

# AGL ENERGY EEO PUBLIC REPORT 2011

## Part 1 - Corporation Details

### Controlling Corporation

### Period to which this report relates

The period to which the report relates is the total period of participation up to 30 June prior to when the report is due.

AGL Energy Limited

From

1 July 2009

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

AGL's corporate structure was outlined in the AGL EEO Assessment & Reporting Schedule (ARS), which was approved by the Department of Resources, Energy and Tourism in April 2011. The ARS indicated which sites were subject to and which sites were exempt from EEO at that time.

On 1 July 2011, energy generators' exemption from EEO was lifted. As a result, five AGL generation sites which use more than 0.5 PJ energy per annum are now required to complete an EEO assessment by June 2014. AGL Torrens Island Power Station will be assessed in early 2012. The assessment schedule for the other four sites is currently being determined, and in 2012 AGL will submit a revised ARS to the Department confirming the timelines for these assessments.

Major changes to AGL's corporate group / operations during the last 12 months include:

- in October 2010, AGL acquired Mosaic Oil NL. Among the conventional gas and oil assets gained through the acquisition was a depleted underground gas reservoir located at Silver Springs, Queensland, which AGL has redeveloped as a gas storage facility; and
- in May 2011, AGL commenced operation of the 132 MW Hallett 4 wind farm, increasing AGL's operated renewable generation capacity to 1205 MW.

The former Mosaic assets and Hallett 4 wind farm will not be assessed in this EEO program cycle as they do not use more than 0.5 PJ and will not be required to be assessed in order to cover 80% of AGL's baseline energy use.



**Table 1.2 – Aggregate energy assessed covered in this report<sup>(a)</sup>**

<b>FY10-11 total energy use covered by all assessments in this report</b>	<b>628,611 GJ</b>
<b>FY10-11 total energy assessed as percentage of total energy use of the corporate group<sup>(b),(c)</sup></b>	<b>78%</b>

(a) The energy consumption reported for specific facilities and entities under EEO is the net energy consumption for these assets. These figures exclude instances where energy commodities and feedstocks are transformed from one form to another and gas venting and flaring at AGL's gas exploration and production facilities, which are reportable energy consumption activities under the *National Greenhouse and Energy Reporting Act*, but are not relevant to EEO.

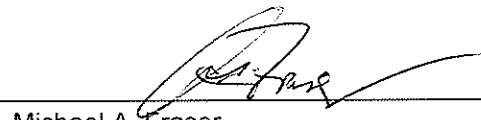
(b) Note that during AGL's trigger year of 2008-09, HCE and Camden accounted for approximately 95% of AGL's assessable energy use.

(c) Note this report covers only part of the AGL corporate group, as AGL's generation assets were exempt from the EEO program until 30 June 2011. The percentage is therefore computed on the total energy use for AGL assets that were subject to EEO during 2010/11.

**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*.



Michael A. Fraser  
Managing Director & CEO  
Date 2/12/11

## Part 2 - Assessment Outcomes

Table 2.1(a) – Assessment Details for Hydrocarbon Extractions

Name of group member or business unit or key activity

Hydrocarbon Extractions (H C Extractions Pty Limited)

Total energy use in the last financial year

292,548 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

36.4 %

Accuracy of above estimates related to energy use assessed - only required if not  $\pm 5\%$  or better

%

Period over which assessment was undertaken

01/12/2010

to

30/06/2011

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

Planning for the assessment commenced in December 2010 and the assessment was completed in June 2011.

Given the EEO assessment at Hydrocarbon Extractions (HCE) was one of AGL's first two EEO assessments, it was led by corporate HSE with a view to ensuring lessons learned were shared across AGL.

An EEO project team was formed to undertake the assessment at HCE. The team comprised representatives from HCE, energy efficiency engineers from AGL's Energy Services group, and personnel from AGL's corporate HSE group.

Key steps in the assessment process included:

1. site visit, data gathering and analysis (based on 24 months of data) which enabled identification of potential opportunities;
2. a workshop at which potential opportunities underwent detailed evaluation to confirm cost estimate and technical feasibility; and
3. sharing assessment outcomes and information at appropriate leadership forums (eg. HSE Council which includes senior leadership representation).

The HCE EEO assessment builds on a similar assessment undertaken as part of the NSW Government Energy Savings Action Plan program. The EEO assessment confirmed that the site operates a very efficient and steady process, with variation in energy intensity due to major variation in feed gas quality and quantity, annual site shutdowns and ambient temperature.

As indicated in Table 2.2(a), in this assessment AGL has identified potential energy savings of approximately 1,691 GJ with up to 4 years payback.

**Table 2.2(a) - Energy efficiency opportunities identified in the assessment for Hydrocarbon Extractions**

It is compulsory to complete a separate table for each group member, business unit, or key activity that has been assessed

<b>Table 2.2 – Energy efficiency opportunities identified in the assessment</b>									
<b>Status of opportunities identified to an accuracy of better than or equal to ±30%</b>		<b>Total Number of opportunities</b>	<b>Estimated energy savings per annum by payback period (GJ)</b>						<b>Total estimated energy savings per annum (GJ)</b>
			<b>0 – &lt; 2 years</b>		<b>2 – ≤ 4 years</b>		<b>&gt; 4 years</b>		
			<b>No of Opps</b>	<b>GJ</b>	<b>No of Opps</b>	<b>GJ</b>	<b>No of Opps</b>	<b>GJ</b>	
Business Response	Implemented	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Implementation Commenced	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	To be Implemented	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Under Investigation	2	1	142	1	1549	Nil	Nil	1691
	Not to be Implemented	2	Nil	Nil	Nil	Nil	2	9188	9188
Outcomes of assessment	Total Identified	4	1	142	1	1549	2	9188	10879
<b>Status of opportunities identified to an accuracy of worse than ±30%</b>									
Business Response	Implemented	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Implementation Commenced	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	To be Implemented	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Under Investigation	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Not to be Implemented	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Outcomes of assessment	Total Identified	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Please note that Corporate Groups are not required to report opportunities with a payback greater than 4 years. Reporting this data is voluntary.



