



Gladstone Ports Corporation

Growth, Prosperity, Community.

**4th Public Report
Energy Efficiency Opportunities Program**

2010-11

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1. ENDORSEMENT

In 2005/06 Gladstone Ports Corporation Limited (GPC) was one of about 200 large Australian companies to trigger the energy use threshold of 500,000 giga joules (GJ) which mandated involvement in the Australian Government's Energy Efficiency Opportunities (EEO) program. At that time GPC's energy consumption of around 575,500 GJ was largely attributed to the diesel and electricity used to operate the RG Tanna Coal Terminal (RGCT) our major stevedoring business which contributed more than 80% of our energy use.

The EEO program focuses on:

- Improved identification and uptake of costs effective energy efficiency opportunities;
- Improved productivity and reduced green house gas emissions; and
- Greater scrutiny of energy use.

Since 2006 GPC has developed, and is implementing, a systematic approach to: monitor its energy use; identify and assess improvement opportunities; and, where it is considered to be feasible, implement those improvement initiatives.

During the past year GPC has entered the most significant period of growth in its history. This has placed increased pressure on our professional resources. Despite the challenges our personnel have continued to work towards embedding the effective use of energy into our business. We are committed to the intent of the EEO legislation.

One of our prized initiatives has been the research and development of a dozer cabin cooling system which runs independently of the machine's engine. The idea was first tabled in January 2009 and the research commenced in December 2009 with Briskair, a Queensland based company. In 2011-12 the new cooling system, specifically developed for our operating conditions, will be installed on several of our dozers. We were proud to present the journey of this initiative at EEO Program workshops held in November 2011.

We are pleased to present GPC's fourth annual EEO Public Report.



Leo Zussino
Chief Executive Officer
Date: 16 December 2011

Declaration

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* (Cth) and *Energy Efficiency Opportunities Regulations 2006* (Cth).

The information included in this report has been reviewed and noted by the Energy & Climate Steering Group and is to the best of my knowledge, correct and in accordance with the *Energy Efficiency Opportunities Act 2006* (Cth) and *Energy Efficiency Opportunities Regulations 2006* (Qld).

2. INTRODUCTION

GPC operates three port precincts. Its ports handle the export of resources from Central Queensland, the import of raw materials, and the export of finished products from local industries. The Port of Gladstone is Queensland's largest multi-commodity port, featuring the world's fourth largest coal export terminal.

The following table shows the proportion of our total energy consumption at each of the main port precincts during 2010/11.

Port Precinct	Proportion of energy consumption 2010/11
Port Alma	0.07%
Port of Gladstone	99.65%
Port of Bundaberg	0.28%

This annual public report provides information to our stakeholders and the public about: our energy consumption (Diesel, Electricity, LPG, Petrol and other fuels), opportunities identified for energy efficiency and progress on their assessment and actions undertaken to improve our effective use of energy and other business resources (e.g. water) and activities (e.g. maintenance).

This report includes the following:

- Details of GPC and business context;
- Energy patterns during the five (5) year cycle commencing with the trigger year 2005-06;
- Our corporate performance and some specific information about RGTCT, our stevedoring business activity which contributes more than 80% of the corporate energy use;
- Improvement opportunities identified and assessments conducted;
- An overview of specific opportunities to reduce our energy consumption;
- Details of one of our energy efficiency initiatives that has attracted national interest.

2.1. Controlling Corporation Profile

Legal name of entity	Gladstone Ports Corporation Limited
ABN	96 263 788 242
Australian and New Zealand Standard Industrial Classification (ANZSIC)	5212
Trigger year	1 July 2005 – 30 June 2006
First Public Report published	November 2008
Period to which this report relates	1 July 2006 – 30 June 2011
Total energy use in 2010-11	705,664 GJ
Total greenhouse gas emissions for 2010-11	95,427 tonnes CO _{2-e}
Contact person	John Sherriff
Position	Acting Safety, Environment & Risk General Manager Our Energy & Climate Program leader
Telephone number	07 4976 1208

GPC's business activities include:

- Commercial Port Operations;
- Fisherman's Landing;
- Harbour Works, Quarry, Reclamation;
- Port Alma Shipping Terminal;
- Port Central (Auckland Point Terminals and Barney Point Terminal);
- Port Development;
- Port of Bundaberg;
- Recreational & Reserves; and
- RGTCT.

