PUBLIC REPORT TEMPLATE 2011

Please note that this template has been updated based on feedback from a number of Corporations during the recent review of regulations. It is not compulsory for you to use this Public Report template. You may wish to continue to use the previous template, or you may report in another format of your choice. Either is acceptable provided you report all the information required by the EEO Act and Regulations.

There is an explanatory document at pages 5-14 of this template that fully explains how to complete it. There is also some targeted guidance on the template itself.

Part 1 - Corporation Details

Controlling Corporation

Insert the name of the Controlling Corporation exactly as it is registered with the EEO Program. The period to which the report relates is the total period of participation up to 30 June prior to when the report is due.

Mackay Sugar Limited

Period to which this report relates

From 1 July 2006 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
Mackay Sugar Ltd (MSL) has three mills and has been a mandatory participant in the Australian Government's Energy Efficiency Opportunities (EEO) program since it was first introduced in July 2006. More than 90% of Mackay Sugar's total energy use is obtained from bagasse (a green waste and milling by-product), which provides both electricity and process steam. Provided there is adequate interconnection capacity excess energy or energy savings may be exported into the electricity grid as renewable energy. **During the last 12 months the Mackay region has received around 2m of rainfall above the long term mean. The rain started during the crushing season in August 2010 and continued until March 2011. This severely impacted on the harvesting and milling conditions for the cane during the 2010 season. Approximately 15% (~ 750,000t cane) of our crop could not be harvested due to the wet field conditions. The rainfall also interrupted the crushing and increased the amount of lost time for the season. The reduced crop harvested and increased lost time led to an increased combustion of coal during the season and a reduction in the amount of bagasse stored at Racecourse Mill for off-season combustion. The reduced amount of bagasse storage increased the amount of coal burnt in the off-season to supply the energy required for the Sugar Australia white sugar refinery co-located at Racecourse Mill.** **Assessment of the yearly energy usage for MSL mills has shown that the reported energy use and efficiencies achieved can vary substantially from year to year due to many factors including the season length, cane characteristics, cane tonnage and cane quality (eg. Dirt loadings) most of which are beyond the control of the mill but which impact on cane processing. The total energy use reported in this period was up substantially from the previous report due to the wet harvest conditions and reduced cane crushed.** **In the last 12 months MSL has started construction of a large scale bagasse fired co-generation plant at Racecourse Mill site to increase the current co-generation capacity and improve efficiencies of combustion by using a higher pressure boiler and a 37MW condensing**

turbo-alternator set. When completed in 2013 the plant will be capable of supplying the equivalent of 30% homes within the Mackay district with renewable energy. However this project cannot be included as a significant opportunity for Racecourse Mill under this Energy Efficiencies Opportunities program as it does not meet the criteria for providing payback within 4 years. This co-generation plant will be the catalyst for further bagasse efficiency projects at MSL mills to increase the amount of renewable energy produced and coal offset.

Table 1.2 – Aggregate energy assessed covered in this report

Total energy use covered by all assessments in this report	**13,399,958**	**GJ**
Total energy assessed as percentage of total energy use of the corporate group*#	**99.41**	**%**

* If this report covers only part of the corporate group, than the percentage should be computed on the total energy use for that part of the group covered in this report

Please note that corporations are required to assess 80% or more of their energy use in the first five-year assessment cycle and 90% or more in subsequent five-year assessment cycles. Accordingly, for those corporations with a 2005-06 trigger year (i.e. those corporations at the end of their first-five year assessment cycle), the value in "Percentage of corporation's energy use assessed" above, must be more than 80%.

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*.	**Quinton Hildebrand** **Chief Executive Officer** **Date 15 December 2011**

Part 2 - Assessment Outcomes

Table 2.1 – Assessment Details

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

Name of group member or business unit or key activity	Farleigh Mill	
Total energy use in the last financial year	4,144,311.59	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	31.13	%
Accuracy of above estimates related to energy use assessed - only required if not ±5% or better	+/- 10	%

There are limitations on the level of accuracy concerning bagasse quantities produced that can be practicably obtained.

