PART D

ENVIRONMENTAL MANAGEMENT

Chapter 19 > Statement of commitments

D

19 Statement of commitments

19.1 Introduction

This chapter describes measures PWCS has committed to implement during the T4 Project's construction and operation to manage, mitigate and/or monitor potential impacts identified within this EA.

Environmental management during the T4 Project's construction will be in accordance with a CEMP. The CEMP would be prepared based on PWCS's CEMP for construction works at KCT. Environmental management during operations will be in accordance with PWCS's existing EMS, which will be updated to cover the T4 Project.

19.1.1 Construction Environmental Management Plan

The CEMP will detail the site-specific environmental management measures to be implemented during the T4 Project's construction, including the timing and responsibility for their implementation. It will be based on the comprehensive CEMP that it currently used for construction works at KCT, which will be reviewed and updated for the T4 Project. The CEMP will incorporate, and elaborate on, the construction mitigation measures identified in this EA. It will be made up of a number of specific management plans including, but not limited to, the following plans which are committed to in this EA:

- Materials Management Plan;
- Acid Sulphate Soil Management Plan;
- Remediation Action Plan;
- Noise Management Plan;
- Dust Management Plan;
- Ecological Management Plan;
- Traffic Management Plan;
- Landscape and Visual Management Plan; and
- Social Impact Management Plan.

The CEMP will be prepared by qualified technical specialists in consultation with relevant government agencies. Many of its component management plans will require approval from one or more agency(s) prior to implementation. The agencies to be consulted and involved in the approval of the EMPs will be discussed and agreed with DP&I. If approval is granted it is envisaged that the consultation and approval requirements will be stipulated in the conditions of the approval.

The CEMP and each of its component plans may include:

- introduction;
- objectives;

- project summary;
- legal and policy requirements;
- management structure, including roles and responsibilities;
- risk assessment;
- management measures;
- monitoring program;
- emergency response procedures; and
- reporting and review procedures.

The CEMP and its component plans will be prepared before construction starts. Adherence to the CEMP will ensure that all of the mitigation measures identified in this EA are effectively implemented.

Throughout the T4 Project's construction the CEMP and its component plans will be annually audited by PWCS and an independent party. The CEMP would be reviewed and updated as required.

19.1.2 Environmental Management System

PWCS currently operates under an EMS that is ISO 14001 certified. The EMS will be reviewed, expanded and updated to incorporate the T4 Project before operations start. The EMS includes a range of environmental policies and management and monitoring plans that set out specific measures to manage and monitor potential impacts of CCT and KCT. The EMS enables systematic management of PWCS's potential impacts on the environment and local community and aims to go beyond statutory compliance, meet community expectations and provide continual improvement in environmental performance. The technical reports recommend a number of management and control measures to minimise the T4 Project's potential impacts. Many of these measures are already in place as part of the EMS which will continue to be implemented for the T4 Project to minimise potential impacts. Commitments relating specifically to the T4 Project's operations are presented in the following sections and include mitigation/management measures that have been incorporated into the project design.

19.2 General

PWCS commits to the following:

- should approval be granted for the T4 Project, PWCS will carry out the project generally in accordance with this EA, including the systems, plans and mitigation measures identified in this EA; and
- PWCS will obtain and maintain all approvals, licences and permits required throughout the life of the T4 Project, as required.

19.3 Contamination/groundwater

PWCS commits to the following contamination and groundwater mitigation and management measures for the T4 Project:

- The preferred management and remediation options, based on current information, are as follows:
  - the construction of a soil-bentonite barrier wall for Pond 5 and 7;
  - the installation of a permeable reactive barrier along the northern side of Area K7 to intercept and treat any leachate (if generated) for the lead dust/asbestos dump;
  - dual phase extraction for Site B (in the vicinity of Well B-10);
  - the installation a low permeability cap over the existing surface prior to dredging for the Delta EMD site;
  - early capping after completion of dredge material emplacement, nominally 0.5 m thick, with permeability less than or equal 1x10-7 m/s and installation of a permeable reactive barrier along the northern boundary of the FDF is to intercept and treat any leachate if generated; and
  - a low permeability liner will be installed in Deep Pond prior to dredging.
- Specific investigations will be undertaken at the OneSteel site. Appropriate management strategies will be developed once the extent and implications of contamination have been confirmed and fully documented in the RAP. As stated previously, the RAP will include a schedule for the implementation of the management and mitigations measures.
- The current OEH approved management strategy for KIWEF of providing a cap nominally 0.5 m thick, with permeability less than or equal to $1x10^{-7}$ m/s will be utilised for the majority of the T4 project area.
- Detailed assessment, trials, design and pricing of contamination management and remediation options will be undertaken prior to implementation. The management and remediation measures will be integrated with staged construction activities in order to minimise the risk of further environmental or human health impacts due to the presence of contamination. A remediation schedule will be developed once the final design and staging plan is confirmed and will be incorporated into the RAP. The RAP will to be developed in consultation with OEH and approved by OEH prior to implementation.
- Human health will be protected during operations by preventing access to contaminants by humans through capping of the site and implementation of recommended remediation measures.
- Health protection requirements will vary across the T4 project area depending on the nature of construction activity and contaminants of concern in particular areas. Full details will be incorporated into the various management plans. A health risk assessment will form part of the RAP.
- Excavated material will be managed through a MMP, which will be part of the CEMP. Depending on its classification, excavated material may be re-used as general fill or placed in a purpose-built containment cell(s) within the T4 project area.

- An ASSMP will be developed and implemented for any possible disturbance of any potential acid generating materials or ASS. The ASSMP will form part of the CEMP.

- Groundwater and surface water monitoring plans will be developed and implemented for T4 Project construction and longer term operations, respectively. These plans will be incorporated into the CEMP and the EMS.

