Australian Government
Department of Resources, Energy and Tourism

**Energy Efficiency Opportunities**

# PUBLIC REPORT 2011

## Part 1 - Corporation Details

**Controlling Corporation**

Hyne & Son Pty Limited

**Period to which this report relates**

From 1 July 2006 To 30 June 2011

### Table 1.1 - Major Changes to Corporate Group Structure or Operations

| Table 1.1 – Major Changes to Corporate Group Structure or Operations |
|---|
| A significant downturn in the building industry during the reporting period necessitated a reduction in production output from our major manufacturing sites. As expected, the flow on effect was a net overall reduction in electricity consumption of approximately 10.6% at these sites.<br><br>Conversely, progress in the development of software tools to more accurately estimate biomass consumption has resulted in an overall reported biomass increase for the 2010/2011 reporting year of approximately 12.9%. The improvements in biomass accuracy measurements is commensurate with objectives outlined in the approved ARS. Hyne remains committed to improving the accuracy of calculated biomass used throughout the business.<br><br>There have been no other significant changes to the group during the period 1 July 2010 to 30 June 2011. |

### Table 1.2 – Aggregate energy assessed covered in this report

| | | |
|---|---|---|
| **Total energy use covered by all assessments in this report** | **2,402,903** | **GJ** |
| **Total energy assessed as percentage of total energy use of the corporate group*#** | **87** | **%** |

### 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.* | Mr Jon Kleinschmidt<br>Chief Executive Officer (Joint)<br>**Date** 19 DECEMBER 2011 |

# Part 2 - Assessment Outcomes

## Table 2.1A – Assessment Details

| | | | | |
|---|---|---|---|---|
| **Name of group member or business unit or key activity** | TUAN | | | |
| **Total energy use in the last financial year** | 858,130 | | | GJ |
| **Energy use assessed in this entity as a percentage of total entity energy use*** | 100 | | | % |
| **Energy use assessed in this entity as a percentage of total corporate energy use** | 31 | | | % |
| **Accuracy of above estimates related to energy use assessed - only required if not ±5% or better** | +/- 20% for biomass, representing 88% of the total energy [1] | | | % |
| **Period over which assessment was undertaken** | From | March 2008 | To | June 2008 |

[1] Biomass for this site has been determined by calculation based on production throughput, plant design and known variables.
The accuracy of this methodology was reported and subsequently approved in the ARS as being +/- 20%.

## Table 2.1B – Assessment Details (continued)

| Name of group member or business unit or key activity | TUMBARUMBA |
|---|---|

| | | | | |
|---|---|---|---|---|
| **Total energy use in the last financial year** | | | 1,544,772 | GJ |
| **Energy use assessed in this entity as a percentage of total entity energy use*** | | | 100 | % |
| **Energy use assessed in this entity as a percentage of total corporate energy use** | | | 56 | % |
| **Accuracy of above estimates related to energy use assessed - only required if not ±5% or better** | | | +/- 20% for biomass, representing 92% of the total energy [1] | % |
| **Period over which assessment was undertaken** | From | July 2008 | TO | May 2009 |

[1] Biomass for this site has been determined by calculation based on production throughput, plant design and known variables.

The accuracy of this methodology was reported and subsequently approved in the ARS as being +/- 20%.

**Description of the way in which the entity carried out its assessments**

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

During the reporting period 1 July 2006 to 30 June 2011, Hyne has undertaken two assessments at its Tuan and Tumbarumba sites. These sites accounted for 87% of Hyne's energy usage in the period July 2010 to June 2011. No new assessments are required under the first assessment cycle and the assessment and reporting schedule. Hyne has plans to conduct further energy assessments at other sites in the future so as to further identify, evaluate and harness energy efficiency savings.

The assessment of ideas and opportunities identified as part of the site assessments has progressed enabling the implementation of a range of opportunities that have provided improvements in energy efficiency.

There have been no significant changes to the group during the period 1 July 2010 to 30 June 2011.

