

## FIRST PUBLIC REPORT

**Controlling Corporation**

Hydro Aluminium Kurri Kurri Pty Ltd

**Period to which this report relates**

Start 1/7/2006

End 30/6/2008

### Part 1 - Summary of assessments conducted thus far

**Table 1.1 - Description of the way in which the corporation has carried out its assessments and over what period was each assessment taken. A statement saying that the intent and key requirements of the Energy Efficiency Opportunities legislation have been met must be made.**

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 is to ensure that the organisation meets 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”.

In order to demonstrate the organisations commitment to the program, Hydro Aluminium Kurri Kurri Pty Ltd, volunteered to participate in the EEO Verification trial, conducted by the Department of Resources Energy and Tourism onsite during March 2008.

Under the guidance of the Steering Committee Hydro Aluminium Kurri Kurri Pty Ltd has undertaken an Energy Efficiency Opportunities assessment of its smelter as per the program’s requirements. The assessment represents a review of all production processes within the site and which represents 100% of the organisation’s energy consumption.

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. As part of the ESAP a substantial audit based assessment complying with the Australian standard AS/ANZ 3598:2000 was undertaken. The plan focuses on opportunity identification and evaluation, element 4 of the EEO requirements.

The ESAP methodology included the following process steps:

- Identifying and 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 2007.

These reviews provided feedback and efficiency opportunities from both a management and technical perspective. Hydro Aluminium Kurri Kurri Pty Ltd have set up a Cross Functional Team (CFT) to address energy efficiency matters. This team incorporates managerial staff, operational managers and technical managers with appropriate skills and expertise to analyse energy and process data. This team meets the “people element” required under EEO regulations. The team interacts 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 47 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 have sufficient information at hand to make informed decisions as to whether or not a project has or will 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 team continually seeks energy efficiency ideas from the site to ensure the process is on going. The outcomes of its findings are reported to the EEO Steering Committee and the Hydro Aluminium Kurri Kurri Pty Limited Board.

The EEO Steering Committee disseminates 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).

The outcomes of this assessment and review process can be found below in table 1.3.

<b>Table 1.2 - Group member/business unit/key activity/site that have been assessed</b>	<b>Energy use per annum in the year the assessment is completed *</b>	<b>Energy data accuracy (if not within <math>\pm 5\%</math>) **</b>	<b>Reasons for not achieving data accuracy to within <math>\pm 5\%</math> **</b>
Smelter 2007-2008	<b>13,875,472 GJ</b>	<b>+/- 1%</b>	<b>Not applicable</b>
<b>Total</b>	<b>13,875,472 GJ</b>		
<b>Total as a percentage of total energy use of the group covered by this report</b>	<b>100 %</b>		

**Part 2 - Outcomes of and business response to opportunities that have been identified and evaluated for each group member, business unit, key activity or site assessed**

Group member/business unit/key activity/site >0.5 PJ name: **Hydro Aluminium Kurri Kurri Pty Ltd- Smelter**

Status of opportunities	Number of Opportunities	Estimated Savings by Payback Period (GJ)			Net Energy Savings (GJ)	Accuracy Range
		0 – < 2 years	2 – ≤4 years	>4 years		
Outcome of Assessments	*** Identified (accuracy ≤ ±30%)	47	499,106	2,281,116	688,148	3,468,370 ±30%
	*** Identified (accuracy > ±30%)	0	0	0	0	0 not applicable
	Total Identified	47	520,418	2,281,116	688,148	3,468,370 ±30%
Business Response	Under Investigation	16	0	1,830,584	191,076	2,021,660 ±30%
	To be Implemented	8	107,340	0	28,400	135,740 ±20%
	Implementation Commenced	10	239,304	936	28,420	268,660 ±10%
	Implemented	13	152,462	449,596	440,252	1,042,310 ±5%
	Not To be implemented	0	0	0	0	0 not applicable

## Details of at least three significant opportunities found through EEO assessments

Details must include a brief description of the opportunity and may optionally include details of the costs of implementation, energy/dollar savings and any other benefits (such as greenhouse reductions).

**Table 1.4**

**Opportunity 1**

In March 2008 Hydro Aluminium, in conjunction with the Commonwealth Department of Resources, Energy & Tourism undertook to participate in the Energy Efficiency Opportunities Verification Trial to assist the Department in reviewing the proposed Verification model to be applied to all EEO participant organisations.

Hydro Aluminium hosted 4 members of the Verification team over a 3-day onsite review and undertook a Verification of the Hydro processes relative to the *Energy Efficiency Opportunities Act 2006* and *Energy Efficiency Opportunities Regulations*.

The outcomes of the review provided an opportunity for the Department to review how Verification process interacts with the Assessment process and form the basis of feedback and learning's for all participants in the EEO process.

**Opportunity 2**

The usage of compressed air was reviewed as part of the NSW Energy Savings Action Plan audit. The audit identified that there were energy and related GHG reduction opportunities in reviewing and repairing air leakages in areas that are not restricted by Health and Safety procedures.

Phase 1 of the project identified electricity savings of 1,480,600 kWh pa and a GHG reduction of 1327 tonnes pa and was implemented in December 2007.

There are further opportunities identified in the monitoring and control of compressed air usage, with a current project proposal to implement air metering to the production activities onsite.

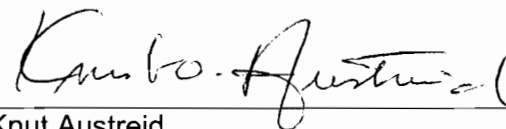
**Opportunity 3**

The smelter technology on site is constantly being upgraded and a significant upgrade to Pot Line 1 was undertaken to replace the pot feeding system of "side working" with a "point break" process.

The evaluation of the project identified a significant reduction in both energy and GHG emissions. The project was approved with a capital budget of \$29.3 million and post implementation reviews have identified annual energy savings of approx 111 TJ pa . In 2005 potline 1, PFC emissions totalled 733,300 tCO<sub>2</sub>e this was reduced to 43,300 tCO<sub>2</sub>e for the fin year Jul 07 to Jun 08. This allowed Hydro to create NSW Large User Abatement Certificates for each year for the abatement of on-site industrial production-related greenhouse gas emissions not directly related to the consumption of electricity.

#### Part 4 - Declaration

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*.



Knut Austreid  
Managing Director  
Hydro Aluminium Kurri Kurri Pty Limited