



BARRICK (AUSTRALIA PACIFIC HOLDINGS) PTY LTD

PUBLIC REPORT  
FOR THE  
ENERGY EFFICIENCY  
OPPORTUNITIES ACT

DECEMBER 2010



## Contents Page

|   |    |
|---|----|
| Introduction.....   | 3  |
| Part 1 – Information on assessments completed to date .....                             | 4  |
| Barrick Gold’s Methodology for carrying out its assessments:.....                       | 4  |
| Energy Use Assessed .....   | 5  |
| Accuracy of Energy Use Data.....  | 6  |
| Part 2 - Energy Efficiency Opportunities that have been identified and evaluated .....  | 7  |
| Part 2A - New Assessments completed during the reporting period .....                   | 7  |
| Part 2B - Update of assessments originally reported in previous reporting periods ..... | 7  |
| Part 2C - Details of significant opportunities found through EEO assessments.....       | 9  |
| Part 3 - Voluntary Contextual Information .....   | 10 |
| Part 4 – Declaration .....  | 11 |

## 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 its subsidiaries and relates to the following period:

**Start**  **End**

The energy use has been split into two reporting periods being 1 January to 30 June 2009 and 1 July 2009 to 30 June 2010 (the Australian financial year). The 18 month energy reporting window used for this public report reflects Barrick's change from calendar year reporting to Australian financial year reporting, to align with the *National Greenhouse and Energy Reporting Act 2007* (Australian Commonwealth) (**NGER**).



## Part 1 – Information on assessments completed to date

### Barrick Gold's Methodology for carrying out its assessments:

**Table 1.1 - Description of the way in which Barrick Gold has carried out its assessments**

This report is the third public report for Barrick (Australia Pacific Holdings) Pty Ltd, as required under the Australian Federal Government Energy Efficiency Opportunities Legislation. The second public report, published last year, relates to the period 01 January 2008 to 31 December 2008. The current report relates to the period 01 January 2009 to 31 June 2010.

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.

Barrick (Australia Pacific Holdings) Pty Ltd continues to incorporate business improvement practises with energy management and energy efficiency. As an example of this, in 2010, the following actions were carried out:

- Existing opportunities across all Barrick sites were reviewed.
- Sites were provided with an updated opportunity list including key learnings from all sites.
- 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.

The Barrick regional office in Perth in Western Australia was not assessed.

In the Australian financial year 2009-2010, Barrick (Australia Pacific Holdings) Pty Ltd had a total energy use of 4.18 PJ or 59% of Barrick Australian Operations (7.04 PJ). During the first six months of calendar year 2009, Barrick (Australia Pacific Holdings) Pty Ltd had a total energy use of 2.36 PJ. This is equivalent to 58% of the energy consumption of Barrick Australian Operations (3.99 PJ).

The 18 month energy reporting window used for this public report reflects Barrick's change from calendar year reporting to Australian financial year reporting, to align with NGER.

## Energy Use Assessed

Name of Group member: **Barrick (Australia Pacific Holdings) Pty Ltd**

| <b>Table 1.2a – Energy use assessed</b>   |  |   |
|---|--|---|
| <b>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).</b> | <b>Period over which assessment was undertaken<sup>1</sup></b> | <b>Energy use for the period 1 July 2009 to 30 June 2010 of the assessed entity (or part thereof) expressed in GJ<sup>2</sup></b> |
| Cowal Operations  | January to December 2007                                       | 1,879,047   |
| Darlot Operations   | January to December 2007                                       | 618,158   |
| Lawlers Operations  | January to December 2007                                       | 327,700   |
| Plutonic Operations   | January to December 2007                                       | 1,352,799   |
| <b>Total energy use of assessed entities (or part thereof)</b>  |  | <b>4,177,704</b>  |
| <b>Total energy use of the whole corporate group in the period 1 July 2009 to 30 June 2010</b>  |  | <b>4,177,704</b>  |
| <b>Total energy use of assessed entities (or part thereof) for the period 1 July 2009 to 30 June 2010 expressed as a percentage of total energy use for the period 1 July 2009 to 30 June 2010</b>                        |  | <b>100 %</b>  |