In addition to the EEO program, GPC has obligations under other Australian Government and State Government 'climate' programs and systems including National Greenhouse and Energy Reporting, National Pollutant Inventory Reporting, and the Queensland Government Carbon Offsets Air Travel Policy and QFleet Climate Smart Policy.

2.2. Our EEO Journey

GPC became a mandatory participant to the EEO program in 2006-07 along with about 200 other businesses consuming more than 500,000 GJ of energy each year. In November 2007 an EEO team was established with representatives from each area of our business. Its role was to commence developing a work program which would satisfy the requirements of the EEO program.

Since becoming one (1) of the mandatory participants in the EEO program, GPC and its Board has embraced the intent of the legislation by allocating funding in the annual operating and capital budgets.

In May 2010 an Energy & Climate Group was established within GPC to coordinate a number of Commonwealth and State Government legislative requirements to ensure outcomes were not viewed in isolation, and to provide guidance and support in meeting the various requirements.

In 2010-11 the Department of Energy Resources & Tourism conducted a verification assessment of GPC's energy efficiency opportunities program. The outcomes of this assessment provided guidance for further actions which will improve the GPC program.

A few key events occurring during GPC's first five (5) year cycle (1 July 2006 to 30 June 2011) have added to the challenge of supporting our EEO program. These were:

- The commissioning of a significant expansion to our primary stevedoring activity at the RGTCT in 2008.
- An extremely wet season in 2010-11 which dramatically reduced the port's coal throughput. Due to impacts on both coal mine operations and the rail network the port's coal throughput in the period January to June 2011 was 66% of usual throughput. In January 2011 we experienced a record low throughput with only 1.7 million tonnes of coal passing through RGTCT and Barney Point Coal Terminal (BPCT). This compared to previous monthly tonnages of around 5 to 6 million tonnes. (the impact this had on energy consumption is shown in Graph 4.1.)
- The commencement of the most significant period of industrial growth in the Port of Gladstone's history during 2010-11. The commencement of the Western Basin Dredging and Disposal project for the LNG industry marked the beginning of a decade of growth in port facilities. As a consequence GPC engineering resources are under increased pressure to delivery capital projects. Increasing competition and work opportunities within the region have made it difficult to attract and retain engineering personnel and the services of external engineering firms.

Whilst facing challenging times, GPC is committed to fulfilling the intent of the legislation. Numerous opportunities have been identified through the EEO program process as we strive to continually improve our business. Our prized initiative from the first five (5) year cycle is the research and development of an alternative system for cooling dozer cabins. This is estimated to have halved the idle time of our dozer fleet. The cooling system is now ready for implementation. Not only has this initiative been presented at several EEO program workshops, but it has also attracted interest nationally in applications in which other vehicles are left idling to provide air conditions for the occupants.

2.2.1. Key Business Centre Assessments

During the first five (5) year cycle our obligation was to assess 80% of GPC's energy use and to meet the requirements of the six (6) key elements of the assessment framework.

This could have been achieved by focusing solely on RGTCT which uses over 80% of GPC's energy, however assessments also focussed on other areas. The initial assessment schedule was:

- 2007-08 – GPC Administration Building (Yarroon Street);
- 2007-08, 2008-09, 2009-10 & 2010-11 – Marina, RGTCT.

The results of these assessments are summarised in Table 2.1

Table 2.1 – Energy Use Assessed within an accuracy range of ± 5%

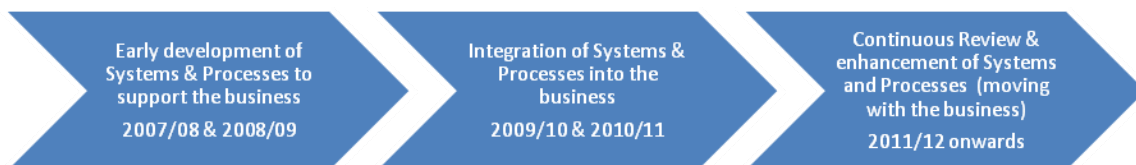
Business Centre	Assessment Period	Energy use 2010-11 (GJ)
Commercial – only Administration Building, Yaroon Street Gladstone, Auckland Point Security Hut, Property	2007-08	6,695
Recreational & Reserves – Marina only	2007-11	4,266
RG Tanna Coal Terminal	2007-11	590,225
Total assessed energy use		601,186
Corporate total energy use		705,664
Percentage of energy assessed		85.2%

