VALIDATION REPORT

PROGRAMME OF ACTIVITIES

Biomass residues power generation Programme

28 October 2013

Japan Consulting Institute

REPORT NO. JCI-CDM-VAL-12-009

REVISION NO. 04

Validation Report No.	JCI CDM VAL-12-009
Date of revision	28 October 2013 (REV No. 04)
Project name	Biomass residues power generation Programme
Project Participant(s) / Organization	Standard Bank Plc (CME)
Host Country	South Africa
Project Boundary	South Africa
Methodology	ACM0006 - Consolidated methodology for electricity and heat generation from biomass version 12.1.1
Scale	☑ **Large Scale** ☐ **Small Scale**
Sectoral Scope/ Technical Area	**Sectoral Scope :**1 / **Technical Area:** 1.2
GHG reducing measure/ Technology	Power generation with biomass residues
Emission Reduction estimated	269,952 t-CO2e / year (average) for Amatikulu CPA

Validation Team	*Name*
Team leader	Toshiaki Takeda
Team member	Mitsuo Takano
Team member	-

Technical Reviewer	Haruo Sawada

Conclusion of validation
☑ Positive opinion: JCI's opinion is that the proposed Programme of Activities meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the methodology. Hence, JCI provides a positive opinion and requests the registration of the proposed project as a Programme of Activities.
☐ Negative opinion: JCI's opinion is that the proposed Programme of Activities does not meet all relevant UNFCCC requirements for the CDM and all relevant host country criteria and the supportive evidences are not provided sufficiently. Hence, JCI will not provide a positive opinion and requests the registration of the proposed project as a Programme of Activities.

☐ Unrestricted distribution

Approved by	Checked by
	
Akio Yoshida Executive Director , JCI CDM Center	Hideyuki Sato Evaluation Group Manager, JCI CDM Center

Abbreviations

ACM0006	Approved consolidated baseline and monitoring methodology ACM0006 - Consolidated methodology for electricity and heat generation from biomass
CAR	Corrective Action Request
CL	Clarification Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CERs	Certified Emission Reductions
CME	Coordinating and Managing Entity
CO_2	Carbon dioxide
CPA	Component Program Activity
CPA-DD	Component Program Activity Design Document
CV	Curriculum Vitae
DDs	The PoA-DD and the CPA-DD
DOE	Designated Operation Entity
DNA	Designated National Authority
ERs	Emissions Reductions
EB	The CDM Executive Board under COP/MOP
EIA	Environmental Impact Analysis
FAR	Forward Action Request
FOIK	First-of-its-kind
GHG	Greenhouse Gas
JCI	Japan Consulting Institute
KP	Kyoto Protocol
LoA	Letter of Approval
NA	Not Applicable
PO	Project Owner
PoA	CDM Programme of Activities
PoA-DD	CDM Programme of Activities Design Document
PoA Standard	Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities
PP	Project Participants
SBP	Standard Bank Plc
The CPA	Amatikulu CPA - Renewable Energy Generation Facility
The PoA	Biomass residues power generation Programme
UNFCCC	United Nations Framework Convention on Climate Change
VVS	CLEAN DEVELOPMENT MECHANISIM VALIDATION AND VERIFICATION STANDARD

Content

I. EXECUTIVE SUMMARY - VALIDATION OPINION

Japan Consulting Institute (JCI) has performed a validation work of the large-scale CDM Program of Activities (PoA) with the title "Biomass residues power generation Programme" in the Republic of South Africa (hereafter called the PoA). This report summarizes the findings of the validation of the PoA with generic information relevant to all Component Program Activities (CPAs) to be included in this PoA design document (PoA-DD) to the present date of 28 October 2013 and the PoA specific large-scale CDM programme activities design document (CPA-DD).

The validation was performed on the basis of UNFCCC criteria for PoAs under the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

- The reviews of the PoA-DD, the CPA-DD and the subsequent follow-up interviews have provided JCI with evidences to determine the fulfillment of stated criteria.
- The host country is Republic of South Africa.
- The project correctly applies ACM0006 - Consolidated methodology for electricity and heat generation from biomass version 12.1.1 and referenced Tools.
- The total emission reductions from the project activity are appropriately estimated to be 269,952 t-CO2e / year as the annual average over the 10 years crediting period as stated in the CPA-DD version 1.3 dated 24/10/2013.
- It is JCI's opinion that the PoA as described in the PoA-DD version 1.4 dated 30/07/2013 and the CPA-DD version 1.3 dated 24/10/2013 meet relevant UNFCCC requirements for the PoA and the CPA, and relevant host country criteria and correctly apply the methodology ACM0006 version 12.1.1.

JCI thus provides a positive validation opinion and the requests for the registration of the proposed project as a PoA.

II. INTRODUCTION OF VALIDATION

The Client has commissioned JCI to perform a validation of the Biomass residues power generation Programme in South Africa (hereafter called "the PoA").

This report summarizes the findings of the validation of the PoA, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent programme operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.

1. Objective of CDM validation

The objective of the validation is to have an independent assessment of the PoA against the applicable CDM requirements as set out in decision 3/CMP.1, its annex and relevant decisions of the COP/MOP, on the basis of the programme design documents.

In particular, the project's baseline, monitoring plan, and the programme compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that DDs, as documented, are sound and reasonable and meet the identified criteria.

Validation is a requirement for all CDM projects and programme and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

2. Validation approach

The validation approach is to determine whether the proposed PoA complies with the requirements of paragraph 37 of the CDM M&Ps, the applicability conditions of the selected methodology and guidance issued by the Board and to assess the claims and assumptions made in the PoA-DD and the CPA-DD.

The validation is not meant to provide any consultancy towards the project participants.

However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

3. Means of validation

JCI applies the means of validation specified throughout the VVS and where appropriate standard auditing techniques, including, but not limited to:

(a) Document review, involving:

(i) A review of data and information;

(ii) Cross checks between information provided in the PDD (PoA-DD,CPA-DD) and information from sources other than those used, if available, the DOE's sectoral or local expertise and, if necessary, independent background investigations.

(b) Follow-up actions (e.g. on-site visit and telephone or email interviews), including:

(i) Interviews with relevant stakeholders in the host country, personnel with knowledge of the project design and implementation;

(ii) Cross checks between information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted.

(c) Reference to available information relating to projects or technologies similar to the proposed CDM project activity registered and under validation; and

(d) Review, based on the approved methodology being applied, of the appropriateness of formulae and correctness of calculations.

3.1 Corrective action requests, clarification requests and forward action requests

If, during the validation of a PoA, JCI identifies issues that need to be further elaborated upon, researched or added to in order to confirm that the PoA meets the CDM requirements and can achieve credible emission reductions, JCI shall ensure that these issues are correctly identified, discussed and concluded in the validation report.

JCI shall raise a corrective action request (CAR) if one of the following occurs:

(a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;

(b) The CDM requirements have not been met;

(c) There is a risk that emission reductions cannot be monitored or calculated.

