



PUBLIC REPORT

Controlling Corporation

Hyne & Son Pty Limited

Period to which this report relates

Start 1 July 2008

End 30 June 2009

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

Hyne & Son Pty Limited (“Hyne”) is a participant in the Australian Government’s Energy Efficiency Opportunities program.

In the period ending 30 June 2009, Hyne completed a detailed Energy Efficiency Opportunities assessment at its Tumbarumba site in New South Wales. This assessment was undertaken in the period July 2008 to May 2009 and complies with the intent and key requirements of the Energy Efficiency Opportunities legislation.

The energy assessment was a comprehensive and detailed assessment undertaken by a multi-disciplinary team consisting of external experts and internal resources. The assessment drew on the extensive energy metering that had been installed by Hyne at this site as part of the Energy Efficiency Opportunities program and Hyne’s commitment to energy management.

The Tumbarumba site accounted for 40.9% of Hyne’s energy usage in the period 2008 to 2009. The assessment has resulted in 41 TJ of energy opportunities being identified. Hyne has commenced implementation on a range of these opportunities.

Hyne has plans to conduct further energy assessments of up to a total of 96% of the corporate energy use within the first five year cycle of the program.



Table 1.2 – Energy use assessed

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.	Period over which assessment was undertaken ¹	Energy use per annum in GJ ² in the current reporting year
Tuan	March 08 to June 08	640,378
Tumbarumba	July 08 to May 09	706,747
Total energy assessed		1,347,125
Total energy use of the group in the current reporting year		1,726,649
Total energy assessed expressed as a percentage of total current energy use		78.02%

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.

Table 1.3 – Accuracy of energy use data

Entity	% achieved	Reasons for not achieving data accuracy to within ±5%
Tuan	±20%	As with most industries that use no-cost biomass fuels such as wood waste or crop residues as energy sources, key factors such as weight, material density and moisture content serve to make the estimation of the actual instantaneous calorific value of the fuel very difficult. At present, it is unlikely that the accuracy of the biomass energy data is better than ±20%.
Tumbarumba	±20%	Notwithstanding these measurement challenges, Hyne is committed to improving its ability to determine the energy in its biomass fuel and is implementing a range of actions that can achieve this. This data accuracy was approved in the Assessment & Reporting Schedule.

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: Tumbarumba

Energy use of the entity during the current reporting period

706,747	GJ
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Table 2.1 – 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	3		3,422	35,463	38,885
Business Response*	Under Investigation					
	To be Implemented					
	Implementation Commenced	1			35,463	35,463
	Implemented	2		3,422		3,422
	Not to be Implemented					



Name of Group member or business unit or key activity or site: Tumbarumba

Energy use of the entity during the current reporting period

706,747	GJ
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Table 2.2 - Opportunities assessed to an accuracy of less than $\pm 30\%$

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	6	2,312		27	2,339
Business Response	Under Investigation					
	To be Implemented					
	Implementation Commenced	2	2,287			2,287
	Implemented	4	25		27	52
	Not to be Implemented					

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

Name of Group member or business unit or key activity or site: Tuan

Energy use of the entity during the current reporting period

640,378	GJ
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Table 2.3 - 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	3	2,776	45	31,296	34,117
Business Response*	Under Investigation					
	To be Implemented					
	Implementation Commenced					
	Implemented	3	2,776	45	31,296	34,117
	Not to be Implemented					

Table 2.3 (continued) - Reasons for changes to data

Reasons for changes to data include:

- Changes in energy prices for electricity & other sources of energy
- Changes in the level of energy use
- Improvement in the measurement of biomass energy consumption
- Progression of opportunities through their life cycle (e.g. moving from 'implementation commenced' to 'implemented')

Name of Group member or business unit or key activity or site: Tuan

Energy use of the entity during the current reporting period

640,378	GJ
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Table 2.4 - Opportunities assessed to an accuracy of less than $\pm 30\%$

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	7	12,669	3,082	106	15,857
Business Response*	Under Investigation	1		1,541		1,541
	To be Implemented	2				
	Implementation Commenced	4	12,669	1,541	106	14,316
	Implemented					
	Not to be Implemented					



Part 2C - Details of at least three significant opportunities found through EEO assessments

Table 2.5 – Description of 3 significant opportunities

Opportunity 1

Secondary hot oil loop flow management:

Kilns and reconditioners are utilised to dry and condition the green sawn material produced at the site. Kiln drying involves the accelerated evaporation of the water from the green sawn material under controlled conditions until the moisture content reaches a desired level. To accelerate the drying process and evaporate the water in the kiln, hot air is circulated within the kiln. This air is heated by a thermal heat transfer medium which is hot oil. The hot oil is circulated between the heat plant (which produces heat energy from combusting biomass) and the kilns through a primary hot oil circulation system. Each kiln has its own secondary loop that takes heat energy from the primary loop. The oil is circulated in each secondary loop through the use of secondary loop circulation pumps, powered by electrical energy. Conventionally, secondary oil loops are a constant flow loop with a bypass valve to control the oil flow through the kiln so as to maintain a set primary loop flow for safe heat plant operation. Through research and development, Hynne have developed an energy demand/flow management secondary loop oil system where the flow of oil is limited in direct proportion to the demand. This involved modifying the process and control system to vary the flow directly in proportion to the kiln load whilst maintaining the correct pump operating conditions and primary loop flow. As the kiln load decreases during the drying process, the secondary loop oil flow is decreased in direct proportion by decreasing the operating frequency of the pump. This then results in a reduction in the electric energy consumed by the pump during the drying cycle as opposed to the pump operating at line frequency.

Update:

This opportunity has been implemented at the Tuan and, now, at the Tumbarumba site. It is currently saving approximately 6,200 GJ of electricity per year as the energy consumed by the secondary hot oil pumps has reduced by up to 49%.



Opportunity 2

Utilisation of Kiln Residual Heat:

As explained in Opportunity 1 above, Kilns and reconditioners are utilised at the site to dry and condition the green sawn material produced. The reconditioner is utilised following the kiln drying process to equalize and condition the dry sawn material. As per the kiln, the reconditioner also utilises thermal energy. This energy is utilised to produce the equalizing/conditioning high humidity environment. As the kiln drying process is aided by a low humidity environment, conventionally the moisture is ejected to atmosphere from the kiln as part of the drying process (just like a clothes dryer). This moisture laden air has low grade residual energy content. Heat recovery systems are sometimes utilised in kilns for air pre-heating for low temperature drying operations but have not conventionally proven viable for ultra high temperature drying operations. Hyne investigated different ideas to improve kiln and reconditioning energy efficiency and identified an opportunity to harness and utilise the residual energy content from the moisture laden air ejected from the kiln. Through research and development trials, Hyne was able to transform this idea into an opportunity through developing a system to effectively harness this residual energy content as part of the reconditioning process. The system involves harvesting the residual heat energy and moisture from the kiln and injecting the heat energy and moisture into the reconditioner during the reconditioning process. Trials with a kiln/reconditioner set at the Tuan site have demonstrated that the energy recovery process can reduce the energy consumed by the reconditioning process by up to 6.7 GJ per cycle.

Update:

This opportunity has been implemented on three kiln/reconditioner sets at the Tuan site and the implementation is now being evaluated for Tumarumba. This opportunity is saving approximately 24 TJ of biomass energy at Tuan.

Opportunity 3

The two above opportunities are the only significant reportable opportunities at this time.



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*.

Signature:

Date:

9/12/2009.

John McNamara
Managing Director
Hyne & Son Pty Limited