2.2.2. Our Systematic Approach

GPC has adopted the following systematic approach in its EEO program:

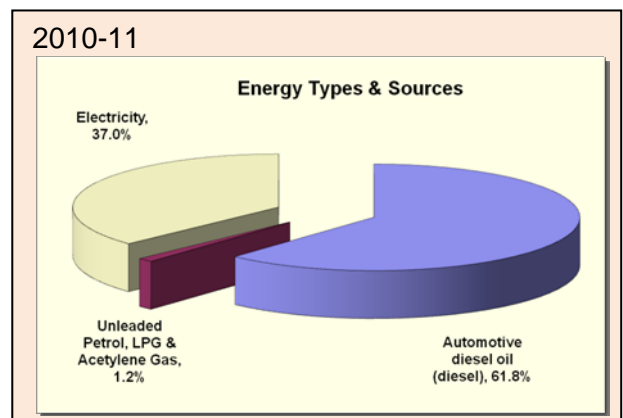
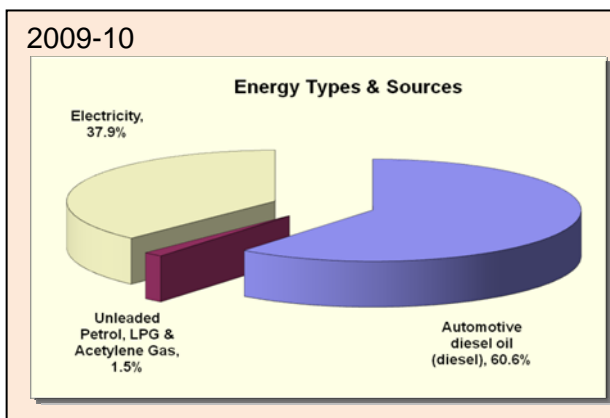
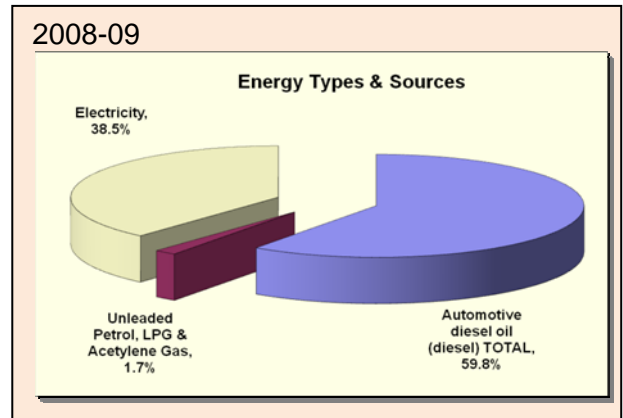
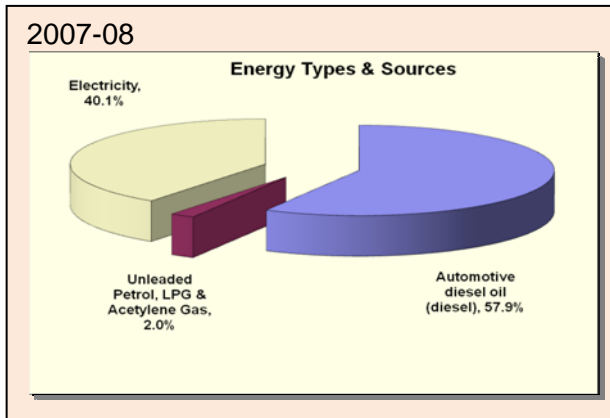
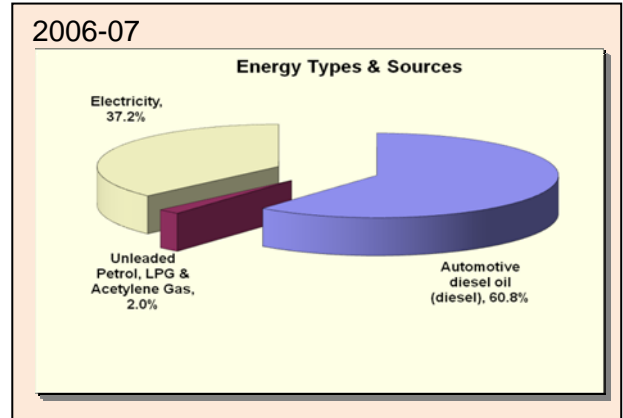
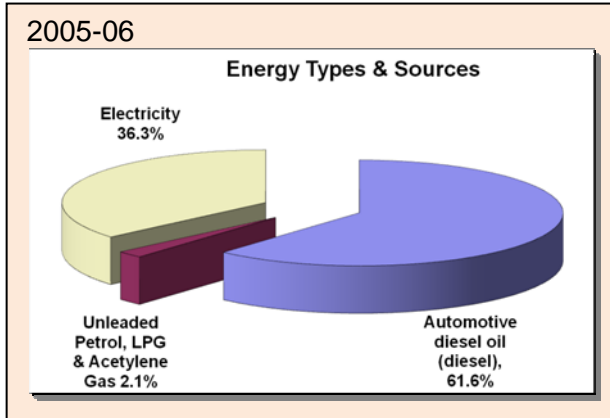
- Introducing the program to all personnel during 2008 and incorporating our energy and climate requirements into our induction program for all new employees and contractors;
- Developing an organisational energy and climate policy;
- Developing a common data repository for collating the base data on energy use from the various systems within GPC;
- Establishing a system enabling all employees to register improvement ideas, including those related to energy efficiency opportunities, and to track each idea’s progress;
- Establishing a system for analysing energy usage and assessing improvement ideas;
- Incorporating energy efficiency clauses in tender documentation, incorporating energy efficiency considerations in the capital investment system, including energy efficiency concepts in functional descriptions of control systems and giving due consideration to energy efficient designs.

