



GREENHOUSE GAS AND ENERGY EFFICIENCY MANAGEMENT PLAN

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Definitions

DECC refers to the Department of Environment, Climate Change and Water

DPIE refers to the Department of Planning, Industry and the Environment

EES refers to the Environment, Energy and Science Group (part of DPIE)

EPA refers to the Environment Protection Authority

EPL refers to Environment Protection Licence

NSWP refers to NSW Ports

OEH refers to the Office of Environment and Heritage

PKCT refers to Port Kembla Coal Terminal

PRP refers to Pollution Reduction Program

WCC refers to Wollongong City Council



Version	Date	Reviewer	Comments
10	6 th September 2017	Luke Pascot	Review following 2017 Triennial Independent Audit.
11	20 th November 2018	Luke Pascot	Periodic review
12	21 st August 2019	Luke Pascot	Review following submission of AEMR. Changed some role titles and reviewed 2018/2019 PKCT emissions against NGER Reporting thresholds to confirm PKCT is still under reporting threshold.
13	11 th September 2020	Luke Pascot	Review following 2020 Triennial Independent Audit. No suggestions made by auditors, no material changes to document
14	12 th February 2021	Luke Pascot	Review and update following DPIE RFI and PKCT site separation for AIE site.

1. INTRODUCTION

1.1 Purpose

The purpose of this Greenhouse Gas & Energy Efficiency (GHG&EE) Management Plan is to outline the process in place by which on-site energy use is managed to comply with PKCT policy and legislative requirements.

1.2 Background

Port Kembla Coal Terminal (PKCT) provides a coal product receipt, storage and shipping loading service to its customers. PKCT is located on the northern side of the inner harbour and operates premises leased from NSW Ports (NSWP).

PKCT has been in operation since 1990 and operates under an Environment Protection Licence (EPL) No. 1625 in accordance with the *Protection of the Environment Operations Act 1997* (POEO Act). In June 2009, the DP&E set new approval conditions for PKCT's operations as part of the development consent under Part 3A of the Environmental Planning & Assessment Act 1979 for PKCT's Existing Operations & Increased Road Receipt Hours Major Development application (08_0009).

1.3 Scope

This Management Plan applies to PKCT's premises and activities associated with greenhouse gas emissions and energy efficiency (GHG&EE) in the operation of PKCT's on-site equipment.

PKCT emits very small amounts of direct (Scope 1) greenhouse gas (GHG) emissions as the majority of its equipment is powered by electricity generated off site (Scope 2 GHG emissions). PKCT does not emit Scope 3 emissions at the site and are not reported under the National Greenhouse and Energy Reporting Act. Sections 4.1 and 4.2 of this Management Plan further detail GHG emission scope and quantify the amount of GHG emissions produced from site operations at PKCT.

Therefore, the scope of this Management Plan is to identify opportunities to reduce the small amounts of Scope 1 emissions and minimise electricity use through energy efficient operations.

1.4 Objectives

The objectives of this management plan are to:

- Comply with all regulatory and corporate requirements relating to GHG&EE
- Define the roles and responsibilities with respect to GHG&EE
- Provide an overview of PKCT energy usage and associated GHG emissions
- Outline the processes in place for the identification and implementation of reasonable and feasible measures to minimise energy (electricity) use and GHG emissions at PKCT's premises
- Provide a methodology and program to estimate/monitor GHG emissions and energy use generated by PKCT's operations
- Outline how minimisation measures will be monitored over time



- Provide GHG&EE data for the PKCT’s Annual Environmental Management Report (AEMR) and other reporting.

2. RESPONSIBILITIES

The roles and responsibilities relevant to environmental management at PKCT are defined in Table 1 below.