JCI shall raise a clarification request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

JCI shall raise a forward action request (FAR) during validation to highlight issues related to program implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

JCI shall resolve or "close out" CARs and CLs only if the project participants modify the project design,

rectify the PDD (PoA-DD, CPA-DD) or provide adequate additional explanations or evidence that satisfies the DOE's concerns. If this is not done, the DOE shall not recommend the project activity for registration to the CDM Executive Board.

JCI shall report on all CARs, CLs and FARs in its validation report. This reporting shall be undertaken in a transparent and unambiguous manner that allows the reader to understand the nature of the issue raised, the nature of the responses provided by the project participants, the means of validation of such responses and clear reference to any resulting changes in the PDD (PoA-DD, CPA-DD) or supporting annexes.

The validation protocol consists of two tables. The different columns in these tables are described as followings.

Validation protocol tables

Table 1: Requirements checklist

- ✧ Requirement (Checklist Question) :
  The various requirements in Table 1 are checklist questions the project should meet. The checklist is organized in different sections, following the logic of the latest VVS, the PoA-DD, CPA-DD Guidelines and the PoA-DD, CPA-DD templates. Each section is then further sub-divided.
- ✧ Reference :
  Gives reference to documents where the checklist question or item is found. Paragraph No. of VVS is referred.
- ✧ Check Comment :
  The column is used to elaborate and discuss the checklist question and/or the conformance to the question.
- ✧ ID No. of CAR, CL and FAR :
  - · ID No. of **CAR, CL** and **FAR** is described.
  - · Corrective Action Request (**CAR**) is used due to non-compliance with the checklist question.
  - · Clarification Request (**CL**) is used when the validation team has identified a need for further clarification.
  - · Forward Action Request (**FAR**) is used to highlight issues related to project implementation that require review during the first verification of the project activity.

Table 2: Resolution of Corrective Actions, Clarification Requests and Forward Action Requests

- ✧ Clarifications and corrective action requests :
  If the conclusions from the draft Validation are a **CAR,** a **CL** or a **FAR**, these should be listed in this section.
- ✧ Ref. to checklist question in Table1 :
  Reference to the checklist question number in Table1 where the **CAR, CL** or **FAR** is explained.
- ✧ Summary of project owner response :
  The responses given by the project participants during the communications with the validation team should be summarized in this section.
- ✧ Validation team conclusion :
  This section should summarize the validation team's responses and final conclusions.

4. Global Stakeholder Consultation

JCI made the PoA-DD version 1.0 dated 31/05/2012, the CPA-DD version 1.0 dated 28/06/2012 of the project activity under consideration publicly available on UNFCCC website and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 14/07/2012 to 12/08/2012.

As a result of the consultation, no comment was received during the above 30 days period.

III. VALIDATION WORK

JCI carried out the validation work to ensure that the project activity complies with the requirements of paragraph 37 of the CDM modalities and procedures

1. Validation Team

Details of the validation team are shown in below Table.

Table 3. Validation Team Qualification

Name	Role/Qualification	Qualified Technical Areas related to the Project	On-site Visit
Toshiaki Takeda	All relevant issues / Team Leader	TA1.2	✔
Mitsuo Takano	CDM auditor / Team Member	TA1.2	

Details of the technical reviewer are shown in below Table.

Table 4. Technical Reviewer Qualification

Name	Qualified Technical Areas related to the Project
Haruo Sawada	TA1.2

2. Appointment certificate of the DOE's validation team member

The certificate of appointment of validation team member is attached in Appendix B to this report.

3. Quality Control within the team of the validation process

The validation report worked out by the team underwent an internal review process for the assurance of being in compliance with the applicable requirement of the latest version of VVS.

JCI applies internally established Quality Management Program for the required review process, which is defined as follows;

1) Internal Review for the interim check by the internal audit team and the technical reviewer
2) The evaluation of the validation work in the CDM evaluation committee consists of outside experts
3) Internal review for the final check by the internal audit team and the technical reviewer

The review and evaluation including the technical review are implemented for every validation work by the competent personnel assigned in accordance with JCI's qualification scheme for CDM validation and verification.

4. Desk Review

The following documents were reviewed:

Table 5. Document list

No.	Title
DDs, Methodology, Tools, Guidance, Guidelines, Manual	
/A-1/	PoA-DD of Biomass residues power generation Programme (version 1.0) dated

No.	Title
	31/05/2012
/A-2/	PoA-DD of Biomass residues power generation Programme (version 1.4) dated 30/07/2013
/A-3/	CPA-DD of Amatikulu CPA - Renewable Energy Generation Facility (version 1.0) dated 28/06/2012
/A-4/	CPA-DD of Amatikulu CPA - Renewable Energy Generation Facility (version 1.3) dated 24/10/2013
/A-5/	Tool to calculate the emission factor for an electricity system (version 04.0.0)
/A-6/	Tool for the demonstration and assessment of additionality (version 07.0.0)
/A-7/	Approved consolidated baseline and monitoring methodology ACM0006 - Consolidated methodology for electricity and heat generation from biomass (version 12.1.1).
/A-8/	"Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" (version 02)
/A-9/	"Emissions from solid waste disposal site" (version 06.0.1)
/A-10/	"Tool to calculate baseline, project and/or leakage emissions from electricity consumption" (version 01)
/A-11/	"Tool to determine the baseline efficiency of thermal or electric energy generation systems" (version 01)
/A-12/	"Project and leakage emissions from transportation of freight" (version 01.1.0)
/A-13/	Glossary of CDM terms (version 07)
/A-14/	Clean Development Mechanism Validation and Verification Standard (version 05.0)
/A-15/	Standard: Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Program of Activities (version 03.0)
/A-16/	Guidelines for Completing the Program Design Document form for CDM Program Activities (version 04.0)
/A-17/	Guidelines for Completing the Component Project Design Document Form (version 01.0)
/A-18/	GUIDELINES ON COMMON PRACTICE (version 02.0)
/A-19/	GUIDELINES ON ADDITIONALITY OF FIRST-OF-ITS-KIND PROJECT ACTIVITIES (version 02.0)
/A-20/	Guidelines on the assessment of investment analysis (version 05.0)
/A-21/	"Tool to determine the remaining lifetime of equipment" (version 01)
/A-21/	"Assessment of the validity of the original/current baseline and to update of the baseline at the renewal of the crediting period" (version 03.0.1)
/A-22/	Standardized baseline : Grid emission factor for the Southern African power pool (version 01)
Reference – PoA DD	
/B-1/	1998 NatEnvMngmntAct

