimensional (3D) meteorological dataset representative of prevailing conditions of the surrounding area.
- Estimation of emissions of particulate matter associated with coal terminal operations based on information used in previous air quality assessments, National Pollutant Inventory (NPI) reporting, other data provided by DBCTM and standard assumptions where information is not available.
- Dispersion modelling incorporating emission characteristics and particulate matter emission rates associated with the operation of the coal terminals. The model also includes site-specific 3D meteorology, terrain, land-use and geographical location of sensitive receptors.

- Prediction of levels of particulate matter due to the operation of the coal terminals at identified sensitive receptor locations and the surrounding environment. Predicted ground-level concentrations of the key metrics including: Total Suspended Particulate matter (TSP), PM10 and PM2.5. PM 10 and PM 2.5 are defined as Fraction of Particulate Matter with diameter smaller than 10 and 2.5 micrometres respectively.
- and dust deposition rates have been assessed against the relevant air quality objectives detailed in the:
  - Environmental Authority Permit Number: EPPR00504513 (Date of Issue 19 October, 2015)
  - Environmental Protection (Air) Policy 2008 (Air EPP)
  - National Environment Protection (Ambient Air Quality) Measure (Air NEPM) (Commonwealth Department of the Environment, February, 2016) Department of Environment and Heritage Protection's (EHP) Guideline, Mining: Model mining conditions (EHP, 2013)
  - Application requirements for activities with impacts to air (EHP, 2015)

The general approach to the assessment was consistent with the methodologies applied in earlier air quality assessments conducted for regulatory approvals. In the late 1990s and early 2000s, Katestone developed a dust modelling system representing the Hay Point area that included DBCT and HPCT for the Stage 6 and 7 expansions of DBCT (Hay Point DispMod v1.0). That modelling system used the USEPA's ISC3 Gaussian dispersion model.

The ISC3 model is no longer supported by the USEPA.

More recently, the modelling system was redeveloped using the CALMET/CALPUFF models and this new modelling system was used for more recent expansion projects, most recently for the EIS for the Dudgeon Point Coal Terminal (Hay Point DispMod v2.0).

The current modelling system (Hay Point DispMod v2.0) incorporates the more sophisticated CALMET meteorological model and the CALPUFF dispersion model, which are accepted for use by regulatory authorities in Australia. Hay Point DispMod v2.0 also incorporates an emissions model that is configured to represent the spatial and temporal emissions from DBCT at 85 Mtpa and HPCT at its current approved capacity of 55 Mtpa.

As a result of the changed expansion pathway proposed under this Master Plan, detailed engineering work as part of further developing expansion pathways will need to explore additional ways to mitigate air quality impacts from future development.

6.4.1 Emissions

Activities associated with the most significant emissions of particulate matter from coal terminals are conveyors, stockpiles, transfers and other activities such as bulldozing and excavators.

For the majority of activities, the emission rate of particulate matter is dependent on the wind speed with little or no emissions occurring for some activities (e.g. stockpiles) below a wind speed threshold. For some activities (such as coal conveyors), wind speed and frequency of utilisation are important determinants of the emission rate. Other factors are also important such as coal type, coal moisture content, coal particle size distribution, rainfall and the mitigation measures that may be employed.

Additionally, and in line with best practice long-term planning at and around this 'priority port' node, it is recommended that the form and extent of environmental buffers, particularly along the western boundary of the terminal, be examined further in conjunction with NQBP as the port authority.

It is recommended that the examination of enhanced port buffer options be highlighted as a priority issue in the formal State Port Master Planning endeavours (to be managed by the State of Queensland). This is considered critical to ensure the protection of the port node and neighbouring areas into the future and consistent with the planning approach outlined in the *Sustainable Port Development Act, 2015.*

6.5 Noise Environment - Post Expansion

Predictive noise modelling upon advanced engineering works will also be required to ensure future expansions are within reasonable limits and statutory guidelines as currently known.

