

# THIRD PUBLIC REPORT

## Controlling Corporation

Queensland Alumina Limited.

## Period to which this report relates

Start

1<sup>st</sup> July 2009

End

30<sup>th</sup> June 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

Regular weekly reviews of energy performance were held, as well as a daily LEAN management meeting that includes energy. Issues not addressed at these meetings were escalated for more detailed scrutiny.

QAL also participated in a facilitated workshop held for Rio Tinto's Australian alumina refineries. Unit level energy performance was benchmarked against the lowest thermodynamically possible performance, and this information was used for developing a series of larger scope projects for further investigation.

Projects implemented from last year include control improvements allowing a reduction of excess oxygen in Calcination.

Opportunities identified in the previous reporting period were subjected to detailed assessment, including improvements to recycling heat from process streams.



**Table 1.2 – Energy use assessed**

| <b>Group member and/or business unit and/or key activity and/or site that has had an assessment completed by the end of this reporting period.</b> | <b>Period over which assessment was undertaken<sup>1</sup></b> | <b>Energy use per annum in GJ<sup>2</sup> in the current reporting year</b> |
|--|--|---|
| QAL Site   | 2009/2010 financial year.                                      | <b>43,638,000</b>   |
| QAL Bauxite Shipping   | 2009/2010 financial year.                                      | <b>4,136,000</b>  |
|  |  |   |
| <b>Total energy assessed</b>   |  | <b>20,000,000</b>   |
| <b>Total energy use of the group in the current reporting year</b>   |  | <b>47,774,000</b>   |
| <b>Total energy assessed expressed as a percentage of total current energy use</b>   |  | <b>41%</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.

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

| <b>Table 1.3 – Accuracy of energy use data</b> |                   |   |
|--|-------------------|---|
| <b>Entity</b>                                  | <b>% achieved</b> | <b>Reasons for not achieving data accuracy to within <math>\pm 5\%</math></b> |
| QAL Site                                       | 4.3%              |   |
| QAL Bauxite Shipping                           | 5%                |   |
|  |                   |   |
|  |                   |   |
|  |                   |   |

Notes

- Overall site energy consumption is sufficiently well measured for commercial transactions.
- The accuracy of energy consumption at the unit operation level is less accurate, and is subjected to weekly reconciliations to identify changes in energy consumption.

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

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

Name of Group member or business unit or key activity or site: \_\_\_\_\_ **QAL Site** \_\_\_\_\_

Amount of energy assessed which generated the results below (and is reported in Table 1.2)

|            |    |
|------------|----|
| 20,000,000 | GJ |
|------------|----|

**Table 2.1 – Opportunities assessed to an accuracy of ±30% or better**

| Status of opportunities identified |                          | 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 |  |
| Outcomes of assessment*            | Total Identified         | 10                      | 126,000   | 1,600,000     | 992,000   | 2,718,000                                      |
| Business Response*                 | Under Investigation      | 4                       |   |               | 148,000   | 148,000  |
|                                    | To be Implemented        |                         |   |               |           |  |
|                                    | Implementation Commenced | 3                       |   |               | 444,000   | 444,000  |
|                                    | Implemented              | 1                       | 126,000   |               |           | 126,000  |
|                                    | Not to be Implemented    | 2                       |   | 1,600,000     | 400,000   | 2,000,000                                      |

#### Notes ;

- One project was dropped due to the feasibility study CAPEX estimate exceeding the prefeasibility estimate by a factor of three making the project not economically viable.
- QAL used external contract engineering resources to work through detailed assessments on some projects.

Name of Group member or business unit or key activity or site: \_\_\_\_\_ **QAL Site** \_\_\_\_\_

Amount of energy assessed which generated the results below (and is reported in Table 1.2)

|            |    |
|------------|----|
| 20,000,000 | GJ |
|------------|----|

**Table 2.2 - Opportunities assessed to an accuracy of worse than ±30%**

| Status of opportunities identified |                          | 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 |   |
| Outcomes of assessment             | Total Identified         | 2                       | 84,000  | 200,000       |           | 284,000                                       |
| Business Response                  | Under Investigation      | 1                       | 40,000  | 200,000       |           | 240,000                                       |
|                                    | To be Implemented        | 1                       | 44,000  |               |           | 44,000  |
|                                    | Implementation Commenced |                         |   |               |           |   |
|                                    | Implemented              |                         |   |               |           |   |
|                                    | Not to be Implemented    |                         |   |               |           |   |

