PUBLIC REPORT TEMPLATE 2010

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Controlling Corporation

Macarthur Coal Limited

Period to which this report relates

Start 1 July 2008 **End** 30 June 2010

(eg. for a Corporate Group with the trigger-year 2005-06, the report will cover the period 1.7.2006-30.6.2010)

Part 1 – Information on assessments completed to date

Table 1.1 – Description of the way in which the Corporate Group (or part of it) has carried out its assessments

Macarthur Coal has been actively reviewing energy use and greenhouse gas emissions outside of EEO requirements for a number of years. Before the development of our EEO Assessment and Reporting Schedule and consequent formalisation of the assessment process, the company had conducted a detailed greenhouse gas emissions inventory (which necessarily included a detailed energy use inventory) and a marginal abatement cost curve (MACC) study. The MACC identified a range of emissions abatement projects at all Macarthur Coal sites and through an NPV and abatement analysis, determined the cost of each project in terms of dollars per tonne of CO2-e abated. The MACC study led to the development of an abatement strategy that included a range of energy reduction projects. The emissions inventory was updated numerous times and then formalised for Macarthur Coal's 2009 National Greenhouse and Energy Reporting System return.

The company has two fully operational open cut coal mines (Coppabella and Moorvale) and a third (Middlemount) is in the early stages of production. For the purposes of EEO compliance, the company elected to treat each individual mine as a separate assessment. Following the development and submission of an Assessment and Reporting Schedule, Macarthur Coal commenced the first formal assessment under EEO in January 2010 at the Coppabella Mine site.

The first step in the assessment process was to develop and communicate a companywide Energy Management Policy (EMP). The EMP would set out assumptions, methodologies and process to be used in energy use analysis and opportunity identification, analysis and implementation. Importantly, the EMP would also identify an Energy Management Team to formalise the roles and responsibilities of personnel required to be involved in the assessment process and energy management in general. The site energy teams consist of an energy champion, a data officer, and efficiency officers in a range of specific energy areas. Importantly, the EMP was sponsored by the Chief Operating Officer, noted by the Board, and communicated widely.

The assessment process then consisted of reviewing previous work on emissions inventories and abatement, updating and expanding the emissions inventory into a detailed energy baseline, and modifying and updating the MACC to produce a list of potential efficiency initiatives that satisfied

specific EEO requirements. Whilst this work was predominantly run from the corporate head office, the site energy teams were crucial in providing input and reviewing outcomes and conclusions.

All potential projects were rated and ranked using a methodology that considered cost effectiveness, energy savings, suitability to the site, and feasibility of successful implementation. A number of projects identified during the initial MACC process were proved sufficiently beneficial to the business early in the process that they were progressed directly to business case and implementation.

Recommendations regarding an appropriate business response were made based on the rating process and a management report was prepared. The management report was reviewed by senior management including the Chief Operating Officer and Coppabella SSE for final acceptance before being communicated to site.

Part 1 – Information on assessments completed to date (continued)

Table 1.2 – Energy use assessed		
Group member and/or business unit and/or key activity and/or site (or part thereof) that has had an assessment completed by 30 June 2010 (Include all assessments completed to date for the current 5 year cycle).	**Period over which assessment was undertaken[1]**	**Energy use for the period 1.7.2009 to 30 June 2010 of the assessed entity (or part thereof) expressed in GJ[2]**
Coppabella Coal Mine	01/01/2010 – 31/08/2010	1,425,000
Total energy use of assessed entities (or part thereof)		1,425,000
Total energy use of the whole corporate group in the period 1.7.2009 to 30 June 2010		2,516,000
Total energy use of assessed entities (or part thereof) for the period 1.7.2009 to 30.6.2010 expressed as a percentage of total energy use for the period 1.7.2009 to 30.6.2010		56.7%

1. This should be the start and finish date (month and year) for the assessment (planned assessment dates were nominated in Table 3.1 of the approved ARS).

2. Energy Bandwidth may only be used if approved in the Assessment and Reporting Schedule.

Table 1.3 – Accuracy of energy use assessed data		
Entity	**% achieved**	**Reasons for not achieving data accuracy to within ±5%**
		Leave the table blank if accuracy is ±5%.