19.4 Surface water

PWCS commits to the following surface water mitigation and management measures for the T4 Project:

- An erosion and sediment control plan will be designed and implemented prior to and during construction activities in accordance with guidelines in Landcom (2004) *Managing Urban Stormwater – Soils and Construction*. The erosion and sediment control plan will form part of the CEMP. In particular, the following measures will be adopted:

    - construct site perimeter bunds and drainage diversions to contain stormwater and dredge water;

    - existing ponds to be retained near construction areas will be fenced with construction webbing;

    - low permeability liner in Deep Pond prior to dredging to prevent saline dredge waters from seeping through the rail embankment into wetlands to the west and north-west;

    - where appropriate, silt fences, diversion drains and/or bunds will be provided to contain sediment movement, in particular around existing water bodies that are to be retained;

    - construction plant and materials to be stored and maintained away from temporary and permanent drainage features;

    - refuel plant/machinery within bunded areas. Where this is not possible, refuelling is to be undertaken by trained staff supplied with appropriate spill clean-up kits;

    - the creation of on-site surface water run-off treatment pond(s) (sediment basins) will occur prior to the commencement of any construction work (retrofitting the Deep Pond may serve this purpose). The pond(s) will capture site runoff as well as water draining from the dredged material during filling activities;

    - test captured runoff to ensure discharge criteria are met prior to discharging to the Hunter River South Arm;

    - installation of a silt curtain (skirt with floats and ballast) in the Hunter River South Arm during construction of the wharf facilities and at the dredge water return point;

    - where necessary, watering of any stockpiles and exposed areas will be undertaken to reduce the likelihood of sediment entrainment through wind driven processes;

    - where appropriate early re-vegetation or sealing of completed elements of the development will be undertaken to reduce sediment laden run off;

    - regular inspection of all plant and machinery to reduce the likelihood of oil/grease leaks; and

- provision of appropriately sized spill kits to facilitate the rapid remediation of any accidental spill of potential contaminants.

- The following mitigation measures will be undertaken before construction of the rail embankment:

  - a realigned channel will be constructed to maintain the existing tidal flow regime to nearby wetlands potentially affected by disturbance to the southern end of Mosquito Creek Tributary. The realigned channel will be designed and constructed with similar hydraulic characteristics to the existing channel;

  - works will be undertaken to avoid impacting the tidal regime of the wetland complex near the Eastern Watercourse. These works may involve modifying or removing the existing levee at the Eastern Watercourse to maintain tidal flows to the wetland complex by this route; and

  - drainage will be provided within the rail embankment to maintain flows into the Eastern Freshwater Wetland from the rail area.

- During operations the following mitigation measures will be undertaken to reduce contaminant movement from the site:

  - stockyard perimeter drains to convey all collected surface water to settlement ponds;

  - standard pit and pipe systems to convey surface water from yard machine berms and adjoining access roads to the perimeter drains;

  - clean-out sumps will be installed to capture coarse sediments and accidental oil spills (dump stations, conveyor inclines, transfer houses, buffer bins and the sampling area);

  - construction of an underdrain network under the coal stockpiles connected to the perimeter drains;

  - local sediment swales adjacent to the rail batter;

  - local sediment basins for the transfer yard and wharves (surface water will be pumped to the stockyard drainage system); and

  - a series of settlement ponds to treat all surface water generated from the operational areas of the site.

- The surface water management system will maximise re-use of captured stormwater runoff on-site.

- The site water management system will be designed so that the average discharge frequencyto the Hunter River does not exceed one in three months.

19.5 Ecology

PWCS commit to undertaking a range of ecological mitigation and biodiversity offset measures as summarised below.

19.5.1 Mitigation measures

i General

The following general commitments are made in relation to mitigating impacts on flora and fauna:

- feral animal and noxious weed control will routinely be undertaken on the T4 project area, particularly targeting plague minnow (*Gambusia holbrookii*);
- adaptive management, as required, if a previously unrecorded or assessed threatened species is identified in the T4 project area during operations; and
- ongoing monitoring and maintenance of all impact mitigation and offsetting measures.

ii Green and golden bell frog

PWCS commit to undertaking the following general mitigation measures in relation to the green and golden bell frog:

- all known habitat for the green and golden bell frog in the T4 project area will be subject to a detailed pre-clearance procedure and a green and golden bell frog relocation procedure;
- management of water levels will be based on regular monitoring events during summer and additional water will be provided to OEH Wetland 1 in the event that monitoring indicates drying of the wetland;
- PWCS will undertake a detailed assessment of the need for a hygiene protocol similar to the NPWS (2001) *Hygiene Protocol for the Control of Disease in Frogs*;
- where handling of frogs is necessary, the risk of pathogen transfer will be minimised as follows:
    - hands will be either cleaned and disinfected between samples or a new pair of disposable gloves used for each sample;
    - a 'one bag – one frog' approach to frog handling will be used; and
    - a 'one bag – one sample' approach to tadpole sampling will be used.

These general mitigation measures will be detailed in an Ecological Management Plan that will form part of the CEMP and EMS.

A series of habitat features for the green and golden bell frog will be created across the T4 project area that will:

- provide large, densely-vegetated wetlands within a mosaic of closely-spaced aquatic habitats to increase the probability of the habitat being suitable for the green and golden bell frog;

- include a dispersal pathway that links known important green and golden bell frog habitat across Kooragang Island to Ash Island;
- be subject to an independently reviewed monitoring, evaluation and reporting process that will involve a detailed field monitoring design and an appropriate population viability analysis;
- be supported by a funding scheme for management and targeted research that is linked and responsive to a detailed monitoring program;
- be supported by appropriate off-site actions such as funding for captive breeding or funding for the maintenance of other breeding ponds or populations in other locations to buffer against unexpected site declines within the corridor and to allow for restocking of the habitat on-site;
- integrate with and supplement the works and research being undertaken on lands outside of the green and golden bell frog conceptual corridor as part of conservation planning or offset strategies derived from recent project approvals on Kooragang Island; and
- also be designed to provide habitat for a range of native flora and fauna species that currently occupy the freshwater wetland habitats of the T4 project area.

