

## FIRST PUBLIC REPORT TEMPLATE

### Controlling Corporation

Coogee Chemicals 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<sup>st</sup> June 2006

End 31<sup>st</sup> December 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.**

Coogee Chemicals Pty Ltd undertook an Energy Efficiency Opportunities assessment of the Coogee Energy Pty Ltd site (Laverton North, Victoria) commencing in June 2008. This assessment will conclude in June 2009 as per Coogee Chemicals agreed Assessment & Reporting Schedule, therefore this public report contains details of the assessment to date.

A detailed review of energy consumption data from 2006/07 and 2007/08 to >95% accuracy was compiled and used as the basis for an opportunity brainstorming workshop. The brainstorming workshop participants were drawn from a cross section of the entire site workforce and an independent facilitator. 24 energy efficiency opportunities were identified for further evaluation.

Since this workshop

- 22 opportunities are under evaluation
- 1 opportunity is planned to be implemented
- 1 opportunity has commenced implementation

Regular progress updates are communicated both formally to the Coogee Chemicals board and via quarterly newsletters and general meetings to the remainder of the employee workforce.

The Coogee Energy site assessment has complied with the intent and key requirements of the Energy Efficiencies Opportunities legislation and will have fully met these requirements at the conclusion of the assessment.

| <b>Table 1.2 - Group member/business unit/key activity/site that have been assessed</b> | <b>Energy use per annum in the year the assessment is completed *</b> | <b>Energy data accuracy (if not within <math>\pm 5\%</math>) **</b> | <b>Reasons for not achieving data accuracy to within <math>\pm 5\%</math> **</b> |
|---|---|---|--|
| Coogee Energy Pty Ltd   | 698,000 GJ  |   |  |
| <b>Total</b>  | 698,000 GJ  |   |  |
| <b>Total as a percentage of total energy use of the group covered by this report</b>    | 52%   |   |  |

\* 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: Coogee Energy Pty Ltd

| Table 1.3<br>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%) | 0                       | N/A   | N/A           | N/A   | N/A                 |
|                                      | Identified (accuracy > ±30%) | 24                      | N/A   | 10,000        | 10,000  | ±100%               |
|                                      | **Total Identified           | 24                      | N/A   | 10,000        | 10,000  | ±100%               |
| ***Business Response                 | Under Investigation          | 22                      | N/A   | N/A           | N/A   | N/A                 |
|                                      | To be Implemented            | 1                       | N/A   | N/A           | N/A   | N/A                 |
|                                      | Implementation Commenced     | 1                       | N/A   | 10,000        | N/A   | ±100%               |
|                                      | Implemented                  | 0                       | N/A   | N/A           | N/A   | N/A                 |
|                                      | Not to be Implemented        | 0                       | N/A   | N/A           | N/A   | N/A                 |

\*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 - Refining Column Packing**

The process design of the Coogee Methanol Plant enables it to be used in off-shore environments. Accordingly, the distillation section of the plant uses packed columns, rather than ordinary tray column design. The flow characteristics and cleanliness of the packing affects column efficiency and so impacts on energy consumption (ie. steam). Whilst it was possible to remove the existing packing, clean it, and then re-install, Coogee has elected to install a new and improved packing design. This will be the first time this packing design has been used in a methanol plant and is expected to improve mass transfer characteristics leading to increased column efficiency through the elimination of additional steam use in distillation. Accordingly, less energy will be required for the same amount of product make (estimated at 10,000 GJ per year).

### **Opportunity 2 - Baffled Gas Heated Reformer**

The Coogee Methanol Plant is the only methanol plant in the world that utilises a combined Gas Heated Reformer (GHR) and Auto-Thermal Reactor to generate synthesis gas. The GHR is a key part of the process design and is an area of opportunity where small efficiency gains can lead to significant reductions in overall energy consumption. As part of Coogee's commitment to innovation and process development, an improved internal design of GHR reactor will be installed by end of December 2008. The baffled design will be the first of its kind in operation at a methanol plant world-wide and it is expected to lead to an increase in overall energy efficiency as heat transfer should remain higher over a longer period of time (ie. a reduced fouling rate). The new design may also allow the reactor to operate at lower steam ratios, which will directly reduce energy consumption across the entire process. A series of trials will be conducted throughout 2009 to determine optimum operating parameters, which will then enable determination of actual energy savings achieved.

\*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 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*.



CEO Coogee Chemicals Pty Ltd