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1 Introduction

The Newcastle Coal Infrastructure Group (NCIG) Coal Export Terminal (CET) is located on Kooragang Island in Newcastle, New South Wales (NSW) (Figure 1-1). The NCIG CET was granted Project Approval (06_0009) on 13 April 2007.

The overall NCIG CET includes the construction and operation of a CET up to 66 million tonnes per annum (Mtpa), including associated rail and coal handling infrastructure and wharf/shiploading facilities on the south arm of the Hunter River.

NCIG is the proponent of the approved NCIG CET and is a consortium of the following group entities:

- BHP Billiton Limited
- Yancoal Australia Limited
- Whitehaven Coal Limited
- Peabody Energy Corporation
- Banpu Public Company Limited

The NCIG CET operates as a highly automated and innovative facility that serves as critical infrastructure to the NSW coal mining industry, enabling access to global export markets.

This Modification Report is a Statement of Environmental Effects that has been prepared by NCIG to support a request to modify the Project Approval (06_0009) under section 4.55 of the NSW Environmental Planning and Assessment Act, 1979 (EP&A Act) (the Modification).

NCIG currently operates within the existing approved throughput capacity limit of 66 Mtpa. However, the business has identified a need for this throughput capacity limit to be increased to 79 Mtpa, to match the technical feasibility of the terminal as a result of the optimisation improvements.

NCIG, therefore, seeks to increase the approved throughput capacity of the existing terminal (as defined by Project Approval 06_0009) from 66 Mtpa to 79 Mtpa. This capacity increase would be enabled by a number of internally identified initiatives, such as on-site control system and operational process improvements, that improve the efficiency of the operation within the existing CET boundary, using existing CET infrastructure and at a low capital cost.

Further detail regarding the NCIG CET can be found on NCIG’s website: www.ncig.com.au.

1.1 BACKGROUND

1.1.1 NCIG Development History

The NCIG CET was assessed in the Newcastle Coal Infrastructure Group Coal Export Terminal Environmental Assessment (NCIG, 2006a) (NCIG CET EA) and was approved by the NSW Minister for Planning on 13 April 2007.

Two modifications to Project Approval (06_0009) have since been granted under the EP&A Act:

- November 2007 for subdivision of land to facilitate registration of leasehold over the land area by the State Property Authority (to allow NCIG to lease the land for the construction and operation of the NCIG CET) (MOD 1).
- May 2013 for a grade separation of the northern rail spur, minor realignments of the Kooragang Island mainline and other associated ancillary infrastructure (known as the Rail Flyover Modification) (MOD 2).

A copy of the original Project Approval (06_0009) is provided in Attachment 1. Copies of the Modification of Minister’s Approval for the two modifications (MOD 1 and MOD 2) are provided in Attachments 2 and 3.

Construction of the NCIG CET commenced in February 2008 and was completed in three main stages:

| STAGE 1 | total capacity of 30 Mtpa was completed in May 2010. |
| STAGE 2AA | total capacity of 53 Mtpa was completed in June 2012. |
| STAGE 2F | total capacity of 66 Mtpa was completed in June 2013. |

Construction of the grade separation of the northern rail spur (the rail flyover) was completed in 2015.

The general arrangement of the existing/approved NCIG CET components is shown on Figure 1-2.
PORT STEPHENS COUNCIL

HUNTER RIVER

KOORAGANG ISLAND

Newcastle Harbour

PORT WARATAH COAL SERVICES
KOORAGANG COAL TERMINAL

NCIG COAL EXPORT TERMINAL

PORT WABATAH COAL SERVICES
CARRINGTON COAL TERMINAL

 hunter wetlands

Regional Location

LEGEND

Railway
National Park/Conservation Area
Hunter Estuary Wetlands Ramsar Site
Local Government Area Boundary
Approximate Extent of Approved NCIG CET

Source: NSW Spatial Services (2019)

Figure 1-1
1.1.2 Description of Approved Operations

The NCIG CET is located on Kooragang Island within the Port of Newcastle and is comprised of the following key infrastructure and surface facilities:

- rail infrastructure (including rail spur, rail sidings, rail loops and overpass and train unloading stations);
- coal storage area;
- coal handling infrastructure (including stacker/reclaimers, coal conveyors and transfer points, buffer bins and sampling stations);
- wharf facilities and shiploaders (including navigational aids);
- water management infrastructure; and
- other ancillary infrastructure and services (including electricity supply and distribution infrastructure and administration and workshop buildings).

Environmental Monitoring and Management

Environmental management during the construction and operation of the NCIG CET has included the development and implementation of a range of environmental management plans, procedures and environmental monitoring programs.

Examples of relevant NCIG CET environmental management plans, protocols and programs include:

- **Construction Environmental Management Plan (CEMP)** (NCIG, 2012), including the following plans required as part of the CEMP:
  - Acid Sulfate Soil Management Plan;
  - Construction Surface Water Management Plan;
  - Construction Noise Management Plan; and
  - Construction Traffic Management Protocol;
- **Operation Environmental Management Plan (OEMP)** (NCIG, 2018), including the following plans required as part of the OEMP:
  - Operation Dust and Air Quality Management Plan (AQMP);
  - Operation Noise Management Plan (ONMP);
  - Operation Water Management Plan;
  - Operation Spontaneous Combustion Management Plan;
  - Ecological and Land Management Plan;
  - Spill and Pollution Incident Response Management Plan; and
  - Waste Management Plan;
- Green and Golden Bell Frog Management Plan (NCIG, 2013);
- Compensatory Habitat and Ecological Monitoring Program (NCIG, 2015); and
- Coordinated Works Program (NCIG, 2007).

NCIG maintains an extensive environmental monitoring network for the NCIG CET, including meteorological, ambient dust, noise and water. The NCIG CET environmental monitoring programs are conducted in a co-ordinated manner with the Port Waratah Coal Services (PWCS) Kooragang Coal Terminal in accordance with the existing Co-ordinated Environmental Monitoring and Management Procedure, included as part of the OEMP.

NCIG tracks compliance with the requirements of Project Approval (06_0009) in accordance with a Compliance Tracking Program (NCIG, 2019). Compliance status reviews, including independent environmental audits, are conducted periodically and reported to the Secretary of the Department of Planning, Industry and Environment (DPIE).

An overview of environmental management actions and environmental monitoring results, including review of the NCIG’s performance against the requirements of the environmental management plans, protocols and programs, is presented each year in an Annual Environmental Management Report and distributed to government agencies, stakeholders and interested parties.

NCIG also continues to implement the requirements of its Sustainable Development Policy (Figure 1-3).

NCIG has had a strong track record of environmental performance in its 10 years of operation, with zero major non-compliances. This is evidenced by NCIG not having been prosecuted for any environmental offence during its 10 years of operation.

NCIG’s environmental management plans and reporting documentation can be found on NCIG’s website: www.ncig.com.au.

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1 The Green and Golden Bell Frog Management Plan is now part of the Ecological and Land Management Plan.
Sustainable Development Policy

Creating A Sustainable Business

The Newcastle Coal Infrastructure Group (NCIG) plays an important role in the coal export industry of the Hunter Valley. In fulfilling this role, NCIG acknowledges that it is of vital importance to balance the needs of all stakeholders in our business. Through the consideration of shareholders, employees, contractors, suppliers, the community and the environment, NCIG aims to make a significant contribution to the region, ensuring a sustainable business model.

Critical to the achievement of sustainability is our objective to maintain an environment in which we:

- Commit to zero harm to safety, health and the environment;
- Identify, evaluate and manage risks to employees, contractors, visitors, the environment and our local community that may arise from our activities;
- Meet all legislative requirements and seek to continuously improve safety and environmental systems on our site to meet or exceed industry and internationally recognised standards;
- Promote and improve the health of our workplace, positively contribute to the community and protect the environment in which we operate, particularly through the prevention of pollution;
- Achieve our stated vision and mission by upholding our values;
- Promote a positive, high performance culture, through the support of a work environment where all people are treated fairly and with respect and encouraged to reach their full potential;
- Respect the indigenous and non-indigenous cultural and heritage value of the people, the terminal site and its surrounds;
- Regularly review our performance, set and achieve targets that promote the achievement of our stated goals;
- Engage regularly, openly and honestly with all stakeholders and consider any views and concerns raised in decision making; and
- Develop relationships that foster the sustainable development of our local communities.

In implementing this Policy, NCIG will engage with and support our shareholders, employees, contractors, suppliers, customers, business partners and local communities in sharing responsibility for meeting our stated requirements.

We will be successful when our stakeholders determine that our contribution is valued.

Philip Garling
Chairman

Revision: D | June 2018
Workforce

The approved workforce assessed in the NCIG CET EA was up to 500 people during construction (NCIG employees and contractors).

The combined workforce at the NCIG CET (NCIG employees and contractors) is currently approximately 130 operational personnel (around 100 NCIG employees and 30 contractors). The number of personnel on-site can increase to approximately 230 people (100 NCIG personnel and 130 contractors) as a result of high demand maintenance activities (i.e., planned outages).

1.1.3 Optimisation Initiatives at the NCIG CET

Following completion of construction of the NCIG CET, NCIG has undertaken reviews of its operations to identify areas to improve efficiency, inherent unutilised capacity and opportunities to handle additional tonnes.

As a result of this review, NCIG has, to date, identified and has implemented a number of on-site control system and operational process improvements that improve the efficiency of the operation within the existing CET boundary, using existing CET infrastructure and at a low capital cost.

The on-site improvements have largely been developed through the innovative ideas identified by NCIG personnel. These optimisation initiatives have been collated and implemented as part of the optimisation phases at the NCIG CET. These phases have primarily involved a process of shortlisting, prioritising, measuring and evaluating the effects of each initiative on improving overall terminal capacity.

Control system upgrades and process efficiency improvements implemented to date include:

- streamlining train approach times to unloading stations through the increased use of automated processes;
- decreasing time between unloading of trains carrying the same coal type, and process and network changes to promote sequencing of trains carrying the same coal type;
- extending stockpiles to the eastern limit of the existing stockyard pads;
- improved utilisation of the existing coal stockpiles up to the approved height of 25 metres (m);
- optimising the operation of stackers/reclaimers and improving average reclaim rates through software and hardware upgrades;
- improvements to coal conveyors through the upgrade of hardware to increase capacity of the train unloading stations from 8,500 tonnes per hour (tph) to approximately 10,000 tph;
- better utilising existing buffer bin capacity through infrastructure, operational and process control improvements;
- improving shiploader hatch changes; and
- improving shipping vessel arrival and departure processes.
The incremental improvement in the operating capability of the NCIG CET is shown on Graph 1-1. This illustrates the increase in capability from the currently approved 66 Mtpa to 79 Mtpa.

Transport efficiency gains by third parties have also allowed improvements to throughput capacity at the NCIG CET, including ongoing improvements to the rail network as part of the Australian Rail Track Corporation (ARTC) Hunter Valley Corridor Capacity Strategy.

The effect of these improvements is that when annualised, it is technically feasible for the peak existing daily/weekly throughput capacity of the NCIG CET to exceed 66 Mtpa. The annual capacity of the existing NCIG CET, when optimised, is approximately 79 Mtpa.

Graph 1-1: Optimisation Initiatives Contribution to Existing NCIG CET Capacity

This graph shows that as a result of the incremental improvements in the operating capability of the existing NCIG CET (i.e. as a result of control system upgrades and process efficiency improvements), the technical feasibility of the terminal is 79 Mtpa.
NCIG currently operates within the existing approved throughput capacity limit of 66 Mtpa. However, it has identified a need for this throughput capacity limit to be increased to 79 Mtpa, to match the technical feasibility of the terminal enabled by optimisation improvements. (Graph 1-2).

1.2 MODIFICATION OVERVIEW

NCIG seeks to increase the Project Approval (06_0009) throughput capacity limit of 66 Mtpa to 79 Mtpa to keep pace with the innovative optimisation initiatives of the existing infrastructure.

