



**BARRICK (PD) AUSTRALIA LTD**

**PUBLIC REPORT**  
FOR THE  
**ENERGY EFFICIENCY**  
**OPPORTUNITIES ACT**

**DECEMBER 2011**



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## Introduction

Barrick (PD) Australia Ltd is a wholly owned subsidiary of Barrick Gold Corporation (Barrick), a leading international gold mining company with operations and projects on five continents as well as exploration activities worldwide. The company's head office is in Toronto, Canada. Barrick's goal is to minimise its environmental footprint and safeguard the environment, now and for future generations. Responsible environmental management is central to its success as a leading gold mining company and it seeks to continually improve its performance.

Barrick has a global climate change program with key stakeholders in all countries and representation from key business units. As a part of this program there is a drive to improve energy efficiency and to minimise greenhouse gas emissions. Responsible energy use benefits Barrick's bottom line, the environment and the communities where we operate.

Barrick has appointed energy champions and energy committees at all operations, whose purpose is to promote energy efficiency projects and programs. The programs include energy awareness education, the use of solar water heating, high efficiency lighting, processing improvements and fuel management programs.

The contents of this report will demonstrate Barrick's continued commitment to the Australian Government's Energy Efficiency Opportunities (EEO) Act through investing money, people and time to continually improve its business which complies with Barrick's vision and values in addition to the EEO program.

This EEO Public Report pertains to Barrick (PD) Australia Ltd and relates to the following period:


**Start** 1 July 2010 **End** 30 June 2011

Aggregate energy assessed covered in this report:

<b>Total energy use covered by all assessments in this report</b>	<b>2,238,843</b>	<b>GJ</b>
<b>Total energy assessed as percentage of total energy use of the corporate group</b>	<b>35</b>	<b>%</b>



## Declaration

Declaration of accuracy and compliance	
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 <i>Energy Efficiency Opportunities Act 2006</i> and <i>Energy Efficiency Opportunities Regulations 2006</i> .	
	Gary Halverson, Regional President
	Date: Dec 28/11

## Part 1 – Assessment Outcomes

**Table 2.1 – Assessment Details**

It is compulsory to complete a separate table for each group member, business unit, or key activity that has been assessed

<b>Name of group member or business unit or key activity</b>	Barrick (PD) Australia Ltd		
<b>Total energy use in the last financial year</b>		2,238,843	GJ
<b>Energy use assessed in this entity as a percentage of total entity energy use*</b>		100	%
<b>Energy use assessed in this entity as a percentage of total corporate energy use</b>		35	%
<b>Accuracy of above estimates related to energy use assessed - <u>only required if not <math>\pm 5\%</math> or better</u></b>		5	%
<b>Period over which assessment was undertaken</b>		1/07/2010	30/06/2011
<b>Description of the way in which the entity carried out its assessment</b>	<p>This report is the final public report in the first cycle for Barrick (PD) Australia Ltd as required under the Australian Federal Government Energy Efficiency Opportunities Legislation. This report relates to the period 01 July 2010 to 30 June 2011.</p> <p>Barrick (Australia Pacific) Limited, manager of the two reporting corporations Barrick (PD) Australia Ltd and Barrick (Australia Pacific Holdings) Pty Ltd, conducted preliminary energy efficiency assessments across all of the Australian operations during previous reporting periods.</p> <p>Barrick (PD) Australia Ltd continues to incorporate business improvement practises with energy management and energy efficiency. As an example of this, in 2011, the following actions were carried out:</p> <ul style="list-style-type: none"> <li>Existing opportunities across all Barrick sites were reviewed.</li> <li>Sites were provided with an updated opportunity list including key learnings from all sites.</li> </ul>		

- Site interviews and reviews were conducted internally by corporate and regional personal to identify the status of existing opportunities.
- Opportunities were analysed to identify their status and new opportunities were identified.
- Barrick's Business Improvement processes were aligned with site energy teams to better integrate EEO principles with Barrick internal business processes.

Barrick's regional offices in Perth in Western Australia and Cairns in Queensland were not assessed.

In financial year 2010-2011 Barrick (PD) Australia Ltd had a total energy use of 2.7 PJ or 35% of Barrick Australian Operations total energy consumption of 6.5 PJ.

\* Please note that, for individual sites that use more than 0.5PJ of energy, all energy use must be assessed (less a small proportion for non integral energy use).