Table 1 Responsibilities

Role	Responsibility
PKCT employees, contractors and site personnel	All PKCT employees, contractors and other site personnel are responsible to comply with this Management Plan. PKCT employees, contractors and other site personnel must take appropriate action detailed in this Management Plan for any GGBF sighting and to avoid harm to GGBFs in accordance with PKCT’s legal and environmental obligations.
Environmental Specialist	Is responsible to the HSER Superintendent for the coordination and implementation of this Management Plan to PKCT site operations.
Health Safety Environment and Risk (HSER) Superintendent	Is responsible to the General Manager for site monitoring and operation of environmental control systems.
Operations Manager	Is responsible for managing and supporting the shift and daywork teams to effectively and safely operate the business in line with customer, community and regulator expectations.
Maintenance Superintendent	Is responsible to the General Manager for work execution, ensuring environmental control equipment is maintained, reliable and effective.
Asset Manager	Is responsible for asset management and planning, ensuring environmental control equipment is fit for purpose, reliable and effective.
General Manager	Is accountable for PKCT’s legal and environmental compliance.

3. LEGISLATIVE AND OTHER REQUIREMENTS

3.1 National Greenhouse Energy Report Act 2007

The *National Greenhouse and Energy Reporting Act 2007* (NGER Act) establishes the legislative framework for the NGER Scheme which is a national framework for reporting greenhouse gas emissions, greenhouse gas projects and energy consumption and production by corporations in Australia. This Act and Regulation require large GHG emitters or energy consumers to report the extent of emissions and energy use to the Federal Government. The legislative instruments that sit under the NGER Act relevant to PKCT's reporting obligations include:

- The National Greenhouse and Energy Reporting Regulations 2008
- The National Greenhouse and Energy Reporting (Measurement) Determination 2008
- The National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.

3.2 Environmental Protection Licence (EPL No. 1625)

Actions have included the development of this Plan under an Environment Protection Authority (EPA) Pollution Reduction Program (PRP) U4 which was attached to PKCT's Environment Protection Licence (EPL) No. 1625.

3.3 Department of Planning, Industry and Environment: 2009 Approval Conditions

On the 12th June 2009, the Minister for Planning approved a Project Application (08_0009) which was submitted by PKCT to change receival arrangements. The project approved by the minister was defined as the development described in the environmental assessment.

The project was approved with conditions, including a requirement for PKCT to prepare and implement a Greenhouse and Energy Efficiency Plan as described in Table 2 below

Table 2 Conditions of Approval

Condition Details	Area addressed in GHG&EE plan
Operating Conditions	Sections 4, 5, 6 and 7
17. The Proponent shall implement all reasonable and feasible measures to minimise:	
(a) energy use on site; and	
(b) greenhouse gas emissions from the project to the satisfaction of the Director-General.	
Greenhouse and Energy Efficiency Plan	
18. Within 12 months of this approval or as otherwise agreed by the Director-General, the Proponent shall prepare and implement a Greenhouse and Energy Efficiency Plan for the project. This plan must:	



Condition Details

**Area addressed
in GHG&EE
plan**

- a) be prepared generally in accordance with the *Guidelines for Energy Savings Action Plans* (DEUS 2005, or its latest version);
- b) be submitted to the Director-General for approval;
- c) include a program to estimate/monitor greenhouse gas emissions and energy use generated by the project;
- d) include a framework for investigating and implementing measures to reduce greenhouse gas emissions and energy use at the project;
- e) describe how the performance of these measures would be monitored over time; and report on the project’s greenhouse gas emissions and minimisation measures in the AEMR to the satisfaction of the Director-General.

3.4 Policies and Standards

PKCT is managed by South32 (Illawarra Coal) and has a management system in place which operates in accordance with its Sustainable Development Policy (PO.BM.291), Environment Policy (PO.HS.85) and Quality Policy (PO.BM.901). These policies are summarised in Table 3 below.

