BLOOMFIELD

MINING OPERATIONS (BLOOMFIELD)

Energy Savings Action Plan

Ver	Date	Description	By	Chk	App
1		Original Draft	KH	SD	SD
2	080911	Revised Final Draft - incorporating Project Area as approved by Section 75W Modification	GL	SG	SG

BLOOMFIELD MINING OPERATIONS

Energy Savings Action Plan

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INTRODUCTION

This energy savings action (ESAP) has been prepared in response to Project Approval, 07_0087, (Approval) granted under section 75J of the Environmental Planning and Assessment Act (EP&A) and the modification to the Approval granted in accordance with Section 75W of the Environmental Planning and Assessment Act 1979.

The ESAP environmental management strategy takes into consideration the commitments stated in the Part 3A Environmental Assessment, various conditions outlined in schedules 2 to 5 of the Approval granted under Section 75 J of the Environmental Planning and Assessment Act 1979. In addition, commitments outlined in Bloomfield Group Environment Management Policy and environmental management strategy (EMS) are also taken into account.

PURPOSE AND OBJECTIVES

The objectives of the ESAP are to:

- ensure compliance with the project approval conditions
- reduce greenhouse gas emissions from the project area; and
- ensure annual reporting of greenhouse gas emissions and tracking of energy savings opportunities.

The NSW energy savings initiative was introduced by the NSW Government in 2005 and is administered by the Department of Environment, Climate Change and Water (DECCW). The energy savings initiative includes the requirement for selected businesses, government agencies and local councils to prepare an ESAP. Preparation of an ESAP involves:

- determining current energy use;
- conducting a management review;
- undertaking a detailed technical review;
- assessing cost effectiveness of proposed energy savings measures; and
- identifying cost effective energy savings actions.

This ESAP has been prepared in accordance with the requirements presented in the *Guidelines for Energy Savings Actions Plans* produced by the former NSW Department of Energy, Utilities and Sustainability (DEUS) (October 2005).

Strategic Framework and Relationship with Other Plans

The EMS establishes an environmental management framework for all mining and related activities. It includes the development and management of environmental management plans, procedures and reporting requirements. The subordinate programs, plans and policies were developed in consultation with relevant government agencies and departments.

Management of specific environmental aspects included as energy savings are outlined through the subordinate plans such as the energy savings action plan.

While the individual operating plans have been completed to cover the life of the mine, the effectiveness and relevance of each of the plans will be reviewed annually during the management review process or as required.

BLOOMFIELD MINING OPERATIONS

Energy Savings Action Plan

STATUTORY OBLIGATIONS

Approval was granted by the Minister for Planning on 3 September 2009 under Section 75J of the Environmental Planning and Assessment Act, 1979.

In addition to the approval granted under the Environmental Planning and Assessment Act, 1979 there is a range of other relevant legislation. These include various Mining Leases, requirements of the Environment Protection Licence (EPL) that must be satisfied.

Approval Conditions

Condition 33 of Schedule 3 requires the Proponent to *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, and be submitted to the Director-General for approval within 6 months of the date of this approval;
(b) include consideration of energy use by mobile equipment;
(c) include a program to monitor the effectiveness of measures to reduce energy use on site.

ENVIRONMENTAL POLICY

Bloomfield Colliery (Colliery) is committed to sustainable operations throughout all components of the business. The company's environmental policy states the intentions and principles for environmental performance across the operation and is reproduced in full in Appendix A.

The policy incorporates regular review and improvement to ensure that EMS remains relevant to the operation and the various environmental requirements as they change over time.

SITE OVERVIEW

The ESAP addresses energy management issues within the project area covered by the EA (refer to Figure 1). The Approval allows for continued mining and operation of mine infrastructure including:

- current and proposed open cut mine areas;
- workshop;
- the road between the open cut pit areas and the ROM coal stockpile at the washery; and
- the road that links the workshop, open cut pits and washery.