No other changes to existing Project Approval limits, including environmental performance limits are required.

The optimisation initiatives do not involve any change to the NCIG CET for the following development components:

- extent of NCIG CET disturbance;
- rail spur, rail sidings or rail loops;
- approved coal stockpile heights or coal storage area extent;
- total coal storage capacity;
- peak train movements;
- number of stackers/reclaimers;
- number or location of coal conveyors, transfer points or buffer bins;
- number of berths, wharf structure, number of shiploaders or peak shiploader capacity;
- peak workforce numbers;
- project life; or
- hours of operation.

The suite of optimisation initiatives identified to increase throughput capacity are collectively referred to as the Optimisation Project.

A video prepared by NCIG provides further information on the optimisation initiatives implemented to date to improve the efficiency of the existing infrastructure. This video can be found on NCIG’s website: www.ncig.com.au.

The peaks (orange data points) on this graph show that when annualised, historic peak daily throughput rates (5 day average) would be equivalent to 79 Mtpa, demonstrating the existing infrastructure could achieve > 66 Mtpa if not constrained by the current throughput limit.
1.3 INTERACTIONS WITH OTHER PROJECTS

Coal from NCIG’s customers would continue to be stockpiled and handled at the NCIG CET at an increased throughput capacity of 79 Mtpa.

The initiatives of the Modification are not linked to any specific increase in total export through the Port of Newcastle. Rather, the Modification would allow for more efficient management of already approved output from mining developments owned by NCIG’s customers.

The handling of coal beyond the NCIG CET site (e.g. transport via the rail network) is not part of the Modification and would occur in accordance with relevant approvals.

The interaction of the NCIG CET with other mining developments is, therefore, limited to the continued use of NCIG’s unique stockpiling capacity arrangement for NCIG’s customers to access global export markets.

The NCIG CET is one of three existing Port of Newcastle terminals, in addition to the PWCS Carrington Coal Terminal and PWCS Kooragang Coal Terminal. There would be no increased interaction between the NCIG terminal and the other terminals as a result of the incremental increase in approved throughput to 79 Mtpa.

Coal would continue to be exported via ships from the NCIG CET, which would occur in accordance with relevant approvals. These activities do not form part of the Modification.

The interaction of the NCIG terminal with other major developments within the Port of Newcastle and in the region as a result of the incremental increase in approved throughput to 79 Mtpa is limited.

1.4 STRUCTURE OF THIS MODIFICATION REPORT

This Report is structured as follows:

Section 1 Provides an overview of the existing/approved NCIG CET and the nature of the terminal optimisation initiatives.

Section 2 Provides a description of the Modification.

Section 3 Provides a description of the strategic context in relation to the Modification and the Optimisation Project initiatives.

Section 4 Provides a description of the statutory context in relation to the Modification.

Section 5 Describes the consultation undertaken in relation to the Modification.

Section 6 Provides a review of the existing environment and assesses the increase in throughput to 79 Mtpa.

Section 7 Provides a description of the justification for the Modification and an evaluation of merits.

Section 8 References.

Section 9 Abbreviations, acronyms and glossary.

Attachments 1 to 6 and Appendices A and B provide supporting information as follows:

Attachment 1 NCIG CET Development Application Area and Real Property Descriptions.

Attachment 2 NCIG CET Original Project Approval (06_0009).

Attachment 3 NCIG CET Modification of Minister’s Approval and Plan of Subdivision (MOD 1).

Attachment 4 NCIG CET Modification of Minister’s Approval (MOD 2).

Attachment 5 NCIG CET EPBC Act Particular Manner Decision 2006/2987.

Attachment 6 NCIG CET EPL 12693.

Appendix A Noise Impact Assessment Review.

Appendix B Air Quality and Greenhouse Gas Assessment Review.
2 Description of the Modification

The innovative control system and operational process improvement works identified for the NCIG CET would provide a throughput capability of approximately 79 Mtpa.

There would be no capital development or footprint expansion works involved to achieve this increased level of terminal capacity and no construction activities or material changes to the operational activities at the NCIG CET would be required.

NCIG therefore seeks to increase the approved maximum capacity of the NCIG CET from 66 Mtpa to 79 Mtpa to keep pace with the innovative optimisation of the existing infrastructure.

Table 2-1 provides a summary comparison of the currently approved NCIG CET and the NCIG CET incorporating the Modification (i.e. operating at a capacity of 79 Mtpa).

2.1 TRAIN MOVEMENTS

The Modification does not involve any change to the NCIG CET rail spur, rail sidings or rail loop. As the existing NCIG CET operates at a maximum capacity of 66 Mtpa, an average of approximately 26 trains are unloaded per day, with a maximum of up to 40 trains unloaded on any one day.

The increase in approved throughput to 79 Mtpa would increase the average daily train movements to approximately 28 trains unloaded per day (depending on the length and capacity of the trains).

There would be no change to the maximum approved limit of 40 trains unloaded on any one day.

2.2 SHIPS

The Modification does not involve any change to the number of berths, wharf structure, number of shiploaders or peak capacity of the shiploaders.

The increase in approved throughput to 79 Mtpa would increase the number of ships loaded up to approximately 16 ships per week (i.e. up to approximately 815 ships per year), compared to the current loading of up to approximately 12 ships per week at the existing NCIG CET operating at a capacity of 66 Mtpa.

2.3 WATER MANAGEMENT

The majority of water use at the NCIG CET is associated with ongoing dust suppression on the coal storage area, the footprint of which would not change as a result of the Modification.

Water use for other activities at the NCIG CET may change for the Modification, which would occur proportionately with the increased throughput from 66 Mtpa to 79 Mtpa. However, the water demand of these other activities is relatively minor.

As there is no change to the water use for ongoing dust suppression on the coal storage area, overall water usage per tonne of coal processed is anticipated to decrease as a result of the Modification.

Water supply requirements would continue to be preferentially met from stormwater contained on site. This would be supplemented by water purchased from the Hunter Water Corporation.

NCIG would review the Operation Water Management Plan for the increase in approved throughput to 79 Mtpa.
of up to 120 truck deliveries per day over a 10 month period between 7:00 am to 6.00 pm, six days per week (Monday to Saturday).

Planning and Infrastructure (now Secretary of the DPIE) to import construction fill at the NCIG CET site from local quarries with heavy vehicle movements

^ In accordance with Condition 2.47 of Project Approval (06_0009) NCIG sought and obtained the agreement of the Director-General of the Department of Planning and Infrastructure (now Secretary of the DPIE) to import construction fill at the NCIG CET site from local quarries with heavy vehicle movements of up to 120 truck deliveries per day over a 10 month period between 7:00 am to 6.00 pm, six days per week (Monday to Saturday).

Table 2-1 Summary Comparison of Approved and Modified NCIG CET

<table>
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<th>Development Component</th>
<th>Approved NCIG CET*</th>
<th>NCIG CET incorporating Modification</th>
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<td>Coal Throughput</td>
<td>Approved throughput of 66 Mtpa.</td>
<td>Proposed throughput of 79 Mtpa using existing coal handling infrastructure.</td>
</tr>
<tr>
<td>Coal Transport</td>
<td>Coal trains enter the NCIG CET site from the Kooragang Island mainline via a grade separation flyover to the rail spurs, follow the rail loops and empty their wagons into a hopper at train unloading stations. An average of approximately 26 trains unloaded each day. Up to a maximum approved limit of 40 trains unloaded on any one day.</td>
<td>An average of approximately 28 trains would be unloaded each day. No change to the maximum of 40 trains unloaded on any one day.</td>
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<tr>
<td>Train Unloading</td>
<td>Two train unloading stations.</td>
<td>The two train unloading stations would operate at up to 10,000 tph.</td>
</tr>
<tr>
<td>Coal Stockpiles</td>
<td>Coal stacked to a maximum height of approximately 25 m allowing a maximum design capacity of up to 6.6 million tonnes of coal to be stockpiled at the CET. Coal stockpiles served by rail mounted combined stacker/reclaimers and associated conveyer systems.</td>
<td>Unchanged.</td>
</tr>
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<td>Wharf Facilities and Shiploaders</td>
<td>Three berths served by two rail-mounted shiploaders. Coal transferred from the coal stockpiles to the shiploaders via conveyors over Cormorant Road.</td>
<td>Up to approximately 815 ships per year or approximately 16 ships per week would be loaded.</td>
</tr>
<tr>
<td>Shipping</td>
<td>Wharf capable of receiving Cape size vessels. Coal transferred from the coal stockpiles to the shiploaders via conveyors over Cormorant Road.</td>
<td>No change to sources of water supply. No change to water demand associated with ongoing dust suppression on the coal storage area. Potential change in water demand associated with other activities to be met via existing water supply sources.</td>
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<tr>
<td>Water Supply</td>
<td>Water supply requirements met from stormwater contained on-site and water purchased from the Hunter Water Corporation. Water recycled on-site to reduce the quantity of water purchased.</td>
<td>Unchanged.</td>
</tr>
<tr>
<td>Water Management System</td>
<td>Network of water management structures including sub-grade drainage system in the coal stockpile pads, comprises of a series of underground drains, sumps and transfer pumps to control drainage from the coal storage area.</td>
<td>Unchanged.</td>
</tr>
<tr>
<td>Project Life</td>
<td>Expected to exceed 30 years dependent on the future development of coal reserves in the Hunter Valley and Gunnedah Basin.</td>
<td>Unchanged.</td>
</tr>
<tr>
<td>Employment</td>
<td>Construction workforce of up to 500 employees. The current NCIG operational workforce comprises a peak of approximately 230 personnel (including around 100 NCIG employees, 30 full time contractors and 100 contractors during shutdown activities).</td>
<td>Unchanged (i.e. no increase in peak workforce).</td>
</tr>
<tr>
<td>Construction</td>
<td>Installation, construction and commissioning of rail infrastructure, coal storage area, wharf facilities and shiploaders. Construction materials provided from dredging activities associated with the approved Extension of Shipping Channels within the Port of Newcastle (DA-134-3-2003-3).*</td>
<td>Unchanged (i.e. no additional construction activities required).</td>
</tr>
<tr>
<td>Hours of Operation</td>
<td>Construction activities with the potential to be audible at surrounding residential areas generally undertaken between 7.00 am and 6.00 pm, up to seven days per week. Oversize loads may be transported outside of these times to minimise traffic impacts. Dredged material from the south arm of the Hunter River deposited at the NCIG CET site 24 hours per day and seven days per week. CET operations take place 24 hours per day, seven days per week. Trains and shipping operate 24 hours per day, seven days per week.</td>
<td>Unchanged (i.e. CET hours of operations unchanged and no additional construction activities required).</td>
</tr>
<tr>
<td>Access Roads</td>
<td>During the operation of the CET, the main access point for the NCIG CET is via the entrance to the administration and workshop buildings located off the western end of Raven Street near the intersection of Egret Street and Raven Street. Secondary access points are available to the wharf and rail infrastructure areas. Construction access via Transport for NSW (TfNSW) approved access points.</td>
<td>Unchanged.</td>
</tr>
<tr>
<td>Administration, Store and Workshop Buildings</td>
<td>Infrastructure and services including administration building, offices, general workstation areas, first aid room, store and workshop buildings.</td>
<td>Unchanged.</td>
</tr>
<tr>
<td>Electricity Supply and Distribution</td>
<td>An internal power reticulation network developed for the NCIG CET. Electricity supply infrastructure to the NCIG CET provided by Energy Australia.</td>
<td>Unchanged.</td>
</tr>
</tbody>
</table>

* As described in the NCIG CET EA (2006a).