Our timeline in the first public report:



3. OUR CORPORATE PERFORMANCE

3.1. Corporate Energy Use Trends



Diesel continues to be GPC's primary energy source. Most of this diesel is consumed by a fleet of 23 D11 dozers at RGTCT. RGTCT is a boutique blend terminal servicing multiple coal suppliers. The dozer fleet is a fundamental component in providing for the on-demand blending of coal products during the loading of a coal vessel.

Emissions arising from the generation of electricity used on site are the primary contribution to greenhouse gas emissions. This represented 68% of our total Scope 1 & 2 emissions in 2010-11. This percentage contribution has been consistent since 2005-06 and is not envisaged to materially change in the near future.

3.2. Corporate Performance Indicators

Our energy use, greenhouse gas emissions and port product throughput since joining the EEO program in 2005-06 are summarised in Table 3.1

Table 3.1 - Summary of energy use, greenhouse gas emission and product throughput since 2005-2006

Period	Coal Throughput (Tonnes)	Total Product Throughput ¹ (Tonnes)	Total GPC Energy ² (MJ)	Equivalent Households	Tonnes of CO _{2-e}
2005-06	45,307,458	67,372,224	575,448,398	11,509	78,200
2006-07	51,508,285	74,385,081	640,848,093	12,817	88,160
2007-08	54,130,361	76,648,194	682,074,432	13,641	97,402
2008-09	56,202,983	79,431,795	723,257,627	14,465	101,373
2009-10	60,396,511	83,852,008	764,823,848	15,296	104,832
2010-11	53,247,487	77,041,279	705,664,320	14,113	95,427

Notes:

1. With the exception of coal and calcite, the throughput for all other products through the Port of Gladstone (Auckland Point Terminals 1, 2, 3 & 4, Boyne Smelter, Fisherman's Landing Terminals 1, 2, 4 & 5 and South Trees East & West) are under the operational control of other businesses.
2. Coal is the primary product passing through our port precincts representing approximately 70% of total product throughput.
3. Contractor data was also collected and incorporated in GPC's total energy usage and emissions for 2009-10 and 2010-11.

4. R.G. TANNA COAL TERMINAL (RGCT) PERFORMANCE



RGCT accounts for more than 80% of our corporate energy consumption (including contractors).

RGCT's fleet of 23 bulldozer makes up approximately 46% of our corporate energy use.

RGCT's electricity consumption makes up 34% of our corporate energy use.

