NAMOI

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Sunnyside Coal Mine Project

Energy Savings Action Plan

May 2009

Prepared for

NSW Department of Planning

Version Number		By	Date
1.	First draft for approval	D Cooke	15 Apr 2009
2.	Second draft for approval	D Cooke	28 Apr 2009
3.	Final	D Cooke	18 May 2009

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April 2009

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1.0 Executive Summary

This document has been prepared by Namoi Mining Pty Ltd (NMPL) for the NSW Department of Planning (DoP) with assistance from an external consultant.

The purpose of this document is to meet Condition 42 of the Project Approval (PA 06 0-308) issued on 24 September 2008 which states:

ENERGY SAVINGS ACTION PLAN
The Proponent shall prepare and implement an Energy Savings Action Plan for the project to the satisfaction of the Director-General. This plan must:

a) be prepared in accordance with the *Guidelines for Energy Savings Action Plans* (DEUS, 2005), or its latest version;
b) include consideration of energy use by mobile equipment;
c) be submitted to the Director-General for approval within three months of this approval; and
d) include a program to monitor the effectiveness of measures to reduce energy use on site.

This Energy Savings Action Plan applies to the Sunnyside Coal Mine Project as approved with contributions from the following Sunnyside Project staff members:

Mr Casper Dieben – General Manager, Open Cut Operations
Mr Colin Hulm – Operations Manager, Open Cut Operations
Mr Michael Clark – Project Manager, Sunnyside Open Cut
Mr Danny Young – Group Environmental Manager
Mr Warren Elliot – Electrical Supervisor, Open Cut Operations

The proposed Sunnyside Coal Mine Project involves the establishment and operation of an open cut coal mine and associated surface infrastructure.

The project comprises an open cut coal mine using scrapers, excavators and dump trucks, a coal stockpile and crushing area and site facilities to service the mine.

The mine will produce up to 1 million tonnes of coal per year, which will be transported by road to the company's existing loading facility at Gunnedah. At this facility the coal will be loaded onto rail for transport to Newcastle.

The total construction and development cost is expected to be about $10 million with thirty contractors employed during the construction phase and an ongoing permanent workforce of about twenty people during production. Up to two shifts per day, five days per week, will be worked at the mine with Saturday work as required. Coal haulage will be six days per week confined to daylight hours.

The first coal production is expected to occur in May 2009.

Opportunities to reduce and minimise energy usage across the site are key to the design and engineering considerations for the mine as set out in the document: The Green Guide: Namoi Mining Pty Ltd – Sunnyside Coal Mine Project, Energy Management and Greenhouse Principles – Management Guide.

This Action Plan has been prepared in accordance with the *Guidelines for Energy Savings Action Plans* produced by DEUS in October 2005 and associated Guide Notes and includes

the following sections as set out in the Guide Notes:

- Basic Information About the Site and its Operation;
- Estimated Energy Usage;
- Integrating the Plan;
- Estimated Baseline Energy Usage Data;
- Management Review;
- Provisional Technical Review (Energy) including an assessment of potential energy savings measures that could be implemented; and
- Summary and Recommendations.

The energy savings measures listed in this report provide a "snapshot" of the activities currently being investigated. As with all cost reduction activities, this process is continuous and will become embedded in Sunnyside's operating principles and procedures. New projects will be identified as technology changes and as older opportunities are revisited under circumstance where cost benefit ratios change.

Namoi Mining Pty Limited welcomes working with the Department of Environment and Climate Change and the Department of Planning in improving the efficiency of energy usage at the Sunnyside coal mine site during the implementation of this Action Plan.

Please contact site management if you have any questions or comments associated with this document.

1.1 Sign Off of the Plan

I certify that this Energy Savings Action Plan has been prepared in accordance with the Guidelines issued by the former Minister for Energy, Utilities and Sustainability. I am authorised to submit this Plan, on behalf of Namoi Mining Pty Limited, Sunnyside Coal Mine Project to the Department of Planning.

Signed for Namoi Mining Pty Ltd

Mr Casper Dieben
General Manager
Open Cut Operations
May 2009

2.0 Introduction

This document covering the Sunnyside Coal Mine Project has been prepared by Namoi Mining Pty Ltd, part of the Whitehaven group of companies, for the New South Wales Department of Planning. The purpose of this document is to meet Condition 42 of the Project Approval (PA 06_0308) which requires Namoi Mining Pty Ltd (Sunnyside Coal Mine) to provide the Department of Planning with an Energy Savings Action Plan (ESAP).

The Plan has been prepared in accordance with the *Guidelines for Energy Savings Action Plans* produced by DEUS in October 2005.

2.1 Site Description and Layout

The Sunnyside Coal Mine Project is situated approximately 15 km west of Gunnedah in North - West NSW (see Figure 1).

The Sunnyside Project lies within ML 1624, which was granted on 5th November 2008.