No.	Title
/B-2/	2009 NERSA REFIT_Guidelines
/ B-3/	2010 EIA-Environmental-Impact-Assessment-Regulations-South-Africa
/ B-4/	2010 Integrated Resource Plan for Electricity
/ B-5/	2011 White-Paper-on-Climate-Change-Response
/ B-6/	2007- Carbon Dioxide Emissions From Power Plants Rated Worldwide-Science Daily
/ B-7/	2009 Odhiambo - Energy consumption prices and economic growth in three SSA countries a comparative study.
/ B-8/	2010 Edkins et al-South Africa's renewable energy policy roadmaps
/ B-9/	2011-Shifting Policies Stall South Africa´s Renewable Energy Growth
/ B-10/	Declaration of Non-Use of ODA issued by the CME, Standard Bank Plc dated 12/09/2012
/B-11/	The MoC of the PoA
/B-12/	The LoA of "Biomass residues power generation Programme issued by the DNA of South Africa dated 31/10/2012
/B-13/	South Africa DNA. (2004, October). *SD criteria for approval of CDM projects by the DNA* http://www.energy.gov.za/files/esources/kyoto/Web%20info/Annex%203%20SA%20Sustainable %20Development%20Criteria.pdf
/B-14/	CVs of three CME members
/B-15/	CME Management System version 3.0 dated July 2013 issued by Standard Bank Plc
Reference – CPA DD	
/C-1/	TH Amatikulu Baseline-Project-ER Calculation GSC
/C-2/	0745-028-7000 - REV 01 - PROJECT PROCESS FLOW DIAGRAM
/C-3/	Amatikulu Baseline Expanded Mill Steam Balance Extract (031-12)
/C-4/	Tongaat Hulett Amatikulu Front End Engineering Design - Bosch Projects EPC Tender Version May 2012
/C-5/	EIA scoping report
/C-6/	EIA final report
/C-7/	Public Consultation report-Appendix C of EIA scoping report
/C-8/	"A REVIEW OF THE COMMON CAUSES OF BOILER FAILURE IN THE SUGAR INDUSTRY" by *Alstom Power – John Thompson Boiler Division, Cape Town, South Africa*
/C-9/	USB[1] LEADERS LAB, AUGUST 2007 - Renewable Energy: "Can sugar provide A SPARK?"

[1] University of Stellenbosch Business School

No.	Title
/C-10/	SASTA 2009-2010 Annual Review
/C-11/	SASTA 2010-2011 Annual Review
/C-12/	SASTA 2011-2012 Annual Review
/C-13/	2009 NERSA Energy Figures
/C-14/	2010 NERSA Energy Figures
/C-15/	2011 NERSA Energy Figures
/C-16/	AK Steam-bagasse-coal records 2009-2011
/C-17/	Imports monthly analysis Amatikulu 2010
/C-18/	Power production monthly details 2009-2011
/C-19/	RSA DoE Release - IPP Financial Closure delays - 10 Sept 2012
/C-20/	Global Agricultural Information network's semiannual assessments of Sugar Production and Demand in South Africa
/C-21/	"BOILERS, BOILER FUEL AND BOILER EFFICENCY" Proc S Afr Technol Ass (2001) 75, *Sugar Milling Research Institute, Durban, South Africa*
/C-22/	Acknowledgment of receipt of the final EIA report on 18/09/2012 issued by the Department of Environmental Affairs dated 02/10/2012
/C-23/	Steam Table 1999 published by Japan Society of Engineering in 1999
/C-24/	Tongaat Hulett Interim results 2011
/C-25/	2004-2011 Historical Bagasse Data for Amatikulu
/C-26/	Technical Report No. 2023 (RC) March 2008 "Sugar Factory Plant Installations 2007" compiled by Sugar Milling Research Institute[2]
/C-27/	Official Statement Letter from Sugar Milling Research Institute dated 6 August 2012. The letter confirms (i) that none of the sugarcane industry players in South Africa has recovered can leaves in substantial quantities for energy purposes to date, let alone wood chips, and (ii) that no bagasse-to-power plant in South Africa has been commercially operating power units of more than 15 MW of electrical capacity each.
/C-28/	Spreadsheet of emission reductions calculations
/C-29/	The binding agreement dated 22 November 2012 signed by Standard Bank Plc (CME) and the Tongaat Hulett (Amatikulu CPA implementer)
/C-30/	An official letter issued by the Tongaat Hulett addressed to Commissioner For The South African Revenue Service dated 29 February 2012, in which fuel consumptions of bagasse and coal during last three years were reported.
/C-31/	The independent assessment report on the remaining lifetime of existing Amatikulu boilers and turbo-alternators titled "CAP-DD Independent Report Renewable Electricity Generation Project: Power Plant Tongaat Hulett Amatikulu Mill" issued by Bosch Projects in June 2013

[2] The SMRI was established in 1949 and has been providing consulting and training service to the members of sugar mills mainly in South Africa

No.	Title
/C-32/	Environmental Authorization of the project activity issued by the Department of Environmental Affairs of Republic of South Africa dated on 28/03/2013
/C-33/	Mass and Energy balance diagram
/C-34/	Steam Turbine Maintenance Program : Minor (yearly) and Major Overhaul (every 5 years) Plans issued by Weir Power Industrial
/C-35/	Boiler Shift Log Sheet Samples (Operation monitoring records)
/C-36/	Turbine-Alternator Shift Log Sheet Samples (Operation monitoring records)
/C-37/	Magnetic Surface Flaw Detection Test of Boiler No.5 Drum and Header Ligaments by KUWA-ZULU INSPECTION SERVICE C.C. (Date of Test : 25/01/2013)
/C-38/	Boiler No. 5 Front and Walls Inspection Report by KUWA-ZULU INSPECTION SERVICE C.C. (Date of Test : 15/04/2013)
/C-39/	Boiler No. 5 Pressure Test and Wall Thickness Survey Report by KUWA-ZULU INSPECTION SERVICE C.C. (Date of Test : 08/05/2013)
/C-40/	Boiler No. 4 Statutory Inspection Report implemented by STELL TEST with use of an inspection system with IRIS back-up dated 15/03/2013 (Measurement of the thickness of boiler main tubes)
/C-41/	Boiler No.4 Inspection/test Report dated 20/04/2011 issued by INS (Certificate of boiler internal/external inspection and hydraulic pressure test, conducted annually)
/C-42/	Boiler No.2 Inspection/test Report dated 20/04/2011 issued by INS (Certificate of boiler internal/external inspection and hydraulic pressure test, conducted annually)
/C-43/	"BOILER INSPECTION REPORT" dated 31/01/ 2013 issued by CLARIANT (Visual inspection report of water side of Boilers 1 to 5)
/C-44/	Boiler No. 1 Tube Thickness Test Report by STELL TEST dated 12/03/2001
/C-45/	Turbo-Alternator No.3 Major Overhaul Report by Turbine Generator Services dated 20/02/2012
/C-46/	Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) Pressure Equipment Regulations dated 15 July 2009
/C-47/	Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) Incorporation of Health and Safety Standards into The Pressure Equipment Regulations, 2009 dated 03/02/2012.
Reference – General	
/ D-1 /	"Certificate of Appointment of Validation Team" signed by Mr. Geoff Sinclair, Head of Carbon Sales and Trading, Standard Bank Plc
/ D-2 /	CDM validation contract between JCI and Standard Bank Plc as of June 01, 2012 signed by Mr. Geoff Sinclair, Head of Carbon Sales and Trading, Standard Bank Plc
/ D-3 /	Summary report of the on-site assessment dated 23 August 2012

Main changes between the first version of the DDs published for the 30 days stakeholders commenting period and the final version of the DDs submitted for registration are listed below Table 6:

Table 6. Major Changes in the Content of the DDs

Subject and section in the DDs	Original content in the PoA-DD/A-1/ or the CPA-DD /A-3/	Revised content in the PoA-DD/A-2/ or the CPA-DD /A-4/	Issued CAR or CL Relevant tool, guidance, or guidelines applied
LoA from the host country	LoA from South Africa was not provided	The LoA was provided and confirmed appropriate	CAR-1
PoA start date in section D.2 (PoA-DD)	01/01/2016 (expected date of commissioning of the first CPA or date of inclusion of the first CPA, whichever is later) was defined	The start date of the PoA was revised to 14/07/2012, the date of publication of the PoA-DD for global stakeholder consultation	CAR-2 The Glossary of CDM terms ver. 07
Eligibility criteria in section B.5 (DDs)	No supplemental criteria were defined by the CME	Four supplemental criteria were added by the CME	-
Applied FOIK guidelines in section D.4 (CPA-DD)	version 01.0 was applied	Updated to version 02.0	CAR-7
Applied methodology version in section B.1 (PoA-DD)	ACM 0006 version 12.0.1 was applied	Updated to ACM 0006 version 12.1.1	EB69
Grid emission factor and annual average emissions reductions in sections A.3,A.10 and D.6.4 (CPA-DD)	South Africa grid emission factor was calculated and then the emission reduction was calculated to be 267,255 tCO_2e	Revised to 269,952 tCO_2e, as the result of application of the Standardized Baseline : Grid emission factor for the Southern African power pool version 01	EB73
The application of eligibility criteria for large-scale projects in section B.1 (PoA-DD)	The inclusion of the criteria was not stated.	The inclusion of the criteria was stated appropriately.	CAR-9
Emission reductions from heat component in section D.6.(CPA-DD)	The reductions from the heat component were included in the calculation.	The reductions from the heat component are excluded from the calculations as the project owners have decided to	-

		conservatively neglect the reductions.	
Template of PoA-DD	F-CDM-PoA-DD version 02.0 was applied	Updated to F-CDM-PoA-DD version 03.0	EB70
Project start date of the CPA	Assumed appropriately to be 07/05/2013 when PO was expected to make a financial commitment for bidding of a power supply scheme of South Africa.	Updated to 01/12/2013 reflecting the change of bidding schedule of the scheme to participate.	-
Credit start date of the CPA	Defined as 01/01/2016	Updated to 01/01/2018 reflecting overall project schedules	-
Efficiencies of the heat generators of the baseline scenario and the project activity of the CPA	77% was estimated for the baseline scenario and 89% for the project activity	They were recalculated and as a result, 81.8% was estimated for the baseline scenario and 94% for the project activity	-

5. Follow-up actions (Interviews with relevant stakeholders in the host country)

The on-site visit and interviews with project stakeholders were conducted by Toshiaki Takeda/Team Leader from 20 to23 August 2012 at the project site and the project participant office near Durban, South Africa.

The names of interviewees and topics discussed are listed below:

Table7. List of interviewees and topics discussed

Ref. No.	Date	Organization/Attendance	Topics discussed/venue
/E-1/	**20/08/2012**	**Tongaat Hulett (PO)** Mr. Dave Meadows Mr. Nico Kruger Mr. Craig Jensen Dr. Beki Hlatshwayo **ecosur afrique (CDM Consultant)** Mr. Alexandre Dunod	➢ **Interview with the PO at the PO's office** • Introduction to JCI • Site visit overall schedule • Introduction to PO • Sugar mill plant operation • Backgrounds of the project development • Project implementation schedules • Technical matters relevant to new equipment introduction
/E-2/	**20/08/2012**	**ecosur afrique (CDM Consultant)** Mr. Alexandre Dunod	➢ **Interview with the PoA-DD/CPA-DD author at hotel**

			• Calculations of available amount of biomass residues • Applicability of another baseline scenario • Heat and electricity balance issue
/E-3/	**21/08/2012**	**Tongaat Hulett (PO)** Mr. Chris Schutte Mr. Steve Peacock Mr. Deon Van den Berg Dr. Beki Hlatshwayo **ecosur afrique (CDM Consultant)** Mr. Alexandre Dunod **Local stakeholders (Cane farmer)** Mr. Rex Talmagle Mr. David Littley	➢ **Interview with local stakeholders and sugar mill staffs at the Amatikulu sugar mill** • Assessment of and expectation to the proposed project • Local stakeholder meeting results • Current cane harvesting cycle • Cane growing expansion plan • Cane leaves collection method in the future
/E-4/	**22/08/2012**	**Tongaat Hulett (PO)** Dr. Beki Hlatshwayo **ecosur afrique (CDM Consultant)** Mr. Alexandre Dunod **Bosch Projects** Mr. Andrew Cruickshank Mr. Deric Dignon	➢ **Interview with Bosch Projects (Engineering company) at Bosch Projects Office** • Company profile and scope of work • Differences of technical requirements between high-pressure and low-pressure boilers • Differences of technical requirements between small-scale and large-scale generators • Modification plan on the existing sugar manufacturing process in the Amatikulu sugar mill • Information on large-scale generator installations in SA and surrounding countries • Further survey by Bosch Projects on large-scale generator installations in sugar mills in SA and neighboring countries
/E-5/	**22/08/2012**	**Tongaat Hulett (PO)** Dr. Beki Hlatshwayo **ecosur afrique (CDM Consultant)** Mr. Alexandre Dunod **Sugar Milling Research Institute** Mr. Gavin T Smith	➢ **Interview with Sugar Milling Research Institute (SMRI) at SMRI** • Profile of the institute and scope of work • Current waste treatment practice for bagasse and other biomass residues in SA • Assessment of the project activity • Information on installed capacities of power generation / heat generation in sugar mills in SA and neighboring countries

			• Survey result on Sugar Factory Plant Installations and its update
/E-6/	22/08/2012	**Tongaat Hulett (PO)** Dr. Beki Hlatshwayo **ecosur afrique (CDM Consultant)** Mr. Alexandre Dunod **Eskom** Mr. Ravi Moonsamy Mr. Sifiso Msomi	➢ **Interview with Eskom (Grid company) at Eskom office** • Company profile including coverage of power distribution in SA • Power supply contract with power plants using renewal energies • Expected power supply contract schedule for the project activity • The tariff deciding scheme to be applied to the project activity • Roles of Eskom in power purchase from outside suppliers • Monitoring method of electricity imported from and export to customer plants • Line loss rate assumed for electricity import • Tariff revision scheme • Electricity supply/demand balance in Amatikulu area
/E-7/	22/08/2012	**Tongaat Hulett (PO)** Dr. Beki Hlatshwayo **ecosur afrique (CDM Consultant)** Mr. Alexandre Dunod **Geomeasure Group** Mr. Rupert Sebire Mr. Jonathon Thompson	➢ **Interview with Geomeasure Group (EIA report author) at Geomeasure Group office** • Company profile • Certificate for environmental assessment • Steps taken for EIA • Procedures for holding local stakeholder meetings and relevant regulations • Current final EIA report submission and authorization schedules • Monitoring of project implementation by government authorities during construction and after commissioning

IV. VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of validation and the results from the validation process are identified and documented in more detail in the validation protocol.