^ In accordance with Condition 2.47 of Project Approval (06_0009) NCIG sought and obtained the agreement of the Director-General of the Department of Planning and Infrastructure (now Secretary of the DPIE) to import construction fill at the NCIG CET site from local quarries with heavy vehicle movements of up to 120 truck deliveries per day over a 10 month period between 7:00 am to 6.00 pm, six days per week (Monday to Saturday).
3. Strategic Context

The NCIG CET is an existing facility developed at the Port of Newcastle for coal export services. Since its development, the NCIG CET has operated as an advanced and innovative facility that serves as critical infrastructure to the NSW coal mining industry. The strategic context of the Modification includes consideration of the following:

- optimisation of NCIG’s existing operations;
- supporting innovation by NCIG’s personnel;
- benefits for NCIG’s customers;
- importance to the Newcastle port; and
- efficiency across the Hunter Valley Coal Chain rail network.

3.1 OPTIMISATION OF EXISTING INFRASTRUCTURE

Since operations commenced in 2010, NCIG has invested in innovative projects to optimise the efficiency of coal handling infrastructure at the NCIG CET (Section 1.1.3). The innovative projects have primarily been identified by NCIG personnel and focus on operational process efficiencies and control systems improvements.

With the implementation of these innovations, NCIG has found that the existing infrastructure could achieve throughput capacity, when annualised, of 79 Mtpa, an increase of the currently approved maximum throughput of 66 Mtpa (Graph 1-1).

Approval of the increase in NCIG terminal capacity to 79 Mtpa would allow throughput to keep pace with these innovations. Footprint expansion works are not required to achieve this level of terminal capability, with no additional surface disturbance outside of the existing disturbance footprint. The increased terminal capacity can be implemented in a manner that achieves compliance with existing environmental performance limits, including for noise and air quality (Sections 6.1 and 6.2).

3.2 BENEFITS FOR NCIG’S CUSTOMERS

The Hunter Valley Coal Chain supplies coal into the three existing Port of Newcastle terminals (the PWCS Carrington Coal Terminal, PWCS Kooragang Coal Terminal as well as the NCIG terminal).

NCIG is the only terminal that operates with a dedicated stockyard arrangement, providing customers unique long-term (up to approximately 25-30 days) stockpiling capacity at the Port of Newcastle (in comparison to just in-time export facilities).

This unique stockpiling capacity arrangement provides flexibility and efficiency for NCIG’s customers as it de-links the rail transport and ship loading stages of the export process.

This is of particular importance to customers with operations located furthest from the Port, who have more restrictions on their access to rail paths (due to single line infrastructure). In addition, this stockpiling flexibility and de-linking of rail and shipping also reduces demurrage costs borne by NCIG’s customers associated with delays to shipping. Significant recent mining developments have occurred in these areas and the Modification would facilitate the efficient management of the already approved output from these developments.

Existing Supply Chain

NCIG’s unique stockpiling arrangement provides 25-30 days of stockpiling capacity. It therefore provides flexibility and efficiency for NCIG’s customers, as it de-links the rail transport and ship loading stages of the export process. This is particularly important for customers located further from the Port of Newcastle.
The Modification is not linked to any specific increase in total export through the Port of Newcastle or a need for infrastructure to meet any increased demand. Rather, it would provide flexibility and option value for NCIG’s customers to gain further access to NCIG’s unique stockpiling capacity arrangements.

3.3 IMPORTANCE TO PORT OF NEWCASTLE

All but a very small proportion of the export coal shipped through Newcastle is transported by rail for shipping from the three existing Port of Newcastle terminals, as described in the 2019 Hunter Valley Corridor Capacity Strategy by the Australian Rail Track Corporation (ARTC) (2019).

The NCIG CET is therefore critical infrastructure to the Port of Newcastle as it provides a link between the Port and global export markets, providing approximately 33% of the Port’s coal export capacity (ARTC, 2019).

The Rail Capacity Group (comprising representatives of coal producers, the Hunter Valley Coal Chain Coordinator [HVCC], the rail infrastructure owner [ARTC] and rail operators) estimates prospective coal volumes that will be exported through the Port of Newcastle. The most recent estimates are presented in the 2019 Hunter Valley Corridor Capacity Strategy (HVCC) (ARTC, 2019).

There is currently no requirement for additional terminal capacity for ARTC contracted volumes (ARTC, 2019). The current total capacity of the terminals of 208 Mtpa provides more than sufficient capacity to service the contracted export volumes of 193.5 Mtpa for 2019 and beyond (ARTC, 2019).

The ARTC estimates that potential increases in future export volumes could increase to a potential peak of 225 Mtpa in 2022. The HVCCS has for some years assumed that in order to meet this demand it would be possible to achieve some incremental capacity through enhancement of existing terminals, up to a throughput in the order of 235 Mtpa. (Graph 3-1)

The potential requirement for growth in terminal capacity had been expected to be met by PWCS Terminal 4. The Terminal 4 Project had been on hold since it was granted planning approval on 30 September 2015 and PWCS advised on 31 May 2018 that it would not be proceeding with the development of Terminal 4 (ARTC, 2019).

Through the implementation of NCIG’s innovative projects, the Modification may relieve the need for further infrastructure expansion to meet production from already approved mining developments of the Hunter Valley coal industry, providing flexibility and efficiency across the supply chain.

**Consistent with ARTC assumptions, the Modification provides an opportunity for incremental increase in capacity at the Port of Newcastle without the requirement for new infrastructure.**
3.4 HUNTER VALLEY COAL CHAIN EFFICIENCY

The Hunter Valley Coal Chain includes approximately 35 coal mines operated by 11 coal producers (HVCCC, 2019).

The ability of individual Hunter Valley coal producers to meet potential market demand for their coal depends on there being sufficient capacity in the coal supply chain (i.e. railway and port infrastructure) to facilitate export.

The Hunter Valley rail network is an integral part of the world’s largest coal export supply chain. The entire supply chain is interlinked, with the stockpiling and loading capacity of the mines and Port terminals affecting the operation of the supply chain.

The de-linking of rail transport and ship loading helps to alleviate congestion and improve efficiency on the rail network, as rail movements can be spread more evenly (i.e. rail movements are not determined by the timing of ships arriving at the Port).

NCIG’s unique stockpiling capacity arrangement therefore provides flexibility and efficiency not only for NCIG’s customers, but also across the supply chain.

Consistent with the Port of Newcastle Port Master Plan 2040, the Modification would therefore facilitate the improvement and enhancement of the existing supply chain by leveraging off the improvements to the existing NCIG facilities.
4 Statutory Context

4.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

The EP&A Act and NSW Environmental Planning and Assessment Regulation, 2000 set the framework for planning and environmental assessment in NSW.

The construction and operation of the NCIG CET was approved under Part 3A of the EP&A Act by the NSW Minister for Planning in April 2007 (Project Approval 06_0009 [Attachment 1]).

As a result of amendments made to the EP&A Act which took effect on 1 March 2018, it is no longer possible for the Project Approval to be modified under the former section 75W of the EP&A Act.

The NCIG CET was declared a State Significant Development (SSD) under clause 6 of Schedule 2 to the Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation, 2017 via Government Gazette on 11 October 2019.

Given that the NCIG CET is now considered to be a SSD, approval for the proposed Modification has been sought under section 4.55(2) of the EP&A Act as it is substantially the same development to the existing operations for which consent was originally granted for the NCIG CET (Project Approval [06_0009]), as last modified under section 75W of the EP&A Act (refer description below), as described in Section 1.

NCIG has identified and implemented, to date, a number of on-site control system and operational process improvements that improve the efficiency of the operation of the existing CET, using existing CET infrastructure, within the existing CET boundary and at a low capital cost. The effect of these improvements is that it is technically feasible for the existing throughput capacity of the NCIG CET to exceed 66 Mtpa. The annual capacity of the existing NCIG CET, when optimised, is approximately 79 Mtpa.

NCIG currently operates within the existing approved throughput capacity limit of 66 Mtpa. However, it has identified a need for this throughput capacity limit to be increased to 79 Mtpa, to match the technical feasibility of the terminal to operate at 79 Mtpa as a result of optimisation improvements.

NCIG is, therefore, seeking approval of the Modification to increase the permitted maximum throughput of the existing CET from 66 Mtpa to 79 Mtpa.

Section 4.55(2) of the EP&A Act relevantly states:

4.55 Modifications of consents - generally

(2) Other modifications

A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if:

(a) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all), and

(b) it has consulted with the relevant Minister, public authority or approval body (within the meaning of Division 4.8) in respect of a condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body and that Minister, authority or body has not, within 21 days after being consulted, objected to the modification of that consent, and

(c) it has notified the application in accordance with:

(i) the regulations, if the regulations so require, or
(ii) a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent, and

(d) it has considered any submissions made concerning the proposed modification within the period prescribed by the regulations or provided by the development control plan, as the case may be.

...
Clause 3BA(6) of Schedule 2 of the Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation, 2017 relevantly provides:

**3BA Winding-up of transitional Part 3A modification provisions on cut-off date of 1 March 2018 and other provisions relating to modifications**

(6) In the application of section 4.55 (1A) or (2) or 4.56 (1) of the Act to the following development, the consent authority need only be satisfied that the development to which the consent as modified relates is substantially the same development as the development authorised by the consent (as last modified under section 75W):

(a) development that was previously a transitional Part 3A project and whose approval was modified under section 75W,

... The consent authority is, therefore, required to satisfy itself that any consent as modified would result in the NCIG CET remaining substantially the same development as was last modified under section 75W of the EP&A Act (i.e. MOD 2), inclusive of consideration of the changes arising from previously approved modifications.

This Modification Report is a Statement of Environmental Effects that has been prepared in support of the application to modify Project Approval (06_0009).

### 4.1.1 EP&A Act Objects

Section 1.3 of the EP&A Act describes the objects of the EP&A Act as follows:

(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State’s natural and other resources,

(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,

(c) to promote the orderly and economic use and development of land,

(d) to promote the delivery and maintenance of affordable housing,

(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,

(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),

(g) to promote good design and amenity of the built environment,

(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,

(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,

(j) to provide increased opportunity for community participation in environmental planning and assessment.

The Modification and implementation of optimisation initiatives is considered to be generally consistent with the objects of the EP&A Act, as it:

- promotes orderly and economic use and development of land as it realises latent capacity of existing infrastructure;
- would facilitate Ecologically Sustainable Development, as economic efficiencies can be achieved with no increase in currently accepted environmental performance measures, and no increase in the duration of existing impacts of the NCIG CET;
- would not involve additional surface disturbance outside of the existing disturbance footprint, therefore, potential impacts on biodiversity and cultural heritage items as a result of the Modification are not expected; and
- would be developed in a manner that incorporates community engagement, with a wide range of stakeholders consulted through the preparation of the Modification Report (Section 5).
4.2 ENVIRONMENTAL PLANNING INSTRUMENTS

The following State Environmental Planning Policies are considered relevant to the proposed Modification and are discussed further below:

- **State Environmental Planning Policy (Three Ports) 2013 (Three Ports SEPP);**
- **State Environmental Planning Policy (Coastal Management) 2018 (Coastal Management SEPP);**
- **State Environmental Planning Policy No. 33 (Hazardous and Offensive Development) (SEPP 33);** and
- **State Environmental Planning Policy No. 55 (Remediation of Land) (SEPP 55).**

The NCIG CET site is not included in the Land Application Map for the Newcastle Local Environmental Plan 2012 (Newcastle LEP). Instead, the NCIG CET site is located on land that is subject to the Three Ports SEPP. As a result of the NCIG CET site being located on land that is subject to the Three Ports SEPP, the Newcastle LEP does not apply to the NCIG CET or the Modification.