**Table 2.2 – Energy efficiency opportunities identified in the assessment**

Name of Group member or business unit or key activity or site: Barrick (PD) Australia Limited

<b>Table 2.2 – Energy efficiency opportunities identified in the assessment</b>									
<b>Status of opportunities identified to an accuracy of better than or equal to ±30%</b>		<b>Total Number of opportunities</b>	<b>Estimated energy savings per annum by payback period (GJ)</b>						<b>Total estimated energy savings per annum (GJ)</b>
			<b>0 – &lt; 2 years</b>		<b>2 – ≤ 4 years</b>		<b>&gt; 4 years</b>		
			<b>No of Opps</b>	<b>GJ</b>	<b>No of Opps</b>	<b>GJ</b>	<b>No of Opps</b>	<b>GJ</b>	
Business Response	Implemented	8	5	54,900	2	6,130	1	440	61,470
	Implementation Commenced	2	2	2,830	-	-	-	-	2,830
	To be Implemented								
	Under Investigation	1	1	2,050	-	-	-	-	2,050
	Not to be Implemented	1	1	3,640	-	-	-	-	3,640
Outcomes of assessment	Total Identified	12	9	63,420	2	6,130	1	440	69,990
<b>Status of opportunities identified to an accuracy of worse than ±30%</b>									
Business Response	Implemented	18	15	132,290	1	32	2	0	132,320
	Implementation Commenced	2	2	15,110	-	-	-	-	15,110
	To be Implemented	-	-	-	-	-	-	-	-
	Under Investigation	2	2	3,220	-	-	1	0	3,220
	Not to be Implemented	7	4	335,919	1	81	2	520	336,522
Outcomes of assessment	Total Identified	28	23	486,540	2	113	5	520	487,180

Please note that Corporate Groups **are not required** to report opportunities with a payback greater than 4 years. Reporting this data is voluntary.

**Table 2.3 - Details of significant opportunities identified in the assessment**

Name of Group member: **Barrick (PD) Australia Ltd**

Description of Opportunity	Voluntary Information	
<p><b>Generator Schedule Optimisation</b></p> <p>The acceleration of the mine hoist was reduced as a means of reducing the peak load of the system and operating the power plant to more closely follow the system demand. The major advantage of this is that spinning reserve is reduced allowing one of the diesel generators to be switched off. The base load provided by the diesel generator that was shutdown was made up by the gas engine on site.</p> <p>Energy Savings: 66,602 GJ/ annum Payback Period: &lt; 2 years</p>	Business Response	
	Energy saved (GJ)	
	Greenhouse gas abated (CO2-e)	
	\$s saved	
	Payback period	

Description of Opportunity	Voluntary Information	
<p><b>Magazine Ventilation</b></p> <p>The magazine is required to be ventilated at all times. In underground mines, this is typically achieved using a dedicated fan. In this project, the magazine ventilation was achieved by piping directly to the exhaust/vent decline using poly ducting. This has saved the installation of a 37 kW fan that would be running 24 hours a day.</p> <p>Energy Savings: 1,167 GJ/ annum Payback Period: &lt; 2 years</p>	Business Response	
	Energy saved (GJ)	
	Greenhouse gas abated (CO2-e)	
	\$s saved	
	Payback period	

Description of Opportunity	Voluntary Information	
<p><b>Tailings Retreatment Optimisation</b>            An optimisation program was completed on the tailings retreatment facility. The program has enabled a reduction in run hours for 4 large motors on site. The run hours have been reduced by up to 40 days per year.</p> <p>Energy Savings: 17,920 GJ/ annum            Payback Period: &lt; 2 years</p>	Business Response	
	Energy saved (GJ)	
	Greenhouse gas abated (CO2-e)	
	\$s saved	
	Payback period	

Please note that the "Description of the Opportunity" above should include information on the specific nature and type of opportunity, as well as information on the type of equipment and/or process involved.

## Part 3 - Voluntary Contextual Information

**Table 3.1 – Contextual Information**

Barrick incorporates business improvement practises around carbon intensity and energy efficiency that contribute to the spirit of the EEO legislation. These practises include:

- Carbon Working Group – The committee meets regularly to strategise how Barrick can mitigate its carbon footprint
- Energy Continuous Improvement Handbook – The handbook was developed in 2008 to assist sites in the identification and assessment of energy efficiency and greenhouse gas emission reduction opportunities. This handbook was rolled out to all sites
- Energy and Mass Balance Tool – A Barrick site has developed an energy mass balance tracking and reporting tool that utilises metered energy data. This allows sites to see how their energy is consumed throughout the process and tracks all key energy waste streams.
- Renewable Energy Options – Renewable energy options are being reviewed on Barrick sites.
- Carbon Abatement Curves – there is an intention to develop carbon abatement curves for all sites in order to quantify the costs and carbon abatement potential of carbon abatement projects on sites.
- Other Activities – There are many activities which Barrick initiates which contribute to improvements in energy efficiency. Examples include:
  - *Optimisation of Pebble Crusher* – The pebble crusher consumes significant amounts of energy. Optimisation of the crusher to consume less energy has commenced. This includes optimising the gap adjustment/kW ratio, analysing liner profiles and ensuring it is choke fed at all times to ensure maximum throughput.
  - *Research and development* – Through research & development, Barrick intends to actively seek to modify its current processes with a goal of reducing energy consumption and greenhouse gas emissions, and developing lower cost, highly energy efficient, “low-carbon mines.”
  - *Energy Awareness Programs* – Creating an energy efficient culture can be developed through awareness programs. An awareness program at a mine site is to be revitalised through campaign which will involve publishing energy initiatives, having suggestion boxes, and monitoring and publishing electricity usage and targets in each area.