Findings issued through the validation

JCI issued 9 CARs, 18 CLs and 1 FAR as shown in the Validation Protocol, Appendix A of this report. All the 9 CARs and 18 CLs were resolved and then closed as shown in the Table 3 of the Appendix A.

Major issues and its resolution process through the CARs and CLs are described in following items according to VVS /A-14/.

1. Approval and authorization

A copy of the LoA /B-12/ was provided from the project participant and was validated as below:

1) The LoA of "Biomass residues power generation Programme" was issued by the DNA of South Africa dated 31/10/2012

2) Through the review, JCI can determine that the LoA confirms the following:
   (1) South Africa is a Party to the Kyoto Protocol ratified on 31July 2002, confirmed with UNFCCC website
   (2) Participation is voluntary
   (3) The proposed project contributes to the sustainable development of South Africa
   (4) The LoA refers to the precise proposed project title "Biomass residues power generation Programme" described in the PoA-DD and the CPA-DD being submitted for registration
   (5) The LoA authorized Standard Bank Plc as the project proponent and also CME to participate in the proposed project, of which consistency was confirmed with the cross check of the PoA-DD and the CPA-DD.

The CME excluded UK from the list of Parties involved and as a result South Africa remained as the host Party.

As argued above, JCI concluded that the LoA is credible and fully comply with the requirements by the CDM.

CAR-1 was raised as a copy of the LoA from the host country, South Africa for validation was not provided. As above a copy of the LoA was provided, CAR-1 was closed.

2. Modalities of Communication

JCI validated the MoC (Modalities of Communication) /B-11/ issued by the project participant, Standard Bank Plc as follows:

1) The project participant appropriately used VVS track MoC template F-CDM-MOC (version 02.1) for the preparation of the MoC.

2) The project participant of the PoA is Standard Bank Plc (SBP) only, which was confirmed consistent with the PoA-DD/A-2/.

3) The focal point information in Annex 1 of the MoC is consistent with Annex 1 of the PoA-DD. The registered representative of both the MoC and the PoA-DD is Mr. Geoff Sinclair, Head of Carbon Sales Trading of SBP. His title and the company address were cross checked with his name card received when he visited JCI office this year, and confirmed consistent.

Though the MoC itself was received through the CDM consultant together with other documentation, the content of the MoC was considered reliable and appropriate. The signature of Mr. Geoff Sinclair on the MoC was compared with the signatures on the below three documents and confirmed they are the same.

(1) The CDM validation contract with JCI /D-2/
(2) The letter of "Non-use of Official Development Assistance" issued by Standard Bank Plc dated 12/09/2012 /B-10/
(3) Certificate of "Appointment of Validation Team" /D-1/

In summary JCI can validate that the MoC is in compliance with the requirements stipulated in para 53 of VVS /A-14/..

3. Management System

1) Coordinating/managing entity and participants in a PoA

JCI assessed the operational and management plan developed by Standard Bank Plc as the Coordinating and Managing Entity (hereafter referred to "the CME" or "SBP") for the proposed PoA, whether the

distinct and transparent description of the operational and management arrangement with its CPA entities were developed, through the document review and interviews and observation during the on-site assessment.

The first CPA under the CME's management is "Amatikulu CPA - Renewable Energy Generation Facility", to be operated by Tongaat Hulett Ltd in South Africa (hereafter referred to "the CPA implementer").

JCI confirmed that SBP as the CME developed the operating and implementing framework of the PoA, including the roles and responsibility of each entity: SBP as the CME as demonstrated in SECTION C. of the PoA-DD, and its CPA entities as demonstrated as an example in sections A.3. and D.5. of the CPA-DD.

JCI has assessed these elements of the management system stated in the PoA-DD according to Para.19 of the *Standard* /A-15/, as below:

(a) The PoA-DD specified the roles and responsibilities of SBP as CME for the PoA. JCI has confirmed that they fully cover the roles and responsibilities expected to CME from the initial stage to the last stage of developing each CPA.

JCI raised CL-8 as clear and detailed descriptions about the profile of the group acting as the CME, including their competencies were not provided. In response to CL-8, three CVs of the CME members /B-14/ were provided. As JCI confirmed that the three members have sufficient academic careers (MBA, M.Sc. and M. Eng) and also working experiences in CDM fields, CL-8 was closed.

(b) JCI has confirmed that the CME planned to establish training and capacity development records which would include all instruction sessions and workshops related to CDM procedures and project management form for the members of the compliance team. JCI has also confirmed that the CME defined the records as part of the CPA Inclusion Procedure.

(c) The procedure for technical review of inclusion of CPAs was appropriately tabulated by the CME consisting of 13 steps in the PoA-DD. JCI validated the 13 steps demonstrated in the table and could confirm that the 13 steps sufficiently covers steps required for inclusion of CPA starting with the first step of verifying all the eligibility criteria ending with the last step of confirming the inclusion.

JCI could also confirm that the CME planned to commission this task to a competent individual or team appropriately.

(d) JCI has confirmed that the procedure to avoid double counting was stated in Table 3 including three criteria, which was validated appropriate in assessing CPAs of large scale projects. JCI also has confirmed that these criteria were appropriately incorporated in the eligibility criteria.

(e) The PoA-DD specified to establish and maintain a database to records detailed project specifications and monitoring data of each CPA as part of CME responsibility. Further four categories of documents which require specific procedures for collection, approval processes, document identification storage are specified appropriately.

(f) The PoA-DD specified the internal audit process and the periodic meetings as measures for continuous improvements of the PoA management. The audit is planned to be conducted by competent auditors to measure and improve the performance and the personnel. The periodic meeting is planned for issue findings and their solution discussions by relevant groups in CME. JCI has validated that they are effective in continuously improving the PoA management.

JCI also confirmed that the SBP has sufficient competencies to check the features of potential CPAs and to ensure that each CPA meets all requirements and eligibility criteria before inclusion in the registered PoA.

JCI confirmed that the management system described in the PoA-DD is in accordance with the *Standard* /A-15/.

2) Entity/individual responsible for CPA

JCI confirmed that Tongaat Hulett is the responsible project owner and implementer of the CPA "Amatikulu CPA Renewable Energy Generation Facility".

Through the site visit including interviews with relevant persons and entities, JCI confirmed that Tongaat Hulett as the CPA implementer has the sufficient competencies to implement and monitor the CPA.

JCI can assessed that Tongaat Hulett has capable and experienced in-house engineers both at the head office and at the sugar mill well confirmed with the interviews and through discussions during the site visit /E-1/, /E-3/, /E-7/. Further JCI could confirm that Tongaat Hulett has been employing first class consulting institutes, Bosch Projects and Geomeasure Group. JCI assessed their capabilities through document reviews of their reports and design document /C-4/, /C-5/, /C-6/; and also through the interviews and discussions /E-4/, /E-7/.