Planning and construction of the green and golden bell frog habitat features within the T4 project area will commence prior to any T4 Project-related disturbance of existing green and golden bell frog habitat.

A habitat corridor management plan (HCMP) will be developed for the corridor outlining the decision-making steps with trigger-action-response-plans for the various eventualities. The HCMP will form a part of the overall EMS for the site.

iii Hollow-dependent species

A comprehensive tree felling procedure will be implemented to minimise the potential for impacts on native fauna species (particularly tree-roosting micro-bats) as a result of the clearing of hollow-bearing trees identified in mangrove forest habitats. The tree felling procedure will form part of the CEMP.

iv Electricity lines

PWCS will assess the use of bunting on above-ground power lines in key migratory bird flight paths, to discourage birds from these areas and to minimise risk of impact. It is also possible that some transmission lines will be placed underground, further limiting potential birdstrike risks.

v Aquatic

Rock walls associated with the marine works will be designed and constructed with consideration to the Environmentally Friendly Seawalls Guide (SMCMA and DECC 2009), where practicable. This may include:

- providing walls constructed from many different sized boulders (>256 mm), and cobbles (64-256 mm), with the minimal use of mortar or concrete;
- ensuring that the surface of the rock wall is rough, porous and textured (using weathered boulders);
- attaching knobs, large woody debris and other items onto the smooth face of the boulders to create more habitat complexity;

- maximising habitat diversity and complexity by incorporating micro-habitats such as pools, crevices, cavities, ledges, and small caves;
- utilising sandstone (and other natural materials) rather than concrete boulders as marine pest species colonise quickly and grow faster on the latter;
- ensuring that water is retained in pools and runnels on the low tide;
- creating small sub-tidal artificial reefs (such as reef balls, rock fillets or rubble toe) in front of the wall; and
- creating low sloping seawalls or incorporating changes of slope to maximise habitat surface area.

19.5.2 Biodiversity offset measures

PWCS commit to implementing comprehensive biodiversity offset measures to address the identified residual impacts on the ecological values of the T4 Project. These measures will include:

- Establishment and long-term protection of a land-based offset site in the Hunter estuary (referred to as the Hunter Estuary Wetlands site) for the conservation of estuarine vegetation and habitats and the restoration of shorebird habitat and Coastal Saltmarsh EEC, Freshwater Wetlands EEC and Australasian bittern habitat in proximity to the T4 project area.
- Establishment and long-term protection of a Ellalong Lagoon that allows for the conservation of Freshwater Wetlands EEC and drought refuge for water bird species, with additional conservation of threatened and migratory species recorded in the T4 project area. Additionally, the Ellalong Lagoon site as an historical record of green and golden bell frog.
- Establishment and long-term protection of a green and golden bell frog population offset site in the Sydney Basin bioregion, or an adjoining bioregion, that allows for the conservation of part of a known breeding population adjacent to a current reserve.
- Funding a green and golden bell frog captive breeding program in association with NCIG to be undertaken by the University of Newcastle to be used in approved translocation projects to supplement the wild population and can also be used to trial the effectiveness of created habitat.
- Funding the management of Australasian bittern habitat at the Hunter Wetlands Centre Australia.
- Funding of genetic research into the origins of pondweed (*Zannichellia palustris*).
- Development of an appropriate ecological monitoring program to assess the success of the Biodiversity Offset Strategy in counterbalancing the impacts of the T4 Project on ecological values.

The land-based offset sites, including Hunter Estuary Wetlands offset site, Ellalong Lagoon and the green and golden bell frog offset site will be secured prior to construction works commencing. The timing of management and restoration works (where required) for these sites will be detailed in the Ecological Management Plan. Funding arrangements, including amounts and timeframes, for the green and golden bell frog captive breeding program, the management of the Australasian bittern habitat and genetic research will be agreed prior to construction works commencing.

A number of general management strategies will be employed across the land-based Biodiversity Offset Areas to maintain and improve the biodiversity values of the offset areas. The management and monitoring requirements for each of the Biodiversity Offset Areas will include:

- fencing and control of access;
- weed and feral animal control;
- bushfire management;
- general ecosystem monitoring; and
- adaptive management.

Management and monitoring commitments, procedures, methods and timeframes will be clearly documented in an Ecological Management Plan that will form part of the CEMP and EMS.

19.6 Noise and vibration

PWCS commits to the following noise and vibration mitigation and management measures for the T4 Project:

- the use of vibratory equipment will be undertaken in a manner which minimises noise impacts at sensitive receivers during construction;
- alternative alarms for mobile equipment such as quacker type alarms or those with selectable frequency and volume control will be used where appropriate;
- vibration monitoring and piling energy management will be applied as required during piling activities to achieve compliance with the relevant criteria;
- conveyor drives will be low noise specification;
- noise monitoring of the conveyor drives will be undertaken regularly to ensure compliance with the low noise specifications;
- noise barriers will be installed where required around conveyor drives;
- low noise specification idlers and random spacing will be implemented on the return idlers for the stockyard and shiploading conveyors;
- low-noise specification return idlers will be implemented on transfer conveyors;
- yard machinery and shiploaders will be low noise specification, including conveyor drives and return idlers;
- compliance with low noise specification will be required by the supplier at both the design and commissioning stages;
- belt feeders and soft flow chutes will be implemented at the buffer bins and chutes and the buffer bins enclosed where appropriate;
- full enclosure of the sample stations and partial enclosure of dump stations; and

- alarm systems with frequency and volume control will be installed for equipment alarms.

PWCS's existing Noise Management Plan will be reviewed, updated and implemented to ensure that noise is effectively managed throughout construction. The updated plan would form part of the CEMP.