Table 3 PKCT Policies and Standards

Policy / Standard	Description
Sustainable Development Policy	<p>The sustainable development policy outlines the objectives PKCT undertake to ensure site operations are undertaken in a sustainable manner which considers the following key concepts:</p> <ul style="list-style-type: none"> • The health and safety values of PKCT staff, contractors and site personnel • Set and achieve sustainable development targets with respect to energy and water efficiency targets which promotes the efficient use of resources and include reducing and preventing pollution throughout the lifecycle of PKCT products • Develop partnerships that foster the sustainable development of our local communities, enhance economic benefits from our operations. • Ongoing consultation with customers, employees, indigenous land owners and the local community.
Environmental Policy	<p>The environmental policy outlines PKCT commitment to improved environmental performance and ensuring site operations are undertaken in an environmentally responsible manner which includes:</p> <ul style="list-style-type: none"> • Understanding and controlling impacts of site operations on the environment and community

- **Maintain the highest possible standards of environmental management and monitoring**
- **Compliance with regulatory requirements, conditions of approval and licence conditions**
- **Ongoing consultation with customers, employees, indigenous land owners and the local community.**

Quality Policy

PKCT Business Management System provides a framework for managing quality and establishing, achieving and reviewing quality objectives in compliance with the requirements of AS/NZS ISO 9001:2016 and ISO 14001:2015. PKCT staff, contractors and site personnel will fulfil the requirements detailed in the AS/NZS ISO 9001:2016 and ISO 14001:2015 and continually seek opportunities to improve system effectiveness

PKCT has an environment management system in place which is certified to ISO 14001:2015. The system includes documented policies and procedures, environmental aspects assessed and registered with processes for their control and continual improvement. The system is subject to audit and review including biannual surveillance visits by PKCT's external certifier (Lloyd's Register Quality Assurance Limited).

4. EXISTING ENVIRONMENT

4.1 GHG Emission Scopes

Identification of GHG emissions occurs via definition into three emission scopes (categories) to allow suitable reporting and comparison between different emitters and different locations. These emission scopes are:

- **Scope 1** – includes direct emissions from sources within the boundary of an organisation such as fuel combustion and manufacturing processes
- **Scope 2** – includes indirect emissions from the consumption of purchased electricity, steam or heat produced by another organisation. Scope 2 emissions result from the combustion of fuel to generate electricity, steam, or heat and do not include emissions associated with the production of fuel. Scopes 1 and 2 are carefully defined to ensure that two or more organisations do not report the same emissions in the same scope
- **Scope 3** – includes all other indirect emissions that are a consequence of an organisation's activities but are not from sources owned or controlled by the organisation. Examples of Scope 3 emissions include indirect emissions associated with the extraction/production of fuels used on site, fuel extraction and line loss associated with the consumed electricity, transport of product outside the organisation and emissions associated with end use of product.

4.2 Operational Activities

GHD undertook a review of PKCT emissions and energy use from site operations in 2009. The data from that review forms the baseline for the GHG emissions, activities and energy use described in this Management Plan. There are six (6) reportable GHG emissions under the NGER Act at the PKCT site resulting from site operations that include:

- Carbon Dioxide (CO₂)
- Methane (CH₄)
- Nitrous Oxide (NO₂).

The GHG emission sources listed above have been categorised as Scope 1 emissions or Scope 2 emissions in accordance with the specifications detailed in the NGER Act. Scope 3 emissions are not captured or reported under the NGER Act. Table 4 below provides a summary of the onsite activities that emit GHG, which have been categorised between Scope 1 and Scope 2 emissions based on the reportable activity defined under the NGER Act.