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

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

Name of Group member or business unit or key activity or site: \_\_\_\_\_ **QAL Site** \_\_\_\_\_

Amount of energy assessed which generated the results below (and is reported in Table 1.2)

|            |    |
|------------|----|
| 20,000,000 | GJ |
|------------|----|

| <b>Table 2.3 - Opportunities assessed to an accuracy of <math>\pm 30\%</math> or better</b> |                          |                         |   |                    |           |   |
|---|--------------------------|-------------------------|---|--------------------|-----------|---|
| Status of opportunities identified  |                          | 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 |   |
| Outcomes of assessment*   | Total Identified         | 7                       | 249,000   | 130,000            | 55,000    | 434,000                                       |
| Business Response*  | Under Investigation      | 0                       |   |                    |           |   |
|   | To be Implemented        | 1                       | 1,000   |                    |           | 1,000   |
|   | Implementation Commenced | 1                       |   |                    | 55,000    | 55,000  |
|   | Implemented              | 4                       | 247,000   | 130,000            |           | 377,000                                       |
|   | Not to be Implemented    | 0                       |   |                    |           |   |

Notes ; Figures indicate original savings estimates.

Name of Group member or business unit or key activity or site:           **QAL Site**          

Amount of energy assessed which generated the results below (and is reported in Table 1.2)

|            |    |
|------------|----|
| 50,040,000 | GJ |
|------------|----|

**Table 2.4 - Opportunities assessed to an accuracy of worse than ±30%**

| Status of opportunities identified |                          | 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 |   |
| Outcomes of assessment*            | Total Identified         | 0                       |   |               |           |   |
| Business Response*                 | Under Investigation      |                         |   |               |           |   |
|                                    | To be Implemented        |                         |   |               |           |   |
|                                    | Implementation Commenced |                         |   |               |           |   |
|                                    | Implemented              |                         |   |               |           |   |
|                                    | Not to be Implemented    |                         |   |               |           |   |

## 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**

*TGB Sweetening Optimization.*

Optimizing the mix in ore grades fed to the plant was modeled to have a large potential benefit. Practical difficulties resulting in heater scale limited the amount of benefit gained. Ongoing efforts support this project.

**Opportunity 2**

*Reducing the impact of Interstage cooler downtime*

The increased energy use impact from an extensive Interstage cooler refurbishment program was studied. Several options were assessed, and some efficiency was able to be recovered by increasing pump load, cleaning cooling water systems, and installing a temporary cooler.

**Opportunity 3**

*Boiler feedwater heating.*

A detailed project feasibility was carried out to recover process steam to heat boiler feedwater. The study found that the project was not feasible due to an unanticipated increase in CAPEX.

## Part 3 - Voluntary Contextual Information

**Table 3.1 – Contextual Information**

QAL sustained its efforts to improve energy efficiency with encouraging results. Energy use is subjected to detailed scrutiny, from the annual planning cycle through to monthly, weekly & daily reviews to identify ways to reduce energy consumption. QAL's energy consumption per tonne of product improved by more than 6% over the previous financial year.

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

Period of energy use \_\_1<sup>st</sup> July 2009\_\_ to \_\_30<sup>th</sup> June 2010\_\_

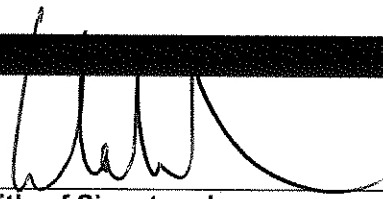
| Name of group member/ business unit/ key activity/site | Energy use pa (GJ) | Energy use pa (t-CO <sub>2</sub> -e) | Energy use as an indicator* |
|--|--------------------|--------------------------------------|-----------------------------|
| QAL Site   | 43,638,000         | 3,917,000                            | 10.968 GJ / tonne product   |
| QAL Bauxite Shipping                                   | 4,136,000          | 366,000                              |                             |
| <b>Total</b>   | <b>47,774,000</b>  | <b>4,283,000</b>                     |                             |



## 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*.

|   |              |
|---|--------------|
|  |              |
| Insert Title of Signatory here<br>CHAIRMAN QAL                                      |              |
| Date  | 16 / 12 / 10 |