The EMS will be revised and updated, if required, to include the following:

- maintenance and operational staff will undergo noise awareness training as part of site inductions; and
- an integrated community enquiries and response program will be prepared to respond to noise complaints during operations.

19.7 Air quality

PWCS commits to the following air quality mitigation and management measures for the T4 Project:

i General

- PWCS's existing Air Quality and Dust Management Plan will be reviewed, updated and implemented to ensure that dust emissions are effectively mitigated throughout construction. The updated plan would form part of the CEMP.
- The EMS will be revised and updated, if required, to incorporate relevant air quality mitigation and management measures.

ii Construction

- Where possible, disturbance of contaminated materials will be avoided;
- the properties (moisture content and particle size) of material to be handled will be considered to identify and appropriately handle materials with high dust generation potentials;
- the extent of exposed areas will be minimised as far as practical throughout the construction period;
- where appropriate, exposed areas will be chemically stabilised, hydromulched or otherwise stabilised;
- roads and other trafficked areas will be watered; applying water extenders to improve the control effectiveness of wet suppression will be considered;
- the prevailing wind direction and speed will be considered in short-term planning of construction operations, particularly when operations are close to sensitive receptors;
- construction activities may be modified under adverse meteorological conditions (dry, windy conditions), particularly when sensitive receptors are located downwind of the site;
- the double-handling of material will be minimised; and
- stockpiles of construction materials will be located in protected areas where possible.

iii Operations

- Dump stations will be partially enclosed (roof and side walls with openings only for train ingress/egress);
- dust suppression sprays will be provided;
- bottom dumping of coal will be undertaken;
- belt conveyors will be partially enclosed where practical (ie excluding yard and ship conveyors);
- 'soft' flow hood and spoon-type chutes will be provided on transfers which reduces coal degradation potential;
- a belt cleaning system will be provided on all conveyors;
- water sprays on coal in transit will be provided where appropriate;
- transfer houses will be clad;
- dust suppression (water) sprays will be provided on stockpiles;
- wind guards will be installed on yard and ship conveyors where appropriate;
- traffic and other movement will be minimised within the stockpile area;
- earthen bund walls and/or tree screening will be used, to minimise wind velocities on-site or to remove dust through impaction, where appropriate;
- variable height stackers will be provided, so that drop heights can be minimised;
- dust suppression will be included on stackers and reclaimers;
- the discharge chute at the end of the boom conveyor on shiploaders will be enclosed;
- shiploader spouts will be extendable to allow loading to occur low in vessel holds;
- dust suppression sprays will be provided;
- provision for a launder system on the conveyor gantries to return spillages;
- the buffer bins near the shiploaders will be enclosed as appropriate;
- progressive sealing of permanent internal access roads will be undertaken;
- any coal spillages will be cleaned up in a timely manner;
- landscaping of open areas will be undertaken, where practical;
- a reactive/predictive air quality control system will be applied; and
- PWCS staff will be trained to ensure dust minimisation is prioritised and visual triggers and arising actions are effectively implemented.

iv Further investigations

PWCS is also investigating additional controls identified during the best management practice review, to determine their suitability for the T4 Project. This includes coal moisture management based on dust extinction moisture levels and 'optimum moisture levels' and the effectiveness of wind barriers.

The investigations for coal moisture management based on dust extinction moisture levels and 'optimum moisture levels' and the effectiveness of wind barriers will be undertaken and completed prior to operations commencing.

19.8 Greenhouse gases

PWCS commits to the following energy use and greenhouse gas mitigation and management measures for the T4 Project:

- energy efficiency checks will be undertaken within the commission plans for new equipment;
- the SCADA system will be used to monitor and optimise the feed rate for the receival, stacking, reclaim and shiploading conveyors;
- LED lighting will be installed on conveyor gantries and walkways where appropriate;
- low intensity GHG hot water systems, such as solar hot water, heat pump storage or gas instantaneous systems will be installed rather than conventional electric storage;
- energy efficient air conditioning systems will be installed;
- consideration of energy efficiency will be required in the formal tender assessment process for contractors and suppliers;
- the use of alternative, low GHG emission fuels, such as Ethanol 10 and Ultra Low Sulphur Diesel will be investigated for the T4 Project passenger and heavy equipment fleet; and
- a GHG reduction target and monitoring plan and a climate change risk register will be developed and implemented.

19.9 Traffic

PWCS commits to preparing a Traffic Management Plan for the T4 Project prior to construction. The plan, which will form part of the CEMP, will be prepared in consultation with RMS and NCC and will include the following mitigation measures:

- Construction of a new four-way roundabout to replace the existing Pacific National Access Road and NCIG Wharf Access Road T-intersections on Cormorant Road. The detailed design will be finalised before construction, in consultation with RMS and NCC. Alternatively temporary traffic signals may be installed at the NCIG Wharf Road intersection during Stage 1 of construction and a new wharf access road constructed south of Cormorant Road, that services the KCT, NCIG and proposed T4 Project wharf areas.
- Provision of a dayshift shuttle bus to transport approximately 300 people during the peak of Stage 1 construction, to and from the T4 Project from an off-site parking location(s)/pick up

point(s) south of the Hunter River South Arm. The off-site parking location(s)/pick up point(s) will be documented in the Traffic Management Plan in consultation and to the satisfaction of RMS and NCC. The shuttle bus drop off and pick up locations on Kooragang Island bus will be adjacent to car parking areas.

- Where possible construction traffic departures between 4.00 and 6.00 pm during the peak of Stage 1 construction will be spread so that less vehicles leave during the 4.00 to 5.00 pm peak.
- Installation of traffic signals at the intersection of Industrial Drive and Woodstock Street.
- Construction of a median in the centre of Tourle Street, approximately 300 m south of the Tourle Street Bridge, to enforce the left-turn only restrictions at the access point to the south bank wharf area.

In addition, PWCS will consider the preparation of a WTP in consultation with other stakeholders such as other industry on Kooragang Island and NCC and RMS.