**Table 2.1(b) – Assessment Details for Camden Gas Project**

**Name of group member or business unit or key activity**

Camden Gas Project (AGL Upstream Investments Pty Ltd)

**Total energy use in the last financial year**

336,063 GJ

**Energy use assessed in this entity as a percentage of total entity energy use\***

99.3 %

**Energy use assessed in this entity as a percentage of total corporate energy use**

41.8 %

**Accuracy of above estimates related to energy use assessed - only required if not ±5% or better**

%

**Period over which assessment was undertaken**

01/12/2010

to

30/06/2011

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

Planning for the assessment commenced in December 2010 and the assessment was completed in June 2011.

Given the EEO assessment at Camden Gas Project was one of AGL's first two EEO assessments, it was led by corporate HSE with a view to ensuring lessons learned were shared across AGL.

An EEO project team was formed to undertake the assessment at Camden Gas Project. The team comprised representatives from Camden Gas Project, energy efficiency engineers from AGL's Energy Services group, and personnel from AGL's corporate HSE group.

Key steps in the assessment process included:

1. site visit, data gathering and analysis (based on 24 months of data) which enabled identification of potential opportunities;
2. a workshop at which potential opportunities underwent detailed evaluation to confirm cost estimate and technical feasibility; and
3. sharing assessment outcomes and information at appropriate leadership forums (eg. HSE Council).

Camden Gas Project includes the Rosalind Park Gas Plant which was built in 2004 and has three compressors which run on gas delivered from the project's gathering system. The compressors account for more than 90% of Camden Gas Project's energy use. The EEO assessment confirmed that the relatively young plant is very efficient.

As indicated in Table 2.2(b), in this assessment AGL has identified potential energy savings of approximately 77.8 GJ with up to 4 years payback, all of which have been implemented.

**Table 2.2(b) - Energy efficiency opportunities identified in the assessment for Camden Gas Project**

<b>Table 2.2 – Energy efficiency opportunities identified in the assessment</b>									
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 – $\leq$ 4 years		> 4 years		
			No of Opps	GJ	No of Opps	GJ	No of Opps	GJ	
Business Response	Implemented	3	3	77.8	Nil	Nil	Nil	Nil	77.8
	Implementation Commenced	1	Nil	Nil	Nil	Nil	1	126	126
	To be Implemented	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Under Investigation	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Not to be Implemented	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Outcomes of assessment	Total Identified	4	3	77.8	Nil	Nil	1	126	203.8
<b>Status of opportunities identified to an accuracy of worse than <math>\pm 30\%</math></b>									
Business Response	Implemented	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Implementation Commenced	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	To be Implemented	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Under Investigation	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Not to be Implemented	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Outcomes of assessment	Total Identified	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Please note that Corporate Groups are not required to report opportunities with a payback greater than 4 years. Reporting this data is voluntary.

**Table 2.3 - Details of significant opportunities identified in the AGL assessments**

Corporate Groups are required to provide at least 3 examples of significant opportunities for improving the energy efficiency of the group that have been identified in assessments.

Description of Opportunity	Voluntary Information	
<p><b>Install additional Cooling Tower at HC Extractions</b></p> <p>HC Extractions is currently served by 3 cooling towers which provide sufficient cooling to condense the R22 refrigerant in the condensers. However, energy savings and/or additional production throughput is available if the condensing temperature can be reduced.</p> <p>This could be achieved by installing an additional cooling tower and spreading the existing cooling water flow over 4 towers instead of 3, resulting in lower cooling water temperature and a lower temperature in the R22 condensers.</p> <p>Savings have been estimated based on achieving 0.5 deg C reduction in the R22 condensing temperature and capturing the discharge pressure improvements that this produces from R22 compressor C-06. Further engineering investigation is required to confirm costs and benefits.</p>	Business Response	Under Investigation
	Energy saved (GJ)	1,548.8 / year
	Greenhouse gas abated (CO2-e)	382.9 tonnes / year
	\$\$ saved	42,850 / year
	Payback period	3.7 years

Description of Opportunity	Voluntary Information	
<p><b>Reduce the running time of LPG pump at HC Extractions</b></p> <p>The LPG pump for shipment to tankers operates continuously on a loop even when LPG is not being exported. The pump could be stopped when LPG is not required. Further investigation is needed to understand if there are any operational and safety issues arising from this potential opportunity.</p>	Business Response	Under Investigation
	Energy saved (GJ)	142 / year
	Greenhouse gas abated (CO2-e)	35.1 tonnes / year
	\$\$ saved	3930 / year
	Payback period	0.4 years

Description of Opportunity	Voluntary Information	
<p><b>Install push button timer for fluorescent lights at Rosalind Park Gas Plant, Camden</b></p> <p>Fluorescent lights are used in the workshop until the Metal-Halide lights warm up. If a pneumatic push button timer was installed to the fluorescent light circuit it would ensure that the lights are switched off automatically when no longer required.</p>	Business Response	Implemented
	Energy saved (GJ)	15.6 / year
	Greenhouse gas abated (CO2-e)	3.9 tonnes / year
	\$\$ saved	740 / year
	Payback period	1.4 years