There is an accumulation of errors from incoming fibre analyses, Bagasse fibre analyses, correction for fibre lost to mud system and Bagasse transport which is via nominal weights for each type of truck (weighted periodically).

Period over which assessment was undertaken	1/07/2008	30/06/2010

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

The timing of assessments carried out by Mackay Sugar Ltd is continuing as planned under the approved Assessment and Reporting Schedule. During this reporting period 10 opportunities applicable to Farleigh Mill were assessed and six of these have been implemented. The energy assessments performed have been thorough and comprehensive. Key personnel from Mackay Sugar are involved in the assessments and some external consultants have been used to provide specialist expertise at various times where required. The assessments have complied with the intent and key requirements of the EEO program with those which had been carried out in the previous reporting periods useful for identifying and prioritising opportunities at other sites.

As indicated in the previous reports, greater than 90% of energy generated and used across Mackay Sugar's is renewable as it is obtained from combustion of bagasse. Electricity is generated on-site at Farleigh whilst crushing and any excess to the site requirements can be exported into the grid but the rate at which this excess electricity can be fed into the grid is a limiting factor. Benefits of energy efficiency (bagasse energy) are lost once this export limit is reached and no large scale bagasse storage is available. However, with boilers operating year round for the Refinery at Racecourse, the excess bagasse can be transported and stockpiled there to offset the use of coal in the non-crush period. There are also limits to the amount of bagasse that may be stored under regulatory approvals so for the most part the energy efficiency opportunities assessed and implemented at Farleigh Mill have been associated with projects which demonstrate benefits across the organisation. Each of the projects requiring capital goes to the Board for sign off and approval and updates are provided through various reports submitted to the Board throughout the year.

* Please note that, for individual sites that use more that 0.5PJ of energy, all energy use must be assessed (less a small proportion for non integral energy use).

Table 2.1 – Assessment Details

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

Name of group member or business unit or key activity	Marian Mill	
Total energy use in the last financial year	5,059,459	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	37.53	%
Accuracy of above estimates related to energy use assessed - only required if not ±5% or better	+/- 10%	%

There are limitations on the level of accuracy concerning bagasse quantities produced that can be practicably obtained.

There is an accumulation of errors from incoming fibre analyses, Bagasse fibre analyses, correction for fibre lost to mud system and Bagasse transport which is via nominal weights for each type of truck (weighted periodically).

Period over which assessment was undertaken	1/07/2007	30/06/2009

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

The timing of assessments carried out by Mackay Sugar Ltd is continuing as planned under the approved Assessment and Reporting Schedule. During this reporting period opportunities applicable to Marian Mill were assessed two of which have been implemented. The energy assessments performed have been thorough and comprehensive. Key personnel from Mackay Sugar are involved in the assessments and some external consultants have been used to provide specialist expertise at various times where required. The assessments have complied with the intent and key requirements of the EEO program with those which had been carried out in the first reporting period useful for identifying and prioritising opportunities at other sites.

As indicated in the previous report greater than 90% of energy generated and used use across Mackay Sugar's is renewable as it is obtained from combustion of bagasse. While crushing at Marian energy generated in excess of the mills immediate demand can be exported into the grid but the rate at which this can be fed in is a limiting factor and efficiency (bagasse) is lost exporting electricity beyond this limit. However with boilers operating year round for the refinery at Racecourse the excess bagasse is being transported there to offset the use of coal. There are also limits to the amount of bagasse that may be stored under regulatory approvals so for the most part the energy efficiency opportunities assessed and implemented at the mill have been associated with projects which demonstrate benefits across the organisation. Once such large project presently being assessed which should support more projects at other mills is increasing cogeneration capacity at Racecourse. However this project will not be reported under this Energy Efficiencies Opportunities program as it does not meet the criteria for providing payback within 4 years. Each of the projects goes to the board for sign off and approval and updates are provided through various reports submitted to the board throughout the year.