Part 2 - Energy Efficiency Opportunities that have been identified and evaluated

Part 2A - New assessments completed or not reported since your last Public Report

Name of Group member or business unit or key activity or site: __Coppabella Coal Mine_____

Total energy use for the period 1.7.2009 to 30.6.2010 of the assessed entity (or part thereof) from which the opportunities identified below were generated (and is reported in Table 1.2).	1,425,000	GJ

Table 2.1 – Opportunities assessed to an accuracy of better than or equal to (<=) ±30%

Status of opportunities identified		Total Number of opportunities	Estimated energy savings per annum by payback period (GJ)						Total estimated energy savings per annum (GJ)
			0 – < 2 years		2 – ≤ 4 years		> 4 years		
			No of Opps	GJ	No of Opps	GJ	No of Opps	GJ	
Business Response	Under Investigation	3	2	5,200	1	4,200	0	0	9,400
	To be Implemented	1	1	8,200	0	0	0	0	8,200
	Implementation Commenced	0	0	0	0	0	0	0	0
	Implemented	5	4	25,000	1	1,000	0	0	26,000
	Not to be Implemented	1	1	1,400	0	0	0	0	1,400
Outcomes of assessment	Total Identified	10	8	39,800	2	5,200	0	0	45,000

Part 2A - New assessments completed during the reporting period (continued)

Name of Group member or business unit or key activity or site: Coppabella Coal Mine _____

Total energy use for the period 1.7.2009 to 30.6.2010 of the assessed entity (or part thereof) from which the opportunities identified below were generated (and is reported in Table 1.2).	1,425,000	GJ

Table 2.2 – Opportunities assessed to an accuracy of worse than (>) ±30%

Status of opportunities identified		Total Number of opportunities	Estimated energy savings per annum by payback period (GJ)						Total estimated energy savings per annum (GJ)
			0 – < 2 years		2 – ≤ 4 years		> 4 years		
			No of Opps	GJ	No of Opps	GJ	No of Opps	GJ	
Business Response	Under Investigation	17	0	0	17	10,000	0	0	10,000
	To be Implemented	0	0	0	0	0	0	0	0
	Implementation Commenced	0	0	0	0	0	0	0	0
	Implemented	1	1	Unknown	0	0	0	0	Unknown
	Not to be Implemented	3	1	2,300	0	0	2	80	2,380
Outcomes of assessment	Total Identified	21	2	2,300	17	10,000	2	80	12,380

Part 2 - Energy Efficiency Opportunities that have been identified and evaluated

Part 2B - Update of assessments reported in previous Public Reports

Name of Group member or business unit or key activity or site: _____

Total energy use for the period 1.7.2009 to 30.6.2010 of the assessed entity (or part thereof) from which the opportunities identified below were generated (and is reported in Table 1.2).		GJ

Table 2.3 – Opportunities assessed to an accuracy of better than or equal to (<=) ±30%

Status of opportunities identified		Total Number of opportunities	Estimated energy savings per annum by payback period (GJ)						Total estimated energy savings per annum (GJ)
			0 – < 2 years		2 – ≤ 4 years		> 4 years		
			No of Opps	GJ	No of Opps	GJ	No of Opps	GJ	
Business Response	Under Investigation								
	To be Implemented								
	Implementation Commenced								
	Implemented								
	Not to be Implemented								
Outcomes of assessment	Total Identified								

Part 2B - Update of assessments originally reported in previous Public Reports (continued)

Name of Group member or business unit or key activity or site: _____

Total energy use for the period 1.7.2009 to 30.6.2010 of the assessed entity (or part thereof) from which the opportunities identified below were generated (and is reported in Table 1.2).

