

PUBLIC REPORT

Controlling Corporation

Hyne & Son Pty Limited

Period to which this report relates

(See sub-section 22(2) of the Act and Regulation 7.1 of the *Energy Efficiency Opportunities Regulations (the Regulations) 2006*)

Start 1 July 2006

End 30 June 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. (See sub-section 22(3)(a) of the Act)

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

In the period ending 30 June 2008, Hyne conducted a detailed Energy Efficiency Opportunities assessment at its Trueframe Tuan site in Queensland. This assessment was undertaken in the period March 2008 to June 2008 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 Trueframe Tuan site accounted for 46.6% of Hyne's energy usage in the period 2006 to 2007 and for 36.5% in the period 2007 to 2008. The assessment has resulted in 86 TJ of energy opportunities being identified. Of these opportunities, Hyne has implemented or commenced implementation of 82 TJ.

Hyne have plans to conduct further energy assessments of up to a total of 85% of the corporate energy use within the first five year cycle.

Table 1.2 Group member/business unit/key activity/site that have been assessed	Energy use per annum in the year the assessment is completed *	Energy data accuracy (if not within $\pm 5\%$) **	Reasons for not achieving data accuracy to within $\pm 5\%$ **
(see paragraph 1(a) of Schedule 4 of the Regulations)	(see paragraph 2 of Schedule 4 of the Regulations)	(see paragraph 5(a) of Schedule 4 of the Regulations)	(see paragraph 5(b) of Schedule 4 of the Regulations)
Trueframe Tuan	2,018,250 GJ	$\pm 20\%$ (biomass)	<p>As with most industries that use 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 $\pm 20\%$.</p> <p>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.</p> <p>This data accuracy was approved in the Assessment & Reporting Schedule.</p>
Total	2,018,250 GJ		
Total as a percentage of total energy use of the group covered by this report (see paragraph 1(b) of Schedule 4 of the Regulations)	36.5%		

* Energy Bandwidth may only be used if approved in the Assessment and Reporting Schedule

** Data accuracy not within $\pm 5\%$ can only be included if approved in the Assessment and Reporting Schedule

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

(See paragraphs 3-6 of Schedule 4 and Schedule 6 of the Regulations)

Group member/business unit/key activity/site >0.5 PJ name: **Hyne Trueframe Tuan QLD**

Table 1.3 Status of Opportunities		Number of Opportunities	Estimated energy savings per annum by payback period (GJ)			Total estimated energy savings per annum (GJ)	*Accuracy range (%)
			0 – < 2 years	2 – ≤ 4 years	> 4 years		
Outcomes of assessment	Identified (accuracy ≤ ±30%)	3	3,408	38,264		41,673	±10% to ±30%
	Identified (accuracy > ±30%)	7	40,254	3,891	124	44,269	> ±30%
	**Total Identified	10	43,662	42,156	124	85,942	
***Business Response	Under Investigation	1		1,946		1,946	> ±30%
	To be Implemented	4		1,946	124	2,070	±10% to ±30%
	Implementation Commenced	4	43,662	38,219		81,881	±10% to ±30%
	Implemented	1		45		45	±10% to ±30%
	Not to be Implemented	0				0	-

*The accuracy range for projected or actual costs, benefits and energy savings.

**You must ensure that this row is the sum of the two rows above it.

*** The data contained in each row of the business response area must total to the data contained in the 'Total Identified' row.

Note: An opportunity is any potential change to a system, activity or piece of equipment that:

- is identified during an EEO assessment;
- is consistent with legal requirements such as OHS, and
- may result in energy savings projects with payback periods of 4 years or less.

Details of at least three significant opportunities found through EEO assessments

(See paragraph 7 of Schedule 4 of the Regulations)

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

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. These pumps are 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, Hyne 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. This process has shown that over the drying cycle, the electrical energy consumed by the secondary hot oil pump can be reduced by up to 49% or up to 0.5 GJ per cycle. This opportunity is currently being implemented at the site.

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 utilized 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 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. This opportunity is currently being implemented at the site.

Opportunity 3 ****Lighting Management:**

As part of Hyne's capital expenditure program, energy efficiency initiatives are being reviewed at the design stage of capital projects such that energy efficiency opportunities can be assessed, and where financially justifiable, are 'built' into the project. An example of this process is a "Lighting Management Opportunity" at the site where the design team identified an opportunity to reduce the lighting energy consumption of an industrial storage building to be built at the site. The building is utilised to store by-product prior to sale with the by-product being transferred to the building by a materials handling system. As part of the design process, the building use, use of ambient lighting, lighting levels, and lighting controls were studied. This resulted in a lighting design that utilised ambient lighting panels as part of the structural cladding, base line illumination to comply with BCA requirements, and controlled lighting for loading operations. This opportunity is calculated to reduce the energy consumption of this building by up to 37% as compared to a traditional lighting design, saving up to 45.1 GJ of energy for this building per year. This opportunity has been implemented at the site.

*If there are less than three significant opportunities, provide details of those identified.

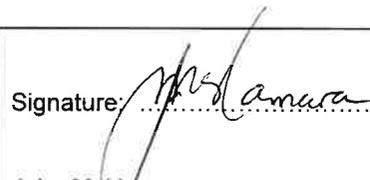
**If no significant opportunities have been identified in the assessment, a statement to this effect.

Part 3 - Declaration

(See paragraph 8 of Schedule 4 of the Regulations and paragraph 22(4)(c) of the Act)

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:

18/12/2008

John McNamara
Managing Director
Hyne & Son Pty Limited