* Please note that, for individual sites that use more that 0.5PJ of energy, all energy use must be assessed (less a small proportion for non integral energy use).

Table 2.1 – Assessment Details

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

Name of group member or business unit or key activity	Racecourse Mill	
Total energy use in the last financial year	4,196,187	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	30.75	%
Accuracy of above estimates related to energy use assessed - only required if not ±5% or better	+/- 10	%

There are limitations on the level of accuracy concerning bagasse quantities produced that can be practicably obtained.

There is an accumulation of errors from incoming fibre analyses, Bagasse fibre analyses, correction for fibre lost to mud system and Bagasse transport which is via nominal weights for each type of truck (weighted periodically).

Period over which assessment was undertaken	1/07/2006	30/06/2008

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

The timing of assessments carried out by Mackay Sugar Ltd is continuing as planned under the approved Assessment and Reporting Schedule. During this reporting period opportunities applicable to Marian Mill were assessed two of which have been implemented. The energy assessments performed have been thorough and comprehensive. Key personnel from Mackay Sugar are involved in the assessments and some external consultants have been used to provide specialist expertise at various times where required.

The energy assessments performed have been thorough and comprehensive. Potential opportunities were identified using multi-disciplined teams from across the organisation and assessments have been integrated into business improvement systems and processes. The assessments have complied with the intent and key requirements of the EEO program and provide some good opportunities for achieving energy efficiency and consequently increased utilisation of bagasse resources. Each of the projects requiring capital goes to the Board for sign off and approval and updates are provided through various reports submitted to the Board throughout the year.

The Racecourse site is different from Mackay Sugar's other mill sites in that power and steam (cogeneration) is generated outside of the crushing season to provide energy to the Sugar Australia refinery which operates year round. Mackay Sugar is a joint venture partner of the refinery however under the rules of the program Sugar Australia, through CSR, will conduct its own assessments.

* Please note that, for individual sites that use more that 0.5PJ 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 group member, business unit, or key activity that has been assessed

Farleigh Mill

Table 2.2 - Energy efficiency opportunities identified in the assessment									
Status of opportunities identified to an accuracy of better than or equal to ±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	6	4	140,810			2	550	141,360
	Implementation Commenced								
	To be Implemented								
	Under Investigation	5	2	539,000	3	972,200			1,511,200
	Not to be Implemented								
Outcomes of assessment	Total Identified	11	6	679,810	3	972,200	2	550	1,652,560
Status of opportunities identified to an accuracy of worse than ±30%									
Business Response	Implemented								
	Implementation Commenced								
	To be Implemented								
	Under Investigation								
	Not to be Implemented								
Outcomes of assessment	Total Identified								

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

Marian Mill

Table 2.2 Energy efficiency opportunities identified in the assessment

Status of opportunities identified to an accuracy of better than or equal to ±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	2	2	718,000					718,000
	Implementation Commenced								
	To be Implemented								
	Under Investigation	7	2	1,005,000	3	87,000	2	312,900	1,404,900
	Not to be Implemented								
Outcomes of assessment	Total Identified	9	4	1,723,000	3	87,000	2	312,900	2,122,900
Status of opportunities identified to an accuracy of worse than ±30%									
Business Response	Implemented								
	Implementation Commenced								
	To be Implemented								
	Under Investigation								
	Not to be Implemented								
Outcomes of assessment	Total Identified								