Table 4 PKCT GHG emitting activities

Reportable Activity	PKCT Activity
<i>Consumption of Liquid Fuels (Scope 1 emission)</i>	
Diesel	Front-end loaders
Petrol	Site vehicles
Petroleum Based Oils	Vehicle and equipment maintenance
Petroleum Based gases	Vehicle and equipment maintenance
<i>Consumption of Gaseous Fuels</i>	
Acetylene	Welding
<i>Fugitive Emission Sources (Scope 1 emission)</i>	
Wastewater Handling	Two septic systems
<i>Electricity (Scope 2 emission)</i>	
Purchased Electricity	Onsite plant and equipment

The 2009 NGER Review goes on to identify the GHG emissions from PKCT operations. For comparison, and to confirm the consistency of reportable data since the initiation of the GHG&EE management plan, the 2019/2020 AEMR reported GHG emissions have been included in the table below. Table 5 summarises the GHG emissions and energy use comparison between 2009 and 2020. Table 6 details the Scope 1 and Scope 2 emissions at the site in 2020. The energy use and consumption and GHG emissions detailed below have been calculated in accordance with the NGER Act based on the activities categorised in Table 4 above.

Table 5 PKCT energy use and GHG emissions

Source	2009 NGER Energy Use (GJ)	2009 GHG Emissions (t CO ₂ -e)	2020 NGER Energy Use (GJ)	2020 GHG Emissions (t CO ₂ -e)
Electricity	75,661.4	18,705.2	49,193	11,342
Diesel oil (stationary energy)	6,085.1	422.9	0	0
Biodiesel B20 (Transport)	0	0	0	0



Source	2009 NGER Energy Use (GJ)	2009 GHG Emissions (t CO ₂ -e)	2020 NGER Energy Use (GJ)	2020 GHG Emissions (t CO ₂ -e)
Petrol (transport)	990.3	68.9	255	18
Other gaseous fossil fuels (acetylene)	2.0	0.1	1	0
Petroleum based oils	232.2	6.5	102	3
Petroleum based greases	226.3	6.3	70	2
Wastewater treatment	-	2.8	-	-
Total	83,197	19,213	57,439	11,442

Table 6 PKCT Scope 1 and Scope 2 emissions

GHG Emissions Scope	GHG Emissions (t CO ₂ -e)	Percent of Total GHG Emissions (%)
Scope 1	80	0.70
Scope 2	11,442	99.30

5. SITE OPERATIONS

5.1 AIE Site Interactions with PKCT

Australian Industrial Energy (AIE) is working to develop Australia's first liquefied natural gas (LNG) import terminal at PKCT's Berth 101. PKCT has reached a commercial agreement with NSW Ports and AIE to surrender the southern area of its lease for AIE to construct and operate the LNG import terminal. The date of surrender is 31/03/2021. The revised site boundary for PKCT, as shown in Figure 1 has resulted in a change in PKCT's site operations, infrastructure and environmental management strategies.

The changes include:

- Reduced lease area due to the surrender of Bulk Products Area, Berth 101 and Seawall Road
- The removal of five (5) collection ponds / sumps and two (2) wet weather discharge points from the PKCT Contaminated Water Collection Treatment System (CWCT), which include:
 - Pump 1 – Southern Pond (wet weather discharge point)
 - Pump 8 – T3 Pond (wet weather discharge point)
 - Pump 9 – Conveyor C7 Sump
 - Pump 16 – Berth 101 North Sump
 - Pump 17 – Berth 101 South Sump
- The addition of two (2) collection ponds / sumps and two (2) wet weather discharge points to the CWCT System, which include:
 - Pump 24 – TS8 Sump (wet weather discharge point)
 - Pump 25 – South Eastern Pond (wet weather discharge point)
- Amendment to the Air Quality Monitoring network which includes the relocation of the southernmost continuous dust monitor (nominated as C1)
- Traffic management and site access arrangements from the southern end of the revised PKCT site boundary.

PKCT and AIE will work collaboratively during the operation of the AIE site to ensure environmental obligations are met, site operations for PKCT and AIE can be run effectively and safely and any issues raised are dealt with in a timely manner.