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.

| <b>Table 1.2b – Energy use assessed</b>   |  |  |
|---|--|--|
| <b>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 2009 (Include all assessments completed to date for the current 5 year cycle).</b> | <b>Period over which assessment was undertaken<sup>1</sup></b> | <b>Energy use for the period 1 January 2009 to 30 June 2009 of the assessed entity (or part thereof) expressed in GJ<sup>2</sup></b> |
| Cowal Operations  | January to Dec 2007  | 983,632  |
| Darlot Operations   | January to Dec 2007  | 387,773  |
| Lawlers Operations  | January to Dec 2007  | 157,897  |
| Plutonic Operations   | January to Dec 2007  | 829,251  |
| <b>Total energy use of assessed entities (or part thereof)</b>  |  | <b>2,358,553<sup>3</sup></b>   |
| <b>Total energy use of the whole corporate group in the period 1 January 2009 to 30 June 2009</b>   |  | <b>2,358,553</b>   |
| <b>Total energy use of assessed entities (or part thereof) for the period 1 January 2009 to 30 June 2009 expressed as a percentage of total energy use for the period 1 January 2009 to 30 June 2009</b>                  |  | <b>100%</b>  |

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.
3. This energy consumption figure is reflective of only the first 6 months of energy consumption for Barrick (Australia Pacific Holdings) Pty Ltd as the company has changed reporting dates from calendar year reporting to a financial year reporting schedule to align with NGER reporting requirements.

### Accuracy of Energy Use Data

| <b>Table 1.3 – Accuracy of energy use assessed data</b> |                   |  |
|---|-------------------|--|
| <b>Entity</b>   | <b>% achieved</b> | <b>Reasons for not achieving data accuracy to within ±5%</b> |
| Cowal Operations  | 5%                |  |
| Darlot Operations                                       | 5%                |  |
| Lawlers Operations                                      | 5%                |  |
| Plutonic Operations                                     | 5%                |  |

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

### Part 2A - New Assessments completed during the reporting period

Name of Group member: **Barrick (Australia Pacific Holdings) Pty Ltd**

All site assessments took place in the last reporting period and are not required for the current reporting period. There is a continuous process of identifying new opportunities and progressing opportunities that have already been identified.

### Part 2B - Update of assessments originally reported in previous reporting periods

Name of Group member or business unit or key activity or site: Barrick (Australia Pacific Holdings) Pty Ltd

Total energy use for the period 1 January 2009 to 30 June 2010 of the assessed entity (or part thereof) from which the opportunities identified below were generated (and is reported in Table 1.2).

|           |    |
|-----------|----|
| 6,536,257 | GJ |
|-----------|----|

| <b>Table 2.1 – Opportunities assessed to an accuracy of better than or equal to (<math>\leq</math>) <math>\pm 30\%</math></b> |                          |                               |   |                            |                    |                           |            |                     |   |
|---|--------------------------|-------------------------------|---|----------------------------|--------------------|---------------------------|------------|---------------------|---|
| 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 – $\leq$ 4 years |                           | > 4 years  |                     |   |
|   |                          |                               | No of Opps  | GJ                         | No of Opps         | GJ                        | No of Opps | GJ                  |   |
| Business Response   | Under Investigation      | <b>3</b><br>(1)               | <b>3</b>  | <b>21,269</b><br>(2,400)   | -                  | -                         | -          | -                   | <b>21,269</b><br>(2,400)                      |
|   | To be Implemented        | -                             | -   | -                          | -                  | -                         | -          | -                   | -   |
|   | Implementation Commenced | <b>3</b><br>(-)               | <b>3</b>  | <b>4,018</b><br>(-)        | -                  | -                         | -          | -                   | <b>4,018</b><br>(-)                           |
|   | Implemented              | <b>11</b><br>(7)              | <b>7</b>  | <b>52,872</b><br>(31,960)  | <b>2</b>           | <b>19,397</b><br>(19,397) | <b>2</b>   | <b>3,264</b><br>(-) | <b>75,533</b><br>(51,357)                     |
|   | Not to be Implemented    | <b>1</b><br>(1)               | <b>1</b>  | <b>42,460</b><br>(42,460)  | -                  | -                         | -          | -                   | <b>42,460</b><br>(42,460)                     |
| Outcomes of assessment  | Total Identified         | <b>19</b><br>(9)              | <b>14</b>   | <b>120,619</b><br>(76,820) | <b>2</b>           | <b>19,397</b><br>(19,397) | <b>2</b>   | <b>3,264</b><br>(-) | <b>143,280</b><br>(96,217)                    |