6.5.1 Existing License Conditions

The noise sensitive places from the *Environmental Protection (Noise) Policy 2008* are:

- dwelling (indoors and outdoors)
- library and educational institution (including a school, college and university) (for indoors)
- childcare centre or kindergarten (for indoors)
- school or playground (for outdoors)
- hospital, surgery or other medical institution (for indoors)
- commercial and retail activity (for indoors)
- protected area, or an area identified under a conservation plan under the *Nature Conservation Act 1992* as a critical habitat or an area of major interest marine park under the *Marine Parks Act 2004*
- park or garden that is open to the public (whether or not on payment of an amount) for use other than for sport or organised entertainment

The licence changes in the latest environmental authority (EPPR00504513) now imply that the nearest sensitive place to DBCT to the south east of the terminal is the retail activity (shops) near to the new location of the P3 noise monitoring station, instead of the nearest dwelling.

7 Stakeholder Consultation

7.1 Sustainability

DBCTM is committed to ensuring the terminal will be sustainable into the future and have a positive impact on the environment and communities in which it operates.

DBCTM and the Operator are currently undertaking to formalise a joint long-term sustainability strategy for the terminal. In order to guide the strategy development, external stakeholders including representatives of the local communities, NGOs and other interest groups have been consulted through surveys and face-to-face interviews to gain an understanding of what they consider to be the material issues that the terminal needs to address. The strategy will identify specific actions, goals and targets and our intention is to report regularly on our progress and sustainability performance.

Further information regarding the terminal's current approach to sustainability and progress on the strategy development can be found at www.dbctm.com.au/sustainability.

7.2 Public Consultation Process

The Port of Hay Point Community Reference Group (**CRG**) is facilitated by NQBP and has been a critical link between DBCT and the community. Membership of the CRG currently includes representatives of DBCTM, DBCT P/L, NQBP, Mackay Regional Council, the registered Aboriginal Party, BMA, Aurizon Network, a local business representative, an environmental group representative and the local communities of Louisa Creek, Timberlands, Half Tide/Salonika Beach, McEwans Beach, Fenechvale/Droughtmaster Drive and one from the area south of Hay Point Road. The meetings are normally closed meetings however the CRG may extend invitations to the general public to observe a subsequent meeting at any time. The CRG publishes minutes of meetings, as well as an official newsletter that is made available to communities. The CRG was suspended in May 2017 and all parties agreed at the time that the group would reconvene when there was a compelling reason to meet. In early 2018, DBCTM initiated the reconvening of this group because the coal market was changing and Access Seekers were showing interest in contracting the spare capacity at DBCT. On 8 November 2018 the first meeting of the refreshed CRG was held.

The Port of Hay Point CRG discusses a wide range of local concerns and is kept abreast of general developments at DBCT and Hay Point. This provides an ongoing forum to ensure the community is well informed about DBCT issues that affect the whole of port stakeholders. In turn, DBCTM and DBCT P/L are able to consider and gauge general community concerns as part of the ongoing DBCT planning process. The CRG Terms of Reference is available on NQBP's website together with minutes of meetings and copies of presentations given during the meetings.

Because the more specific issues associated with the operations of DBCT were sometimes confused with the whole of port group, DBCT P/L commenced its own Community Working Group (CWG). This group is represented by community members, local government, DBCT P/L, the local State member of parliament and DBCTM. The primary goal of the group is to facilitate open two-way communications that enhance understanding of issues specifically associated with the terminal and to build trust between the members.

Environmental performance remains a source of concern for the community, and this double strategy ensures community relations are maintained and that community concerns are heard and acted upon.

DBCTM recognises that potential expansion projects may create additional community pressures that are not related to the terminal's operations. Accordingly, DBCTM takes an active role with the community by promoting stakeholder knowledge of future potential expansions.

CRG meetings have been traditionally held every three months and CWG meetings are held every two months. Since mid-2014, DBCTM has regularly updated these forums on current and future projects. Current and future projects may include those undertaken as Non-Expansionary Capital Works, projects contemplated by the Master Plan, and feasibility studies. These forums are aware of the projects in the Master Plan. A presentation on the progress and likely content of the draft Master Plan 2019 was given to the CRG on 8th Nov 2018 and a detailed presentation of the draft Master Plan will be given at the CRG being held on 6th Jun 2019. CWG updates occurred on 6th Dec 2018, 28th Feb 2019, 4th Apr 2019 and a presentation of the draft Master Plan is planned on the 13th Jun 2019. The feedback from the community has been consistent. The local communities are most concerned about any further development outside the existing terminal footprint. In contrast, development within the footprint is less likely to upset the local community provided the environmental impacts and construction impacts are effectively managed.