Figure 1: PKCT Site Layout



6. MANAGEMENT STRATEGY

6.1 Environmental Aspects and Impacts

This Management Plan aims to minimise impacts associated with GHG emissions from PKCT's operations. The majority of GHG emissions associated with PKCT are Scope 2 from electricity generating power stations. As these are located away from PKCT, the proposal to reduce electricity use will have a greater localised impact in the area surrounding the power station as identified in the *Environmental Aspects and Impacts Register* (RG.HS.2).

6.2 GHG Management and Improvement

6.2.1 Environmental Management System

PKCT has an environmental management system (EMS) in place, certified to ISO14001:2015. The EMS is supported by quality, sustainability and environment policies (refer to Section 3.4) and an Environmental Aspects and Impacts Register which recognises GHG emissions and energy efficiency as a key aspect for the community.

The system is documented, controlled and supported by management plans and procedures with processes covering:

- Environmental aspects and impacts
- Planning and objectives
- Legal and other requirements
- Training and competency
- Emergency management and Investigation
- Monitoring, auditing and review.

6.2.2 Management Review

Management reviews are undertaken periodically to identify potential changes in operational procedures and management to reduce GHG emissions and increase energy efficiency. This includes:

- Business Planning – 5-year strategic and annual business plans (financial year) developed identifying improvements projects. Inputs may include data from risk assessments, audits, legal compliance evaluation, SWOT analysis, stakeholder feedback and environmental incidents
- Business Management System Reviews – Inputs include legal compliance, ISO14001:2015 and environmental matters.

6.2.3 Energy Savings Action Plan

PKCT has utilised an Energy Savings Action Plan (ESAP) which was developed by consultants Energetics. The plan was prepared based on the Department of Energy, Utilities and Sustainability publication 'Guidelines for Energy Savings Action Plans 2005'. Under the program, PKCT was

submitting annual reports to EES (Environment, Energy and Science Group). In 2014, PKCT received notice from EES indicating that the Energy Savings Action Plan program has finished and that PKCT had met the requirements of the program and was no longer required to report (email from OEH dated 08/08/2014). Although no longer required to report under the scheme, PKCT continues to revisit and monitor energy savings initiatives identified through this plan.

6.2.4 Scope 1 Emissions Reduction

PKCT has a very low level of Scope 1 GHG emissions. The potential opportunities for reducing Scope 1 GHG emissions are:

- Reduce diesel and petrol use by PKCT vehicles through efficient use of these fuels, achieved by only running vehicles when necessary and turning off engines during prolonged periods of vehicle inactivity
- Ensure efficient use of oils and gases during vehicle maintenance to reduce any possibility for overuse of these products
- Ensure efficient use of acetylene by using experienced welders to undertake work to minimise time taken and amount of acetylene used
- Reduce fugitive GHG emissions associated with wastewater handling through improvement to PKCT water management system
- Undertake a system review to identify inefficiencies and opportunities for improvement.

6.2.5 Scope 2 Emissions Reduction

PKCT opportunities to reduce scope 2 GHG emissions are:

- Reduce electricity usage at the site through improved site operation procedures and processes
- Installation of energy efficient lighting in the office buildings (e.g. LED lighting)
- Procurement of energy efficient plant and equipment.

7. MONITORING

7.1 General

Reporting Scope 1 and Scope 2 energy emissions is a requirement under the NGER Act. Table 7 details the annual comparison of PKCT's GHG emissions with the NGER reporting threshold. The table allows an easy assessment of whether PKCT has triggered NGER reporting requirements. As per the review processes inherent in the PKCT document management system, this Management Plan is reviewed and updated (if necessary) on an annual basis, enabling annual review of PKCT's emissions.

Usage monitoring, combined with comparison of previous monitoring results, will assist in identifying the energy usage characteristics of PKCT's operations, possible improvement opportunities and evaluating the success of measures to reduce emissions and electricity use.