The roundabout, or alternative, and the provision of a shuttle bus for the transportation of construction workers will be implemented prior to the peak of Stage 1 construction activities. Access arrangements to the south bank wharf area will be implemented prior to Stage 2 construction.

19.10 Visual

PWCS commits to the following visual mitigation and management measures for the T4 Project:

- colour treatments will be applied to the yard machinery, shiploaders, buffer bins and elevated conveyors to reduce the level of visual change, particularly in regard to these structures against the skyline;
- landscape planting will be undertaken to screen infrastructure and soften views of the T4 Project from near field locations such as Tourle Street Bridge and Cormorant Road;
- measures will be developed in the detailed design phases to minimise the effects of light spill and glow to surrounding areas. This will include:
  - avoidance of upward lighting;
  - use of directional light fittings and screening of lighting to limit light spill; and
  - use of lighting systems that will minimise the area that that is lit for a minimum period of time; and
- a camouflage/integration and landscape planting strategy will be prepared during the detailed design stage for the T4 Project and incorporated within a LVMP.

19.11 Heritage

PWCS commits to the following Aboriginal heritage management measures for the T4 Project:

- If Aboriginal objects are uncovered due to the development activities, all works will halt in the immediate area to prevent any further impacts to them. A suitably qualified archaeologist and member(s) of the registered Aboriginal parties will be contacted to determine the significance of

the object(s). Any new sites will be registered in OEH's AHIMS register and details of their proposed management will be provided to the OEH.

- If human remains are found, in the event that surface disturbance occurs, all works will halt in the immediate area to prevent any further impact to the remains. The NSW Police will be contacted immediately. No action will be undertaken until the police provide written notification to the proponent. If the skeletal remains are identified as Aboriginal, the OEH's Enviroline (131 555) and representatives of the local Aboriginal community will be contacted. No works will continue until the OEH (and the consent authority) provides written notification to PWCS.

19.12 Social

PWCS commits to the following social mitigation and management measures for the T4 Project:

- PWCS will seek to implement an integrated approach to improve the broader Kooragang Island - the Kooragang 2030 Strategy - to engage Kooragang industry to become involved in a program which aligns forward planning for the island with the Newcastle City Council 2030 Strategic Plan and other community values. This long-term initiative could include:
  - collaborating and engaging with other industry to improve island environs and develop a sustainable and identifiable hub;
  - identifying how PWCS and other industry could contribute to NCC's commitment in its 2030 Strategic Plan to create an innovative, learning and renewable city;
  - pursuing opportunities to assist in the development of the region's future industry leaders, through support, education assistance, and mentoring of young people; and
  - addressing concerns from locals that Kooragang Island is unsightly, for example by assisting with the preparation of beautification programs, including tree planting, sculpture/art additions and signage initiatives.
- PWCS will undertake a housing and accommodation study closer to the start of construction. The assessment will determine whether the T4 Project construction workforce will impact the demand or capacity of the short-term housing and accommodation market in Newcastle; and if negative impacts are identified, strategies will be developed to accommodate the project workforce in a manner that minimises impacts, while achieving the assumed workforce mix. These strategies would also include developing mechanisms to monitor housing and accommodation impacts (if required), and ensure appropriate ongoing management of any relevant housing and accommodation issues.
- PWCS will develop and enact a Community Development and Engagement Plan. As part of this plan PWCS will develop and implement a Detailing Dust Program to better understand dust impacts in the community and to develop appropriate on and off-site strategies for managing dust.
- PWCS will continue local training and employment programs targeting the local/regional workforce, university graduates and youth.
- PWCS's strategic community sponsorship program will be continued.

- Community investment programs will identify and address increased demand on social/community service provision and facilities and environmental/ecological issues and funding for environmental groups.

The above measures will be included in a Social Impact Management Plan, which will be prepared for the T4 Project as part of the CEMP and EMS.

"This page has been intentionally left blank"

PART E

JUSTIFICATION AND CONCLUSION

Chapter 20 > Justification and conclusion

E

20 Justification and conclusion

20.1 Introduction

This EA has comprehensively examined all potential impacts associated with the proposed T4 Project, as well as the need for the project and alternative development options. This chapter weighs the potential impacts of the proposal to determine whether it can be justified on social, environmental and economic grounds, including consideration of its consistency with applicable objects of the EP&A Act and EPBC Act.

20.2 Global demand for energy

Global energy consumption is forecast to grow by 53% from 2008 to 2035. Increased consumption of marketed energy from all fuel sources is forecast to continue growing through to 2035. Even with the likely growth in the renewables sector, fossil fuels including coal are expected to continue supplying a significant proportion of energy needs (US Energy Information Administration 2011).

The share of fossil fuels in global primary energy consumption in 2035 under the International Energy Agency's (IEA) 'New Policies Scenario' is forecast to drop to 75%, a decrease of around 6% from 2010, although the use of fossil fuels will grow in absolute terms (World Energy Outlook (WEO) 2011). Thus even taking into consideration all of the broad policy commitments, plans and pledges announced by countries to reduce GHG emissions and phase out fossil fuel energy subsidies considered under the IEA New Policies Scenario, fossil fuels will remain a significant source of global primary energy production (WEO 2011).

Modern renewable energy technologies are predicted to account for half of the new energy-generating capacity installed to meet growing demand in 2035. However, in absolute terms, the total supply of power generation from renewable sources will still be far less than that provided by fossil fuels (WEO 2011).

Access to reliable energy is critical to human wellbeing and economic development. In 2011, around 20% of the world's population, more than 1.4 billion people, had no access to electricity (United Nations Foundation 2011). The UN has launched the 'Sustainable Energy for All' initiative. One of the initiative's key objectives is to ensure universal access to modern energy services by 2030. To achieve this goal, an increase in global electricity generation of approximately 40% will be required by 2030.