4. PoA/CPA design document

Through desk reviews and Q&A sessions with the PoA-DD/CPA-DD author, JCI confirmed that the PoA-DD /A-2/and the CPA-DD/A-4/ are described based on and referring to the following relevant tools, guidance, guidelines, and standard:

(1) CDM VVS (version 05.0)

(2) ACM0006 version 12.1.1 "Consolidated methodology for electricity and heat generation from biomass "

(3) Tool for the demonstration and assessment of additionality (version 07.0.0)

(4) Tool to calculate project or leakage CO2 emissions from fossil fuel combustion (version 02)

(5) Emissions from solid waste disposal sites (version 06.0.1)

(6) Tool to calculate baseline, project and/or leakage emissions from electricity consumption (version 01)

(7) Tool to calculate the emission factor for an electricity system (version 04.0.0)

(8) Tool to determine the baseline efficiency of thermal or electricity generation systems (version 01)

(9) Tool to determine the remaining lifetime of equipment (version 01).

(10) Assessment of the validity of the original/current baseline and to update of the baseline at the renewal of the crediting period (version 03.0.1)

(11) Project and leakage emissions from transportation of freight (version 01.1.0)

(12) Guidelines on Common Practice (version 02.0)

(13) Guidelines on additionality of first-of-its-kind project activities (version 02.0)

(14) Guidelines on the assessment of investment analysis (version 05.0)

(15) Standardized baseline: Grid emission factor for the Southern African power pool (version 01)

The PoA-DD appropriately assumes the application of the above grid emission factor. JCI confirmed that it sufficiently justified the application that CPAs to be included shall be located within the Republic of South Africa, one of the SAPP members and will also comply with the other eligibility criteria stipulated in the Standardized baseline.

(16) Standard: Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Program of Activities (version 03.0)

"Tool for the identification of degraded or degrading lands for consideration in implementing CDM A/R project activities" is not applicable because there is no A/R component in the program

The project design was described using the latest PROGRAMME DESIGN DOCUMENT FORM FOR CDM PoAs (CDM PoA-DD) version 03.0 as shown in the PoA-DD /A-2/ and COMPONENT PROJECT ACTIVITY DESIGN DOCUMENT FORM (CDM-CPA-DD) version 02.0 as shown in the CPA-DD /A-4/, which were confirmed through comparison with the templates listed on the UNFCCC website.

As described above, JCI judged that the PoA-DD /A-2/, the CPA-DD /A-4/ are compiled with use of the appropriate format and described based on appropriate tools, guidelines, manual and guidance which are specified and requested by the CDM procedures.

5. Description of a PoA/CPAs

The contexts of the PoA-DD and the CPA-DD were checked through desk reviews and also cross checked during the on-site assessment conducted from 20 to 23August 2012 with the following measures:

1) Observation of the project site
2) Cross-check of the planned construction work with a tender sheet compiled by the engineering company in charge of the basic technical design of the project activity /C-4/
3) Interviews with the project participant, the engineering company, and other relevant organizations/entities and local stakeholders shown in Table 7 above /E-1/, /E-3/, /E-4/, /E-6/,/E-7/.

As the result of the above steps, JCI validated and concluded that the descriptions of the PoA-DD and the CPA-DD are correct and its contexts are consistent, sufficient, and well outline the nature and technical aspects of the proposed CPA.

5.1 PoA

The PoA-DD in A.2. (PART-I) defined the CPAs to be implemented under the PoA that they are "the implementation, replacement or retrofit of power-and-heat plants, utilizing biomass residues as primary fuel. Extra electricity is likely to be exported into the electrical distribution grid, displacing the equivalent power generated from a fossil-fuel intensive baseline energy mix" and in A.1. of its Generic CPA section (PART-II), electricity export to the grid of South Africa was added to be executed in line with the Department of Energy's Renewable Energy Independent Power Producer Procurement Programme.

5.2 CPA

The CPA-DD clearly outlined the project features that it will construct a new cogeneration plant consists of high-performance boilers and turbo-alternators with use of bagasse and leaves of sugar cane and wood chips and export excess electricity to the grid of South Africa, and replace existing cogeneration power plant consists of low-performance boilers and turbo-alternators with use of bagasse only.

The major features of the CPA described in the CPA-DD are summarized below, which were confirmed accurate through the project site observation and the interviews with the sugar mill staff /E-3/, the engineering company /E-4/ and the institute compiled the EIA report /E-7/ during the site visit; and also the desk review of the design sheet developed for the tender /C-4/:

- Project site : Amatikulu, KwaZulu-Natal (KZN), South Africa. During the site visit, it was confirmed that a new cogeneration power-and-heat plant will be constructed next to the existing cogeneration power plant using current open space inside the Amatikulu sugar mill.
- Sectoral scope : 1 (Energy industries)
- Technical area : 1.2
- Project type : Installation of a new co-generation plant to replace the existing co-generation plant. As fuel the use of biomass residues is expanded to leaves of sugar cane and wood chips in addition to current bagasse. Excess electricity will be supplied to the grid.
  - New boiler : 2 x 200 tons/h (110 bar, 540 °C)
  - New turbo-alternator : 33.6 MW (back pressure type) + 57.7 MW (condensing type)

- Project operational lifetime : over 25 years was assumed provided that appropriate maintenance and overhauls would be conducted periodically.
- Crediting period : 10 years (fixed)
- New co-generation power plant operation start : year 2018 (expected)
- Net grid-connected electricity : 291,692 MWh/year (average)
- GHG emission reductions : 269,952 tons CO_2/year (average)

JCI confirmed that the PoA-DD appropriately specified its length to be 28 years.

Baseline Scenario vs. Project Activity

The Amatikulu sugar mill design capacity would be increased from 385 to 433 tons cane per hour with the improvements of sugar manufacturing processes to resolve its current bottlenecking. As the milling campaign in South Africa has been limited usually from April through December, the annual capacity increase of the mill requires the hourly capacity increase. The capacity increase is justified by both upstream increasing sugar cane supply capacity and downstream long-term prospects for increased sugar demand in Southern Africa. During the site visit, it was confirmed with the interviews with the sugar mill technical staffs and the local stakeholders (sugar cane farmers) that the capacity increase annual plan had been already initiated step by step toward the targeted over 2 million tons sugar cane processing in year 2018.

As the refining of produced raw sugar has been implemented at another plant, the Amatikulu mill includes following three major processes for raw sugar manufacturing:

1) Crushing of sugar cane
2) Juice production by extracting sugar from finely-crushed cane with a hot-water showering process
3) Juice concentration, crystallization and drying to convert to raw sugar

To meet the planned hourly capacity increase of the mill from the current maximum 385 to 433 tons cane per hour, the milling plant needs to increase hourly heat generation capacity. As shown above, the processes 2) and 3) will require more heat energy to increase their hourly process capacities.

As the baseline scenario, to meet additional heat demand, it is assumed to additionally install a new 37.5 tph boiler, which is selected appropriately as having a sufficient capacity and also the same technical specifications of the current four 42 tph boilers (upgraded from the original 37.5 tph after installation). With the installation, the total boiler install capacity of the power plant increases from the current 253 tph to 291 tph, increased by 15%, thus fulfilling increased demand of 268 tph as averaged boiler load in year 2018 onward calculated in the spreadsheet /C-28/. The power generation capacity for the baseline scenario remains the same as the existing power plant; no capacity changes or additions are expected. Electricity consumption increase associated with the annual capacity increase will be covered by the increase of electricity import from the grid.