4.2.1 State Environmental Planning Policy (Three Ports) 2013

The Three Ports SEPP applies to the three privatised ports in NSW – Port Botany, Port Kembla and Port of Newcastle. It commenced on 31 May 2013 for Port Botany and Port Kembla, and 31 May 2014 for Port of Newcastle. The Three Ports SEPP provides a rationalised planning regime to allow the efficient development, redevelopment and protection of land within the Port Botany, Port Kembla and Port of Newcastle areas. The NCIG CET site is wholly located on land zoned as Zone SP1 (Special Activities) under the Three Ports SEPP.

Clause 3 of the Three Ports SEPP outlines the aims of the Three Ports SEPP relevant to the Modification:

(a) to provide a consistent planning regime for the development and delivery of infrastructure on land in Port Botany, Port Kembla and the Port of Newcastle,

(b) to allow the efficient development, redevelopment and protection of land at Port Botany, Port Kembla and the Port of Newcastle for port purposes,

(c) to identify certain development within the Lease Area as exempt development or complying development,

(d) to specify matters to be considered in determining whether to grant consent to development adjacent to development for port purposes,

... (f) to identify certain development as State significant development or State significant infrastructure,

(g) to ensure that land around the Lease Area is maintained for port-related and industrial uses, including heavy industry on land around Port Kembla.

The proposed Modification is consistent with the aims of the Three Ports SEPP as it:

- would maintain the industrial use of the land around the Port of Newcastle through the continued operation of the NCIG CET as one of three existing Port of Newcastle coal export terminals;
- has been developed to improve the efficiency and productivity of the existing operations, which has involved the progressive implementation of innovative process improvements of the existing CET infrastructure; and
- would continue to facilitate the use of the Port of Newcastle and associated industrial uses by providing a long-term stockpiling arrangement for NCIG’s customers, which would de-link the rail and ship loading stages of the export process.
Part 2 of the Three Ports SEPP contains the land use zone provisions that are relevant in determining whether the Modification (or any part of the Modification) is prohibited by the Three Ports SEPP. The objective of lands zoned as Zone SP1 (Special Activities) under the Three Ports SEPP are as follows:

- To provide for special land uses that are not provided for in other zones.
- To provide for sites with special natural characteristics that are not provided for in other zones.
- To facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land.
- To maximise the use of waterfront areas to accommodate port facilities and industrial, maritime industrial, freight and bulk storage premises that benefit from being located close to port facilities.
- To enable the efficient movement and operation of commercial shipping and to provide for the efficient handling and distribution of freight from port areas through the provision of transport infrastructure.
- To provide for port related facilities and development that support the operations of Port Botany, Port Kembla and the Port of Newcastle.
- To facilitate development that by its nature or scale requires separation from residential areas and other sensitive land uses.
- To encourage employment opportunities.

Port facilities are defined in the Three Ports SEPP as:

- port facilities means facilities on land in the Lease Area used in connection with the carrying of freight and persons by water from one port to another for business or commercial purposes, and includes any of the following:
  - (b) facilities for the loading or unloading of freight onto or from vessels and freight receival, processing, land transport and storage facilities,
4.2.2 State Environmental Planning Policy (Coastal Management) 2018

The Coastal Management SEPP aims to promote an integrated and coordinated approach to land use planning in the coastal zone by managing development and protecting its environmental assets. The Coastal Management SEPP applies to land within the coastal zone. However, clause 7 of the Coastal Management SEPP relevantly states the following:

7 Relationship with other environmental planning instruments

(2) This Policy does not apply to land within the Lease Area within the meaning of the State Environmental Planning Policy (Three Ports) 2013.

The NCIG CET, incorporating the Modification, would be located within the Lease Area defined in the Three Ports SEPP.

As such, the provisions of the Coastal Management SEPP do not apply to the proposed Modification.

4.2.3 State Environmental Planning Policy No. 33 (Hazardous and Offensive Development)

Clause 13 of SEPP 33 requires that in determining an application to carry out development for the purposes of a potentially hazardous industry, the consent authority must consider:

... 

(c) in the case of development for the purpose of a potentially hazardous industry—a preliminary hazard analysis prepared by or on behalf of the applicant, and

(d) any feasible alternatives to the carrying out of the development and the reasons for choosing the development the subject of the application (including any feasible alternatives for the location of the development and the reasons for choosing the location the subject of the application), and

(e) any likely future use of the land surrounding the development.

As part of the NCIG CET EA (2006a), a Preliminary Hazard Analysis was conducted in accordance with SEPP 33.

The NCIG CET operates in accordance with the environmental management plans and management procedures required by the existing Project Approval (06_0009). These plans and procedures have been developed to minimise the environmental risks associated with construction and operation of the CET.

Although the Modification would increase the throughput of the NCIG CET, the implemented Optimisation Project initiatives would not materially change the operational activities at the CET and would not significantly alter the consequences or likelihood of a hazardous event occurring at the NCIG CET.

Notwithstanding, environmental management plans and procedures would be updated to include the increased approved throughput of 79 Mtpa and the optimisation initiatives, where relevant.

Accordingly, the consent authority can be satisfied as to these matters.

4.2.4 State Environmental Planning Policy No. 55 (Remediation of Land)

SEPP 55 aims to provide a State-wide planning approach to the remediation of contaminated land. Under SEPP 55, planning authorities are required to consider the potential for contamination to adversely affect the suitability of the site for its proposed use.

Clause 7(1) of SEPP 55 provides that a consent authority must not consent to the carrying out of any development on land unless:

(a) it has considered whether the land is contaminated, and

(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and

(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.
Furthermore, under clause 7(2), before determining an application for consent to carry out development that would involve a change of use of land, the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned, carried out in accordance with the contaminated land planning guidelines.

The Modification would involve an increase in throughput of the NCIG CET, but would not involve a change of use of land. Control system and operational process improvements would be implemented within the existing disturbance footprint, with no additional footprint expansion works involved.

A Land Contamination and Groundwater Assessment (RCA Australia, 2006) (satisfying the requirements for a preliminary investigation under clause 7[2]) was conducted as part of the NCIG CET EA (2006a) in accordance with Managing Land Contamination – Planning Guidelines SEPP 55 – Remediation of Land (NSW Department of Urban Affairs and Planning and Environment Protection Authority, 1998). A Baseline Contamination Assessment was also undertaken in 2008 which identified any areas of concern.

Based on the assessments undertaken in these reports, the Modification would not result in the disturbance of any contaminated lands.

Accordingly, the consent authority can be satisfied as to these matters.

4.3 COMMONWEALTH LEGISLATION

4.3.1 Environment Protection and Biodiversity Conservation Act 1999

The Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act) defines proposals that are likely to have a significant impact on a matter of national environmental significance as a “controlled action”. A proposal that is, or may be, a controlled action is required to be referred to the Commonwealth Minister for the Environment for a determination as to whether or not the action is a controlled action.

The NCIG CET was referred to the Commonwealth Minister in August 2006, and was determined on 11 October 2006 by a delegate of the Commonwealth Minister to not be a controlled action, therefore not requiring approval under the EPBC Act. The construction and operation of the NCIG CET is carried out in accordance with EPBC Particular Manner Decision 2006/2987 (Attachment 4).

The NCIG CET has been operating within its existing maximum throughput capacity limit of 66 Mtpa since 2013. Operation of the NCIG CET continues to be carried out in accordance with EPBC Particular Manner Decision 2006/2987, including:

- in accordance with Condition 7 of EPBC Particular Manner Decision 2006/2987, management of migratory shorebirds through the placement of screens, comprising shade cloth fences or similar structures, at intervals along the rail infrastructure to minimise lighting impacts from trains and rail corridor lighting;
- management and monitoring of Green and Golden Bell Frogs undertaken in accordance with the existing approved Green and Golden Bell Frog Management Plan (now part of the Ecological and Land Management Plan [NCIG, 2013]), cognisant of the other relevant conditions (1, 2, 5 and 6) of EPBC Particular Manner Decision 2006/2987; and
- management of surface water through the surface water monitoring program included in the Construction Surface Water Management Plan (part of the Construction Environmental Management Plan [NCIG, 2012]).

Given there would be no additional disturbance beyond the existing disturbance footprint, and with the continued implementation of management and monitoring described above, it is concluded that the Modification would not have a significant impact on any matters of national environmental significance under the EPBC Act.

The Modification has, therefore, not been referred to the Commonwealth Minister for the Environment for consideration under the EPBC Act, as the ‘Action’ would continue to be conducted in a manner consistent with that described in the NCIG Kooragang Island Coal Export Terminal Referral (NCIG, 2006b) and in accordance with the conditions of EPBC Particular Manner Decision 2006/2987.
4.3.2 National Greenhouse and Energy Reporting Act, 2007

The National Greenhouse and Energy Reporting Act, 2007 (NGER Act) introduced a single national reporting framework for the reporting and dissemination of corporations’ greenhouse gas emissions and energy use. The NGER Act makes registration and reporting mandatory for corporations whose energy production, energy use or greenhouse gas emissions meet specified thresholds.

NCIG Holdings Pty Ltd triggers the NGER Act reporting threshold and, accordingly, reports energy use and greenhouse gas emissions from its activities annually, which would continue for the modified CET.

4.4 RELEVANT NSW LEGISLATION

4.4.1 Protection of the Environment Operations Act, 1997

The NSW Protection of the Environment Operations Act, 1997 and the NSW Protection of the Environment Operations (General) Regulation, 2009 set out the general obligations for environmental protection for development in NSW, which is regulated by the NSW Environment Protection Authority (EPA).

Construction and operations at the NCIG CET site are currently undertaken in accordance with an existing Environment Protection Licence (EPL) 12693 issued under the Protection of the Environment Operations Act, 1997 (Attachment 5).

If required, any variations to existing EPL 12693 to incorporate the optimisation initiatives and the Modification would be undertaken in consultation with the EPA.

4.5 OTHER APPROVALS

A number of environmental management plans and programs for the NCIG CET are required to be approved and implemented under Project Approval (06_0009), consistent with the relevant conditions of EPBC Particular Manner Decision 2006/2987 and EPL 12693.

The existing management plans and programs are described in Section 1.1.2. The existing environmental management plans would be updated where relevant to incorporate the Modification (Section 6).
5 Engagement

5.1 CONSULTATION

NCIG consults with relevant State Government agencies on a regular basis in regard to the approved NCIG CET.

NCIG has developed and continues to implement a consultation program for the operation of the approved NCIG CET as well as the Optimisation Project initiatives and the proposed Modification.

The key objectives of the program are to:

- inform government and public stakeholders of the nature and status of the proposed Modification;
- present information to stakeholders to facilitate a clear understanding of the Optimisation Project and the proposed Modification;
- identify issues of concern to stakeholders for consideration; and
- establish dialogue between NCIG and government and community stakeholders that would be ongoing.

Consultation for the Modification has been conducted with key State and Commonwealth Government agencies, local council, asset owners, landowners and the local community during the preparation of this Modification Report.

A summary of consultation undertaken with key stakeholders follows. Consultation will continue during both the public exhibition of this Modification Report and the assessment of the Modification application.

5.1.1 Department of Planning, Industry and Environment

Briefings with the DPIE were conducted in July and August 2019 to provide an overview of the proposed Modification, Optimisation Project initiatives, approvals pathway and proposed scope of environmental assessment.

Following this correspondence, the DPIE wrote to NCIG on 3 December 2019 confirming the scope of assessment for the Modification as per this Modification Report.

5.1.2 Regulatory Agencies and Local Council

NCIG consulted with the following regulatory authorities, providing an overview description of the Modification, Optimisation Project initiatives and proposed scope of environmental assessment associated with the increase in approved throughput to 79 Mtpa:

- NSW EPA;
- Transport for NSW (formerly NSW Roads and Maritime Services);
- DPIE – Biodiversity and Conservation Division (formerly Office of Environment and Heritage);
- National Parks and Wildlife Services; and
- City of Newcastle.

