

PUBLIC REPORT 2011

Part 1 - Corporation Details

Controlling Corporation

Bundaberg Sugar Group Ltd

From

1 July 2006

To

30 June 2011

Period to which this report relates

Table 1.1 - Major Changes to Corporate Group Structure or Operations

Table 1.1 – Major Changes to Corporate Group Structure or Operations

During the period 1 July 2010 through 30 June 2011; Bundaberg Sugar:

- sold its Tableland, Babinda, Mourilyan and South Johnstone sugar milling and cane transport assets; and
- entered a 50/50 venture in a small, macadamia processing facility.

Severe flooding experienced by Queensland in 2010-2011 resulted in a significant variation to energy use patterns of the group.

In recognition of the sale and closure of Babinda in the context of the schedule set out in Bundaberg Sugar's Assessment and Reporting Schedule, the Department agreed to Babinda not being assessed even though the site typically consumed more than 0.5 PJ of energy annually.

Table 1.2 – Aggregate energy assessed covered in this report

Total energy use covered by all assessments in this report	9,252,477	GJ
Total energy assessed as percentage of total energy use of the corporate group	84	%

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* and *Energy Efficiency Opportunities Regulations 2006*.


Mr Colin A Stitt, Executive Chairman

Date 19/12/2011

Part 2 - Assessment Outcomes

Table 2.1 – Assessment Details

Name of group member or business unit or key activity	
Tableland mill business unit	
Total energy use in the last financial year	1,112,164 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	10 %
Accuracy of above estimates related to energy use assessed - <u>only required if not ±5% or better</u>	±15 %

Accuracy is as per original Assessment and Reporting Schedule. Particular difficulties occur because of:

- Uncertainties and variability associated with both the quantity of bagasse consumed and its heating value.
- The dynamic and variable nature of factory operations.

Period over which assessment was undertaken

	1/7/2009		30/6/2010
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Description of the way in which the entity carried out its assessment

Senior management communicated support and backing for the EEO process at this site, stressing the importance and relevance of the program to higher company objectives.

Resources (personnel and a budget estimate), responsibilities and a broad procedure for conducting the EEO assessment of the unit were established. A range of people were notified of their potential involvement in the EEO process for the unit. The main officer charged with the EEO program attended relevant, energy related workshops during the assessment period.

A high level context document for the business unit was prepared by senior management and distributed to personnel involved in the assessment process as background information. Energy and production data were collected and a summary analysis, including a mass – energy balance and a comparison with other sites, were distributed to personnel involved in the assessment process as a resource for the EEO process.

An idea generating, focus group session was conducted involving a range of personnel. A preliminary culling of ideas was conducted using a "voting" process akin to Nominal Group Technique. A detailed, whole of business evaluation of the more promising ideas was then conducted. Two of the ideas investigated were: a high efficiency fan and power factor correction equipment.

The results of the EEO assessment were documented and reported to the unit manager who reviewed the findings and then elected to progress the idea (typically a capital application for more major works), not progress the idea or request further information.

Progress and outcomes were reported to senior managers during and at the conclusion of the EEO process.

Name of group member or business unit or key activity

South Johnstone mill business unit

Total energy use in the last financial year	3,160,208	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	29	%
Accuracy of above estimates related to energy use assessed - <u>only required if not ±5% or better</u>	±15	%

Accuracy is as per original Assessment and Reporting Schedule. Particular difficulties occur because of:

- Uncertainties and variability associated with both the quantity of bagasse consumed and its heating value.
- The dynamic and variable nature of factory operations.

Period over which assessment was undertaken

	1/7/2008		30/6/2009
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Description of the way in which the entity carried out its assessment

Senior management communicated support and backing for the EEO process at the site, stressing the importance and relevance of the program to company objectives.

Resources (personnel and a budget estimate), personal responsibilities and a procedure for conducting the EEO assessment of the unit were established. A range of people were notified of their potential involvement in the EEO process for the unit. The main officer charged with the EEO program attended relevant, energy related workshops during the assessment period.

A high level context document for the unit was prepared by senior management and distributed to personnel involved in the assessment process as background information. Energy and production data were collected and a summary analysis, including a mass – energy balance and a comparison with other sites, were distributed to personnel involved in the assessment process as a resource for the EEO process.