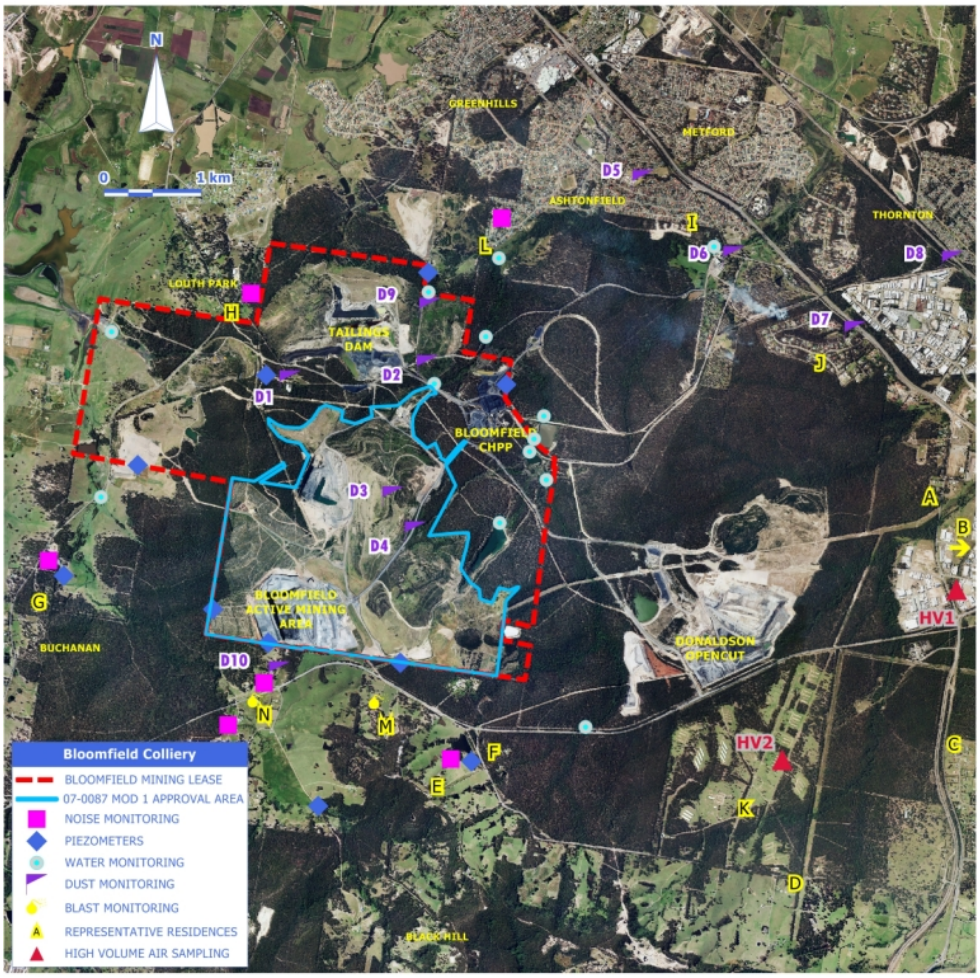

Figure 1: PROJECT APPLICATION AREA

Mining is currently a multi-seam truck and excavator or face shovel operation, conducted in sequential mining blocks. It is proposed to continue this existing method using the same or similar equipment. The majority of the Project Area has been previously cleared and additional clearing required for open cut mining is minimal.

ROM coal is trucked to the ROM coal stockpile at the Bloomfield washery for processing, which occurs under the Abel Project Approval (05_0136). The colliery operates 7 days per week, 24 hours per day.

ROLES AND RESPONSIBILITIES

The company directors are responsible for the overall energy management of the site. Senior operational managers have direct responsibility for the areas that they control and the Environmental Officer provides direction and advice to ensure site environmental compliance is maintained.

The key management positions are shown are shown in Table 1.

Table 1 MANAGEMENT TEAM

Position	Name
Managing Director	John Richards
Manager of Mining Engineering	Garry Bailey
Deputy Manager	Brendon Clements
General Manager Technical Services	Simon Grassby
Environmental Officer	Greg Lamb

SCOPE

The open cut bore pump and the open cut office/ workshop area are the only fixed items/plant in the area covered by the Approval that consume electricity. These facilities are minor electricity users relative to the CHPP (which is outside the scope of this assessment). The P&H 5700 electric shovel, which is only used periodically, has not been included in this assessment as it is not fixed plant.

This assessment has generally been prepared in accordance with DEUS guidelines and as such does not assess mobile plant. However, it should be noted that if opportunities arise to change procedures or mobile equipment to reduce energy consumption they will be incorporated where possible.

As a small coal producer, the company has a strong culture of minimising operational costs, and produces coal at very competitive rates (per product tonne). This emphasis on maximising operational efficiency has historically included the identification of potential energy efficiency upgrades of both mobile and fixed plant.

