

## PUBLIC REPORT 2011

### Controlling Corporation

Hydro Aluminium Kurri Kurri Pty Ltd

### Period to which this report relates

Start 01/07/06

End 30/06/11

### 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

Hydro Aluminium Kurri Kurri Pty Ltd Senior Management established an EEO Steering Committee to assist the organisation meet its obligations under the EEO legislation. The primary role of the Steering Committee was to ensure that the organisation met the 6 key elements of the EEO Assessments. The commitment by Senior Management in forming this committee forms the basis of meeting the “leadership element”.

As noted in previous years Hydro Aluminium Kurri Kurri Pty Ltd used the Energy Savings Action Plan (ESAP) methodology developed by the NSW Government, as the basis of the assessment. The ESAP methodology included the following process steps:

- Identifying an energy and production baseline;
- Conducting a site management review to identify current energy management policies and procedures;
- Conducting a site technical review to calculate an energy mass balance, energy use by sub-activity specific energy indexes by main energy use and efficiency and savings opportunities.

The audit and management reviews were undertaken in August 2006 and an annual management review occurred in 2010. These reviews provided feedback and efficiency opportunities from both a management and technical perspective. Hydro Aluminium Kurri Kurri Pty Ltd set up a Cross Functional Team (CFT) to address energy efficiency matters. This team incorporated operational and technical managers and personnel with appropriate skills and expertise to analyse energy and process data. This team forms the basis of meeting the “people element” required under EEO regulations. The team interacted with Hydro Aluminium Kurri Kurri Pty Ltd’s Alliance Partners and onsite contractors.

The CFT followed up on the recommendations made in the ESAP audit and engaged in additional energy efficiency reviews, totalling some 51 opportunities. The CFT relied on the hurdle rates established for efficiency projects and took into account the EEO Legislative requirements. Projects were ranked according to payback period and projects with an internal rate of return were analysed in detail to ensure that management had sufficient information at hand to make informed decisions as to whether or not a project would be implemented. The CFT also monitored the progress of the energy savings initiatives and also undertook a formal review process to evaluate projects post implementation. The outcomes were reported to the EEO Steering Committee and then to the Hydro Aluminium Kurri Kurri Pty Ltd Board.



The EEO Steering Committee disseminated EEO and energy information to senior management and to the site, with the aim of increasing energy efficiency awareness, across the organisation. (Key element 6 of the program).

During the 2010/2011 year significant changes to senior site management occurred. The Managing Director, the Technical, Finance and HSE Managers along with staff members of the Cross Functional Team all resigned from the company. A new Senior Management organisational structure has been established under the new Chief Executive Officer and within this context the roles and responsibilities for the EEO program are being reviewed.

The outcomes of this assessment and review process can be found below in section 2.3

**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>
Hydro Aluminium Kurri Kurri		13,947,128
<b>Total energy assessed</b>		13,875,472
<b>Total energy use of the group in the current reporting year</b>		13,947,128
<b>Total energy assessed expressed as a percentage of total current energy use</b>		100%



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

**Table 1.3 – Accuracy of energy use data**

Entity	% achieved	Reasons for not achieving data accuracy to within $\pm 5\%$
Hydro Aluminium Kurri Kurri	+/- 1%	Not applicable



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

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

Hydro Aluminium Kurri Kurri, completed its assessment of the site during 2007/08. As a result no new assessments have been conducted. An update on the site appears below.

## 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: Hydro Aluminium (Kurri Kurri) Pty Limited Smelter

Energy use of the entity during the current reporting period

13,947,128	GJ
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**Table 2.3 - Opportunities assessed to an accuracy of  $\pm 30\%$  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	<b>51</b>	<b>85,694</b>	<b>112,653</b>	<b>637,042</b>	<b>835,389*</b>
Business Response*	Under Investigation	3	0	0	459,258	459,258
	To be Implemented	0	0	0	0	0
	Implementation Commenced	1	0	0	7,100	7,100
	Implemented	37	85,694	112,653	135,791	334,138
	Not to be Implemented	10	0	0	34,893	34,893

\*When compared with Hydro Aluminium Kurri Kurri Pty Ltd first Annual Public Report of 2008, it should be noted that the estimated energy savings above is a per annum figure, whereas the 2008 Report is a value over a 4 year period.

## 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**

The only significant capital project underway at the Hydro Aluminium Kurri Kurri smelter is the \$77 million switchyard power supply upgrade which includes the installation of 3 new rectifiers as well as filter banks for harmonics and power factor correction. The principal intent of this upgrade is to ensure the long term uninterrupted supply of electricity to the smelter potlines and therefore does not provide a significant shift in energy efficiency. Completion of this project is an essential prerequisite for any major reduction process energy efficiency improvements through amperage increases on the potlines.

**Opportunity 2**

Completion of the installation of natural gas metering and monitoring equipment has allowed site personnel to track natural gas consumption across the site on a real time basis.

**Opportunity 3**

Installation of rotary gas injection (RGI) providing a more efficient contact between chlorine gas and molten aluminium in the Casting Holding Furnaces has resulted in a reduction in the amount of molten aluminium lost to the formation of oxides and nitrides, and has subsequently improved energy efficiency through improved production tonnes without an increase in natural gas consumption.



## 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*.

**Alberto Fabrini**

**Chief Executive Officer**

**Hydro Aluminium (Kurri Kurri) Pty Ltd**