



**BARRICK (AUSTRALIA PACIFIC HOLDINGS) PTY LTD**

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

**DECEMBER 2011**



## Contents Page

Introduction .....	i
Declaration .....	ii
Part 1 – Assessment Outcomes .....	3
Table 2.1 – Assessment Details .....	3
Table 2.2 – Energy efficiency opportunities identified in the assessment	.5
Table 2.3 - Details of significant opportunities identified in the assessment	
.....	.6
Part 3 - Voluntary Contextual Information .....	8

## Introduction

Barrick (Australia Pacific Holdings) Pty 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 (Australia Pacific Holdings) Pty 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>4,240,950</b>	<b>GJ</b>
<b>Total energy assessed as percentage of total energy use of the corporate group</b>	<b>65</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 (Australia Pacific Holdings) Pty Ltd		
<b>Total energy use in the last financial year</b>		4,240,950	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>		65	%
<b>Accuracy of above estimates related to energy use assessed - <u>only required if not <math>\pm 5\%</math> or better</u></b>			%
<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 (Australia Pacific Holdings) Pty Ltd, as required under the Australian Federal Government Energy Efficiency Opportunities Legislation.</p> <p>Barrick (Australia Pacific) Limited, manager of the two reporting corporations Barrick (PD) Australia Limited 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 (Australia Pacific Holdings) Pty 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's 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 (Australia Pacific Holdings) Pty Ltd had a total energy use of 4.2 PJ or 65% 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 (Australia Pacific Holdings) Pty Ltd

<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	19	15	86,750	2	19,400	2	3,260	109,410
	Implementation Commenced	6	4	17,440	2	7,690	-	-	25,130
	To be Implemented	-	-	-	-	-	-	-	-
	Under Investigation	1	1	2,400	-	-	-	-	2,400
	Not to be Implemented	2	2	42,460	-	-	-	-	42,460
Outcomes of assessment	Total Identified	28	22	149,060	4	27,080	2	3,260	179,400
<b>Status of opportunities identified to an accuracy of worse than ±30%</b>									
Business Response	Implemented	23	15	31,750	5	5,190	3	112	37,050
	Implementation Commenced	6	6	31,320	-	-	-	-	31,320
	To be Implemented	-	-	-	-	-	-	-	-
	Under Investigation	2	2	8,510	-	-	-	-	8,510
	Not to be Implemented	1	1	13,580	-	-	-	-	13,580
Outcomes of assessment	Total Identified	32	24	85,160	5	5,190	3	112	90,460

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 (Australia Pacific Holdings) Pty Ltd**

Description of Opportunity	Voluntary Information	
<p><b>Mill Modelling and Optimisation</b></p> <p>A cyclone optimisation project has been undertaken in response to over grinding in the ball mill. The cyclone optimisation was to increase the recirculating load, thus increasing the frequency that fines are sent to the cyclones. As cyclones separate ore particles by size, this increases the removal of fines, increasing the overall grinding efficiency of the ball mill and allowing more fresh feed to be input to the grinding circuit. In essence, more ore is processed for the same energy consumption so an increase in efficiency is observed.</p> <p>Energy savings: 18,742 GJ/a Payback period: &lt;2 years</p>	Business Response	
	Energy saved	
	Greenhouse gas abated (CO2-e)	
	\$s saved	
	Payback period	

Description of Opportunity	Voluntary Information	
<p><b>Light Weight Truck Trays</b></p> <p>A project is in progress to increase the payload capacity of haul trucks. This has been accomplished through the use of light weight truck trays. As these trays are lighter than the previous trays, more ore can be hauled for the same fuel consumption – thus increasing fuel efficiency. The mine production reporting system and fuel management system have been used to confirm that the increase in fuel efficiency has been realised as predicted.</p>	Business Response	
	Energy saved	
	Greenhouse gas abated (CO2-e)	
	\$s saved	
	Payback period	

Energy savings: 15,067 GJ/a Payback period: < 2 years		
--	--	--

Description of Opportunity	Voluntary Information	
<b>Install Heat Pumps for Water Heating</b>  The rooms in the village have electric storage hot water systems installed for water heating. There is a project underway to progressively replace these systems with new electric heat pumps as the old systems fail. The energy savings shown represent the savings from replacing 100 of the old electric storage hot water systems.  Energy savings: 1,374 GJ/a Payback period: < 2 years	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.