This ESAP does not consider energy usage for any other Bloomfield Group company or operation.

EXISTING ENERGY SAVINGS

Bloomfield has a demonstrated commitment to energy savings planning. Although it is outside the scope of this assessment, as the major energy user on-site, the CHPP has been the focal point for many of upgrades and improvements. Whilst consideration is given to all power consumption on site, it is the intent of the company to continue to focus on the major energy consumers such as the CHPP as this is considered the area that most savings can be made.

Existing Programs and Initiatives

Energy efficiency planning, from a greenhouse perspective, has largely been an informal process and largely driven by membership of the Greenhouse Challenge Plus (GHCP) program. Outcomes of this process (in the form of energy savings projects) have been documented as part of the reporting requirements for the GHCP program.

Bloomfield employs a full-time staff member, whose responsibility is to facilitate and co-ordinate Research & Development (R&D) projects. The emphasis of these projects has mainly been increasing operational efficiency, including mechanical and electrical upgrades around the CHPP facilities. These upgrades have often delivered energy and/or cost savings.

As a corporation, Big Ben Holdings (which owns and operates Bloomfield) exceeds the energy usage trigger for participation in the Federal Government *Energy Efficiency Opportunities* (EEO) program. *Assessment and Reporting Schedules* for the EEO program have been prepared and submitted. A copy of the EEO report submitted to the Commonwealth Department of Resources, Energy and Tourism for the 2006-2010 reporting period is provided in Appendix B. The report provides a summary of energy saving initiatives identified across the Bloomfield Group which includes the area covered by the Approval.

Due to the similar objectives and processes of the GHCP, EEO and ESAP programs, the planning and reporting activities, and energy improvement action plans are closely integrated.

MANAGEMENT REVIEW

Bloomfield has a strong emphasis on improving operational efficiency and has processes in place to identify cost savings, including mechanical, electrical and procedural upgrades, which may also deliver energy saving benefits. Energy efficiency decision making processes historically have been largely informal and undocumented. There have been a range of energy efficiency/greenhouse emissions planning and reporting resulting from GHCP program. This is reflected in the review ratings presented in Table 2 (based on Template 2 from the *ESAP Guidelines*).

Table 2 MANAGEMENT REVIEW RATING MATRIX

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 regulatory requirements					

BULK ELECTRICITY SUPPLY

Bloomfield's electricity is supplied via a 33kV line on a dedicated feeder from Kurri Kurri Zone substation. Bloomfield's supply point is through a 33kV oil circuit breaker and metering point located near the intersection of Mount Vincent Road and Louth Park Road. The 33kV supply is then reticulated on site to two areas of the mine:

- Supply to the open cut via a 33/11KV 8MVA transformer to power the P&H electric shovel and for the open cut bore pump; and
- Supply to the main substation where there is a 33/11kV 6MVA transformer that supplies electricity to the CHPP, RLF and associated administration stores and ancillary buildings at 11kV.

HOURS OF OPERATION

The site has approval to operate 24 hours a day, 7 days a week.

The open cut bore pump (75 kW engine) and open cut office operates for an estimated 12 hours per day, with reduced usage on weekends.

Although outside the scope of this assessment, the most significant use of electricity on site is the preparation of coal and loading of trains. The normal operating hours in the CHPP are 24 hours a day from 10pm Sunday night through to 10pm Friday night, divided into three by eight hour shifts. If required, CHPP operation may commence earlier on Sunday evening (approximately 6pm) or extend through until mid-morning Saturdays.

The CHPP is usually shutdown for approximately 12 hours every second Tuesday for routine maintenance and servicing. Except for a skeleton staff, the entire site (including CHPP) shuts down for three weeks over Christmas and for a week over Easter.

The rail loading facility (RLF) operates on a campaign basis, as opposed to timetabled schedule. As a result, the number of trains in a week is highly variable and reflects shipping by Bloomfield and the Donaldson Coal (includes Donaldson, Abel and Tasman mines).

SUPPLY TRENDS

There is one electricity meter that measures on site power consumption. It is therefore not possible to directly monitor the use of electricity in the area covered only by the Approval.

Energy consumption at Bloomfield has been charted to identify usage trends. Consumption for 2009 is shown in Figure 2. The trends reflect the close link between energy demand and CHPP operation hours, with clear reductions in demand associated with weekends, Christmas and Easter. The general increase in power consumption in the second half of 2009 reflects higher through put of the CHPP and loading of trains during this period.