4.1. RGCT's Performance Indicators

RGCT's energy use, greenhouse gas emissions and product throughput since joining the EEO program in 2005-06 are summarised in Table 4.1

Table 4.1 - Summary of energy use, greenhouse gas emission and product throughput at RGCT since 2005-2006

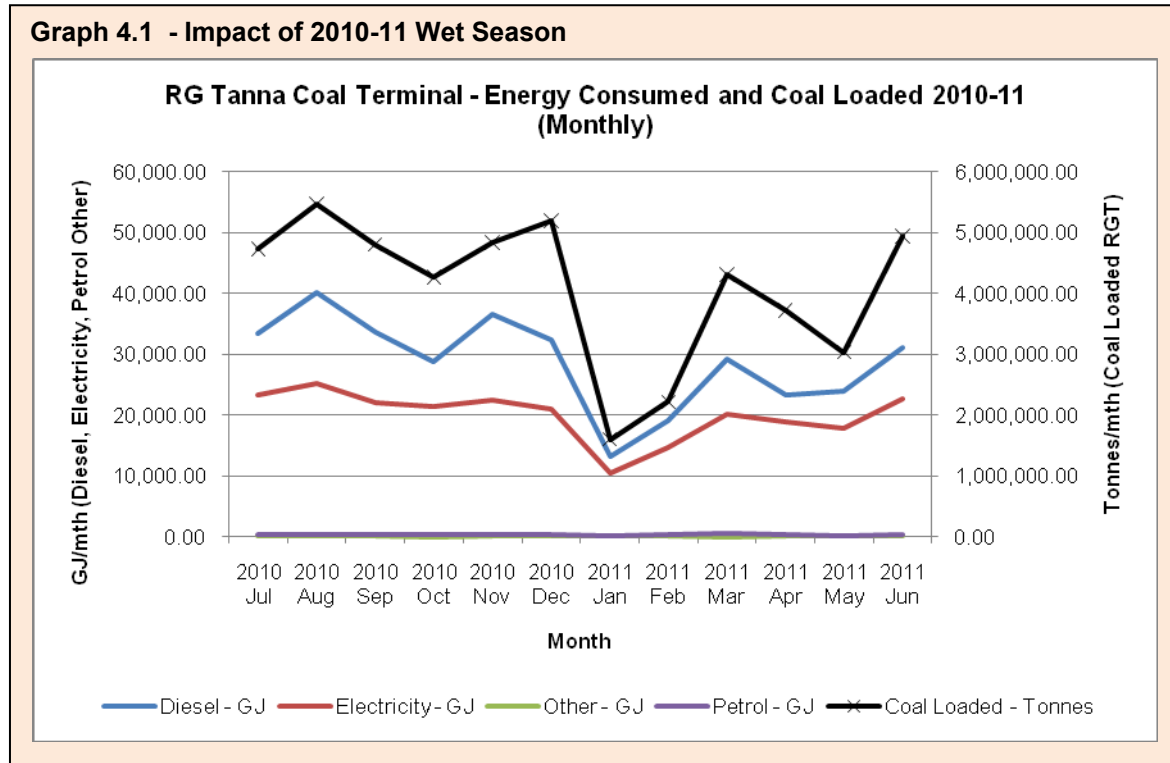
Period	Coal Throughput (Tonnes)	Total RGT Energy ¹ (MJ)	Equivalent Households	Tonnes of CO _{2-e}
2005-06	39,982,673	476,849,706	9,537	66,611
2006-07	45,213,331	526,475,885	10,530	74,892
2007-08	49,447,054	602,143,658	12,043	87,740
2008-09	52,396,680	631,855,668	12,637	91,528
2009-10	55,602,406	651,911,873	13,038	92,750
2010-11	49,269,928	590,225,055	11,804	83,645

Notes:

1. Contractor data was also collected and incorporated in GPC's total energy usage and emissions for 2009-10 and 2010-11.

4.2. Impact of 2010-11 Wet Season

The 2010-11 wet season had a significant impact on coal throughput and consequently on energy consumption. These impacts are depicted in Graph 4.1.



Activities associated with coal receipt, blending and loading significantly affect diesel and electricity consumption. Whilst the first major wet event occurred in September 2010, the major impact on coal throughput was not felt until after the December 2010 flooding. RGCT's coal throughput only returned to 'normal' in June 2011.

Coal throughput had negligible impact on the use of other fuels (LPG, Petrol, etc).

5. OUR EEO PROGRAM ACTIVITIES 2010-11



5.1. Energy and Climate Data Management System

GPC's Energy & Climate Group have been investigating energy and climate data management system solutions. In late 2010 it started a process to select and implement a new enterprise resource platform (ERP). GPC's energy and data management requirements have been included in the ERP's specifications to ensure that the selected system has the capability to manage our data to support our EEO program. Whist relevant group members are involved in this process the group's investigations are currently on hold pending the outcome of our review of the ERP solutions available in today's market.