5.1.3 Other Key Stakeholders

Infrastructure Owners and Businesses

NCIG notified infrastructure owners and business groups of the proposed Modification, including:

- ARTC;
- HVCCC;
- Port of Newcastle;
- PWCS;
- Hunter Business Chamber;
- NSW Minerals Council; and
- Port Authority of NSW.

Following provision of briefing letters, NCIG met with a number of key industry stakeholders to discuss the Modification and Optimisation Project initiatives in further detail, including HVCCC, NSW Minerals Council, Port of Newcastle and PWCS.
Neighbouring Coal Terminals

The NCIG CET is one of three existing Port of Newcastle terminals, in addition to the PWCS Carrington Coal Terminal and PWCS Kooragang Coal Terminal.

There would be no increased interaction between the NCIG terminal and the other terminals as a result of the incremental increase in approved throughput to 79 Mtpa.

The interaction of the NCIG terminal with other major developments within the Port of Newcastle and in the region as a result of the incremental increase in approved throughput to 79 Mtpa is limited.

Potential cumulative impacts with the PWCS Carrington Coal Terminal and PWCS Kooragang Coal Terminal have been considered where relevant in this Modification Report.

Notwithstanding, NCIG consulted with PWCS to provide an overview of the Modification and optimisation initiatives.

5.1.4 Public Consultation

NCIG’s website (www.ncig.com.au) provides regular updates on the NCIG CET and provides access to relevant environment and community information, including Environmental Assessment (EA) documents, compliance reports and approval documents.

A newsletter is also delivered to residents in suburbs neighbouring the NCIG terminal to provide an update on NCIG milestones and activities. These newsletters are provided 3 to 4 times per year.

A community enquiry phone line (02 4920 3900) and email (enquiries@ncig.com.au) allow members of the public to contact NCIG with enquiries or complaints.

A copy of this Statement of Environmental Effects will be made available on the NCIG website.

Community Engagement Group

NCIG has an established Community Engagement Group (CEG), which affords a forum to provide the local community with information regarding NCIG’s operations and give a voice to the community in matters such as operational activities, environmental performance and community investment initiatives.

At the CEG meetings held in September 2019 and January 2020, NCIG provided an overview of the proposed Modification and the scope and outcomes of environmental assessments to the community representatives.

NCIG would continue to provide updates on the status of the Modification at future CEG meetings.

A community enquiry phone line (1800 016 304) and email (communitysupport@ncig.com.au) allow members of the public to contact NCIG with enquiries in regard to the CEG.

Sponsorships and Community Funding

The NCIG Community Support Program was established in 2010 to provide community groups within the Newcastle area with sponsorship support to help meet their objectives. The Community Support Program is operated via the following:

- the Community Support Program has an allocation of funding which is reviewed on an annual basis;
- a committee consisting of community and NCIG representatives assess applications and provide advice on the allocation of funds;
- the committee meets twice a year to consider applications from community organisations for financial assistance; and
- submissions are called for in March and September of each year.

NCIG has also established the NCIG Community Partnership Program, which aims to provide more significant, and longer-term sponsorship support (over a 3-year period) to assist with more significant community projects within the Newcastle area. Submissions for the program are called for in September of each year.

5.2 KEY COMMENTS AND CONCERNS

A limited number of comments/concerns were raised by stakeholders during consultation for the Modification. A summary of these comments is provided in Table 5-1, along with a description of where in the Modification Report these issues have been addressed, and a brief response demonstrating how the concern has been considered and addressed.
<table>
<thead>
<tr>
<th>Summary of Comment</th>
<th>Relevant Section of the Modification Report</th>
<th>Response Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community members and other infrastructure owners provided positive feedback regarding the efficient use of existing NCIG infrastructure to achieve increased throughput.</td>
<td>Sections 3 and 7.</td>
<td>The Modification would realise the investment made by NCIG in innovative projects to improve the efficiency of the existing NCIG CET infrastructure.</td>
</tr>
<tr>
<td>Community members and other infrastructure owners queried whether the Modification would require additional disturbance or new infrastructure requirements.</td>
<td>Sections 2 and 3.</td>
<td>The Modification would not require capital development or footprint expansion works, nor construction activities or material changes to the operational activities at the NCIG CET.</td>
</tr>
<tr>
<td>Community members and other infrastructure owners requested clarification of how increased throughput would be achieved through optimisation of existing infrastructure.</td>
<td>Sections 1.1.3 and 2.</td>
<td>The increase in throughput capacity to 79 Mtpa would be achieved through the progressive implementation of innovative control system and operational process improvement works (e.g. efficiencies in the management of train movements and ship loading).</td>
</tr>
<tr>
<td>The EPA raised that there is potential for incremental increases in noise and dust emissions, and consideration of additional controls.</td>
<td>Sections 6.1 and 6.2 and Appendices A and B.</td>
<td>The NCIG CET incorporating the Modification would continue to comply with all relevant air quality assessment criteria at all residential receptors and the lower air quality limits in the Approved Methods. Potential noise emissions would remain within the current approval limits. NCIG would continue to implement the AQMP and ONMP and applicable existing air quality and noise controls and management measures, respectively.</td>
</tr>
<tr>
<td>Community members requested consideration of greenhouse gas emissions.</td>
<td>Section 6.3 and Appendix A.</td>
<td>The Modification would not involve additional emissions sources at the existing NCIG CET.</td>
</tr>
<tr>
<td>Community members queried the justification for the Modification in the context of global demand for coal.</td>
<td>Section 2.</td>
<td>The initiatives of the Modification are not linked to any specific increase in total export through the Port of Newcastle. Rather, the Modification would allow for more efficient management of already approved output from mining developments owned by NCIG’s customers through the implementation of the innovative control system and operational process improvement works.</td>
</tr>
<tr>
<td>Community members queried whether there would be increased train and ship movements.</td>
<td>Sections 2.1, 2.2, 6.1 and 6.2 and Appendices A and B.</td>
<td>The Modification does not involve any changes to the NCIG CET rail spur, rail sidings or rail loop. Similarly, no changes to the number of berths, wharf structure, number of shiploaders or peak capacity of the shiploaders would be required. The Modification would increase the average number of trains from 26 unloaded per day to 28 unloaded per day. There would be no change to the maximum approved limit of 40 trains unloaded in any one day. The current average number of ships loaded at NCIG CET is 12 ships per week. The Modification would increase the average number of ships loaded to 16 ships per week. While train and ship movements have been considered where relevant in the context of cumulative assessment, they do not form part of the existing NCIG CET or the Modification (i.e. train and ship movements are not regulated by Project Approval 06_0009).</td>
</tr>
</tbody>
</table>

Table 5-1 Summary of Comments Raised by Stakeholders

2020 Modification Report
6  Assessment of Impacts

The Modification scoping process identified that the increased throughput to 79 Mtpa could potentially change noise and air emissions, and therefore, reviews of previous assessments have been undertaken.

As the increase in approved throughput to 79 Mtpa involves no change to the other aspects of the NCIG CET (e.g. construction activities, disturbance limits, vehicle movements and water management), no other assessments were required to support the Modification Report.

The sections below provide a summary of the outcomes of the noise and air quality studies.

6.1  NOISE

6.1.1 Methodology

A Noise Impact Assessment Review for the Modification has been undertaken by SLR Consulting Australia (SLR) (2019) and is presented in Appendix A.

The Noise Impact Assessment Review includes consideration of the following components:

- operational noise from existing/approved activities associated with the NCIG CET that would continue for the increased throughput; and
- off-site transport noise (rail transportation).

The Noise Impact Assessment Review was conducted in accordance with the NSW Noise Policy for Industry (NPfI) (EPA, 2017a) and Rail Infrastructure Noise Guideline (RING) (EPA, 2013).

As there would be no change to employees, or deliveries/visitors to the site, no assessment of road traffic noise is required.

6.1.2 Background

Setting

The NCIG CET is an existing industrial facility that has been operating within the Port of Newcastle since 2010.

The Port of Newcastle is a heavily industrialised area, and therefore, residential receivers are in some cases located proximal to infrastructure associated with the existing industrial facilities in the area. The closest residential receivers to the NCIG CET are located approximately 1 kilometre away to the west of the NCIG CET rail spur (Figure 6-1).

The Modification would involve the continued use of the existing NCIG CET infrastructure, inclusive of the implementation of a number of on-site control system and operational process improvements identified by NCIG.
Derivation of Previous Operational Noise Criteria

Previous noise assessments undertaken for the NCIG CET EA (Heggies Australia, 2006) and subsequent modifications were prepared in accordance with the methodology provided in the Industrial Noise Policy (INP).

The INP was superseded in October 2017 by the introduction of the NPfI, which is now used for the regulation and management of noise emissions from industry (EPA, 2017a).

The NPfI was introduced to provide a more balanced approach to the assessment of daytime industrial noise and to allow a clearer process for the setting of achievable statutory noise limits for industry (EPA, 2017a).

While NCIG has existing Project Approval 06_0009 (and EPL 12693) noise limits derived consistent with the INP, operational noise criteria for the Modification have been derived in accordance with the methodology provided in the NPfI.

For a number of potential receivers proximal to the NCIG CET, the noise criteria derived under the NPfI for the Modification differ somewhat (i.e. higher or lower criteria) to those derived under the previous INP assessment methodology and specified in Project Approval 06_0009.

Predicted noise levels for the Modification have therefore been assessed against both the existing Project Approval 06_0009 noise limits and the revised criteria derived under the NPfI.

Noise Management and Monitoring Regime

Noise management at the NCIG CET is undertaken in accordance with the ONMP and the OEMP, which includes:

- monitoring objectives and NCIG’s roles and responsibilities;
- noise mitigation measures and controls; and
- noise monitoring and reporting procedures.

NCIG’s environmental management plans and reporting documentation can be found on NCIG’s website: www.ncig.com.au.

Compliance and Complaints

Off-site noise monitoring undertaken in accordance with the ONMP to date shows the NCIG CET operates in compliance with the relevant Project Approval 06_0009 noise limits.

Noise audits have been conducted at the NCIG CET at the completion of Stage 1, Stage 2AA, Stage 2F and MOD 2 to confirm noise performance in accordance with Project Approval 06_0009. The most recent audit for MOD 2 concluded that noise emissions from the NCIG CET complied in full with all noise-related conditions set out in Project Approval 06_0009.

In addition, annual independent environmental audits have been conducted in accordance with Project Approval 06_0009. During the most recent reporting period from 1 October 2015 to 1 October 2018, NCIG reported compliance with relevant noise limits at all receivers and that no noise related complaints were received from members of the public (pitt&sherry, 2019).

For the most recent compliance tracking program report for the reporting period 1 April 2018 to 31 March 2019, one noise related complaint was received from a member of the public, however, subsequent investigation confirmed the noise was not in relation to NCIG operations.

6.1.3 Applicable Criteria

Operational Noise

The NPfI recommends two noise assessment criteria, “intrusiveness” and “amenity”, both of which are relevant for the assessment of both operational and cumulative noise from the Modification (Appendix A).

A comparison of the existing Project Approval 06_0009 noise limits and the revised criteria derived under the NPfI for the Modification (i.e. Project Specific Trigger Levels [PSTLs]) are presented in Table 6-1.

