



QUEENSLAND ALUMINA LIMITED EEO PUBLIC REPORT 2011

Part 1 - Corporation Details

Controlling Corporation

Queensland Alumina Limited

Period to which this report relates

From

1 July 2006

To

30 June 2011

Table 1 - Major Changes to Corporate Group Structure or Operations

Table 1.1 – Major Changes to Corporate Group Structure or Operations

No changes to corporate structure or operating output.

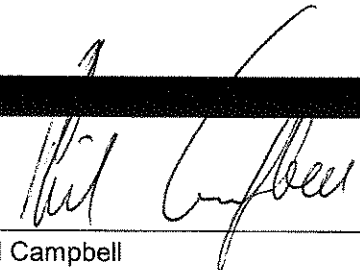
In 2006 and 2010 Queensland Alumina Limited successfully deployed two gas-fired boilers. This has provided operational stability, as well as reducing the greenhouse gas intensity of its operations by more than 25 kg (CO₂-e) per tonne of alumina produced.

QAL plans to retire its entire Bauxite shipping fleet. This has resulted in the decision by management not to pursue energy savings in that area because of a greatly reduced timeframe for the benefits of reduced energy.

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 *Energy Efficiency Opportunities Act 2006* and *Energy Efficiency Opportunities Regulations 2006*.


Phil Campbell
(Managing Director)

Date

30/12/11



Part 2 - Assessment Outcomes

Table 2.1 – Assessment Details

Name of group member or business unit or key activity

QAL Refinery

Total energy use in the last financial year

40,477,579

GJ

Period over which assessment was undertaken

From

Jul 2006

to

Jun 2011

Percentage of entity energy use assessed*

82 %

%

Percentage of corporation's energy use assessed

74.5 % (of total including shipping)

%

Accuracy of energy use assessed - only required if not $\pm 5\%$ or better

< 5 %

%

Description of the way in which the entity carried out its assessment

An assessment was made leading up to the five year reporting cycle identifying seven useful energy projects. These were evaluated in detail and presented to management for funding approval.

New opportunities were added during the first reporting cycle as business conditions changed, with a few opportunities being re-assessed as not suitable due to poor payback.

Every year, QAL carries out a detailed planning process evaluating potential changes to operations and equipment, using detailed computer modelling of the energy and mass balance. Potentially beneficial projects are presented to the senior management for approval.

Further workshops were held specifically targeting energy efficiency improvement, involving QAL staff and also industry experts to provide a different perspective to energy efficiency improvement. Energy performance was compared to benchmarks of a thermodynamically ideal process and the best observed practice company wide (benchmark), which helped the workshop teams focus on and better understand the opportunities under review.

Of the initial list of projects, five projects were selected and implemented within the current reporting cycle, and an additional nine projects were added and completed.

Table 2.2 - Energy efficiency opportunities identified in the assessment

Table 2.2 – Energy efficiency opportunities identified in the assessment									
Status of opportunities identified to an accuracy of better than or equal to (<=) ±30%		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	Implemented	13	7	549,000	3	1,069,000	3	69,000	1,687,000
	Implementation Commenced	1					1	8,000	8,000
	To be Implemented								
	Under Investigation								
	Not to be Implemented	2					2		0
Outcomes of assessment	Total Identified	16	7	549,000	3	1,069,000	6	77,000	1,695,000
Status of opportunities identified to an accuracy of more than ±30%									
Business Response	Implemented	1	1	30,000					30,000
	Implementation Commenced								
	To be Implemented								
	Under Investigation								
	Not to be Implemented	1					1	0	0
Outcomes of assessment	Total Identified	1	1	30,000	-	-	-	-	30,000

Note ; additional opportunities were added during the reporting period.



Table 2.3 - Details of significant opportunities identified in the assessment

Corporate Groups are required to provide at least 3 examples of significant opportunities for improving the energy efficiency of the group that have been identified in assessments.