An idea generating focus group session was conducted involving a range of personnel. A preliminary culling of ideas was conducted using a “voting” process akin to Nominal Group Technique. A detailed, whole of business evaluation of the more promising ideas was then conducted. Two of the ideas investigated were: improved control of back pressure steam pressure and a review of steam trap condition.

The results of the EEO assessment were documented and reported to the unit manager who reviewed the findings and elected to progress the idea (typically a capital application for more major works), not progress the idea or request further information.

Progress and outcomes were reported to senior managers during, and at the conclusion of, the EEO process.

Name of group member or business unit or key activity

Bingera mill business unit

Total energy use in the last financial year	1,977,247	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	18	%
Accuracy of above estimates related to energy use assessed - only required if not $\pm 5\%$ or better	± 15	%

- Accuracy is as per original Assessment and Reporting Schedule. Particular difficulties occur because of:
- Uncertainties and variability associated with both the quantity of bagasse consumed and its heating value.
 - The dynamic and variable nature of factory operations.

Period over which assessment was undertaken	1/7/2010	30/6/2011
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Description of the way in which the entity carried out its assessment

Senior management communicated support and backing for the EEO process at the site, stressing the importance and relevance of the program. A formal "Energy Policy" was developed and promulgated across all departments.

Resources, responsibilities and a broad procedure for conducting the EEO assessment of the business unit were established. A range of people were notified of their potential involvement in the EEO process for the unit. The main officer charged with the EEO program attended relevant, energy related workshops during the assessment period.

A high level context document for the unit was prepared by senior management and distributed to personnel involved in the assessment process as background information. Energy and production data were collected and a summary analysis, including a mass – energy balance and a comparison with other sites, were distributed to personnel involved in the assessment process as a resource for the EEO process.

An idea generating focus group session was conducted involving a range of personnel. A preliminary culling of ideas was conducted using a "voting" process akin to Nominal Group Technique. A detailed, whole of business evaluation of the more promising ideas was then conducted. Two of the ideas investigated were: electrical demand during the non-crushing season and the mill / irrigation river pumps.

The results of the EEO assessment were documented and reported to the unit manager who reviewed the findings and could elect to progress the idea (typically a capital application for more major works), not progress the idea or request further information.

Progress and outcomes were reported to senior managers during and at the conclusion of the EEO process.

A departmental desktop verification audit was undergone during the course of assessing this unit.

As a consequence of the EEO program bat Bingera, another small business unit not directly assessed under the 80% rule is investigating energy efficient lighting and air compressor issues.

Name of group member or business unit or key activity

Millaquin mill and refinery business unit

Total energy use in the last financial year

3,002,858	GJ
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Energy use assessed in this entity as a percentage of total entity energy use

100	%
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Energy use assessed in this entity as a percentage of total corporate energy use

27	%
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Accuracy of above estimates related to energy use assessed - only required if not $\pm 15\%$ or better

± 15	%
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Accuracy is as per original Assessment and Reporting Schedule. Particular difficulties occur because of:

- Uncertainties and variability associated with both the quantity of bagasse consumed and its heating value.
- The dynamic and variable nature of factory operations.

Period over which assessment was undertaken

1/1/2008	1/9/2008
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Description of the way in which the entity carried out its assessment

Senior management communicated support and backing for the EEO process at the site, stressing its importance to higher company objectives. Personnel, a budget estimate, responsibilities and a procedure for conducting the EEO assessment of the unit were set up. Personnel were notified of their potential involvement in the EEO process.

A contextual document for the unit was prepared and distributed to personnel nominated for involvement in the assessment process. Energy and production data were collected, a summarised and distributed as a resource for those involved in the EEO process.

An idea generating focus group session was conducted involving a range of personnel. A preliminary culling of ideas was conducted using a "voting" process akin to Nominal Group Technique. A detailed, whole of business, evaluation of the more promising ideas was conducted. Two of the ideas investigated were: high efficiency electric motors and pump efficiencies (VSD, motor size and impeller diameter).

The results of the EEO assessment were documented and reported to the unit manager who reviewed the findings and could elect to progress the idea (by making a capital application for more major works), not progress the idea; or request further information.