5.2. Communicating Energy Usage

A brochure was prepared and circulated to all employees in the second quarter of 2010-11. The brochure:

- summarised our latest energy and climate government reporting obligations;
- provided information about our diesel and electricity usage (approximately 98% of our corporate energy use) 2005-06 to 2009-10; and
- invited employees to participate in identifying initiatives to save energy.

5.3. Seeking Energy Saving Ideas

In addition to the brochure about our energy usage, our internal newsletters encouraged our employees to participate in our EEO program and submit continuous improvement ideas. Employees can submit their improvement ideas via a form which is located on our intranet system. All ideas are captured in a single register and submitted to the Energy & Climate Group for assessment and actioning.

5.4. Measuring and Monitoring System

GPC has finalised the installation and configuration of Stage 1 of its energy metering system. This system enables us to understand the energy usage within RGTCT, the Marina, and the Yarroon Street and Kullaroo House buildings. The system includes a web based program that provides access to both real time and historical data to support analysis of opportunities, monitoring of performance, real time energy mass balances and other energy and climate activities.

5.5. Energy Mass Balance

Welcon were engaged by GPC to conduct Energy Mass Balance (EMB) assessments in accordance with the EEO Program. These assessments provide a clear understanding of our energy usage throughout key business activities.

EMBs were prepared for major equipment types at RGTCT such as:

- CC29 conveyor (reclaim tunnel conveyor);
- CC5 conveyor (general conveyor);
- Ship loader 2;
- Tripper CC1H; and
- Dump Station 2.

EMB assessments were also conducted at the two administration buildings:

- Kullaroo House;
- Yarroon Street.

The scope of this program has now been expanded and Welcon will assist us in developing an EEO strategy document for assessing the following areas over the next financial year:

- Dump Stations;
- Conveyors;
- Dozer;
- Ship Loading;
- Marina;
- Administration Buildings (Yarroon Street and Kullaroo House); and
- Utilities.

5.6. Energy Use Key Performance Indicator(s)

GPC continues to monitor its energy use at RGTCT using the following KPIs:

- Tonnes moved per MWh electricity;
- Tonnes moved per litre of diesel.

GPC's Control Systems team has been working towards establishing a KPI, kWh per tonne per kilometer, within our PLC system. Over the coming reporting period, GPC will engage Matrikon to assist with the reporting of this KPI. It has been identified that further metering may be required to gain a transactional understanding of energy use. This will be evaluated during the next phase of assessments.

5.7. Assessments

A summary of our energy use during 2010-11 and the assessment status for GPC's business centres is presented in Table 5.1.

Table 5.1 – Our Business Centres 2010-11 energy use

Business Centre	ANZSIC codes	GICS codes	Assess 2006-11	Energy use 2010-11 (GJ pa)
Commercial	5212	20305030	Y ¹	42,423
Fishermans Landing	5212	20305030	N	7,661
Harbour Works, Quarry, Reclamation	5212	20305030	N	7,127
Port Alma	5212	20305030	N	519
Port Central	5212	20305030	N	44,815
Port Development	5212	20305030	N	110
Port of Bundaberg	5212	20305030	N	1,963
Recreational & Reserves	5212	20305030	Y ²	10,821
RG Tanna Coal Terminal	5212	20305030	Y ³	590,225
TOTAL				705,664

Notes:

1. Administration building Yarroon Street only.
2. Marina only and assessment will continue in our second five (5) year cycle.
3. Assessment of RGTCT will continue in our second five (5) year cycle.

GPC will continue assessments of several facilities in its second five (5) year cycle.

During 2011-12 Welcon will facilitate sessions with key stakeholders, utilising the metering data and EMB assessments to conduct energy efficiency assessments. GPC will also develop the new Assessment Reporting Schedule for its next five (5) year cycle.

6. ASSESSMENTS UPDATE

For the purpose of participation in the Australian Government's EEO Program and meeting government reporting requirements, GPC is considered to be one (1) facility incorporating Port of Gladstone, Port Alma and Port of Bundaberg.