Being a 24 hour per day operation, energy demand throughout an average operating day is relatively constant. In consultation with the company's energy supplier efforts have been made to minimise use of peak electricity.

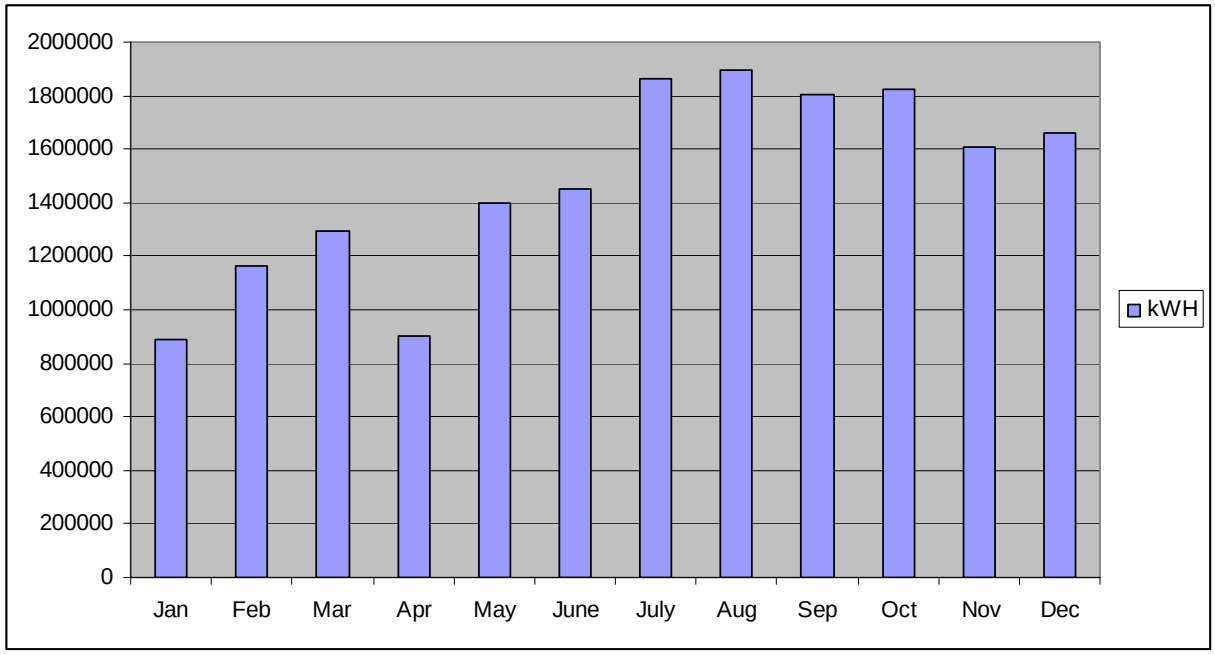

Figure 2 MONTHLY ELECTRICITY CONSUMPTION (ENTIRE SITE INCLUDING CHPP)

METHODOLOGY

A full Technical Review was undertaken across Bloomfield Colliery with the objective of assessing energy supply and consumption across the site in 2007 and 2008. The aim was to identify potential opportunities to save energy.

The review assessed electricity usage across all fixed plant on-site. As the majority of energy is consumed in the coal handling and preparation plant (CHPP), the focus of the investigation was on the CHPP and associated facilities. The open cut office and open cut bore pump (the only fixed plant covered by the Approval) and were included in the review.

Where energy savings opportunities were identified during the Technical Review, they were highlighted.

The review involved interviews with site staff and operators, combined with inspections of major electricity using fixed plant on-site. Electrical metering and energy tracking capabilities of the CHPP control system (CITECT) were assessed. Historical records, such as monthly electricity invoices and Greenhouse Challenge Plus reports were also referenced. The review included the following broad assessment activities:

- ❑ analysis of site electricity consumption patterns;
- ❑ preparation of an energy consumption inventory;
- ❑ investigation of major energy using devices and processes;
- ❑ development of energy consumption KPI;
- ❑ based on outcomes of the above steps, identification of potential initiatives to improve energy efficiency and reduce costs; and
- ❑ develop business cases to assess feasibility of potential initiatives.