Cumulative noise impacts are assessed against the recommended NPfI amenity criteria, with cumulative assessment including all industrial noise rather than noise from the incremental increase in throughput only. The cumulative noise amenity criteria are presented in Table 6-2.
### Table 6-1  Comparison of Project Approval 06_0009 Noise Limits and NPfI PSTLs

<table>
<thead>
<tr>
<th>Location</th>
<th>Noise Amenity Area</th>
<th>Project Approval (06_0009) Noise Limits, ( \text{LA}_{\text{eq}(15 \text{ minute})} ) (dBA)</th>
<th>NPfI PSTL, ( \text{LA}_{\text{eq}(15 \text{ minute})} ) (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Day/Evening/Night</td>
<td>Day</td>
</tr>
<tr>
<td>Fern Bay West</td>
<td>Urban</td>
<td>41</td>
<td>55</td>
</tr>
<tr>
<td>Fern Bay East</td>
<td>Urban</td>
<td>39</td>
<td>45</td>
</tr>
<tr>
<td>Stockton West</td>
<td>Urban</td>
<td>41</td>
<td>47</td>
</tr>
<tr>
<td>Stockton East</td>
<td>Urban</td>
<td>38</td>
<td>46</td>
</tr>
<tr>
<td>Mayfield West</td>
<td>Urban</td>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td>Mayfield</td>
<td>Urban</td>
<td>44</td>
<td>51</td>
</tr>
<tr>
<td>Carrington</td>
<td>Urban</td>
<td>36</td>
<td>47</td>
</tr>
<tr>
<td>Any</td>
<td>School</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>Hospital</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>Church, Cemetery</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>Active Recreation</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>Passive Recreation</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>Commercial</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>Industrial</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Source: Appendix A

### Table 6-2  NPfI Recommended Amenity Criteria

<table>
<thead>
<tr>
<th>Location</th>
<th>Noise Amenity Area</th>
<th>Recommended Amenity Noise Level, ( \text{LA}_{\text{eq}(\text{period})} ) (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Day</td>
</tr>
<tr>
<td>Fern Bay West</td>
<td>Urban</td>
<td>60</td>
</tr>
<tr>
<td>Fern Bay East</td>
<td>Urban</td>
<td>60</td>
</tr>
<tr>
<td>Stockton West</td>
<td>Urban</td>
<td>60</td>
</tr>
<tr>
<td>Stockton East</td>
<td>Urban</td>
<td>60</td>
</tr>
<tr>
<td>Mayfield West</td>
<td>Urban</td>
<td>60</td>
</tr>
<tr>
<td>Mayfield</td>
<td>Urban</td>
<td>60</td>
</tr>
<tr>
<td>Carrington</td>
<td>Urban</td>
<td>60</td>
</tr>
<tr>
<td>Any</td>
<td>School</td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>Hospital</td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>Church, Cemetery</td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>Active Recreation</td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>Passive Recreation</td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>Commercial</td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>Industrial</td>
<td></td>
</tr>
</tbody>
</table>

Source: Appendix A
6.1.4 Impact Assessment Review

Operational Noise

Modelling Methodology

As part of the NCIG CET EA, a Noise Impact Assessment was undertaken by Heggies Australia (2006) including the development of an acoustic model. The Noise Impact Assessment considered operations up to the maximum approved capacity of 66 Mtpa.

The acoustic model was refined with ‘as-built’ plant and equipment presented in a Noise Assessment Review for the Rail Flyover Modification EA (SLR, 2012).

SLR has updated the acoustic model to reflect the latest sound power level measurement data for the NCIG CET from 2019 and to incorporate the increase in approved throughput to 79 Mtpa (Appendix A).

The noise model was not required to include any new items of plant and equipment for the Modification, as the increase in capacity would be achieved through existing on-site control system and operational process improvements that improve the efficiency of the operation.

The increase in approved throughput to 79 Mtpa would increase conveyor inloading rates from 8,500 tph (at throughput of 66 Mtpa) to 10,000 tph, which would result in an increase to the existing total site sound power level (SWL) of the existing NCIG CET (127.8 A-weighted decibels [dBA]) by a negligible amount of less than 0.1 decibels (dB) (Appendix A) (Table 6-3).

However, the total SWL for the approved NCIG CET (as measured in June 2019) and for the NCIG CET incorporating the Modification (i.e. increased throughput to 79 Mtpa) would be less than the total SWL for the approved NCIG CET incorporating MOD 2 (Table 6-3).

The noise sources included in the noise model as well as locations of key modelled receivers are outlined in Appendix A.

Assessment of Meteorological Conditions

The NPfI generally directs the use of two approaches for the assessment of noise impacts through the use of default meteorological parameters or site-specific parameters.

SLR has adopted the more detailed approach using site specific meteorological data obtained from the NCIG automatic weather station located on Kooragang Island to define assessible meteorological conditions.

Operational Noise Level Predictions

The operational noise assessment indicated that noise emissions of the NCIG CET would remain within the current approval limits following the Modification.

### Table 6-3 Comparison of NCIG CET Sound Power Levels

<table>
<thead>
<tr>
<th>Stage</th>
<th>Capacity</th>
<th>Total Site SWL (dBA re 1pW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previously Assessed and Approved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
<td>30 Mtpa</td>
<td>125.0</td>
</tr>
<tr>
<td>Stage 2AA</td>
<td>53 Mtpa</td>
<td>127.7</td>
</tr>
<tr>
<td>Stage 2F (inclusive of MOD 2)</td>
<td>66 Mtpa</td>
<td>128.4</td>
</tr>
<tr>
<td>Existing (as measured)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCIG CET (66 Mtpa) (June 2019)</td>
<td>66 Mtpa</td>
<td>127.8</td>
</tr>
<tr>
<td>Modification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Following Optimisation Project</td>
<td>79 Mtpa</td>
<td>127.8</td>
</tr>
<tr>
<td>Increment</td>
<td>13 Mtpa</td>
<td>&lt;0.1</td>
</tr>
</tbody>
</table>

Source: Appendix A. Note: Includes the contribution of locomotives.
SLR recommends, therefore, that NCIG continue to implement the ONMP and applicable existing noise control and management measures.

**Cumulative Noise**

Potential cumulative noise impacts resulting from the concurrent operation of the NCIG CET at an increased approved throughput of 79 Mtpa and a number of proximal industrial facilities and projects, including the PWCS Terminal 4 Project, Incitec Pivot Ammonium Nitrate Facility and the Kooragang Island Recycling Facility Expansion were assessed against the NPfI recommended amenity criteria (Table 6-2) (note that the proposed Newcastle Gas Terminal would be located on the same site as the approved Terminal 4 Project and, therefore, has not also been included in cumulative assessment as it could not operate concurrently with the modelled operation of Terminal 4). Industrial facilities located proximal to the NCIG CET are shown on Figure 6-2.

The assessment indicated that cumulative industrial noise levels from the existing facilities excluding NCIG are predicted to be above the recommended night time noise amenity level at all receiver locations, with the exception of the Warabrook and Sandgate receiver areas (Appendix A).

The incremental increase in cumulative noise levels due to the NCIG CET at an increased approved throughput of 79 Mtpa would be less than 0.1 dBA and not discernible at receivers (Appendix A).

**Rail Transportation Noise**

The increase in approved throughput to 79 Mtpa would not change the maximum number of trains per day (i.e. up to 40 trains on any one day) (Table 2-1) arriving at the NCIG CET.

As there would be no change to the peak number of trains per day arriving at the NCIG CET, there would be no change in peak noise along the Main Northern Railway when assessed against the RING $L_{A_{eq}(15h)}$ Criteria for the daytime/evening and night-time periods.

Similarly, there would be no change in the maximum train pass-by noise as a result of the Modification when assessed against the RING maximum pass by criteria ($L_{A_{max}}$).

The increase in approved throughput to 79 Mtpa would increase the average number of trains arriving at the NCIG CET from approximately 26 trains to approximately 28 trains per day (Table 2-1).

There would, however, be an increase in average train movements as a result of the Modification, predicted to result in an increase of 0.8 dB for the daytime/evening $L_{A_{eq}(15h)}$ and night-time $L_{A_{eq}(9h)}$ when compared to the noise from the existing average train movements.

This change in average train noise levels would be indiscernible, and would remain within approved peak noise levels.

It is noted that locomotives on the NCIG CET rail loop have been considered in the operational noise modelling for the Modification as described above.
6.2 AIR QUALITY

6.2.1 Methodology

An Air Quality and Greenhouse Gas Assessment Review for the Modification has been undertaken by Todoroski Air Sciences (TAS) (2019) and is presented in Appendix B.

The assessment was conducted in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (Approved Methods) (EPA, 2017b).

The greenhouse gas emissions associated with the Modification are described in Section 6.3.

6.2.2 Background

Air Quality Management and Monitoring Regime

The ongoing management of air quality emissions at the NCIG CET is undertaken in accordance with the AQMP and the OEMP, which includes:

- monitoring objectives and NCIG's roles and responsibilities;
- dust and air quality mitigation measures and controls; and
- procedures for the management of exceedances and complaints.

NCIG undertakes air quality and dust monitoring in accordance with the current NCIG ambient air quality monitoring program at on-site and local monitoring locations as follows (Figure 6.3):

- dust emission data collected from eight dust deposition gauge locations located proximal to the NCIG CET (e.g. Stockton, Carrington and Mayfield);
- Total Suspended Particles (TSP) and PM10 concentration data collected on a six daily basis from monitoring sites located at Steel River, Mayfield, Stockton and Fern Bay;
- NSW OEH PM10 and PM2.5 particulate monitoring sites (as part of the Newcastle Local Air Quality Monitoring Network); and
- TSP monitoring sites located at the NCIG CET.

As a component of the Air Quality and Greenhouse Gas Assessment, background air quality data collected from the current NCIG ambient air quality monitoring program was reviewed. TAS noted the background air quality concentrations would already include the existing dust and particulate contributions of the operation of the NCIG CET.

NCIG’s environmental management plans and reporting documentation can be found on NCIG’s website: www.ncig.com.au.

Compliance and Complaints

Air quality and dust monitoring undertaken in accordance with the AQMP to date shows the NCIG CET operates in compliance with the relevant air quality criteria as outlined in the Approved Methods (EPA, 2017b).

Annual independent environmental audits have been conducted in accordance with Project Approval 06_0009. During the most recent reporting period for the period 1 October 2015 to 1 October 2018, NCIG reported compliance with relevant air quality criteria at all receivers, and that no air quality related complaints were received from members of the public (pitt&sherry, 2019).

This finding (that air quality at the NCIG complies with relevant criteria) is consistent with the relevant findings of the Lower Hunter Particle Characterisation Study, Final Report (Commonwealth Scientific and Industrial Research Organisation, Australian Nuclear Science and Technology Organisation & OEH, 2016), which determined that coal particles contributed only a small portion of the total background PM2.5-10 emissions in areas proximal to the Port of Newcastle.

In addition, for the most recent compliance tracking program report for the reporting period 1 April 2018 to 31 March 2019, two air quality related complaints from members of the public were received, however, subsequent investigation confirmed that only one of these complaints was in relation to NCIG operations.
Applicable Criteria

The Approved Methods generally specify criteria levels developed to protect human health and amenity (i.e. the criteria are set at levels to reduce the risk of adverse health effects).

The Approved Methods includes particle assessment criteria that are consistent with the revised National Environment Protection (Ambient Air Quality) Measure national reporting standards (National Environment Protection Council [NEPC], 1998; NEPC, 2015).

Particulate matter also has the potential to cause nuisance (amenity) effects when it is deposited on surfaces. Therefore, TAS has considered criteria for the maximum increase in dust deposition and maximum total dust deposition, as specified by the Approved Methods (EPA, 2017b) (Appendix B).

A summary of the relevant criteria considered by TAS (Appendix B) is provided in Table 6-4.

Table 6-4 Relevant Air Quality Assessment Criteria

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Period</th>
<th>Approved Methods Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSP</td>
<td>Annual</td>
<td>90 µg/m³</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>Annual</td>
<td>25 µg/m³</td>
</tr>
<tr>
<td>PM₂·₅</td>
<td>24-hour</td>
<td>50 µg/m³</td>
</tr>
<tr>
<td></td>
<td>24-hour</td>
<td>8 µg/m³</td>
</tr>
<tr>
<td></td>
<td>24-hour</td>
<td>25 µg/m³</td>
</tr>
<tr>
<td>Dust Deposition</td>
<td>Annual – Maximum Increment</td>
<td>2 g/m²/month</td>
</tr>
<tr>
<td></td>
<td>Annual – Maximum Total</td>
<td>4 g/m²/month</td>
</tr>
</tbody>
</table>

Source: Appendix B.