6.1. New Assessments Completed During the Reporting Period

Table 6.1 – Opportunities assessed to an accuracy of less than $\pm 30\%$

Status of opportunities identified		Number of opportunities	Estimated energy savings per annum by payback period (GJ)			Total estimated energy savings per annum (GJ)
			0 – < 2 years	2 – \leq 4 years	> 4 years	
Outcomes of assessment	Total Identified	7		450	2,808.6	3,258.6
Business Response	Awaiting Investigation					
	Under Investigation	1 ¹				
	To be Implemented	4		450	2,800.0	3,250.0
	Implementation Commenced					
	Implemented	2			8.6	8.6
	Not to be Implemented					

Notes:

1. There was insufficient information at the time of publishing GPC's 2010-11 public report to estimate the energy savings.

No new opportunities were identified with an energy saving accuracy of greater than $\pm 30\%$.

6.2. Updates on Assessments Undertaken in Previous Reporting Periods

In the first three (3) public reports (2007-08, 2008-09, 2009-10) 22 opportunities were reported.

One (1) opportunity listed as awaiting investigation in 2007/08 was reviewed in 2008/09. This initiative involved increasing the size of conveyor belts. The outcome of the review showed that the opportunity was not feasible so the initiative has not been pursued any further. Tables 6.2 and 6.3 summarise the progress of the remaining 21 opportunities.

Table 6.2 - Opportunities assessed to an accuracy of $\pm 30\%$ or better

Status of opportunities identified		Number of opportunities ¹	Estimated energy savings per annum by payback period (GJ)			Total estimated energy savings per annum (GJ)
			0 – < 2 years	2 – ≤ 4 years	> 4 years	
Outcomes of assessment	Total Identified	13	126.4	450	12,100	12,676.4
Business Response	Awaiting Investigation					
	Under Investigation					
	To be Implemented					
	Implementation Commenced					
	Implemented	13	126.4	450 ¹	12,100	12,676.4
	Not to be Implemented					

Notes:

1. The actual benefit of this opportunity was less than initially estimated. Metering is to being installed on another conveyor tunnel lighting system upgrade to estimate the actual benefits in 2011-12.

Table 6.3 - Opportunities assessed to an accuracy of worse than $\pm 30\%$

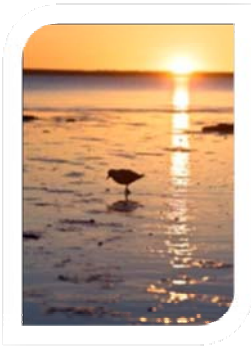
Status of opportunities identified		Number of opportunities	Estimated energy savings per annum by payback period (GJ)			Total estimated energy savings per annum (GJ)
			0 – < 2 years	2 – \leq 4 years	> 4 years	
Outcomes of assessment	Total Identified	8	2,370			2,370
Business Response	Awaiting Investigation	4	1,560			1,560
	Under Investigation	2	810			810
	To be Implemented					
	Implementation Commenced					
	Implemented	2 ^{1,2}				
	Not to be Implemented					

Notes:

1. Opportunities included in the table that do not yet have an estimated energy savings.
2. These projects have been implemented for operational reasons but have an impact on energy savings. Statistical analysis is required to determine the energy savings delivered by these projects.

7. OPPORTUNITIES IDENTIFIED FOR REDUCING OUR ENERGY USE

Some of the opportunities identified for reducing our energy use are summarised in this section.



7.1. Information Technology Upgrades - Thin Clients

During 2009-10 GPC upgraded over 140 desk top computers to thin clients. Portable metering was installed on desk top computers and thin clients to gain an understanding of the electricity consumption and energy saving. The sample metering data showed the thin clients consumed approximately 20% of the electricity consumed by the desk top computers. An approximate 80% reduction in the electricity consumption of 140 computer systems equates to approximately 47.3 GJ pa. Several other benefits have been realised with the installation of thin clients including time spent by our information systems team installing software (including commuting time to our facilities).

7.2. Lease of Toyota Camry Hybrid Vehicles

In October and December 2010 GPC leased two (2) Toyota Camry Hybrid vehicles as a pilot trial. These replaced petrol fuelled vehicles. The hybrid has a petrol engine and an electric motor powered by a 57 kg battery pack. The vehicle's technology determines when these motors operate alone, rest or operate together. With this flexibility, the hybrid is a very fuel efficient vehicle consuming about six (6) litres per 100 km (Toyota's test results). Similar petrol vehicles consume around nine (9) litres per 100 km.