Management Action Plan

With the exception of regulatory compliance and energy supply management, most of the management processes assessed during the management review were identified as being in place, but lacking supporting documented evidence. Therefore, most aspects of energy management were identified as consisting of "Informal Management Practices" and rated as "Moderate".

Energy supply management and regulatory compliance were both rated as "Minimum Sustainable" (higher rating than Moderate), due to well established, documented and audited legal and accounting processes.

Metering was identified as an area that could be improved to provide accurate electricity monitoring capability. A general lack of formal energy awareness training was also identified as a deficiency in site energy management.

Management actions were proposed to address weaknesses identified in energy management. These planned actions designed to enhance the energy savings culture at Bloomfield and assist in providing a management framework for the development of formal energy planning, tracking and reporting processes.

ENERGY SAVINGS MEASURES

The proposed recommendations from the Technical Review focussed on energy saving measures associated with the CHPP. The measures included a combination of procedural initiatives, capital upgrades and investigations over a four year period. Included were changes and modifications to fines handling, upgrade to train loader conveyors, improvements to tailings pumps and investigations into improved energy tracking and optimisation.

SYSTEMS REVIEW AND IMPROVEMENT

The ongoing effectiveness and efficiency of the Energy Savings Action Plan is monitored as part of normal operations management. Feedback from this and other more formal reviews and/ or following special occurrences and audits, form the basis for system improvement. Ongoing review of the strategy is as per the relevant Systems Review Management System.

GENERAL CONDITIONS OF REVIEW

In general, Bloomfield's management systems are reviewed and updated under the following conditions:

- Every three years; or
- Whenever there is a significant change to relevant legislation; or
- Whenever there is a significant change to the operations; or
- Whenever control measures are found to be ineffective either through:
  - changes to the working environment or
  - changes to operating systems; or
  - subsequent risk assessments; or
  - the findings of an audit; or
  - following a significant accident/ incident; or
  - following an assessment of a related safety alert.

Systems Review Process

In general terms, the procedure below is followed to ensure the capability and currency of the Bloomfield Group, Operational and Site Management Systems.

- ❑ Management meet regularly throughout the year and review the current goals/ objectives of the operation's Management Systems.
- ❑ The goals/ objectives are assessed, and the relevant information collected in relation to the goals or objectives is reviewed.
- ❑ Rules, Management Systems and procedures are subject to continual review during their use and are updated on an as needed basis as per the relevant *Systems Review Management System*.
- ❑ From an OH&S and Environment Management perspective, Management also reviews, on an ongoing basis, the results of audits, risk assessments, relevant reports, hazard control logs, OHS Committee activities and relevant employee feedback.
- ❑ Management review their Policies, alongside any legislative changes that are introduced during the year, and implement the appropriate responses.
- ❑ Revised goals are developed, or systems/ procedures are modified as required to assist goal attainment.
- ❑ As appropriate, management consult with the workforce (as per the relevant *Employee Consultation Management System*) when significant changes are required or when relevant systems are reviewed and/ or developed.
- ❑ Once system documents are finalised and appropriately authorised, through the relevant *Document Management, Management System*, employees are informed (as per the relevant *Employee Consultation Management System*) of the requirements of the revised system.
- ❑ Employees are trained in any new procedures and records are kept of these training events (as per the relevant *Competency Management System*).

Continual Improvement

Operational activities will be subject to regular review to ensure conformance with commitment made in the in the ESAP in addition to the EMS and subordinate plans and strategies. The ESAP will be reviewed every three years or more frequently if required to identify areas that may require improvement. New activities or changes to the operation that may improve energy efficiency will be introduced where possible.

The review process may include formalised procedures such as internal and external audits or feedback from consultation. These reviews are likely to involve the entire site and not be restricted to the Project Area covered by the Approval.

CONCLUSION

Bloomfield is committed to operating efficiently and minimising power consumption from the site as a whole. The Approval allows for the completion of mining and rehabilitation of the site within the project area. Due to the limited fixed plant in this area there are limited opportunities to reduce power consumption. However, if changes to fixed plant (open cut bore or open cut office and workshop area) are required, opportunities to introduce power efficient equipment and procedures will be examined and implemented where possible.

APPENDIX A

ENVIRONMENTAL POLICY

BLOOMFIELD GROUP

POLICY ENVIRONMENT MANAGEMENT

It is the policy of the Bloomfield Group and its subsidiary and associated companies to strive to achieve a high standard of care for the natural environment in all of the activities associated with our coal mining and engineering operations.