As the primary fuel, only bagasse produced on-line is used the same as current condition, supplemented with coal as the auxiliary fuel mainly for the start up of boilers after stoppage for regular maintenance on every Monday. All the amount of bagasse produced is expected to be used up.

In the project activity, installation of new high-performance boilers and turbo-alternators is expected at the new power plant, to meet the increased heat and electricity demand from the sugar mill and in addition to export excess electricity to the grid. To generate more steam/electricity, higher pressure boilers of 540°C @ 110 bars are selected, instead of current 370°C @ 32 bars. Further current steam movers, directly drived with staem consuming steam at the rate of 78 tph or equivalet to 31% of the total boiler capacity will be converted to electrical motors; thus equivalent amount of steam can be used for power generation, while electricity intrnal load will increase by 4.5 MW/h.

With the Bosch Projects Front End Engineering Design /C-4/, JCI has confirmed that the 110 bar boilers were appropriately selected through a comparison study with 65 bar and 85 bar boilers from cost performance viewpoints focusing on potential steam supply capacity for power generation. Regarding the

selection of the combination of the turbo alternators, JCI has confirmed the Bosch Projects Design has determined the proposed specifications of the turbo alternators through a comparison study on 3 combinations proposed by 3 vendors simulating a total of 6 operating modes (two power export modes (export and non-export) multiplied by three operation modes (steady, unsteady and factory off) referring to utility requirements data prepared by the sugar mill for each mode.

As fuel, in addition to bagasse, leaves and wood chips will be collected from surrounding farms and saw mills respectively, and used as supplemental fuels. In the baseline scenario, the same amount leaves and wood chips would be burnt in fields.

In parallel with the construction of the new cogeneration power plant, the exiting sugar mill will be largely modified to save energy by recovering waste heat from sugar manufacturing processes.

As a result of these construction and modification, the new cogeneration power plant can export electricity at an average rate of 55.1 MW/h using excess steam squeezed through new heat-recovery systems of the sugar mill.

Outlines of the baseline scenario and the project activity (the CPA) are compared in the below table.

Table 8. Summary Table of Outlines of the Baseline Scenario and the Project Activity (the CPA)

Item		Baseline Scenario	Project Activity
Cane processing capacity		2,290,378 t/y	2,290,378 t/y
Fuel	Bagasse (dry)	372,674 t/y	372,674 t/y
	Leaves (dry)	-[3]	32,627 t/y
	Wood chips (dry)	-[3]	19,931 t/y
Boiler	Average boiler load	268 tph	302 tph
	Configuration (no. x tph)	4x42tph, 85tph, 37.5tph[4]	2 x 200 tph
	Operating Condition	32 bars / 370 °C	110 bars / 540 °C
	Annual steam production	1,619,674 t/y	2,052,313 t/y
	Boiler efficiency	81.8%	94%
Turbo-alternator Capacity		3 x 4MW 4.5 MW (direct drive)	33.6MW, 57.7 MW
Electricity	Gross generation	63,504 MWh/y	435,522 MWh/y
	Onsite consumption	65,957 MWh/y	143,830 MWh/y
	Export	8,078 MWh/y	302,223 MWh/y
	Import	10,531 MWh/y	10,531 MWh/y

As shown above, the amount of annual steam generation in the project activity is estimated to increase significantly due to additional fuels of leaves and wood chips (+17% on energy basis), the increased boiler efficiency (81.8% to 94%) and high-efficiency heat recovery systems built in the boilers and turbo-alternators. Steam and flue-gas heaters for the pre-heating of combustion air and feed water are designed for waste-heat recovery improvements.

[3] The leaves and wood chips to be consumed as fuel in the project activity are assumed to be burnt in fields in the baseline scenario the same as the pre-project scenario.

[4] Assumed to be additionally installed

On January 19, 2013 we received the following incomplete notice from UNFCCC regarding the validation of technical features/data of the baseline scenario and the project activity.

3. ACM0006 version 12.1.0 requires that "for any of the alternative scenarios described above, all assumptions with respect to installed capacities, load factors, energy efficiencies, fuel mixes, and equipment configuration, should be clearly described and justified". It is however noted that (1) the energy balance appears not achieved in page 6 of the first CPA-DD; (2) the steam/water flow is not mass conservation under Step 1.1 in page 58 of the first CPA-DD. The DOE is requested to provide the information on how it has validated the consistency and correctness of the parameters regarding the technical characteristics specified in the CPA-DD.

As demonstrated below the energy balance in Table 1 of the CPA-DD were assessed. The balance of the baseline scenario was assessed based on the historical data provided by the project participant /C-28/ and that of the project activity was assessed based on the Engineering Design by calculating the boiler efficiency. Also as shown in step1.1 of the CPA-DD, the project participant conservatively neglected emission reductions from heat component, thus the demonstration of the relevant table was cancelled, which was validated acceptable as similar approach was confirmed with another registered project (ref. 7743).

Parameters demonstrated in Table 1 of the CPA-DD were assessed and tabulated below:

Table 9. Assessment Result of Table 1 Data of the CPA-DD

Parameter	Figure	Assessment result
Common		
Wet quantity of cane crushed	2,290,378 tons/y	OK, confirmed with the interviews with the project participant and the local formers during the site visit that over 2 million tons annually was targeted after the project implementation. When visited, the increase of cane production had been already initiated step wise.
Moisture content of cane	68.9 %	OK, confirmed with relevant evidence /C-10/-/C-12/, /C-16/.
Dry quantity of **bagasse** fired	372,674 tons/y	OK, confirmed that the figure is calculated appropriately based on the past three year records /C-16/.
NCV of bagasse (dry basis)	14.5 GJ/ton	OK, confirmed with relevant evidence /C-10/-/C-12/.
Baseline scenario		
Boiler(s) capacity	4*42 + 85 + 37.5 tph	OK, the current configuration and assumed additional installation plan of a new boiler were confirmed during the site visit.
Average boiler load	268 tons of steam/h	OK, appropriately calculated.
Annual steam production	1,619,674 tons/y	OK, appropriately calculated based on the estimated boiler efficiency and some parameter values based on the historical data for year 2009 to year 2011 /C-28/ complying with the methodology.
Temperature & pressure	370°C @32 bar a	OK, confirmed during the site visit.
Boiler efficiency	81.8 %	OK, appropriately assumed conservatively as