	GJ

Table 2.4 – Opportunities assessed to an accuracy of worse than (>) ±30%

Status of opportunities identified		Total Number of opportunities	Estimated energy savings per annum by payback period (GJ)						Total estimated energy savings per annum (GJ)
			0 – < 2 years		2 – ≤ 4 years		> 4 years		
			No of Opps	GJ	No of Opps	GJ	No of Opps	GJ	
Business Response	Under Investigation								
	To be Implemented								
	Implementation Commenced								
	Implemented								
	Not to be Implemented								
Outcomes of assessment	Total Identified								

Part 2 - Energy Efficiency Opportunities that have been identified and evaluated

Part 2C - Details of at least three significant opportunities found through EEO assessments

Table 2.5 – Description of 3 significant opportunities
Opportunity 1
Coppabella Mine Access Road Upgrade The Coppabella Mine access road and carpark were previously unsealed gravel and required significant daily watering for dust suppression and regular grading and other maintenance. This work resulted in both significant costs for equipment and time and considerable diesel fuel consumption. Bitumen sealing the surface was identified as a cost effective option to eliminate watercart and grader works to reduce diesel consumption and reduce the annual cost of equipment (ownership, maintenance, and labour cost) to complete the current maintenance regime The maintenance is costly and increases operational and safety risks with vehicle interaction on the access road between water trucks/graders and private cars and other vehicles. The existing gravel surface maintenance includes weekly grader works and 2.5 hours of road watering each day. Maintenance is performed by the Coppabella ancillary fleet at an annual cost of $184,000. A capital expenditure request was approved to upgrade the 2.6 km kilometre long access road and the carpark with a bitumen surface at a cost of approximately $300,000. The project was implemented in March 2010 and is estimated to save 28,000 litres of diesel per annum and a further $130,000 per annum in operational costs.
Opportunity 2
High Efficiency Excavator Engine The Coppabella mining fleet includes three large Hitachi excavators; an EX-3600, an EX-2500, and an EX-5500. When the EX-3600 came up for its regular engine replacement, rather than the standard practice of replacing with current engine type, the Coppabella maintenance team investigated the feasibility of installing a more expensive, but longer life and more efficient MTU engine. Although 50% more expensive, the MTU is estimated to provide a 17% reduction in fuel burn and twice the expected engine life, providing a significant saving in non energy run costs. The business case suggested that with both the fuel burn and the added life advantages accounted for, the additional cost of the MTU would be paid back in less than one year. The engine was installed in January 2010 and is performing to expectation. An MTU engine will be trialled in the EX-2500 excavator at the end of 2010 and further investigations will be made in regards to the EX-5500 in 2011.

Opportunity 3
Removal of Wear Packages Removing the wear package from 789 truck trays was identified to provide a weight reduction which results in the same payload moved for less fuel. Although the trays would experience a reduced life, analysis demonstrated that the $28,000 tray cost would be offset by a 5% reduction in fuel consumption, giving a payback of just over 1 year.
Opportunity 4
CHPP Power Conditioning The EEO Energy Baseline Report for the Coppabella Mine coal handling and preparation plant indicated that the plant was frequently operating with a poor power factor. A review of solutions for a similar power factor issue at the Moorvale Mine identified a power quality enhancement system that would not only provide power factor correction, but also a range of power quality improvements that would result in real power reductions. Indications from the equipment supplier are that in addition to power factor related efficiencies, a 10% reduction in real power consumption can be expected. Based on the Moorvale project, it is estimated that a $230,000 capital cost could provide up to $170,000 per annum in real power savings, suggesting a simple payback period of 1.35 years. Whilst further investigation has since suggested that implementation at Coppabella may be more complex and therefore more costly than at Moorvale, the project is currently undergoing detailed design investigation and consideration for implementation.
Opportunity 5
Lighting Plant Up to 14 diesel run lighting plant units across the Coppabella mine site currently require manual start and stop resulting in excess operation of the plant and significant diesel burn and time costs due to travel. A preliminary investigation indicated that the introduction of self starting lighting plant at cost $5,000 per unit could provide savings of 4,400 litres of diesel per annum and over $50,000 per annum in other operational costs giving a simple payback of 1.2 years. Further investigation has suggested that a broader review of in pit lighting, including solar, LED fittings, etc may provide even greater benefits so the project will continue as under investigation.

Part 3 - Voluntary Contextual Information

Table 3.1 – Contextual Information

Macarthur Coal operates three open cut coal mines in Queensland's Bowen Basin to produce high quality coking and PCI coal for the export market.