7.3 Community Engagement Strategy

The primary objective of a community engagement strategy is to assist in the provision of a stable social operating environment for the business and to allow DBCT to expand to meet industry demand. DBCTM's community engagement strategy is based on the following:

- Informing and educating the community regarding the terminal's operating philosophy and activities including values, history, commitment to sustainability, security, among other things.
- Working to continually improve relations with the immediate community through open and successful community engagement and relationship building.
- Proactively strengthening key stakeholder relationships outside the immediate community.
- Effectively and efficiently managing complaints and issues.
- Promoting greater integration/interdependence between the community and the terminal over the long term.

A multi-faceted approach to Community liaison has been adopted, as no single plan, including attendance at the Port of Hay Point Community Relations Group (CRG) or Community Working Group (CWG), can satisfy all of the expectations of various community groups and individuals.

Typical responsibilities of this liaison role include the following:

- Meet and greet activities, including working with local schools and TAFE colleges, managing site tours, visits and handouts. This forms an integral part of the community information and education campaign.
- Interaction with the CRG and CWG local advisory group.
- Production of written material on how the terminal operates, its values, history, environmental initiatives, etc.
- Development of local employment, primarily through the non-expansionary capital works program and DBCT expansion projects, as well as ongoing terminal operations.
- Speaking engagements at local clubs, council, and industry groups.
- Response to community input or issues.
- Maintaining a website to better inform interested parties of terminal related matters.

7.4 Key Stakeholder Relations Program

While the focus of this strategy is community engagement, external stakeholders also need to be included in terminal information releases. These external stakeholders include:

- approval agencies, e.g. Environmental Protection Agency and the Queensland Department of Environment and Science
- elected representatives (State, Federal and local Government)
- Ministers relevant to the operation or expansion of the terminal
- Media
- environmental groups, and
- local government officers from such agencies as Department of Natural Resources & Mines and Queensland Health

As such, community engagement programs have been extended to include communication with key stakeholders in order to ensure proactive relationships with these parties.

DBCT is only one component of the Goonyella coal supply chain and relies on the performance and alignment of the upstream and downstream stakeholders to operate at maximum efficiency. As a result, DBCTM continues to place a strong emphasis on maintaining a cooperative relationship with its stakeholders through its membership of the ILC and through regular informal contact.

Master Plan (2019) has been prepared by DBCTM in consultation with current stakeholders, identified as follows:

- Local neighbouring communities – via CRG and CWG meetings since mid-2014 with a detailed presentation given to the CRG in November 2018 and the CWG in December 2018, February 2019 and April 2019. An update on the final Draft Master Plan is planned to be given to both the CRG and CWG at the June 2019 meetings.
- North Queensland Bulk Ports – Principal Planner and Principal Development Advisor - May 2019.
- Queensland Department of Transport & Main Roads (TMR) including Director of Ports and the Project Manager (Sustainable Ports Planning) - May 2019.
- All DBCT Access Holders - May 2019.
- All current DBCT Access Seekers – May 2019.
- The DBCT terminal Operator (DBCT Pty Ltd) –Master Plan 2019 presentation to Executive Leadership Team (ELT) and Key Managers – May 2019, regular monthly TMT meetings with ELT plus regular fortnightly Master Plan meetings since Nov 2018 with Manager Projects
- Aurizon Network (rail network provider) – Supply Chain Development Manager – Network May 2019.
- Aurizon National – May 2019.
- Pacific National – May 2019.
- Integrated Logistics Company – General Manager and Master Planning and Simulation Manager - ongoing and frequently throughout the development of MP2019

7.5 Management of Complaints and Issues

DBCTM values its trusted relationship with the local community in which it operates. To maintain this relationship DBCTM fosters community engagement to field and manage community input and complaints in an efficient and effective manner. Dedicated channels of communication and protocols have been established to facilitate management of community suggestions and issues which include both the terminal Operator and any major works contractors.