We aim to conduct our operations in an ecologically sustainable manner through:

- ☐ Minimising our impact on the environment by:
  - ♦ managing the effect of our activities with regard to air, ground and water pollution;
  - ♦ maintaining noise associated with our activities to as low as reasonably practicable;
  - ♦ controlling the waste associated with our activities and the identification of recycling opportunities;
  - ♦ rehabilitating disturbed mining areas;
  - ♦ managing our energy consumption.

- ☐ Identifying, monitoring and providing adequate resources to manage risks arising from our operations in accordance with the structure of our Environment Management System, which establishes the appropriate objectives and targets related to the environmental risks relevant to the scope of our operations;

- ☐ Reviewing our environmental management activities and seeking to continually improve our production processes, waste management and the use of resources;

- ☐ Conducting our operations in compliance with all relevant environmental legislation, regulations and licences;

- ☐ Consulting with managers and employees about our aim and about their individual responsibilities;

- ☐ Informing our contractors, customers and suppliers of our aim and of their environmental responsibilities in relation to our business;

- ☐ Consulting with the community and relevant government bodies with regard to our environmental performance, obligations and issues, as appropriate to their interests.

Signature William Card
(name) William Card
Managing Director
Date 31/1/09

Signature R F Crick.
(name) R. F. CRICK.
Operations Manager
Date 2/2/09.

APPENDIX B

ENERGY EFFICIENCY OPPORTUNITY REPORT

PUBLIC REPORT TEMPLATE 2010

Please consult the explanatory document when completing this template

Controlling Corporation

Big Ben Holdings Pty Limited

Period to which this report relates

Start 1 July 2006 **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

The Bloomfield Colliery and Rix's Creek operations have been assessed during the previous 2 years. The Coal Handling and Preparation Plants (also called CHPPs) for both sites were the first assessed activities of the Corporation. During the following year or during the second year of participation in EEO the opencut mining operations of both these sites were assessed.

These assessments were generally conducted in accordance with the methodology outlined in the Assessment and reporting Schedule. The review was undertaken by Bloomfield staff including site mechanical engineering staff, opencut supervisors accounting staff, the group engineering manager and site environmental officers.

The assessments involved interview with site staff and operators combined with inspection of major mechanical equipment, fuel usage monitoring and energy tracking capabilities, and operational control systems. Historical records such as monthly distillate and electricity invoice were referenced. The reviews included the following broad assessment activities: (1) Analysis of site distillate consumption patterns; (2) Investigation of major energy using devices and processes; (3) Development of energy consumption KPIs; (4) Identification of potential energy efficiency opportunities and operational cost reduction of evaluation; and (5) Evaluation of opportunities for potential implementation.

During this reporting year no additional entities were assessed. However implementation of opportunities previously identified through the assessments continued at both sites along with the identification, investigation and implementation of new opportunities.

From the original Rix's Creek CHPP assessment 3 opportunities were implemented during this reporting period, with a further 2 opportunities to be implemented during the next reporting period.

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]**
Bloomfield Collieries Pty Limited	July 06 – June 07 July 08 – June 09 July 09 – June 10	374,899
Rix's Creek Pty Limited	July 07 – June 09 July 08 – June 09 July 09 – June 10	495,028
Total energy use of assessed entities (or part thereof)		869,927
Total energy use of the whole corporate group in the period 1.7.2009 to 30 June 2010		888,274
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		98%

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%**
Bloomfield Collieries Pty Limited	**±5%**	Leave the table blank if accuracy is ±5%.
Rix's Creek Pty Limited	**±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: ___Bloomfield Collieries Pty Limited_____

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).

374,899	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	1					1	3960	3960
	To be Implemented								
	Implementation Commenced	2	1	1.7			1	1530	1531.7
	Implemented	3	2	2065	1	1015			3080
	Not to be Implemented								
Outcomes of assessment	Total Identified	6	3	2066.7	1	1015	2	5490	8571.7

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

Name of Group member or business unit or key activity or site: ____Rix's Creek Pty Limited_____

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).	495,028	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	1					1	540	540
	To be Implemented	2	1	101	1	125			226
	Implementation Commenced								
	Implemented	5	1	10,422	2	149	2	223	10,794
	Not to be Implemented								
Outcomes of assessment	Total Identified	8	2	10,523	3	274	3	763	11,560

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: _____ Bloomfield Collieries Pty Limited _____

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).

