

FIRST PUBLIC REPORT TEMPLATE

Controlling Corporation

Tiwest Pty Ltd

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.

As per Tiwest's Assessment & Reporting Schedule, the Kwinana Pigment Plant has been assessed in accordance with the Energy Efficiency Opportunities Industry Guidelines (Department of Industry, Tourism & Resources, 2006) and the Tiwest Energy Efficiency Opportunities Procedure. Tiwest also hired the services of a specialised energy efficiency consultant (EnerVative Solutions Pty Ltd) to assist in the completion of the assessments and facilitation of opportunities identification. EnerVative Solutions Pty Ltd completed a gap analysis of the existing management systems at Tiwest at the time against the requirements of the six key elements of the Assessment Framework. An action plan was then developed and implemented to address any issues and ensure energy efficiency opportunity requirements are integrated into the corporate and site Business and Environmental Management Systems. The assessment of the Kwinana Pigment Plant was completed during 1 July 2006 to 30 June 2008.

A workshop involving key operations personnel was held in November 2007 to identify energy efficiency opportunities. Opportunities identified during the workshop were assigned to site personnel to prepare an assessment of the costs, benefits and payback period for the opportunity. Implementation plans for feasible opportunities were then developed by the relevant project engineer. Progress of the investigation and implementation of opportunities is tracked by the site Energy Efficiency Champion on a quarterly basis and documented on a spreadsheet.

Energy efficiency opportunity program requirements have been integrated into existing business systems or into the site environmental management system where relevant. Tiwest believes that the intent and key requirements of the Energy Efficiency Opportunities legislation has been met.

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 $\pm 5\%$ **
Kwinana Pigment Plant	2.5-3.0 PJ		
Total	2.5-3.0 PJ		

Total as a percentage of total energy use of the group covered by this report	70%
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* 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, 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: Kwinana Pigment Plant

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		
Outcomes of assessment	Identified (accuracy ≤ ±30%)	9	483,200	341,100	824,300	15-30%
	Identified (accuracy > ±30%)	4	98,700	30,400	129,100	30-40%
**Total Identified		13	581,900	371,500	953,400	15-40%
***Business Response	Under Investigation	9	546,800	29,700	576,500	30-40%
	To be Implemented	0	0	0	0	NA
	Implementation Commenced	4	35,100	341,800	376,900	15-30%
	Implemented	0	0	0	0	NA
Not to be Implemented		0	0	0	0	NA

*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	<p>Replacement of tunnel driers – The site has two natural gas fired tunnel driers that dry the treated pigment prior to micronisation and bagging of the finished product. The tunnel driers were installed when the plant was first constructed in 1990. The tunnel driers will be replaced with swirl driers during construction works for the pigment plant expansion in 2009. The swirl driers utilise newer technology and are expected to produce a natural gas savings of approximately 341,100GJ per year (with a 3.1 year payback period).</p>
Opportunity 2 *	<p>Investigation of new centrifuge mill – The site currently uses cage mills to break down any agglomerates of pigment particles in slurry. Investigations into the use of new technology centrifuge mills are currently being undertaken to determine if the technology can be used for milling pigment. If the new technology proves to be feasible, it is estimated that a 60% reduction in energy used by the wet milling process may be achieved. This could equate to electricity savings of approximately 52,000GJ per year (a 1.1 year payback period).</p>
Opportunity 3 **	<p>Use of chilled water instead of cooling water – Titanium tetrachloride (TiCl₄), is separated from the waste gas stream by Primary, Secondary and Tertiary Condensation. Currently secondary condensation uses cooling water to cool and condense the TiCl₄ by approximately 20°C, then tertiary condensation uses a blend of methanol and water to cool and condense the TiCl₄ by a further 60°C. During the plant expansion project, an additional chilled water unit will be installed allowing TiCl₄ to be cooled and condensed more efficiently in the secondary condensation stage (as the chilled water unit is significantly more efficient at removing heat than the methanol chiller). This should result in a significant energy savings. This project has a payback period significantly greater than 4 years, however Tiwest will be implementing it as part of the coming plant expansion due to the projects wider business benefits.</p>

*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 - Voluntary Contextual Information

Reporting corporations may supply additional information that provides more context to the public report. Such information may include:

- Energy use and energy saved by energy type, as greenhouse gas emissions, as an indicator, or as an index;
- Energy savings achieved in the period 2000-2005;
- Opportunities with a greater than four year payback and the business response;
- Changes in total energy use/energy use indicator broken down to include causes of increase or decrease;
- Energy use and energy efficiency opportunities presented in dollars; and
- Other contextual information about the corporation's energy use and management.

Part 4 - 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*.



Company Secretary