Our energy use is predominantly diesel and electricity consumed by mining equipment in the removal and transport of overburden and the extraction and transport of coal, and electricity in the processing of raw coal in the prep plant. Diesel consumption represents approximately 90% of our energy use.

To manage our energy costs and productivity going forward, and to assist in meeting our obligations under the Commonwealth Energy Efficiency Opportunities Program and National Greenhouse and Energy Reporting System, Macarthur Coal has developed an Energy Management Policy, Standard and Action Plan.

Macarthur Coal's Energy Management Objectives are to:

- Develop systems and processes to monitor, measure and analyse: diesel and electricity use and how they relate to production; greenhouse gas emissions; and opportunities to improve energy efficiency
- Implement cost effective energy efficiency projects to reduce costs
- Report to government
- Incorporate energy management into our training and performance measurement to ensure the capability and motivation of site personnel to implement energy efficiency
- Set targets for energy reduction and measure performance against these targets
- Sustain energy management gains by establishing a management information system to ensure the capture of relevant information to support decision making
- Report on energy management in internal management reports and communicate widely throughout the organisation

Table 3.2 – Energy use expressed in Greenhouse Gas emissions and as an energy use indicator

Period of energy use **01/07/2009** **to** **30/06/2010**

Name of group member/ business unit/ key activity/site	Energy use pa (GJ)	Energy use pa (GGE)	Energy use as an indicator*
Coppabella Coal Mine	1,425,000	127,673 t CO2-e	0.387 GJ/tonne product coal
Moorvale Coal Mine	964,000	78,408 t CO2-e	0.303 GJ/tonne product coal
Middlemount Coal Mine	110,000	7,618 t CO2-e	0.963 GJ/tonne product coal
Head Office (Corporate, Exploration, Accommodation)	17,000	1,384 t CO2-e	Not Applicable

Total		**2,516,000**	**215,083 t CO2-e**	**0.361 GJ/tonne product coal**

Table 3.3 - Opportunities assessed to an accuracy of better than or equal to (<=) ±30% ($ value)

Status of opportunities identified		Number of opportunities	Estimated energy savings per annum by payback period ($)			Total estimated energy savings per annum ($)
			0 – < 2 years	2 – ≤ 4 years	> 4 years	
Business Response*	Under Investigation	3	178,000	270,000	0	448,000
	To be Implemented	1	170,000	0	0	170,000
	Implementation Commenced	0	0	0	0	0
	Implemented	5	808,000	157,000	0	965,000
	Not to be Implemented	1	29,000	0	0	29,000
Outcomes of assessment*	Total Identified	10	1,185,000	427,000	0	1,612,000

Part 3 - Voluntary Contextual Information (continued)

Table 3.4 – Changes in energy use as an indicator

Name of group member/ business unit/ key activity/site	Current energy use as an indicator	Previous energy use as an indicator	Reasons for change
Coppabella Coal Mine	0.387 GJ/tonne	0.475 GJ/tonne (2007/08)	Low product coal levels in 2007/08 due to infrastructure constraints combined with significant rain events combined with relatively high levels of earthworks resulted in a very high indicator for that year.
Moorvale Coal Mine	0.303 GJ/tonne	0.349 GJ/tonne (2007/08)	Low product coal levels in 2007/08 due to infrastructure constraints combined with significant rain events resulted in a high indicator for that year.
Middlemount Coal Mine	0.963 GJ/tonne	Not applicable	Production commenced after 2007/08, however, note that high energy intensity since most consumption is earth works with very low production.
Total	**0.361 GJ/tonne**	0.441 GJ/tonne	

Part 4 - Declaration

Table 4.1 - Declaration of accuracy and compliance (mandatory information)

The information included in this report has been reviewed and noted by the board of directors and is to the best of my knowledge, correct and in accordance with the *Energy Efficiency Opportunities Act 2006* and *Energy Efficiency Opportunities Regulations 2006*.	C N Meller CEO + MD
	Insert Name and Title (Chair of the Board, CEO, or Managing Director) of Signatory here
	Date 29 , 10 , 10