374,899	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	1 (2)			(1)	(10,363)	1 (1)	3,960 (750)	3,960 (11,113)
	To be Implemented	(1)	(1)	(910)					(910)
	Implementation Commenced	2 (1)	1 (1)	1.7 (259)			1	1,530	1,531.7 (10,363)
	Implemented	3 (3)	2 (1)	2,065 (433)	1 (2)	1,015 (1,827)			3,080 (2,260)
	Not to be Implemented								
Outcomes of assessment	Total Identified	6 (7)	,3 (3)	2,066.7 (1,602)	1 (2)	1,015 (12,190)	2 (1)	5,490 (750)	8,571.7 (24,646)

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

Name of Group member or business unit or key activity or site: _____ Rix's Creek Pty Limited _____

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).

495,028	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	1 (2)					1 (2)	540 (1515)	540 (1515)
	To be Implemented	2	1	101	1	125			226
	Implementation Commenced								
	Implemented	5 (4)	1 (3)	10,422 (400)	2	149	2 (1)	223 (357)	10,794 (757)
	Not to be Implemented	(1)			(1)	(80)			(80)
Outcomes of assessment	Total Identified	8 (7)	2 (3)	10,523 (400)	3 (1)	274 (80)	3 (3)	763 (1872)	11,560 (2352)

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
Recycled waste oil used in explosives at both sites has resulted in a direct saving of 313,000 liters of distillate not being purchased for use in explosives. The recycling of waste oil has been beneficial from recycling a waste product, resulting in a direct energy and reduction of operating costs.
Opportunity 2
LED light replacement trial program. This program has only a minor energy saving of around 1.7 GJ per annum per bulb, however the project has a major potential maintenance savings. The current bulbs have an average like of about 3 months due to the adverse operating conditions. The LED bulbs are expected to significantly extend bulb life saving on maintenance costs.
Opportunity 3
Investigations into the trial of lighter haul truck bodies is nearly finalised with a report to be prepared on the results of the trial in the first quarter of 2011. Preliminary results indicate a 6.5% fuel advantage from the lighter truck bodies.
Opportunity 4
The trial using a modified Hitachi 3600 excavator bucket at Rix's Creek opencut is about to be finalised with a report to be prepared in the first quarter of 2011.

Part 3 - Voluntary Contextual Information

Table 3.1 – Contextual Information

During the current reporting period an investigation into the validity of data collected previously was completed. The review found that the data relating to total energy usage has been accurately recorded and reported. However, there were some discrepancies in the production data used to develop KPIs that were reported in previous EEO assessments. As a consequence, a comparison of past KPIs does not accurately reflect energy efficiency improvements that have been adopted in the past. There have been significant equipment changes at both sites. At Bloomfield the electric face shovel was replaced by a diesel powered excavator in 2007 and at Rix's Creek the Marion dragline was replaced by a similar excavator in July 2010. These equipment changes would be expected to improve the KPIs for energy usage at each site.

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

Period of energy use 1 July 2009 **to** 30 June 2010

Name of group member/ business unit/ key activity/site		**Energy use pa (GJ)**	**Energy use pa (GGE)**	**Energy use as an indicator***
Bloomfield Collieries Pty Limited		374,899	87,629	40.19 MJ/BCM
Rix's Creek Pty Limited		495,028	156,106	40.33 MJ/BCM
Total	**Big Ben Holdings**	**888,274**	**245,987**	**41.12 MJ/BCM**

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					
	To be Implemented					
	Implementation Commenced					
	Implemented					
	Not to be Implemented					
Outcomes of assessment*	Total Identified					

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
Bloomfield Collieries Pty Limited	40.19 MJ/BCM	39.52 MJ/BCM	An internal review of the data used to calculate KPIs undertaken and found that there were some discrepancies in the production data used to develop KPIs reported in previous EEO assessments. The change in the figure reported reflects an improvement in data collection and increase in accuracy in the calculation of the KPIs. The accuracy has been in relation to the production figures used for the reporting period and not in relation to energy usage.
Rix's Creek Pty Limited	40.33 MJ/BCM	36.32 MJ/BCM	
Total Big Ben Holdings	**41.12 MJ/BCM**	**37.62 MJ/BCM**	

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*.	 John Richards (Managing Director)
	Insert Name and Title (Chair of the Board, CEO, or Managing Director) of Signatory here
	Date