TSP – Total suspended particulate matter, which refers to all suspended particles in the air and are typically less than 30 to 50 micrometres (μm) in aerodynamic diameter.

PM₁₀ – Particulate matter with an equivalent aerodynamic diameter of 10 μm or less (a subset of TSP).

PM₂·₅ – Particulate matter with an equivalent aerodynamic diameter of 2.5 μm or less (a subset of TSP and PM10). Often referred to as the fine particles.

µg/m³ – micrograms per cubic metre.

g/m²/month – grams per square metre per month.

Existing Dust Controls

As part of the NCIG CET EA, an Air Quality Impact Assessment was undertaken by Holmes Air Sciences (2006). The NCIG CET EA Air Quality Impact Assessment considered operations and up to the maximum approved capacity of 66 Mtpa.

The modelling and assessment by Holmes Air Sciences (2006) was conservatively based on uncontrolled emissions (i.e. with no implementation of dust controls).

Operational and physical mitigation measures have been implemented at the NCIG CET as part of the AQMP to control dust generation.

NCIG has implemented an integrated dust suppression control system, which includes real time monitoring of coal moisture and meteorological conditions and integration with automated misting and water addition sprays on conveyors and coal stockpiles.

Physical mitigation measures include wind shielding on coal transfer conveyors, full enclosure of elevated conveyors and utilisation of ‘soft flow’ technology for chutes to ensure that separation of coal flow is minimised (Appendix B).
6.2.3 Impact Assessment Review

Particulate Matter Concentrations and Dust Deposition

The increase in coal throughput from 66 Mtpa to 79 Mtpa for the Modification has the potential to generate more dust emissions associated with coal handling and transfer activities (e.g., unloading and reclaiming).

As the Modification would not change the size of coal stockpiles at the NCIG CET, wind erosion emissions from stockpiles would not change (as this emission source is area dependant).

TAS (Appendix B) has undertaken revised air dispersion modelling of the existing approved NCIG CET and the NCIG CET with an increase in approved throughput to 79 Mtpa.

The modelling by TAS has incorporated the measures to control dust currently implemented by NCIG for the existing NCIG CET.

Based on the inclusion of the current dust control measures implemented at the NCIG CET, the total TSP emissions from operational activities at the NCIG CET, incorporating the Modification, are approximately 52% less than the emissions estimated in Holmes Air Sciences (2006), upon which the NCIG CET was approved.

The modelling demonstrates that the incremental change as a result of the increase in approved throughput to 79 Mtpa when compared to the existing NCIG CET would be negligible at residential receivers.

In addition, TAS considered the cumulative impacts of the NCIG CET by considering existing measured background levels and additional proposed projects (including the PWCS Terminal 4 Project, Incitec Pivot Ammonium Nitrate Facility Project and Kooragang Island Resource Recovery Facility Expansion) (note that the proposed Newcastle Gas Terminal would be located on the same site as the approved Terminal 4 Project and, therefore, has not also been included in cumulative assessment as it could not operate concurrently with the modelled operation of Terminal 4) (Appendix B).

TAS concluded the NCIG CET incorporating the Modification would not result in any exceedances of the applicable cumulative assessment criteria at all sensitive receivers in the surrounding environment (Appendix B).

TAS concluded, therefore, that the NCIG CET incorporating the Modification would continue to comply with all relevant air quality assessment criteria (Table 6-4) at all residential receptors (Appendix B).

TAS recommends that NCIG continues to implement the AQMP and applicable existing air quality control and management measures.

Rail Transportation

The Modification would not change the maximum number of trains per day (i.e., up to 40 trains on any one day) arriving at the NCIG CET, and the Modification would continue to comply with all relevant air quality assessment criteria at all residential receptors (Appendix B).

Ships

Ship movements have not been considered as part of the Modification, however, have been considered for the purposes of cumulative air quality assessment, which concluded the increase in approved throughput to 79 Mtpa would not result in any exceedances of the applicable cumulative assessment criteria at all sensitive receivers (Appendix B).

Continued Compliance

The NCIG CET including the Modification would continue to comply with relevant air quality criteria because of the implementation of dust controls during operations, the NCIG CET inclusive of the Modification is predicted to generate 52% less emissions than those predicted in the original EIS.
6.3 GREENHOUSE GAS EMISSIONS

The Air Quality and Greenhouse Gas Assessment Review prepared by TAS (Appendix B) considered the greenhouse gas emissions of the NCIG CET incorporating the Modification.

Consideration of greenhouse gas emissions from the Modification in the context of Ecologically Sustainable Development is provided in Section 4.

Three “Scopes” of emissions (Scope 1, Scope 2 and Scope 3) are defined for greenhouse gas accounting and reporting purposes.

Scope 1 emissions encompass the direct greenhouse gas emissions resulting from sources within the boundary of a project, such as the generation of on-site electricity and the transportation of materials on-site (i.e. resulting in the combustion of fuels).

Scope 2 emissions are off-site indirect greenhouse gas emissions from the generation of purchased electricity consumed by a project.

Scope 3 emissions encompass indirect emissions that arise from indirect sources not owned or controlled by a project. In the context of NCIG, the downstream use of coal handled at the NCIG CET (such as combustion of coal) has been considered as Scope 3 emissions. However, these emissions are also considered as Scope 3 emissions of the mines approved to produce the coal, as well as Scope 1 emissions for the businesses that burn the coal, and Scope 2 emissions for the businesses that use electricity (if the coal is used to produce electricity).

This means that greenhouse gas emissions are conservatively double-counted when:

- the same sources of emissions are considered as Scope 3 for both the approved mines and the NCIG CET;
- the same sources of emissions are considered as Scope 3 for other coal handling / transport developments in the coal supply chain (e.g. rail and shipping providers); and
- the same sources of emissions are considered as Scope 3 for the NCIG CET and Scope 1 emissions of the country in which the coal is used.

6.3.1 Assessment of Potential Greenhouse Gas Emissions

Scope 1 and Scope 2 Emissions

The increase in approved throughput to 79 Mtpa would not involve additional sources of emissions at the existing NCIG CET, as the increase in throughput capacity would be achieved through the increased efficiency and utilisation of existing infrastructure.

TAS (Appendix B) has estimated the Scope 1 and Scope 2 emissions from the NCIG CET incorporating the Modification to account for the proposed increase in throughput capacity. A comparison of the estimated emissions between the existing NCIG CET and the NCIG CET incorporating the Modification is provided in Table 6-5.

In the context of Australia’s annual emissions, the increase of Scope 1 and Scope 2 greenhouse gas emissions from the NCIG CET incorporating the Modification would be 0.003% of Australia’s greenhouse gas emissions reported for the year to December 2018 (Appendix B). The contribution to global emissions would be an order of magnitude smaller.

The potential externalities (indirect costs) arising from the predicted Scope 1 and Scope 2 emissions as a result of the increase in approved throughput to 79 Mtpa have been estimated taking into consideration the latest carbon price resulting from the most recent (July 2019) auction, undertaken by the Clean Energy Regulator under the Emissions Reduction Fund (Australian Government, 2019). The results of this auction yielded an average carbon price of $14.17 per tonne of carbon dioxide abated (t CO2-e) (Australian Government, 2019).

Table 6-5  Comparison of Estimated Scope 1 and Scope 2 Emissions

<table>
<thead>
<tr>
<th></th>
<th>Capacity</th>
<th>Scope 1 (t CO2-e/year)</th>
<th>Scope 2 (t CO2-e/year)</th>
<th>Total Scope 1 &amp; 2 (t CO2-e/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing/Approved NCIG CET</td>
<td>66 Mtpa</td>
<td>397</td>
<td>86,645</td>
<td>87,041</td>
</tr>
<tr>
<td>NCIG CET including the Modification</td>
<td>79 Mtpa</td>
<td>475</td>
<td>103,711</td>
<td>104,186</td>
</tr>
<tr>
<td>Increment</td>
<td>13 Mtpa</td>
<td>78</td>
<td>17,066</td>
<td>17,144</td>
</tr>
</tbody>
</table>

Source: Appendix B. t CO2-e/year – tonnes of carbon dioxide equivalent per year.
Based on sensitivity analysis of this carbon price (i.e. using a price range of $15 to $30/t CO₂-e), the externalities arising from the estimated increase in NCIG CET Scope 1 and Scope 2 emissions is approximately $0.24 to $0.51 million/year (in 2019 dollars).

When apportioned to the NSW population (approximately 0.1% of the global population [Australian Bureau of Statistics, 2019; United Nations, 2019]), externalities of Scope 1 and Scope 2 incremental emissions would be approximately $238 to $504/year per capita (in 2019 dollars).

Scope 3
The Scope 3 (indirect) emissions from the combustion (i.e. downstream end use) of the proposed additional throughput of coal exported by the NCIG CET (i.e. 13 Mtpa) is estimated to be 31.7 million tonnes of carbon dioxide equivalent (Mt CO₂-e) on an annual basis, with a revised total of 192.5 Mt CO₂-e per annum for the total throughput of 79 Mtpa for the NCIG CET incorporating the Modification.

The NCIG CET operates as an individual node, storing coal received from upstream mining operations for a limited period before it is shipped for export, and therefore, does not produce nor consume coal but facilitates coal transportation. The Modification does not involve or seek approval for the combustion of coal.

Scope 3 emissions from coal handled at the NCIG CET would inherently occur overseas (as other entities’ Scope 1 and Scope 2 emissions), and the mitigation and management of these emissions from coal handled at the NCIG CET would have already been considered by these entities during their respective approvals processes.

These Scope 3 emissions, which are double-counted Scope 3 emissions from the approved mines producing the coal as well as the NCIG CET (and would be accounted for as Scope 1 and Scope 2 emissions of end use entities), would occur regardless of the increase in approved throughput to 79 Mtpa.

### 6.3.2 International, National and State Policies and Programs Regarding Greenhouse Gas Emissions

While clause 14(2) of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 currently requires the consent authority to consider downstream emissions of development for the purposes of mining, petroleum production or extractive industry, having regard to any applicable State or national policies, programs or guidelines, there is no such requirement in a planning instrument that applies to the Modification.

Nevertheless, a description of State and national policies and programs (as well as the international regime) is provided below in order to consider the context of Scope 3 emissions of the Modification.

The importance of avoiding double counting of greenhouse gas emissions is well recognised under international and Australian frameworks addressing climate change and greenhouse gas emissions.

At an international level, the Paris Agreement under the United Nations Framework Convention on Climate Change requires parties to ensure the avoidance of double counting emissions in respect of the overarching obligations of the Paris Agreement. Emissions accounting guidance adopted under the Paris Agreement requires parties to avoid double counting emissions when preparing their national inventories of greenhouse gas emissions.

The Intergovernmental Panel on Climate Change’s Guidelines for National Greenhouse Gas Inventories do not require data to be collected or reported, or estimates to be made, of Scope 3 emissions.

At a national level the National Greenhouse and Energy Reporting Act, 2007 (Cth) also dissuades double counting by imposing reporting obligations upon companies only in respect of Scope 1 and Scope 2 emissions. There is no requirement or obligation imposed on companies under Australian law to report on Scope 3 emissions. The exclusion of Scope 3 emissions from the reporting requirements under Australian law effectively avoids double counting of Scope 3 emissions since the end-user who is responsible for a project’s Scope 3 emissions will ultimately account for them as Scope 1 emissions.
Australian Greenhouse Gas Reduction Targets

The potential impacts of greenhouse gas emissions from all Australian sources is collectively managed at a national level, through initiatives implemented by the Commonwealth Government. The Commonwealth Government has committed to a number of greenhouse gas emission reduction targets, including:

- reducing emissions levels by 5% below 2000 levels by 2020, consistent with Australia’s commitments under the Kyoto Protocol (Commonwealth of Australia, 2014); and
- reducing greenhouse gas emissions by 26 to 28% below 2005 levels by 2030, as part of the Paris Agreement.