Within the project area, the Hoskisson Coal Seam ranges from 6 m to 9 m in thickness at depths suitable for open cut mining. The coal is suitable for medium to high ash export thermal coal, apart from a mid seam ply which will be selectively mined as waste.

The mine site covers an area that comprises extensively cleared land that has been used for mixed grazing and cropping purposes. The facilities and components associated with the project include:

- An open cut coal mine covering approximately 160ha;
- An out of pit emplacement area and mining infrastructure area covering approximately 90ha;
- Necessary site infrastructure including administration, employee amenities, services and related facilities;
- Infrastructure including administration employee amenities services and related facilities;
- Coal haulage by road to Whitehaven's Coal Preparation Plant and Coal Loading facility northwest of Gunnedah. In order to avoid Koala habitat, a transport corridor parallel to Coocooboonah Lane has been constructed on privately owned land between the site and the Oxley Highway. All other roads already existed. All sections of transport route will be sealed and it is approximately 17.1km long with 15km on public roads;
- At maximum production, transport will require 125 truckloads of coal per day to be delivered to the Whitehaven facility northwest of Gunnedah;
- Annual production up to 1 Mtpa;
- Possible auger mining from highwall;
- Coal Resource of 5.87 million tonnes of coal in the minable sections of the Hoskisson Seam;
- On site processing confined to crushing and screening (no washing); and
- Project Life approximately five to seven years.

The project layout is shown in Figure 2, with the project boundary shown in red.

Figure 1 - Sunnyside Coal Mine Location

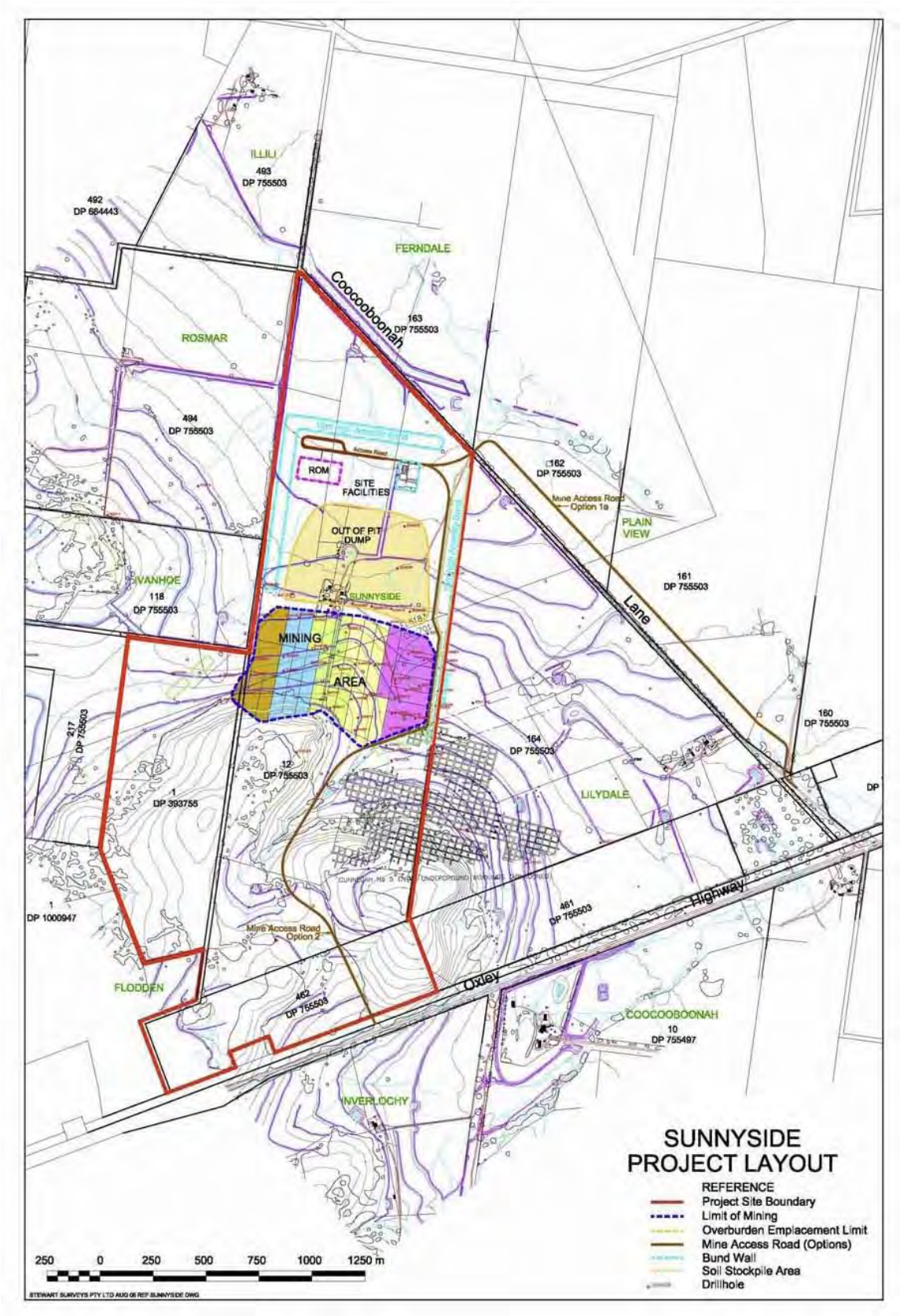

Figure 2 - Project Layout

2.2 Functional Areas

The functional areas on the mine site currently being established are as follows:

2.2.1 Coal Processing Area

NMPL is yet to decide whether a processing plant or mobile crushing plant will be used to process the coal. The equipment and infrastructure for both scenarios is summarised in Table 1.

Table 1 - Coal Processing Options

Option 1 – Processing Plant	Option 2 – Mobile Crushing Plant
ROM coal pad	ROM coal pad
Coal loading hopper	Mobile crushing plant (diesel)
Crushers	Product coal stockpile area
100t product bin	
Conveyor	
Product coal stockpile area	
600 kVA diesel generator and fuel storage	

2.2.2 Site Services Area

Figure 3 shows the site services established for the project located adjacent to the incoming access road which include the following components:

- Mine office;
- Toilet and ablution facilities;
- Crib hut;
- Hardstand and lay down area;
- Self-bunded fuel tank;
- Waste oil area;
- First aid building;
- 100 kVA diesel generator;
- Maintenance workshop, wash bay; and
- Light vehicle parking facilities.

Figure 3 - Site Services Area

2.3 Key Statistics

Some key statistics for the mine are listed below:

- Coal Seam: Hoskissons Coal Seam generally ranging from 6m to 9m thick consisting of five plies at a depth typically of 44.5m below ground level.

- Average overburden to coal stripping ratio: 5:1 (bank cubic metres of overburden : tonnes of coal).

- Coal Product: medium to high ash thermal coal.

- Operating hours:
    - Site Establishment: 2 shifts per day, five – six days per week.
    - Mining Operations: 2 shifts per day, five days per week + Saturday work as required.

- Employment:
    - Site Establishment: 30 people.
    - Operations: 20 people.

- Trucks despatched: 125 (daily maximum)

2.4 Main Equipment

The main equipment to be used at the mine is listed in Table 2 below:

Table 2 - Equipment List

Item (or equivalent)	No. on site	Function	Day Shift	Afternoon shift
Hitachi EX1800 Hydraulic Excavator	1	Overburden excavation. Coal excavation	Yes	Yes
Volvo IT Front-end Loader	1	Coal excavation and loading	Yes	Yes
Cat 785 Rear Dump Truck (150t capacity)	2	Overburden and coal haulage	Yes	Yes
Drilling Rig (intermittent)	1	Overburden drilling	Yes	No
Blasting Truck (intermittent)	1	Blasting campaigns	Yes	No
Cat 657 Scraper	Up to 3	Overburden removal	Yes	Yes
Cat D10 R Bulldozer	1	Overburden removal and ancillaries	Yes	Yes
Cat 14G Grader	1	Ancillaries	Yes	Yes
16kL Water Truck	1	Dust suppression	Yes	Yes
Lighting Plants	3	Lighting	No	Yes
100 kVA diesel generator	1	Electricity generation for site services	Yes	Yes
600 kVA diesel generator	1	Coal processing (if processing plant is installed)	Yes	Yes
Mobile crushing plant	1	Coal processing (if processing plant is not installed)	Yes	Yes

3.0 Energy Savings Initiatives at the Site

Energy initiatives are a central part of the management strategy in designing, constructing and operating the Sunnyside Mine Site.

A key aspect of the management strategy has been the preparation of the site specific document titled:

The Green Guide: Namoi Mining Pty Limited – Sunnyside Coal Mine Project - Energy Management & Greenhouse Principles – Management Guide (referred to as the Green Guide).

Sections from the document relevant to this development are reproduced in Section 3.1 below.

3.1 Energy Management & Greenhouse Principles – Management Guide

3.1.1 Preamble

These energy and greenhouse guiding principles have been adapted from the Green Guide developed for the Narrabri Coal Operations Project, also part of the Whitehaven Coal Mining Group. This document has been customised to make it relevant for the Sunnyside Coal Project.

The purpose of these guiding principles is to ensure that Namoi Mining achieves excellence in energy efficiency in all operational areas. Namoi Mining as part of Whitehaven Coal Limited is committed to the Greenhouse Challenge Plus Program and will be implementing energy monitoring and management processes as a key component of its Energy Savings and Greenhouse Management Strategies.