Table 7 NGER Reporting Threshold

GHG Emissions Scope	Reportable Energy Use (GJ)	Reportable GHG Emissions (t CO ₂ -e)
NGER Threshold	100,000	25,000
PKCT Emissions 2020	50,439	11,422

7.2 Scope 1 Emissions Monitoring

The NGER Review identifies the extent of PKCT's on-site activities that generate GHG emissions as described in Section 4.2 above. The GHG emissions associated with the use of the diesel, petrol, oils and gases is calculated based on the amount of the item used as described in Table 4 and Table 5 respectively. PKCT has information on the amount of these products purchased and the regularity of these orders. The gathering and interpretation of this information allows calculation of GHG emissions from Scope 1 activities.

PKCT incorporates its monitoring data into the South 32 GHG emissions database. The database is reviewed annually and emissions factors are updated as needed within this system. Any updates made to emissions factors are automatically transferred across to the PKCT data, ensuring that the latest emissions factors are used for NGER reporting.

The performance of activities to reduce GHG emissions is monitored by comparing historical GHG emission calculations with recent calculations undertaken after implementation of the strategies.

7.3 Scope 2 Emissions Monitoring

PKCT receives detailed monthly electricity bills that identify PKCT's usage. The transfer of this data into a spreadsheet allows easy access and manipulation into charts and tables showing use over time. Monitoring undertaken since 2006 for the PKCT ESAP remains available for comparison purposes. This historical information and current electricity usage details from ongoing electricity bills will be used to compare usage for pre and post implementation of reduction measures wherever possible. This will allow identification of the performance of electricity reduction measures over time.



Monitoring data is incorporated into the South 32 database system and utilisation of the South 32 GHG reporting system allows PKCT to monitor the NGER reporting thresholds annually.

8. REPORTING

8.1 Monitoring Data

Monitoring data is captured and retained for analysis and reporting activities. PKCT's Business Services section stores this electronically and makes it available to appropriate staff.

8.2 Preventative and Corrective Actions

PKCT is quality certified to AS/NZS ISO 9001:2015 and AS/NZS ISO 14001:2015. These standards set out requirements for the identification of preventative and corrective actions that pertain to this Management Plan. Processes include risk assessments, audits, incident investigation and site observations.

The HSER Superintendent shall review monitoring data annually to ensure consistency in collection, storage and analysis as part of the preparation of Annual Environmental Management Report. A 3-yearly external audit checking compliance against the DPIE Approval 08_0009 also forms part of PKCT's audit program.

In the event errors are identified through audits or other means, errors shall be investigated and appropriate corrective measures identified and implemented.

8.3 Reporting

In accordance with the responsibilities outlined in Section 4 herein, reports shall be prepared and submitted to the regulators by any specified due date. Key reports are as follows:

- Report to Department of Planning and Environment by 31st July as part of the Annual Environmental Management Report
- If reporting threshold is reached: NGERs report to the Department of Climate Change and Energy Efficiency.

8.4 Review

Monitoring data shall be reviewed to identify variations in results, trends and errors. The data review will also seek out trends that indicate changes in the PKCT's GHG emissions or electricity usage to enable assessment of reduction strategies or measures.

9. COMPLAINTS RECORDING AND REPORTING

PKCT has a 24 hour, 7 day free call community hotline number (1800 111448) and email link i.e. communitylinks@pkct.com.au which is advertised on the PKCT website (refer www.pkct.com.au). This provides a mechanism by which complaints and general enquiries regarding the environment or community issues associated with operational activities can be managed.

PKCT has a Community and Stakeholder Complaints Management process (PR.BM.933) in place that ensures complaints are recorded, registered and investigated.

10. REFERENCES

NSW EPA, *Environmental Protection Licence (EPL) 1625*, New South Wales Environment Protection Authority.

NSW DOP (2009) *Project Approval 08_009*. New South Wales Government Department of Planning.

PKCT *Community and Stakeholder Complaints Management process PR.BM.933*. Port Kembla Coal Terminal

PKCT *Sustainable Development Policy PO.BM.291*. Port Kembla Coal Terminal.

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