Other features which add to the hybrid's efficiency include the engine stopping when the vehicle stops reducing fuel wastage, the electric motor providing the energy when the vehicle starts, and capturing of braking energy storing in the battery pack for later use.

The Toyota Camry Hybrid is manufactured in Victoria. In selecting this car we are supporting Australian industry and jobs.

With many more hybrid vehicles becoming available, including utes and 4 wheel drives, GPC will investigate the viability of adding more hybrid vehicles to our fleet as vehicles are progressively replaced.

7.3. Stockpile Lighting Design

Aurecon Hatch was commissioned to undertake an analysis of light pollution from the coal stockpile floodlighting at RGTCT. A number of recommendations made to reduce the light pollution also provided an energy efficiency benefit. These included switching off stockpile lighting when not in use, changing the angle of the stockpile lighting and using "full cut off" luminaries. It was identified that upward light waste is in the vicinity of 0.15%, which equates to approximately 12.5 kW of energy wasted when all the stockpiles' floodlights are operating.

Aurecon Hatch presented GPC with options to reduce upward light waste and obtrusive lighting, which includes installing antiglare shields and or replacement with full cut off floodlights with limited tilt and forward glare shields.

Investigations into both short and long term options for reducing upward light waste and obtrusive light have commenced. The scope of the investigations includes a trial on lighting towers 20 & 22.

8. REDUCING DOZER ENERGY CONSUMPTION

GPC's dozer fleet consumes about 48% of our energy use (338,514 GJ in 2010-11). Through GPC's EEO program two key initiatives were identified to reduce energy consumption by our dozer fleet. These initiatives were identified through analyses of real time data about our dozer engines' energy consumption and idle time. This section provides a brief summary on these initiatives.

8.1. Alternative Cabin Cooling System

The cabin cooling systems fitted as a standard item on GPC's dozers require the engines to be running to operate. This requires the use of fuel when the dozer is not in a productive use, and as maintenance is based on engine run hours, increases the frequency of maintenance. GPC has been developing an alternative cabin cooling system which can operate without the engine running.

Throughout 2010-11 GPC continued trials on the alternative cabin cooling system project. As the trials progressed, issues were identified regarding the initial design's durability and serviceability. The units were being damaged during normal dozer operation and the original location of the units made them difficult to service.

In response to these issues the batteries, compressors and control unit were moved from the roof of the dozer to the side of the cabin above the fuel tank. The compressor brackets were redesigned to handle the harshness of the dozer movement, while the failed compressors have been sent back to the OEM for failure mode analysis. Larger alternators were installed to cope with the electrical current required to run the system and charge the batteries from a near flat condition.

These changes have substantially increased the reliability of the system. It is anticipated that in the coming months, GPC will be in a position to implement this system throughout its fleet of D11 dozers.

Once implemented the focus of this initiative will move to the behavioural and educational elements for the operators, ensuring they are aware of the enhancements and the reasons for switching the dozer's engine off whilst idling. This remains an exciting project for GPC as the benefits to GPC and the broader community are very promising.

8.2. Fuel Efficiency Specifications for New Dozers

GPC has included energy efficiency clauses in its tender specifications for heavy machinery. As such energy efficiency now forms part of the tender evaluation process.

Caterpillar claimed the new D11T dozer had a 5% improvement in fuel economy compared to the previous D11R model. After taking delivery of the new D11T dozer, the fuel burn was monitored over a period of time and compared to records acquired from the operation of the D11R model. The analysis indicated that GPC has achieved a 7.16% reduction in the fuel used by the D11T dozer while performing the equivalent amount of work. This equates to an annual reduction in fuel usage of 35,840 litres of diesel per dozer or 1,400 GJ of energy per annum per dozer. The emissions reduction is approximately 96.7 tonnes of CO_{2-e} per annum per dozer that is replaced with a more efficient D11T dozer.

GPC currently operates a fleet of 23 D11 dozers at RGTCT. The replacement program for dozers aims to replace two dozers per year. We now have six (6) D11T machines in operation, the 7th is due in January 2012 and the 8th is due in March 2012.

With six (6) D11T dozers now being utilised, our dozer fleet diesel usage has reduced by approximately 8,400 GJ per annum plus. This equates to an approximate emissions reduction of 580.2 tonnes CO_{2-e} per annum.