20.3 Increased demand for coal

Global energy demand will continue to drive the need for coal into the future. Even under the conservative assumptions in the IEA's New Policies Scenario, coal remains a significant source of electricity generation through to 2035, and energy needs will continue to be the primary driver of global coal demand accounting for at least three-quarters of the forecast increase (WEO 2011).

Most of the increase in demand will be to satisfy the energy needs of emerging economies. Increases in demand are predicted to continue for the next ten years, after which demand is expected to stabilise at around 17% higher than 2010 (WEO 2011). The UN's Sustainable Energy for All initiative forecasts that electricity generation will be supplied by a range of sources, that is on-grid electrification (45%), mini-grid (36%) and off-grid (20%) electricity sources. Of the on-grid electricity generation, around 28% of additional generation will come from fossil fuel sources, with coal alone accounting for more than 80% of this (WEO 2011b). Under the IEA New Policies Scenario, a 20% increase in global coal production between

2009 and 2035 occurs in non-OECD countries, with China contributing over half of the increase in global demand (WEO 2011).

Australia is predicted to produce almost one third (31%) of the coal produced by OECD countries, and about 7% of total world coal production by 2035 (US Energy Information Administration 2011). Australia is forecast to be the only major OECD producer to increase production over this period, with output from the United States and Europe declining in absolute terms (WEO 2011).

Australia has approximately 10% of the world's demonstrated economic reserves of black coal, and around 8% of the world share of brown coal reserves (ABARES 2011). Being one of only three net energy exporting nations in the OECD, Australia is well placed to meet increasing global energy demand (ABARES 2011).

Even with an increasing uptake of renewable energy technologies coal will continue to have an essential role in meeting global energy demands. Meeting the UN's goal of universal access to modern energy services by 2030 will increase CO_2 emissions by a further 0.7%, thus increasing climate change risks. However, these risks need to be seen in the context of the human development and poverty reduction benefits that will come from the broader availability of affordable and reliable energy supplies.

20.4 Need for the T4 Project

The need for the T4 Project is driven by the requirement for additional coal export capacity at the Port of Newcastle, to reliably service growing market demands. In recent years there has been a substantial increase in international demand for, and production of, coal from the region serviced by PWCS, that is the Hunter Valley Coal Chain.

The economic importance of the Hunter Valley Coal Chain is recognised by the NSW Government, which negotiated a long-term operational framework with the coal industry, namely the CFAs, to provide a solution to uncertainties and capacity constraints. As part of its obligations under the CFAs, PWCS has entered into long-term contracts with coal producers and is responsible for ensuring its terminal facilities have sufficient capacity to meet forecast demands. Where a capacity shortfall arises which cannot be accommodated by further expansion of PWCS's existing terminals, the CFAs require PWCS to gain approvals for and construct a new terminal (T4) within four years of capacity shortfall being triggered.

The Commonwealth and NSW Governments have both recognised the need for port expansion in NSW, particularly expansion of coal export capacity at Newcastle. This has been translated into strategic planning policies and legislation. The then DoP released the *Three Ports State Significant Site Proposal: for New South Wales Major Ports of Newcastle, Botany and Port Kembla* in May 2008. The proposal established planning regimes for each port to provide for their expansion and to preserve port related activities and industry. The Port of Newcastle was subsequently incorporated into the Major Development SEPP, with the Newcastle, Botany and Kembla ports collectively known as the state significant 'Three Ports' site. Under the Major Development SEPP, the T4 project area (as well as most of the Port of Newcastle) is zoned SP1 Special Activities. Within the SP1 Special Activities zone, port facilities are a permissible land use.

In 2011, the NSW Government released a coal and gas strategy scoping paper which recognises the role Australia will continue to play in supplying coal to meet world energy demands, as well as the significant economic benefits that coal mining provides nationally and to various states and mining communities. A priority initiative identified in the scoping paper is the need for more built infrastructure, notably port facilities, to facilitate the growth of the coal industry in NSW. Port capacity has also been identified by ARTC as a critical factor in the coal export chain and coal volume forecasts in the Hunter Valley Corridor

2011-2020 Capacity Strategy. ARTC (2011) identifies the current and future rail capacity and other infrastructure requirements to meet indicative contracted and prospective future coal volumes.

It is clear that the T4 Project is necessary to facilitate coal exports to service global energy needs and to enable Australia, NSW and the Hunter to benefit economically.

20.5 Suitability of the site

A range of physical, economic and environmental attributes make the T4 project area suitable for the proposed development. In particular it capitalises on the following:

- Portside land within an existing operational port. The T4 project area is situated within the Port of Newcastle, on flat, previously developed land with water-side access.
- Existing transport infrastructure (both rail and road) that links the T4 project area to the Hunter Valley Coal Chain.
- Existing landform conditions that are suitable for the proposed development. The site is relatively flat and mostly disturbed.
- Current land use zoning for industrial and port-related use. The use of land designated for industrial and port-related activities is consistent with strategic planning policies and instruments at Commonwealth, state and local levels.
- Existing PWCS infrastructure and operational workforce at KCT, next to the T4 project area. This will allow the T4 Project to use and share existing facilities and management and monitoring systems, including existing KCT administration, stores, maintenance facilities and operational workforce.
- Existing dredging approvals for extension of shipping channels and deep water berths in the Hunter River South Arm adjacent to the T4 project area. RMS has already obtained development consent for the extension of shipping channels in the Hunter River South Arm, which include dredging for the T4 Project's deep water berths. The T4 Project only requires a minor modification of this approval.

The T4 Project will also result in improved management of existing contamination in the project area, which will benefit surrounding sensitive receptors, including the Hunter Wetlands National Park and the Hunter River.

These attributes contribute to the financial viability of the T4 Project. In turn, this enhances the financial competitiveness of the Hunter Valley Coal Chain, which provides socio-economic benefits of national, state and regional significance.

In summary, it is clear that the T4 project area is highly suitable for the proposed development.