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

Racecourse Mill

Table 2.2 Energy efficiency opportunities identified in the assessment

Status of opportunities identified to an accuracy of better than or equal to ±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	3	1	12,000	2	403,000			415,000
	Implementation Commenced	1					1	756,000	756,000
	To be Implemented								
	Under Investigation	3			2	136,000	1	8,000	144,000
	Not to be Implemented	1			1	54,000			54,000
Outcomes of assessment	Total Identified	8	1	12,000	5	593,000	2	764,000	1,369,000
Status of opportunities identified to an accuracy of worse than ±30%									
Business Response	Implemented								
	Implementation Commenced								
	To be Implemented								
	Under Investigation								
	Not to be Implemented								
Outcomes of assessment	Total Identified								

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 assessment

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	
Expansion of the existing bagasse storage pad at Racecourse: This project was assessed on the premise of making greater the use of the cane milling by-product bagasse (a renewable energy source) to offset the energy costs associated with burning coal Sugar Australia refinery co-located at Racecourse. Bagasse is used as boiler fuel and excess produced by all Mackay Sugar mill during the crushing season is stockpiled on the Racecourse site to provide steam and electricity to the refinery which is required year round; however coal is needed once the bagasse stockpile is depleted so to offset some of this the bagasse storage pad was capacity was increased from 70000 tonnes (t) to 96000t at a cost of $1.628 million. This displaces on an annual basis 9310 tonnes of coal or provides a saving of 237,460GJ. Besides the financial gains from less coal purchased this use of bagasse also provides benefit in the form of Renewable Energy Certificates and produces less greenhouse gas emissions. This project received board approval and the expansion was completed for the 2007 crush.	Business Response	Implemented
	Energy saved (GJ)	237,000
	Greenhouse gas abated (CO2-e)	21,850 t CO2-e
	$s saved	$759,000
	Payback period	2.14yrs

Description of Opportunity	Voluntary Information	
#1 Marian Boiler Economiser Replacement - A boiler economizer is gas to liquid heat exchanger that pre-heats boiler feedwater using the heat in the flue gas exiting the boiler. The benefits of such a system are to improve the overall heat recovery of the combustion process and hence reduce fuel consumption. The economiser on Marian #1 boiler has been in poor condition and has lead to a number of tube leaks. The reliability of the unit deteriorated such that it was by-passed in the 2007 crushing season. The direct result of this was a reduction in steaming capacity of the boiler (~ 28%) and an increase in the rate of bagasse consumed in the boiler (ie. Bolier efficiency). Replacement of the economiser is expected to cost $1.2 million but result in estimated benefits of higher boiler efficiency, higher export	Business Response	Implemented
	Energy saved (GJ)	37,000
	Greenhouse gas abated (CO2-e)	N/A Renewable fuel only
	$s saved	$839,000
	Payback period	1.43 yrs

of electricity from the site and improved boiler reliability. The overall payback of the project is expected to be 1.43 years.		

Description of Opportunity	Voluntary Information	
Farleigh Mill - Automate LP steam make-up valve: Periodically the evaporator tubes become scaled up, leading to reduced heat transfer across the tube, and the tubes need to be chemically cleaned. In the case of #1 effet at Farleigh this causes problems with disrupting the vapour flow to the primary heaters. The primary heaters use #1 vapour as their heating source rather than LP steam in order to assist the evaporation process and allow further steam efficiency. The factory cannot operate correctly without primary heating of the juice. When #1 vessel is being taken off-line or put on-line there is a period of change over where no #1 vapour is available for the primary heaters and this causes a stop in the crushing rate so as to minimise the effects on the process. It has been estimated that approximately 1 hour per clean for #1 effet could be saved by addition of an automated LP steam valve to the primary heaters and allow for continued supply of heating source whilst #1 effet in coming on and off line. The LP steam valving was installed in 2009 at a cost of $19,000 and with the predicted benefits of reduced season length and LP steam consumption the payback is expected to be 0.5 years.	Business Response	Implemented
	Energy saved (GJ)	2,800
	Greenhouse gas abated (CO2-e)	N/A renewable fuel only
	$s saved	$36,000
	Payback period	0.5 yrs

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.