These guidelines are designed to ensure that the designers of the facilities at Namoi Mining‘s Sunnyside project consider and implement best practices in relation to energy efficiency. The guidelines are not intended to take responsibility away from the designers in their tasks. If, in the opinion of the designers, sections or parts of these guidelines conflict with design requirements for operational reasons (or other reasons), the differences are to be brought to the attention of Namoi Mining management and the differences resolved.

Under no circumstances may these guidelines be used as an excuse for a faulty or under-designed plant.

3.1.2 General

All equipment and facilities shall be purchased and/or designed using energy efficient best practice.

All purchased equipment and plant shall be specified to achieve the most efficient energy usage over the expected life of the equipment and plant. Consideration shall be given to whole of life costing techniques in the evaluation and selection process.

All plant designs shall incorporate the latest technologies in energy efficiency which shall be demonstrated to the satisfaction of Namoi Mining or their representative.

3.1.3 Air Compressors

Portable air compressors should be an appropriate size for the required task. Care shall be taken in locating air compressors to ensure that they are located in a naturally clean environment away from any source of heat or direct sunlight.

Air compressors should be turned off when not in use for extended periods of time.
This section will need to be updated should Sunnyside require the installation of a compressed air system.

3.1.4 Building Air Conditioning

Air conditioning systems shall use environmentally friendly refrigerants. Systems shall be efficient in their design, include modern energy efficient controls and be turned off when not needed.

3.1.5 Buildings

Transportable buildings are used at Sunnyside. The buildings have been located in an area with no natural shade due to project requirements.

A more thorough investigation into insulation and building location should be undertaken if more permanent buildings are proposed.

3.1.6 Fuel Efficient Diesel Engines

Fuel efficiency should be considered when purchasing diesel engines. Personnel should request engine specifications from the supplier prior to purchase. These specifications should include expected fuel efficiency and are to be compared with specifications for other similar engines.

All diesel engines shall be maintained on a regular basis (as per manufacturer's recommendations and site experience) to ensure efficient operation. Diesel engines should be shut down when not in use (where appropriate) to reduce fuel consumption.

3.1.7 Lighting Systems

Lighting systems shall utilise high efficiency light fittings, where practicable. Lighting systems employing natural light shall be used wherever practicable.

Mobile external security lighting shall consist of sodium vapour fittings.

Lighting shall be turned off when not in use (except lighting used for safety and security reasons).

3.1.8 Pumps

Pumps shall be properly sized for the duty with consideration given to static head pressures, dynamic head pressures and volume flows. Within these parameters, pumps shall operate as close as possible to the point of maximum efficiency. High efficiency impellers shall be used where appropriate.

3.1.9 Equipment Operation and Upgrades

Where appropriate, all equipment shall be shut down when not in use for long periods. Equipment shall be fitted with automatic cut-off systems.

Operator training is essential to ensure the efficient operation and maintenance of equipment.

Opportunities should be identified on an ongoing basis to upgrade or replace equipment to improve efficiency, where cost effective.

3.1.10 Mining

The mine shall be designed to ensure that the following objectives are achieved:

Movement of Overburden
The overburden associated with the open cut shall be moved the minimum distance to its final location in a single process without re-handling. At the end of mine, the overburden shall be reshaped to Mining Operation Plan (MOP) requirements.

Mining Efficiency
Operations shall be designed to minimise the loss of coal in operations and also to maximise the recovery of exposed coal.

Road grades shall not exceed 10 % and hauling distances shall be minimised to reduce diesel consumption.

3.1.11 Water

The distances over which water is pumped shall be kept to a minimum to reduce pumping requirements.

4.0 Introduction to Energy Savings Opportunities at the Site

Namoi Mining welcomes the opportunity to work with DoP and DECC in developing additional projects to improve energy usage and energy efficiencies across the site. It is anticipated that this programme will result in both benefits to the environment and cost savings for our business.

Therefore the objectives of this Action Plan are to:

- Comply with Department of Planning Project Approval requirements for the production of an Energy Savings Action Plan;
- Identify actions that have the potential to help reduce the amount of energy used at the Sunnyside Mine Site;
- Implement financially viable opportunities identified above; and
- Lower the greenhouse gas emissions footprint for our activities.

5.0 Integration with Existing Business Operations

Energy efficiency is of great interest to Namoi Mining as it is a key component and expense in our mining processes. It is planned to produce energy performance targets to encourage a reduction in the energy used on site through a process of continual improvement.

It is intended to utilise the energy data that will be available from the fuel dispensing records on site to track energy usage by area and function and combine that information with data on coal production to produce relevant energy performance indicators.

It is proposed to separately monitor energy usage by major items of plant as listed in the main equipment shown in Section 2.4.

Also, the procedures and controls identified in this Action Plan will be incorporated into our standard operating procedures to ensure implementation across site.

6.0 Estimated Energy Baseline Data

Tables 3, 4, 5 and 6 below provide estimated data on energy usage at the Sunnyside Coal Mine Site for the first three years of operations.