20.6 Potential impacts of the T4 Project

The T4 Project has been designed to maximise the handling capacity and throughput of the terminal to reduce or negate the need for an additional coal terminal in the Port of Newcastle in the future. For coal terminals of this nature, this means the provision of individual components or infrastructure with the capacity to service other components or infrastructure, including the rail, conveyor, stockyard and marine components. A change to any of these components would reduce its handling capacity and throughput.

For example, a reduction in the size of the stockyard would result in a corresponding reduction in the handling capacity and throughput of the T4 Project. A reduction in handling capacity and throughput may necessitate another terminal being developed in the Port of Newcastle in the future should the T4 Project not meet demand.

The T4 Project is expected to have a range of consequences, both positive and negative.

To enable a balanced comparison of the overall merits of the project, this EA includes a BCA. The BCA uses the net production benefits of the T4 Project that accrue to Australia which are estimated to be approximately $27,311 M under Scenario 1, $57,938 M under Scenario 2 and $60,264 M under Scenario 3. These benefits would be distributed between numerous stakeholders including the Commonwealth Government in the form of company tax, the NSW Government via royalties, local mining communities through contributions to community infrastructure and coal mining companies and their shareholders.

For the T4 Project to be questionable from an economic efficiency perspective, all residual environmental impacts to Australia, including impacts from associated coal mining, rail and port development will need to be valued by the community at greater than the total net production benefits that will accrue to Australia, conservatively approximated as the company tax plus royalties. That is greater than $11,995 M (present value) under Scenario 1, $23,071 M (present value) under Scenario 2 and $24,011 M (present value) under Scenario 3.

The large investment proposed for construction and operation of the T4 Project will provide substantial economic stimulus to the NSW and regional economies. During the peak year of construction the T4 Project is predicted to generate 4,256 direct and indirect jobs. The T4 Project is predicted to generate 723 indirect jobs at its maximum operating capacity of 120 Mtpa.

While there is uncertainty around future coal prices and export demand, it is evident that the T4 Project will potentially have very significant economic benefits to the Australian, NSW and regional economies. Approval of the T4 Project will overcome the predicted port capacity constraints and ensure Australia and NSW can capture the economic benefits of meeting increasing world energy demand.

20.7 Objects of the Environmental Planning and Assessment Act 1979

The T4 Project's consistency with the objects of the EP&A Act is considered below.

(a) to encourage

(i) The proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment

The T4 Project involves the use of land designated for industrial and port-related activities and is consistent with strategic planning policies and instruments at a national, state and local level. It will use existing physical and human capital, and be compatible with adjoining industrial and port uses. The T4 Project will benefit society in general by facilitating a reliable and affordable source of energy, providing employment locally and through payment of royalties and taxes. It will thus promote 'social and economic welfare'. A range of mitigation measures will be implemented to manage potential environmental impacts including improved management of contaminated land. Various compensation measures will also be provided where on-site avoidance or mitigation is not possible. The overall result is likely to be 'a better environment'.

(ii) The promotion and co-ordination of the orderly and economic use and development of land

The T4 Project involves the use of land designated for industrial and port-related purposes and is consistent with strategic planning policies and instruments at a national, state and local level. It will use existing physical and human capital, and be compatible with adjoining industrial and port uses. Thus, it will promote 'orderly and economic use of land'.

(iii) The protection, provision and co-ordination of communication and utility services

The T4 Project involves relocation of various communication and utility services including sections of rail tracks, shipping navigation aids, gas and water pipelines, a wind turbine, transmission lines and fibre optic cable. All communication and utility services affected by the project will be relocated in consultation with relevant administering authorities and utility providers to ensure there will be no disruption to services. This will protect utility services. In addition, the T4 Project will enable better use of prior investments in significant infrastructure, particularly port and rail facilities, enabling more effective use of 'communication and utility services'.

(iv) The provision of land for public purposes

The T4 Project will use some land that is publicly owned. This land, which is zoned for industrial and port-related facilities, will provide an economic return to the public through rent.

(v) The provision and co-ordination of community services and facilities

The T4 Project will not cause any long-term increase or change in the local population, meaning it will have no effect on community services and facilities.

(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats

The T4 Project's design avoids or minimises impacts on vegetation and habitat within the project area where possible. To compensate for unavoidable disturbance, substantial offsets, consisting of existing equivalent or better habitat and or new habitat established through restoration, will be provided. In this way 'conservation of native animals and plants' will be achieved. As explained in relation to object (a)(i) above the T4 Project will also 'protect the environment'.

(vii) ecologically sustainable development

The Commonwealth Government's *National Strategy for Ecologically Sustainable Development* defines ESD as 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'.

The T4 Project will use community resources including physical, human and financial resources to contribute to global energy needs and, in the process, facilitate human development and, provide considerable employment and public revenue. In this way it will improve 'the total quality of life'.

The T4 Project will be developed on predominantly disused and contaminated land. Remediation will largely occur in the early stages of the project thus reducing environmental risks to the site and its surrounds. Also, the T4 Project will conserve and enhance ecological processes both directly and by implementing on-site mitigations and establishing offsets. Through these measures the T4 Project will 'conserve ecological processes'.

The T4 Project will directly produce some GHG emissions and indirectly facilitate others by providing affordable fossil fuels for the production of energy. The latter category will contribute to global GHG emissions representing about 0.42% of emissions in 2030. This is a small proportion of future emissions and is not likely to threaten ecological processes. Further, it will facilitate provision of an affordable fuel source which will replace more polluting fuels used in poor countries, such as wood obtained in an unregulated manner from forests.

The principles of ESD are considered subsequently.

Precautionary Principle

This means that if there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. This EA, prepared by experts in their respective fields, has identified and assessed the potential environmental impacts, and appropriate mitigation, management and monitoring measures have been developed in response. Taking these measures into account, there will be no threat of serious or irreversible damage to the environment as a result of the T4 Project.

