



## PUBLIC REPORT TEMPLATE 2013

### Part 1 - Corporation details

#### Controlling corporation

Insert the name of the controlling corporation exactly as it is registered with the EEO Program.

Newgen Power Kwinana Pty Ltd

#### Table 1.1 - Major changes to corporate group structure or operations

**Table 1.1 – Major changes to corporate group structure or operations in the last 12 months**

Nil

#### 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.

Andrew Sutherland  
(CEO)

Date: 12/12/2013

## Part 2 - Assessment outcomes

**Table 2.1 – Assessment details**

It is compulsory to complete a separate table for each entity\* that has been assessed

<b>Name of entity</b>	Newgen Power Kwinana Pty Ltd
-----------------------	------------------------------

<b>Total energy use in the last financial year</b>	14 190 000	GJ
<b>Total percentage of energy use assessed when assessments were undertaken</b>	100	%

**Description of the way in which the entity carried out its assessment:**

Energy use is metered on site continually by the site Distributed Control System (DCS). This is also used as the site energy mass balance. Site energy use and efficiency figures have been taken directly from the DCS.

In order to identify the most valuable energy efficiency opportunities Newgen Power Kwinana (NPK) has targeted key site processes of the NPK power station where these opportunities were most likely to be found. To achieve this, an initial review of the site systems and processes was conducted, involving the Site Manager, Engineers, Operator Maintainers and Operations Manager. The purpose of this review was to highlight those areas where the greatest value was likely to be gained and identified areas where it can be rationalised that gains would be minimal or at high cost. The outcomes of the analysis were fed into the four opportunities workshops.

The workshop followed a similar process to HAZOP workshops by working through each system, asking of that system a standard series of questions. These questions utilised the concept of an energy efficiency hierarchy by asking in the following order:

- Avoid Energy Use - Can we eliminate this energy using processes?
- Energy Conservation - Can we reduce this systems energy use by reducing the energy rate or the time it applies? Can we recover any energy from this process?
- Energy Efficiency- Can we optimise the energy use in this system? Are there more efficient ways to use the energy e.g. VSD on pumps as opposed to throttling?
- Secondary Losses- Can we reduce any secondary energy losses? i.e. air leaks, steam leaks, heat losses from uninsulated or poorly insulated process equipment.

The process of posing these questions to a workshop forum generated a list of forty nine ideas. After this an ideas elimination workshop was held involving the Station Manager, multi-disciplined engineering team, Operator Maintainers and the Operations Manager. This workshop eliminated ideas that were not feasible or joined together similar ideas into one idea for investigation. After this point NPK was left with thirteen ideas for detailed investigation. These were split between the site team and a feasibility investigation took place for each idea.

After detailed investigation two opportunities remained with a payback of <four years and one opportunity with payback of >4 years which does require additional benefits other than efficiency alone.



\* Entity is group member, business unit, or key activity. Please note that, for individual sites that use more than 0.5 PJ of energy, all energy use must be assessed (less a small proportion for non-integral energy use).

**Table 2.2 - Energy efficiency opportunities identified in the assessment**

It is compulsory to complete a separate table for each entity that has been assessed

Status of opportunities identified to an accuracy of better than or equal to $\pm 30\%$	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							
	Implementation commenced							
	To be implemented	1	9,200					9,200
	Under investigation			1	33,000	1	141,000	174,000
	Not to be implemented							
Outcomes of assessment	Total identified	1	9,200	1	33,000	1	141,000	183,200

Please note that corporate groups **are not required** to report opportunities with a payback greater than four years. Reporting this data is voluntary.



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

Corporate groups are required to provide at least three examples of significant opportunities for improving the energy efficiency of the group that have been identified in assessments.

Description of opportunity No. 1	Voluntary Information	
Shutdown a main cooling water pump overnight if not required when block load set point is down to minimum generation.	Equipment type	
	Business response	
	Energy saved (GJ)	9,200
	Greenhouse gas abated (CO2-e)	
	\$ saved	
	Payback period	<2 years

Description of opportunity No. 2	Voluntary Information	
GT Blading upgrade - Compressor and Turbine blading upgrades providing efficiency and output increase.	Equipment type	
	Business response	
	Energy saved (GJ)	141,000
	Greenhouse gas abated (CO2-e)	
	\$ saved	
	Payback period	>5 years subject to benefits in addition to efficiency gains

Description of opportunity No. 3	Voluntary Information	
Install Variable Speed Drives to boiler feed water pumps to ensure pumps don't waste energy and to preserve their integrity.	Equipment type	
	Business response	
	Energy saved (GJ)	33,000
	Greenhouse gas abated (CO2-e)	
	\$ saved	
	Payback period	2 to 4 years

Please note that the *Description of the opportunity* above should include information on the specific nature and type of opportunity as well as information on the type of equipment and/or process involved.