The first coal is expected to be produced in May 2009. Transportation of coal to the Whitehaven Rail Loading Facility should commence in June 2009 and continue for an estimated five years.

The information provided in these tables is based on the templates provided in the DEUS *Guidelines for Energy Savings Action Plans*.

Table 3 - Baseline Energy Statistics - Initial Phase + 6 Months Operations

Start Date	1 November, 2008
End Date	30 June, 2009
Baseline Energy Use (GJ) (Sunnyside Mine Site)	121,406
Greenhouse Emissions (tonnes CO_2-e)	8,492
Is baseline representative of normal energy use?	No
Business Activity Indicator	tonnes ROM produced
Quantity of Site Business Activity (tonnes)	498,000
Baseline Energy Key Performance Indicator (KPI)	244
Baseline KPI units	MJ/tonne ROM
Summer Peak Electrical (kVA)	N/A
Winter Peak Electrical (kVA)	N/A

Table 4 - Baseline Energy Statistics - First Full Operational Year

Start Date	1 July, 2009
End Date	30 June, 2010
Baseline Energy Use (GJ) (Sunnyside Mine Site)	173,741
Greenhouse Emissions (tonnes CO_2-e)	12,153
Is baseline representative of normal energy use?	Yes
Business Activity Indicator	tonnes ROM produced
Quantity of Site Business Activity (tonnes)	992,050
Baseline Energy Key Performance Indicator (KPI)	175
Baseline KPI units	MJ/tonne ROM
Summer Peak Electrical (kVA)	N/A
Winter Peak Electrical (kVA)	N/A

Table 5 - Baseline Energy Statistics - Second Full Operational Year

Start Date	1 July, 2010
End Date	30 June, 2011
Baseline Energy Use (GJ) (Sunnyside Mine Site)	141,483
Greenhouse Emissions (tonnes CO_2-e)	9,897
Is baseline representative of normal energy use?	Yes
Business Activity Indicator	tonnes ROM produced
Quantity of Site Business Activity (tonnes)	967,400
Baseline Energy Key Performance Indicator (KPI)	146
Baseline KPI units	MJ/tonne ROM
Summer Peak Electrical (kVA)	N/A
Winter Peak Electrical (kVA)	N/A

Table 6 - Baseline Energy Statistics - Third Full Operational Year

Start Date	1 July, 2011
End Date	30 June, 2012
Baseline Energy Use (GJ) (Sunnyside Mine Site)	149,799
Greenhouse Emissions (tonnes CO_2-e)	10,478
Is baseline representative of normal energy use?	Yes
Business Activity Indicator	tonnes ROM produced
Quantity of Site Business Activity (tonnes)	972,700
Baseline Energy Key Performance Indicator (KPI)	154
Baseline KPI units	MJ/tonne ROM
Summer Peak Electrical (kVA)	N/A
Winter Peak Electrical (kVA)	N/A

7.0 Energy Management Review

7.1 Energy Management Review Process

The Energy Management Review was initially undertaken on site at Sunnyside and discussed in a meeting with the following staff:

- Casper Dieben - General Manager, Open Cut Operations
- Colin Hulm - Operations Manager, Open Cut Operations
- Tony Heinrich - Project Manager, Rocglen Open Cut
- Danny Young - Group Environmental Manager, Whitehaven
- Warren Elliot - Electrical Supervisor, Open Cut Operations

The purpose of the meeting was to inform all present about the ESAP process and to ensure that the proposed actions to improve energy use are supported by senior management.

7.2 Findings of the Energy Management Review

Table 7 below summarises the findings from the Energy Management Review and is based on the template provided in the DEUS *Guidelines for Energy Savings Action Plans*. It represents the current position with these nominated areas of responsibility and provides a clear focus of areas for development and improvement.

Table 7 - Management Review

Area	Review Area	Rating				
		Low	Moderate	Minimum Sustainable	Industry Leader	Best Practice
A	Senior management commitment					
B	Understanding of energy savings potential					
C	Energy targets and key performance indicators					
D	Energy metering and monitoring					
E	Energy management reporting					
F	Energy supply management					
G	Operating and maintenance procedures					
H	Accountabilities for energy management					
I	Training and awareness procedures					
J	Compliance with legal and / or regulatory requirements					

7.3 Management Actions to Improve Energy Management

Table 8 below summarises the actions we have implemented or will implement to allow the management of energy usage across the Mine Site. The information presented in this table is based on the templates provided in the DEUS *Guidelines for Energy Savings Action Plans.*

Table 8 - Management Actions

Item No.	Management Action	Planned Responsibility	Planned Completion Date
1	Assign responsibilities for energy use reporting.	Project Manager	Complete
2	Generate monthly reports of site energy use.	Project Manager	Ongoing
3	Create energy target (when appropriate) and review during the annual ESAP update	Project Manager	During annual ESAP review
4	Monitor and report on the Key Performance Indicator for energy use across the site.	Project Manager	During annual ESAP review
5	Develop guidelines for energy management and training and include as part of standard operating and maintenance procedures.	Group Environmental Manager	31st Mar 2010

7.4 Energy Review and Energy Projects Brainstorming Session

A meeting will be conducted in approximately 12 months (in line with the initial ESAP review) to assess progress against the Green Guide and this ESAP.