Description of Opportunity	Voluntary Information	
<p>Unit 3 acid System. The spent liquor heaters recycle energy as steam from the process, but over time their efficiency reduces due to scale build up that must be regularly removed with acid cleaning. This project provided a purpose-built system to make the acid cleaning task safer and more efficient, enabling an improvement in heater performance, and consequently reducing fuel consumed to raise steam.</p>	Business Response	Implemented
	Energy saved (GJ)	53,200 GJ / year
	Greenhouse gas abated (t-CO2-e)	4,950 t-CO2-e
	\$s saved	\$220,000 / year
	Payback period	> 4 years

Description of Opportunity	Voluntary Information	
<p>Scale inhibiting additives. Early trials demonstrated that using a small amount of a scale inhibiting additive reduces the amount of silica scale forming inside the spent liquor heaters. Applying this to the spent liquor heaters showed a substantial improvement in energy recovery. Fine tuning and continuous improvement efforts are ongoing.</p>	Business Response	Implemented
	Energy saved (GJ)	170,000 GJ / year
	Greenhouse gas abated (t-CO2-e)	15,470 t-CO2-e
	\$s saved	\$990,000 / year
	Payback period	(No CAPEX, Mainly R&D & operating costs)

Description of Opportunity	Voluntary Information	
<p>Plate heat Exchangers. The refurbishment of four plate heat exchangers allowed for greatly improved energy recycling to heat boiler feedwater, thereby reducing coal consumption. Due to commissioning being completed during Q2 & Q3 2011, almost all of the benefits will be seen after this reporting cycle, nevertheless the ongoing improvement in efficiency made the project very worthwhile.</p>	Business Response	Implemented
	Energy saved (GJ)	4,300 GJ / year
	Greenhouse gas abated (t-CO2-e)	400 t-CO2-e
	\$ saved	\$190,000 / year
	Payback period	2 – 4 years



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

Name of group member or business unit or key activity

QAL Bauxite Shipping

Total energy use in the last financial year

2,936,795 GJ

Period over which assessment was undertaken

From	2006	to	2008
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Percentage of entity energy use assessed*

85	%
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Percentage of corporation's energy use assessed

8%	%
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Accuracy of energy use assessed - only required if not ±5% or better

< 5	%
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Description of the way in which the entity carried out its assessment

From 2006 through to 2008 QAL employed consultants JPM Pty Ltd to work with ASP Ship Management and QAL personnel to develop a list of 18 potential energy efficiency opportunities.

Since then a strategic decision was made to retire these vessels. Out of the four vessel in use at the start of period, only two remain in service, and both of those are planned to be retired in 2012.

Given the short remaining life planned for these vessels, QAL Management decided it was not viable to progress the potential opportunities.

* Please note that corporations are required to assess 80% or more of their energy use in the first five-year assessment cycle and 90% or more in subsequent five-year assessment cycles. Accordingly, for those corporations with a 2005-06 trigger year (i.e. those corporations at the end of their first-five year assessment cycle), the value in "Percentage of corporation's energy use assessed" above, must be more than 80%.

Please note that, for individual sites that use more that 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

Table 2.2 – Energy efficiency opportunities identified in the assessment									
Status of opportunities identified to an accuracy of better than or equal to (<=) ±30%		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	Implemented								
	Implementation Commenced								
	To be Implemented								
	Under Investigation								
	Not to be Implemented								
Outcomes of assessment	Total Identified								
Status of opportunities identified to an accuracy of better than or equal to (<=) ±30%									
Business Response	Implemented								
	Implementation Commenced								
	To be Implemented								
	Under Investigation								
	Not to be Implemented	18					18	120,000	120,000
Outcomes of assessment	Total Identified	18					18	120,000	120,000

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

Description of Opportunity	Voluntary Information	
<p>An alternative silicone based hull coating has been trialled elsewhere and shown to reduce the gradual build up of drag resistance usually encountered in the years after hull painting (dry docking).</p> <p>Due to decommissioning of the fleet these opportunities will not be pursued.</p>	Business Response	Not to be implemented
	Energy saved (GJ)	
	Greenhouse gas abated (CO2-e)	
	\$s saved	
	Payback period	

Description of Opportunity	Voluntary Information	
<p>Improved combustion control might be possible with the use of oxygen sensors to reduce excessive air draw through the combustion space.</p> <p>Due to decommissioning of the fleet these opportunities will not be pursued.</p>	Business Response	Not to be implemented
	Energy saved (GJ)	
	Greenhouse gas abated (CO2-e)	
	\$s saved	
	Payback period	

Description of Opportunity	Voluntary Information	
<p>Electricity generation on the Fitzroy River and Endeavour River ships must sometimes be supplemented with a diesel driven generator set instead of the turbo alternator. This potential opportunity considered a shaft driven generator instead.</p> <p>Due to decommissioning of the fleet these opportunities will not be pursued.</p>	Business Response	Not to be implemented
	Energy saved (GJ)	
	Greenhouse gas abated (CO2-e)	
	\$s saved	
	Payback period	