Subsequent to the formal, scheduled EEO assessment a Millaquin:

- A set of energy related metrics has been developed for display along with other production centred data. The data are reviewed at weekly production meetings.
- Following on from the subsequent EEO assessment at South Johnstone, Millaquin has also conducted a survey of its steam traps and applied for funding to maintain / replace leaking traps.
- Some existing mill drives have been electrified, increased / modern electrical generation capacity installed along with a continuous vacuum pan, plate heat exchangers and new, energy efficient fugals.

Installation of an additional, low bagasse moisture mill is under way. An extension of the boiler air heater project previously implemented is in the early stages of consideration for another boiler.

Table 2.2 - Energy efficiency opportunities identified in the assessment

Tableland mill business unit

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 No of Opps	GJ	2 - ≤4 years No of Opps	GJ	
Business Response	Implemented	1	1	450			450
	Implementation Commenced						
	To be Implemented	1	1	39			39
	Under Investigation	2	1	378	1	579	957
	Not to be Implemented						
Outcomes of assessment	Total Identified	4	3	867	1	579	1,446
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 2.2 - continued

South Johnstone mill business unit

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	1	23	1	2,700		2,723
	Implementation Commenced	1	1	30,000				30,000
	To be Implemented	1	1	45				45
	Under Investigation							
Not to be Implemented								
Outcomes of assessment	Total Identified	4	3	30,068	1	2,700		32,768
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 2.2 - continued

Bingera mill business unit

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	1	1	0*				0	
	Implementation Commenced	1	1	13				13	
	To be Implemented								
	Under Investigation	1			1	198		198	
	Not to be Implemented	1	1	17				17	
Outcomes of assessment	Total Identified	4	3	30	1	198		228	
Status of opportunities identified to an accuracy of worse than $\pm 30\%$									
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.

*Opportunity does not reduce energy consumption but increases export of electricity.

Table 2.2 - continued

Millaquin mill and refinery business unit

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	1			1	100,000			100,000
	Implementation Commenced								
	To be Implemented	3	1	7	2	29			36
Outcomes of assessment	Under Investigation								
	Not to be Implemented	2			2	5,379			5,379
	Total Identified	6	1	7	5	105,408			105,415
Status of opportunities identified to an accuracy of worse than ±30%									
Business Response	Implemented								
	Implementation Commenced								
	To be Implemented								
	Under Investigation								
Outcomes of assessment	Not to be Implemented								
	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

Description of Opportunity	Voluntary Information	
	Business Response	Implemented
A supplier offered Tableland mill a higher efficiency, induced draft fan impeller, with specialist wear resistant treatment, as a "no additional cost" alternative to the standard design. There was some technical risk in terms of corrosion, erosion and propensity to build up and go out of balance. One season of operation has been completed successfully. The application has potential application at other factories.	Energy saved (GJ)	550
	Greenhouse gas abated (t CO ₂ -e)	140 (displaced grid supply)
	\$s saved	6,200 (income from KW/h export)
	Payback period (years)	~0 as no cost option
Description of Opportunity	Voluntary Information	
	Business Response	Implemented
The exhaust steam pressure control at South Johnstone mill was managed by two different control systems. Inappropriate interaction between these two systems could lead to wasted energy. Integration of the two controllers to improve the situation was possible with additional instrumentation and control gear along with some programming changes.	Energy saved (GJ)	2,700
	Greenhouse gas abated (t CO ₂ -e)	7 (low as biogenic fuel saving)
	\$s saved	15,000 (import bagasse saving)
	Payback period (years)	< 2
Description of Opportunity	Voluntary Information	
	Business Response	Implemented
Retro-fitting a tubular air heater to the No.2 boiler at the Millaquin site was estimated to have a marginally acceptable payback but additional, whole of business, benefits included: improved combustion stability, reduced particulate emissions due to the inclusion of wet scrubbers as part of the project; and lower CO ₂ -e emissions due to reduced coal consumption.	Energy saved (GJ)	100,000
	Greenhouse gas abated (t CO ₂ -e)	8,800 (reduced coal use)
	\$s saved	650,000
	Payback period (years)	4