The meeting will consider other potential energy projects for inclusion in the Energy Savings Action Plan. This review process will be conducted in a brainstorming fashion to ensure that all possibilities are considered fully and without criticism.

This approach is considered suitable given the nature of the site operations, i.e., a small operation run with basic infrastructure and minimal equipment. At that time it is considered that operational experience will dictate where improvements in energy efficiency may be made.

The outcome from the meeting, and any other energy reviews, will be listed in future ESAP reports.

8.0 Energy Usage Technical Review and Savings Measures

8.1 Energy Usage Technical Review Methodology

The energy usage technical review was undertaken as a broad overview of the functional areas across the mine site. In this context, the review considered the estimated loads and the likely outcome as a result of applying the guiding principles reproduced in this report under Section 3.

Mr Denis Cooke of Denis Cooke & Associates Pty. Limited was engaged by Namoi Mining Pty Limited to assist with this task. On site he worked closely in association with the following staff:

- Mr Casper Dieben – General Manager, Open Cut Operations
- Mr Colin Hulm – Operations Manager, Open Cut Operations
- Mr Tony Heinrich – Project Manager, Rocglen Open Cut
- Mr Danny Young – Group Environmental Manager
- Mr Warren Elliot – Electrical Supervisor, Open Cut Operations
- Other managers.

8.2 Energy Data

The consultant made available broad data on energy usage for many coal mine sites which was used in the assessment process to confirm that the estimated energy requirements for the site are reasonable.

Once the mine is established, the actual energy performance data will be reviewed against these benchmarks.

8.3 Functional Areas Assessed during the Review

The estimated energy usage for the mine site was determined by evaluating separately each of the following functional areas:

Coal Processing Area which includes

- ROM coal pad;
- Coal loading hopper;
- Crushers;
- 100t product bin;
- Conveyor;
- Product coal stockpile area; and
- 600 kVA diesel generator and fuel storage area.

Site Services Area which includes

- Mine office;
- Toilet and ablution facilities;
- Crib hut;
- Hardstand and lay down area;
- Self-bunded fuel bay;

- Waste oil area;
- First aid building;
- 100 kVA diesel generator;
- Maintenance workshop, wash bay; and
- Light vehicle parking facilities.

It is noted that this mine is small and compact and that most energy use on site will be automotive diesel oil. Given the nature of the operations, the most effective way in managing and minimising energy usage will be to ensure that equipment is switched off when not required.

8.4 Summary of Estimated Site Energy Usage and Costs

The following tables show the estimated energy usage and costs for the mine site for the first, second and third year from commencing construction (first year) through to the end of the second year of operations.

The energy use has been estimated on the basis that the processing plant is installed. In the event that a processing plant is not installed, the energy use will be lower and these tables will be revised and reported in the ESAP annual report.

Table 9 - Estimated Site Energy Usage and Costs First Year (to June 2009)

Energy Type	Use in Financial Year 2008/09	GJ Equivalent	Costs
Diesel	3,145,227 litres	121,405	$3,145,227

Notes:
1. Mine site electricity is self generated and included in diesel fuel estimate.
2. Diesel costs estimated at $1.00 per litre excise free.

Table 10 - Estimated Site Energy Usage and Costs Second Year

Energy Type	Use in Financial Year 2009/10	GJ Equivalent	Costs
Diesel	4,501,052 litres	173,740	$4,501,052

Notes:
1. Mine site electricity is self generated and included in diesel fuel estimate.
2. Diesel costs estimated at $1.00 per litre excise free.

Table 11 - Estimated Site Energy Usage and Costs Third Year

Energy Type	Use in Financial Year 2009/10	GJ Equivalent	Costs
Diesel	3,665,372 litres	141,483	$3,665,372

Notes:
1. Mine site electricity use is self generated and included in diesel fuel estimate.
2. Diesel costs estimated at $1.00 per litre excise free.

8.5 Major Energy Using Equipment

The mine site is small and compact and will contain basic machinery for mining purposes. Table 12 lists the major equipment used at Sunnyside.