A range of policies including the Emissions Reduction Fund, the Safeguard Mechanism, the Renewable Energy Target and the National Energy Productivity Plan have been implemented to help Australia meet its greenhouse gas commitments (Commonwealth of Australia, 2017).

The Emissions Reduction Fund is a $2.55 billion fund which purchases least cost emission reductions and abatement through a Commonwealth Government procurement process, which includes reverse auctions.

The Safeguard Mechanism aims to ensure that emission reductions purchased by the Government under the Emissions Reduction Fund are not undermined by increases in emissions in other areas of the economy. In this regard, the Safeguard Mechanism requires all facilities that emit over 100,000 t CO₂-e/year to offset emissions that exceed a facility-specific emissions baseline.

In addition, the NSW Government has released the NSW Climate Change Policy Framework (OEH, 2016), which commits NSW to the “aspirational long-term objective” of achieving net-zero emissions by 2050.

Scope 1 and Scope 2 emissions from the NCIG CET incorporating the Modification are not expected to affect the ability of NSW or Australia to meet its emissions reduction targets.

Scope 3 emissions, which would occur overseas regardless of the NCIG CET, would be accounted for in any emission targets in the countries in which the coal is used, consistent with the international legal framework under the United Nations Framework Convention on Climate Change and the Paris Agreement.

6.3.3 NCIG Greenhouse Gas Mitigation Measures

Greenhouse gas management at the NCIG CET is currently undertaken in accordance with the AQMP. The AQMP describes a number of greenhouse gas abatement and efficiency improvements, including:

- regular servicing of vehicles and equipment; and
- ongoing operational improvements to increase the efficiency of the plant and reduce power demand.

In addition, NCIG would continue to account for and report greenhouse gas and energy data in accordance with the National Greenhouse and Energy Reporting Act, 2007 (Cth).
7 Evaluation of Merits

The NCIG CET was granted Project Approval (06_0009) on 13 April 2007.

The Modification seeks to increase the existing approved throughput capacity from 66 Mtpa to 79 Mtpa. This increase can be achieved via control system and operational process improvements that NCIG has identified and progressively implemented within the existing CET boundary and using existing CET infrastructure.

Proposed changes to the approved NCIG CET as a result of the increase in approved throughput to 79 Mtpa are related to the following:

- an increase in the average daily train movements;
- an increase in the number of ships loaded per week/year; and
- potential increase in water demand (no change is proposed to the water use for ongoing dust suppression on the coal storage area), which would continue to be met through existing sources.

The increase in approved throughput to 79 Mtpa does not involve any change to the NCIG CET for the following development components:

- extent of NCIG CET disturbance;
- rail spur, rail sidings or rail loops;
- approved coal stockpile heights or coal storage area extent;
- total coal storage capacity;
- peak train movements;
- number of stackers/reclaimers;
- number or location of coal conveyors, transfer points or buffer bins;
- number of berths, wharf structure, number of shiploaders or peak shiploader capacity;
- peak workforce numbers;
- project life; or
- hours of operation.

7.1 STAKEHOLDER ENGAGEMENT OVERVIEW

NCIG has consulted with a number of stakeholders during the Modification process, including:

- DPIE;
- regulatory agencies;
- local councils;
- neighbouring export terminals and infrastructure owners; and
- local communities.

The outcomes of engagement with members of the public and key regulatory agencies has informed NCIG's preparation of the Modification Report for the Modification (Section 5).

Key feedback received was in relation to the likely benefit of the efficient use of infrastructure as well as potential Modification-related air quality and noise emissions. These matters have been addressed in this Modification Report accordingly.

7.2 CONSOLIDATED SUMMARY OF ASSESSMENT OF IMPACTS

NCIG operates in accordance with its existing environmental management plans, procedures and environmental monitoring programs.

NCIG has had a strong track record of environmental performance in its 10 years of operation, with zero major non-compliances and one complaint related to NCIG operations received since October 2015 from members of the public.

Given the scope of the Modification, potential environmental impacts are associated with noise, air quality, and greenhouse gas emissions.

NCIG has identified potential impacts of the increase in approved throughput to 79 Mtpa on these environmental aspects as well as proposed mitigation and management measures.
In summary:

• It is predicted the NCIG CET incorporating the Modification would continue to comply with current Project Approval 06_0009 noise limits and all relevant air quality assessment criteria at all privately-owned residences.

• NCIG would continue to implement the ONMP and AQMP, including applicable existing noise and air quality control and management measures. Monitoring would continue to be used to demonstrate ongoing compliance with air and noise limits.

• The increase in approved throughput to 79 Mtpa would not involve any additional Scope 1 and Scope 2 emissions sources at the existing NCIG CET. Increases in annual Scope 1 and Scope 2 emissions are expected to be proportionate to the proposed increase in throughput.

• Scope 3 emissions associated with the increase in approved throughput to 79 Mtpa would have already been considered by the upstream and/or downstream entities during their respective approvals processes.

7.3 JUSTIFICATION FOR THE MODIFICATION

Approval of the Modification is considered to be justified given:

• The Modification would realise the investment made by NCIG in innovative projects to improve the efficiency of the existing NCIG CET.

• The Modification would be achieved by utilising existing NCIG CET infrastructure, with no additional surface disturbance required.

• The Modification would provide flexibility for NCIG’s customers to gain further access to NCIG’s unique stockpiling capacity arrangements.

• The Modification would further de-link rail transport and ship loading, helping to alleviate congestion and improve efficiency on the Hunter Valley rail network.

• The Modification can be implemented in a manner that achieves compliance with existing environmental performance limits, including for noise and air quality and within NCIG’s existing environmental monitoring and management framework.

7.4 CONCLUSION

In weighing up the main environmental impacts (costs and benefits) associated with the proposal, as assessed and described in this Modification Report, the Modification, on balance, is considered to have merit.
8 References


HVCCC (2019). The History of the Hunter Valley Coal Chain Coordinator ‘HVCCC’


SLR Consulting Australia (2012). Rail Flyover Modification Environmental Assessment.


## Abbreviations, Acronyms & Glossary

### 9.1 Abbreviations & Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>per cent</td>
</tr>
<tr>
<td>µg/m³</td>
<td>micrograms per cubic metre.</td>
</tr>
<tr>
<td>AQMP</td>
<td>Operation Dust and Air Quality Management Plan</td>
</tr>
<tr>
<td>ARTC</td>
<td>Australian Rail Track Corporation</td>
</tr>
<tr>
<td>CEG</td>
<td>Community Engagement Group</td>
</tr>
<tr>
<td>CEMP</td>
<td>Construction Environmental Management Plan</td>
</tr>
<tr>
<td>CET</td>
<td>Coal Export Terminal</td>
</tr>
<tr>
<td>CO₂-e</td>
<td>Carbon dioxide equivalent</td>
</tr>
<tr>
<td>DA</td>
<td>Development Application</td>
</tr>
<tr>
<td>dBA</td>
<td>decibels</td>
</tr>
<tr>
<td>DPIE</td>
<td>Department of Planning, Industry and Environment</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental Assessment</td>
</tr>
<tr>
<td>EPA</td>
<td>Environment Protection Authority</td>
</tr>
<tr>
<td>EPBC Act</td>
<td><em>Environmental Protection and Biodiversity Conservation Act, 1999</em></td>
</tr>
<tr>
<td>EPL</td>
<td>Environment Protection Licence</td>
</tr>
<tr>
<td>g/m²/month</td>
<td>grams per square metre per month</td>
</tr>
<tr>
<td>HVCCC</td>
<td>Hunter Valley Coal Chain Coordinator</td>
</tr>
<tr>
<td>INP</td>
<td>Industrial Noise Policy</td>
</tr>
<tr>
<td>Lₐ(eq)</td>
<td>equivalent continuous noise level</td>
</tr>
<tr>
<td>LEP</td>
<td>Local Environmental Plan</td>
</tr>
<tr>
<td>m</td>
<td>metres</td>
</tr>
<tr>
<td>m³</td>
<td>cubic metres</td>
</tr>
<tr>
<td>mm</td>
<td>millimetres</td>
</tr>
<tr>
<td>Mt</td>
<td>million tonnes</td>
</tr>
<tr>
<td>Mt CO₂-e</td>
<td>mega tonnes of carbon dioxide per annum</td>
</tr>
<tr>
<td>Mtpa</td>
<td>Mega tonnes per annum</td>
</tr>
<tr>
<td>NCIG</td>
<td>Newcastle Coal Infrastructure Group</td>
</tr>
<tr>
<td>NEPC</td>
<td>National Environment Protection Council</td>
</tr>
<tr>
<td>NGER Act</td>
<td><em>National Greenhouse and Energy Reporting Act, 2007</em></td>
</tr>
<tr>
<td>NPIf</td>
<td><em>NSW Noise Policy for Industry (EPA, 2017)</em></td>
</tr>
<tr>
<td>NSW</td>
<td>New South Wales</td>
</tr>
<tr>
<td>OEH</td>
<td>Office of Environment and Heritage</td>
</tr>
<tr>
<td>OEMP</td>
<td>Operational Environmental Management Plan</td>
</tr>
<tr>
<td>ONMP</td>
<td>Operational Noise Management Plan</td>
</tr>
<tr>
<td>PSLTs</td>
<td>Project Specific Trigger Levels</td>
</tr>
<tr>
<td>PWCS</td>
<td>Port Waratah Coal Services</td>
</tr>
<tr>
<td>RING</td>
<td><em>Rail Infrastructure Noise Guideline (EPA, 2013)</em></td>
</tr>
<tr>
<td>SEPPs</td>
<td>State Environmental Protection Policy</td>
</tr>
<tr>
<td>SLR</td>
<td>SLR Consulting Australia</td>
</tr>
<tr>
<td>SSD</td>
<td>State Significant Development</td>
</tr>
<tr>
<td>SWL</td>
<td>Sound Power Level</td>
</tr>
<tr>
<td>t</td>
<td>tonnes</td>
</tr>
<tr>
<td>TAS</td>
<td>Todoroski Air Sciences</td>
</tr>
<tr>
<td>TfNSW</td>
<td>Transport for NSW</td>
</tr>
<tr>
<td>TSP</td>
<td>Total Suspended Particles</td>
</tr>
</tbody>
</table>
9.2 GLOSSARY

Background
The condition (e.g. noise levels) already present in an area before the commencement of a specific activity.

dBA
Decibels (A-weighted scale); unit used for most measurements of environmental noise; the scale is based upon typical responses of the human ear to sounds of different frequencies.

Emission
The discharge of a substance (e.g. dust) into the environment.

Greenhouse gases
Gases with potential to cause climate change (e.g. methane, carbon dioxide and non-methane volatile organic compounds). Usually expressed in terms of carbon dioxide equivalent.

Infrastructure
The supporting installations and services that supply the needs of the Modification.

$\text{LA}_{\text{eq}}$
The equivalent continuous noise level – the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.

Mitigation
Measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.

MOD 1
Approved modification to the NCIG CET for subdivision of land.

MOD 2
Approved modification to the NCIG CET for grade separation of the northern rail spur.

PM$_{10}$
Particulate matter less than 10 µm in aerodynamic equivalent diameter.

PM$_{2.5}$
Particulate matter less than 2.5 µm in aerodynamic equivalent diameter.

Stakeholder
Any individual, group or organisation that can affect, be affected by, or perceive itself to be affected by the behaviour of a company or an organisation.

Total suspended particulates (TSP)
Particulate matter suspended in solution of air.
10 Attachments & Appendices

ATTACHMENT 1-6

APPENDIX A-B

Documents can be found online at the NCIG website
www.ncig.com.au