## Table 2.2A - Energy efficiency opportunities identified in the assessment

## Group Member: TUAN

| 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 | 5 | 2 | 1,703 | 1 | 45 | 2 | 53,884 | 55,632 |
| | Implementation Commenced | | | | | | | | |
| | To be Implemented | | | | | | | | |
| | Under Investigation | | | | | | | | |
| | Not to be Implemented | | | | | | | | |
| Outcomes of assessment | Total Identified | 5 | 2 | 1,703 | 1 | 45 | 2 | 53,884 | 55,632 |
| **Status of opportunities identified to an accuracy of worse than ±30%** | | | | | | | | | |
| Business Response | Implemented | 4 | 1 | 17,000 | 1 | 1,760 | 2 | 149 | 18,909 |
| | Implementation Commenced | 1 | | | | | 1 | 0 | 0 |
| | To be Implemented | 2 | | | | | 2 | 0 | 0 |
| | Under Investigation | 1 | | | 1 | 1,760 | | | 1,760 |
| | Not to be Implemented | | | | | | | | |
| Outcomes of assessment | Total Identified | 8 | 1 | 17,000 | 2 | 3,520 | 5 | 149 | 20,669 |

Notes: Savings and payback for opportunities have been re-calculated to reflect the 2010/2011 production throughput and actual energy costs.

## Table 2.2B - Energy efficiency opportunities identified in the assessment

## Group Member: TUMBARUMBA

| 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 | 4 | 2 | 18,482 | 1 | 0 | 1 | 36,335 | 54,817 |
| | Implementation Commenced | 1 | 1 | 1,370 | | | | | 1,370 |
| | To be Implemented | | | | | | | | |
| | Under Investigation | | | | | | | | |
| | Not to be Implemented | | | | | | | | |
| Outcomes of assessment | Total Identified | 5 | 3 | 19,852 | 1 | 0 | 1 | 36,335 | 56,187 |
| **Status of opportunities identified to an accuracy of worse than ±30%** | | | | | | | | | |
| Business Response | Implemented | 7 | 2 | 216 | 1 | 538 | 4 | 10,692 | 11,446 |
| | Implementation Commenced | 1 | | | | | 1 | 544 | 544 |
| | To be Implemented | | | | | | | | |
| | Under Investigation | | | | | | | | |
| | Not to be Implemented | | | | | | | | |
| Outcomes of assessment | Total Identified | 8 | 2 | 216 | 1 | 538 | 5 | 11,236 | 11,990 |

Notes: Savings and payback for opportunities have been re-calculated to reflect the 2010/2011 production throughput and actual energy costs.

## Table 2.3 - Details of significant opportunities identified in the assessment

| **Opportunity:- Utilisation of Kiln Residual Heat**<br>**Status:- Implemented at Tuan & Tumbarumba** | **Voluntary Information** | |
|---|---|---|
| Kilns and reconditioners are utilised to dry and condition the green sawn material produced at the Tuan and Tumbarumba sites. 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 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. | Biomass energy saved (GJ) | This opportunity was duplicated and implemented at two sites.<br><br>Estimated total savings per annum of 90,219 GJ of biomass<br><br>Accuracy better than or equal to 30% |

| **Opportunity:- Process Area Lighting Upgrade**<br>**Status:- Implemented at Tuan** | **Voluntary Information** | |
|---|---|---|
| This opportunity involved upgrading the lighting in a processing building at the Tuan site to a more energy efficient lighting system. The upgrade entailed changing out the existing 400W highbay mercury vapour lights to a more energy efficient 215W compact fluorescent lamp technology. The new lighting system achieved the same lighting level but at a significantly higher efficiency. | Electrical energy saved (GJ) | Estimated 309 GJ / annum<br><br>Accuracy better than or equal to 30% |

| **Opportunity:- Process Machine Control, Debarker modification**<br>**Status:- Implementation commenced at Tumbarumba** | **Voluntary Information** | |
|---|---|---|
| Debarkers are utilised to remove the bark from logs prior to breakdown of the log in the Green Mill. Logs are singulated and fed linearly into the debarker and the debarker has infeed rolls to guide and feed the log into the rotor. The ring, or rotor, rotates around the log as it is fed through the debarker. There are tool arms on the ring that are pressurized and this pressure squeezes the tool tips against the bark and pulls the bark away at the cambium layer. The debarker used at the Tumbarumba site also has a reducing ring that can reduce the diameter of the log or remove butt flare so that the log can be safely processed by downstream milling equipment. As part of the site assessment, an opportunity was identified where it might be possible to modify the debarker machine control to actuate the reducing ring to only operate where the log shape or size requires it. An evaluation of the log mix was undertaken by the site EEO team using the 3D scanning system on the infeed to the debarker and this evaluation confirmed that only a proportion of the logs required the reducer ring. A business case was developed and the opportunity implemented. The debarker machine software control was subsequently modified so that the reducer ring is actuated on demand enabling the 250 kW motor to be shut down when not required. | Electrical energy saved (GJ) | Estimated 1,370 GJ / annum<br><br>Accuracy better than or equal to 30% |