Social equity including intergenerational equity

The T4 Project contributes to social equity by providing additional employment both directly and indirectly. It will facilitate the cost effective and efficient use of a geological resource - coal - to produce an energy product, thus developing physical and human capital through investment in infrastructure and workforce training. This transformation from natural to human capital will contribute to intergenerational equity.

Conservation of biological diversity and maintenance of ecological integrity

The T4 Project has been designed to avoid or minimise impacts on-site, but it will affect some EECs and habitats of threatened species. To compensate for unavoidable impacts, the T4 Project will incorporate substantial offsets. This is likely to conserve and maintain biological diversity.

Improved valuation and pricing of environmental resources

The comparison of benefits and costs in the EA demonstrates that the T4 Project's benefits significantly outweigh its costs. While the BCA does not include prices for environmental goods, reasonable judgments about their monetary value are still possible. For the T4 Project's costs to exceed its benefits, the costs would need to be greater than between about $11,995 M and $24,011 M which is equivalent to a payment by each household in NSW of between $5,000 and $9,500. It is likely that very few households would be willing to make such payments, reinforcing the conclusion that the T4 Project's benefits exceed all its costs, including environmental ones.

The general conclusion is that the proposal is consistent with the principles of ESD.

(viii) The provision and maintenance of affordable housing

The T4 Project will not materially increase or change the size or character of the local population. Thus it is not likely to have any noticeable effects on housing affordability. A housing and accommodation study will to be undertaken closer to the start of construction, using the latest data, to verify this and if required, identify strategies to minimise impacts.

(b) To promote sharing of responsibility for environmental planning between the different levels of government in the State

The preparation of the EA has involved considerable stakeholder engagement including consultation with all levels of government. The NSW government has also convened a Project Control Group which was coordinated by DP&I's Project Delivery Unit. The PCG met on a number of occasions with PWCS. Participants included a number of NSW government departments and the Commonwealth DSEWPC.

(c) To provide increased opportunity for public involvement and participation in environmental planning and assessment

A comprehensive community and stakeholder engagement program has been undertaken for the T4 Project. The engagement activities undertaken included formal and informal stakeholder engagement media, such as phone calls, meetings and briefing sessions, themed dialogues, community information sessions and community information sheets. Thus there has been substantial 'opportunity for public involvement and participation'.

The overall conclusion is that the T4 Project is consistent with the objects of the EP&A Act either wholly or in the majority.

20.8 Objects of the Environment Protection and Biodiversity Conservation Act 1999

The T4 Project's consistency with the objects of the EPBC Act is considered below.

(a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance; and

As previously stated, while the T4 Project has been designed to avoid or minimise impacts on-site, it will still impact on some EECs and habitats of threatened species, including MNES. To compensate for unavoidable impacts, the T4 Project will provide offsets. A comprehensive ecology assessment was undertaken of the T4 Project which includes and assessment of the project's likely impact on the relevant MNES. The assessment (which includes an assessment of the Biodiversity Offset Strategy against the Commonwealth's *Draft Policy Statement: Use of Environmental Offsets under the EPBC Act*) concludes that with the implementation of mitigation measures and the Biodiversity Offset Strategy, biodiversity values in the surrounding region and the viability of threatened species and communities that are impacted by the T4 Project will be maintained or improved over the medium to long-term.

(b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and

Consideration of the T4 Project against the principles of ESD was provided in Section 20.7.

(c) to promote the conservation of biodiversity; and

As stated above, with the implementation of mitigation measures and the Biodiversity Offset Strategy, biodiversity values in the surrounding region and the viability of threatened species and communities that are impacted by the T4 Project will be maintained or improved over the medium to long-term.

(ca) to provide for the protection and conservation of heritage; and

The T4 Project is unlikely to have any impact on Aboriginal and non-Aboriginal heritage. There are no heritage places items listed under the EPBC Act located on or near to the T4 project area.

(d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples; and

PWCS has sought to promote a co-operative approach to the protection and management of the environment through a range of measures, including participation in the PCG meetings and development of the green and golden bell frog corridor and the Biodiversity Offset Strategy. In particular, development of the Biodiversity Offset Strategy has included government, community groups and land holders.

(e) to assist in the co-operative implementation of Australia's international environmental responsibilities; and

A range of measures have been implemented to protect and offset potential impacts on the Hunter Estuary Wetlands Ramsar site and migratory and marine species that are listed on one or more international treaties for birds. Studies underpinning this EA conclude that the T4 Project is unlikely to have any direct impacts on the Ramsar site. As stated above, with the implementation of mitigation measures and the Biodiversity Offset Strategy, biodiversity values in the surrounding region and the viability of species impacted by the T4 Project, including migratory and marine species subject to international treaties, will be maintained or improved over the medium to long-term.

(f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and

This objective is not considered to be relevant to the T4 Project.

(g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.

Aboriginal people have been consulted and involved in the T4 Project specifically in relation to cultural knowledge.

The overall conclusion is that the T4 Project is consistent with the objects of the EPBC Act either wholly or in the majority.

20.9 Conclusions

The T4 Project is strongly justified. There is a need for the T4 Project, driven by the requirement for additional coal export capacity at the Port of Newcastle to service growing market demands. The need for the project is underpinned by Commonwealth, state and local strategic planning policies.

The T4 Project will enable the orderly and logical use of natural, physical and human resources existing in the area, and enhanced outcomes will result from greater investment, employment and transportation efficiencies. A range of physical, economic and environmental attributes combine to make the T4 project area suitable for the proposed development, including zoning for port-related activities, location at the Port of Newcastle and proximity to existing PWCS physical and human infrastructure, and regional rail infrastructure.

While the T4 Project has the potential to cause some adverse impacts, mitigation or compensation measures have been developed to address each of these. When all relevant factors are considered, the benefits of the T4 Project sufficiently outweigh its costs.