Table 12 - Energy Using Equipment

Functional Area for Electricity Usage	Electricity Using Equipment – from diesel powered generators on site	~kW	Operating and Maintenance Procedures	Control Systems	Cleaning Procedures	Normal Working Hours	Start-up and Shut-down Procedures
Coal Processing Area	Coal Crusher	tba	Scheduled maintenance, operator monitoring.	Manual, operator training	N/A	Weekdays - 0700 – 2200, Sat – 0700 - 1800	Manual
	Coal Conveyor	tba	Scheduled maintenance, operator monitoring.	Manual, operator training	N/A	Weekdays - 0700 – 2200, Sat – 0700 - 1800	Manual
	600 kVA diesel generator	600	Scheduled maintenance, operator monitoring.	Manual, operator training	N/A	Weekdays - 0700 – 2200, Sat – 0700 - 1800	Manual
	Mobile crushing plant	tba	Scheduled maintenance, operator monitoring.	Manual, operator training	N/A	Weekdays - 0700 – 2200, Sat – 0700 - 1800	Manual
Site Services Area	Diesel generator supplying electricity to the mine office, toilet and ablution facilities, crib hut, first aid building, workshop	100	Scheduled maintenance, operator monitoring.	Manual, operator training	N/A	Maximum 24 hours, 7 days a week but generally less than this	Manual

8.6 Site Energy Balance

Figures 4 and 5 summarise the estimated energy balance for the site for the years 2008/2009 and 2009/2010.