**X** - the bold number represents the total figure for the current reporting period

(Y) - the number in brackets is the figure for the last reporting period

Name of Group member or business unit or key activity or site: Barrick (Australia Pacific Holdings) Pty Ltd

Total energy use for the period 1 January 2009 to 30 June 2010 of the assessed entity (or part thereof) from which the opportunities identified below were generated (and is reported in Table 1.2).

|           |    |
|-----------|----|
| 6,536,257 | GJ |
|-----------|----|

| <b>Table 2.2 – Opportunities assessed to an accuracy of worse than (&gt;) ±30%</b> |                          |                               |   |                           |               |                         |            |            |   |
|--|--------------------------|-------------------------------|---|---------------------------|---------------|-------------------------|------------|------------|---|
| 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      | <b>1</b><br>(3)               | <b>1</b>  | <b>1,682</b><br>(20,551)  | -             | -                       | -          | -          | <b>1,682</b><br>(20,551)                      |
|  | To be Implemented        | -                             | -   | -                         | -             | -                       | -          | -          | -   |
|  | Implementation Commenced | -                             | -   | -                         | -             | -                       | -          | -          | -   |
|  | Implemented              | <b>22</b><br>(15)             | <b>17</b>   | <b>40,466</b><br>(38,419) | <b>4</b>      | <b>3,346</b><br>(3,011) | <b>1</b>   | <b>112</b> | <b>43,924</b><br>(41,430)                     |
|  | Not to be Implemented    | -                             | -   | -                         | -             | -                       | -          | -          | -   |
| Outcomes of assessment   | Total Identified         | <b>23</b><br>(18)             | <b>18</b>   | <b>42,148</b><br>(58,970) | <b>4</b>      | <b>3,346</b><br>(3,011) | <b>1</b>   | <b>112</b> | <b>45,606</b><br>(61,981)                     |

X - the bold number represents the total figure for the current reporting period

(Y) - the number in brackets is the figure for the last reporting period

## Part 2C - Details of significant opportunities found through EEO assessments

Name of Group member **Barrick (Australia Pacific Holdings) Pty Ltd**

| <b>Table 2.3 – Description of 3 significant opportunities</b>   |
|---|
| <b>Opportunity 1</b>  |
| <b>Improve Operating Strategy for Increased Gas Engine Load</b><br>A new control and operating strategy was implemented for the power station that optimised the load sharing between the gas power plant and the diesel power plant. Since commissioning the new control strategy, there has been a 2% decrease in gas usage. In addition, the operating hours of the diesel generators have decreased significantly and, as such, diesel consumption in the generation plant has also decreased.<br><br>Energy Savings: 20,842 GJ/ annum<br>Payback Period: < 2 years |
| <b>Opportunity 2</b>  |
| <b>Redesign MOP</b><br>The area in which ore is dumped on site was redesigned. The result of the redesign was that ore loads from the mine are dumped closer to the portal. This has saved approximately 500 m of travel per dumped load. The energy savings are realised as diesel efficiency savings as cycle times are reduced and more ore is moved.<br><br>Energy Savings: 926 GJ/ annum<br>Payback Period: < 2 years  |
| <b>Opportunity 3</b>  |
| <b>Install Heat Pumps for Water Heating</b><br>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.<br><br>Energy Savings: 1,374 GJ/ annum<br>Payback Period: < 2 years  |

## 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.

## 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*.



**Regional President**  
24 December 2010