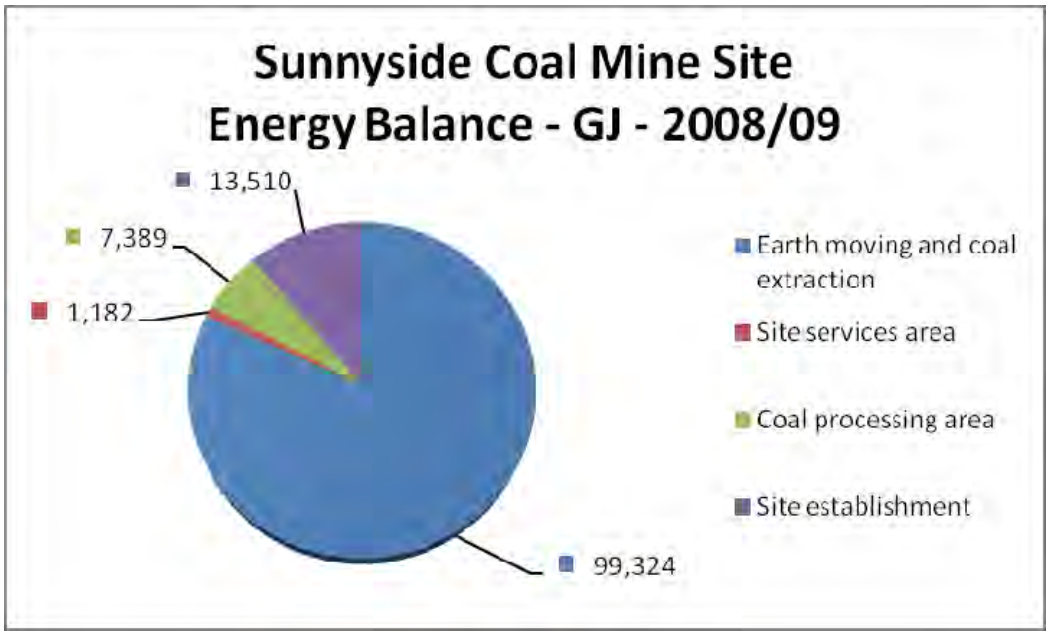

Figure 4 - Sunnyside Mine Site Energy Balance 2008/2009

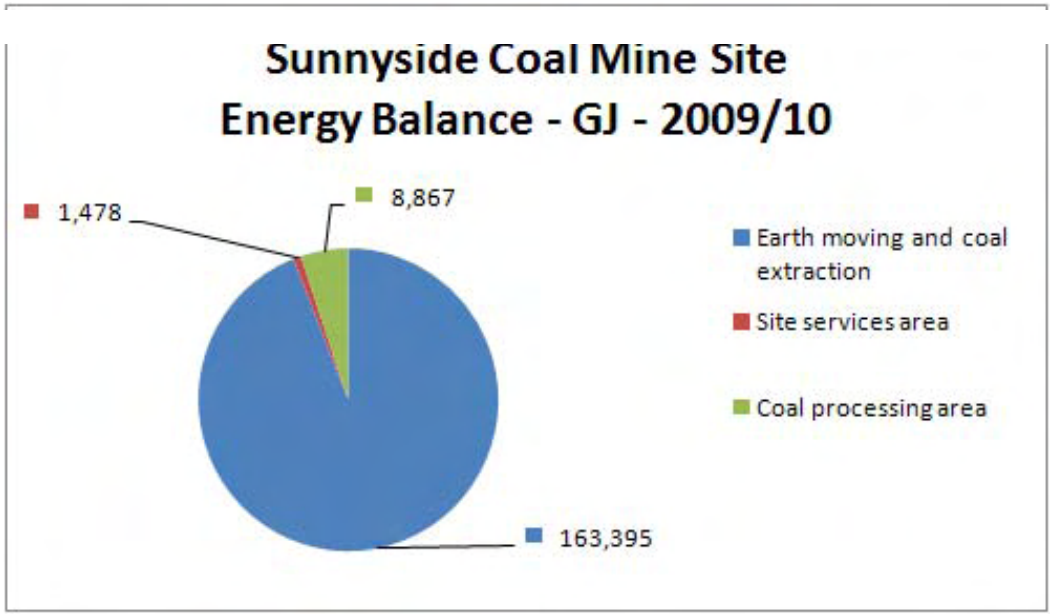

Figure 5 - Sunnyside Mine Site Energy Balance 2009/2010

8.7 Energy Efficiency Performance

A useful measure of the energy efficiency performance for the Sunnyside Mine Site will be to monitor the key performance indicator of energy usage per tonne Run of Mine (ROM) coal produced and MJ per bank cubic metre total equivalent movement (BCM TEM).

At this stage that performance is not known. However we will be aiming to operate at the lowest possible level commensurate with mine safety and good working practices.

The estimates of likely performance are shown in Tables 13 and 14 below:

Table 13 - Estimated Site Energy Performance (1)

TOTAL ENERGY	GJ Equivalent	Production tonnes ROM	MJ/tonne	GHG tonnes	GHG kg/tonne product	Energy Cost
2008/2009	121,406	498,000	244	8,492	17.1	$ 3,145,227
2009/2010	173,741	992,050	175	12,153	12.3	$ 4,501,052
2010/2011	141,483	967,400	146	9,897	10.2	$ 3,665,372

Table 14 - Estimated Site Energy Performance (2)

TOTAL ENERGY	GJ Equivalent	Production tonnes BCM TEM	MJ/BCM TEM	GHG tonnes	GHG kg/BCM TEM	Energy Cost
2008/2009	121,406	3,216,450	37.7	8,492	2.6	$ 3,145,227
2009/2010	173,741	5,291,300	32.8	12,153	2.3	$ 4,501,052
2010/2011	141,483	4,246,700	33.3	9,897	2.3	$ 3,665,372

Emissions factors for electricity and diesel have been taken from National Greenhouse Accounts (NGA) Factors of November 2008.

8.8 Energy Target

Any energy target is affected by production levels and fixed loads that are incurred whether or not there is any production. For Sunnyside the ease with which the mine will operate is unknown.

However, our information indicates that the better performing similar small open cut coal mines with similar stripping ratios can achieve an energy performance of 130 MJ per tonne ROM and/or 26 MJ/BCM TEM. We are aware of some mines that have achieved a better performance than this level. Clearly the energy performance is dependent on site specific conditions and circumstances. However we will aim to achieve the best energy performance possible.

At this stage no specific target has been set.

Future reports on this ESAP will discuss what has been achieved in relation to estimated energy performance levels, any future identified projects and provide a detailed quantitative measure of energy performance at that time.

8.9 Identification of Potential Energy Savings Measures

Possible energy savings measures and control processes are detailed in Section 3.1 above.

The management actions listed in Table 8 have been included in the following table, which shows assessment of Energy Savings Potential.

The format used in this table is based on the template in the DEUS *Guidelines for Energy Savings Action Plans.*

Table 15 - Assessment of Potential Energy Savings Measures

No	Measure Description	Planned Responsibility	Estimated Cost to Implement	Energy Savings kWh or MJ	Total Cost Savings ($/year)	Internal Rate of Return	Time required to Implement	Planned Completion Date
Considered to be most likely Cost-Effective Opportunities								
1	Assign responsibilities for energy use reporting.	Project Manager	tba	tba	tba	tba	N/A	Complete
2	Generate monthly reports of site energy use.	Project Manager	tba	tba	tba	tba	Ongoing	Ongoing
3	Create energy target (when appropriate) and review during the annual ESAP update	Project Manager	tba	tba	tba	tba	12 months	During annual ESAP review
4	Monitor and report on the Key Performance Indicator for energy use across the site.	Project Manager	tba	tba	tba	tba	12 months	During annual ESAP review
5	Develop guidelines for energy management and training and include as part of standard operating and maintenance procedures.	Group Environmental Manager	tba	tba	tba	tba	12 months	31 Mar 2010

9.0 Summary and Recommendations

The energy savings measures listed in this report provide an estimated “snapshot” of the activities currently being planned.

Sunnyside views all cost reduction activities as a continuous process and intends to embed the practices in Sunnyside’s operating principles and procedures. New projects will be identified as technology changes and earlier opportunities revisited as cost/benefit ratios change.

Sunnyside welcomes working with DoP and DECC in improving the efficiency of energy usage at the Mine Site during the implementation of this Action Plan.

Please contact site management if you have any questions or comments associated with this document.