		per the applied methodology based on the past historical data for year 2009 to year 2011 /C-28/. The highest efficiency in year 2001 among the three years was applied.
Alternator rated capacity and steam spec. consumption	12MW/8.1 kg/kWh + 4.5MW/17.5 kg/kWh	OK, confirmed during the site visit.
Annual gross power generation	63,504 MWh	OK, assumed conservatively based on an expected high load factor of turbo-alternators 0.878, while the historical data indicate 0.530-0.633, assuming improvements of the parameter due to longer annual milling campaign after year 2018.
Annual on-site power consumption	65,957 MWh	OK, appropriately calculated based on the historical records for the past three years (2009 - 2011).
Annual power export/(import)	8,078/(10,531) MWh	OK, appropriately assumed based on the historical records.
Project activity		
Dry quantity of leaves fired	32,627 tons/y	OK, assumed appropriately as 10% of bagasse fuel on an energy basis, due to limitation for potential chemical erosion by leaves combustion as stipulated in the Project Engineering Design /C-4/.
NCV of leaves (dry basis)	18.4 GJ/ton	OK, assumed appropriately based on relevant data specified in the mass and heat balance sheet of the Bosch design.
Dry quantity of woodchips fired	19,931 tons/y	OK, confirmed with the Bosch design that it is assumed appropriately to meet fuel demand by the project activity.
NCV of woodchips (dry basis)	15.9 GJ/ton	OK, assumed appropriately based on relevant data specified in the mass and heat balance sheet of the Bosch design.
Boiler(s) capacity	2 x 200 tph	OK, as above confirmed with the Engineering Design /C-4/.
Average boiler load	302 tons of steam/h	OK, confirmed with the Engineering Design /C-4/.
Annual steam production	2,052,313 tons/y	OK, confirmed with the Engineering Design /C-4/ and Mass and Energy balance design/C-33/
Temperature & pressure	540°C @110 bar a	OK, confirmed with the Engineering Design /C-4/.
Efficiency	94%	OK, confirmed with the Engineering Design /C-4/.

Alternator rated capacity and steam consumption	33.6 MW/ 4.61kg/kWh and 57.7 MW/ 3.58 kg/kWh	OK, confirmed with the Engineering Design /C-4/.
Annual gross power generation	435,522 MWh	OK, confirmed with the Engineering Design /C-4/ and Mass and Energy balance design/C-33/.
Annual on-site power consumption	143,830 MWh[5]	OK, confirmed with the Engineering Design /C-4/ and Mass and Energy balance design/C-33/.
Annual power export/(import)	302,223/(10,531) MWh	OK, confirmed with the Engineering Design /C-4/ and Mass and Energy balance design/C-33/.

Annual generated heat energy and boiler efficiencies of the baseline scenario and the project activity are calculated as below Tables 10 and 11 based on the data of the spreadsheet.

Table 10. Annual generated heat energy

Fuel	Enthalpy (GJ/t)	Baseline Scenario		Project Activity	
		Annual flow (t/y)	Generated heat (GJ/y)	Annual flow (t/y)	Generated heat (GJ/y)
Bagasse (dry)	14.5	372,674	5,403,773	372,674	5,403,773
Leaves (dry)	18.4	-	-	32,627	600,337
Woodchips(dry)	15.9	-	-	19,931	316,903
Gross generated heat (A)		-	5,403,773	-	6,321,013

Table 11. Boiler efficiency

Item	Baseline Scenario				Project Activity			
	Temp. (°C)	Enthalpy (GJ/t)	Annual flow (t/y)	Heat Energy (GJ/y)	Temp. (°C)	Enthalpy (GJ/t)	Annual flow (t/y)	Heat Energy (GJ/y)
Feed water	105	0.440	1,652,728	727,200	127	0.552	2,083,039	1,149,838
Blow down	238	1.028	33,055	33,981	100	0.418	17,723	7,408
Generated steam	370	3.158	1,619,674	5,114,930	540	3.446	2,052,313	7,113,318
Net gen. heat (B)				4,421,711				5,970,888

[5] The increase of on-site power consumption between the baseline and the project activity is mainly due to (i) mills prime movers electrification and (ii) new power house auxiliary consumption.

Boiler eff.	81.8% (=B/A*100)	94% (=B/A*100)

As above, JCI has confirmed that the mass and heat balance of the boiler operation of the baseline scenario and the project activity is appropriately estimated based on the historical data as per the methodology and the project activity based on the Bosch design.

Further heat balance among the heat loads of boilers, turbo-alternators and process in the baseline scenario and the project activity were validated appropriate as shown below tables.

Table12. Heat Balance of the Baseline Scenario

Heat	Load Item	Heart Energy (10^3GJ/y)	Remarks
Fuel combustion	Bagasse	5,404	Calculated in the above Table 11.
Generation	Generated Steam by boilers	5,115	Calculated in the above Table 11.
Consumption	Turbo-alternators	229	Based on the steam consumption 511,205 t/y in the spreadsheet and the temperature conditions of the turbine operation indicated in the study sheet /C-3/, which shows 370°C and 122°C for the inlet and outlet temerature respectively.
	Sugar milling process	4,064	Including 86 (10^3GJ/y) consumed by prime movers driven directly by steam, of which operating conditions are indicated in the study sheet /C-3/: 78.6 t/h 32-bar steam flow and 370°C and 241°C for the inlet and outlet temerature respectively.
Overall Loss	-	822	16% of total generated heat is assumed as the overall heat loss considering the age of the mill.

Table13. Heat Balance of the Project Activity

Heat	Load Item	Heart Energy (10^3GJ/y)	Remarks
Fuel combustion	Bagasse, Leaves and Wood chips	6,321	Calculated in the above Table 11.
Generation	Generated Steam by boilers	7,113	Calculated in the above Table 11.
Consumption	Turbo-alternators	4,165	Calculated based on the operation condition data (temperatures of inlet and outlet steam) of the two Turbo-Alternators indicated in the Bosch Design /C-4/. The heat loss by the Condenser is included in the consumption.
	Sugar milling process	2,228	Calculated based on the data of the annual flow and the temperature conditions of steam, shown in the spreadsheet.

Overall Loss	-	720	10% of total generated heat is assumed as the overall heat loss considering the age of the mill and expected energy saving systems to be installed.

As above, JCI considers that the incomplete comment is clarified with the above arguments.

6. Additionality of a project activity

6.1 Demonstration of additionality of the PoA as a whole

JCI has confirmed that the POA-DD appropriately demonstrated its additionality in accordance with "the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities" (version 03.0) (PoA Standard) /A-15/. It stipulates the following criteria as requirements for demonstration of additionality of the PoA consisting one or more large scale projects as CPAs:

1) Additionality shall be demonstrated by establishing that in the absence of CDM, none of the implemented CPAs would occur (paragraph 7).
2) PoAs that consist of one or more large scale projects as CPAs shall include eligibility criteria derived from all the relevant requirements contained in the additionality section of the large scale methodologies (paragraph 10).
3) The CME shall demonstrate that compliance with the additionality-related eligibility criteria set in the PoA design document will ensure that all the relevant additionality-related guidelines, tools or any requirements embedded in the methodologies are met (paragraph 13).

JCI confirmed that the PoA-DD appropriately demonstrated four kinds of barriers (Policy barrier, Investment barrier, Technology barrier and Barrier due to prevailing practice) likely to be faced at CPA level and in case these barriers exist, in the absence of CDM, none of the implemented CPAs would occur.

Further as the method of demonstrating additionality at CPA level, the PoA-DD appropriately specified to implement as per the "Selection of the baseline scenario and demonstration of additionality" of the applied methodology that requests to demonstrate additionality step-wise ((Step-1) Identification of alternative scenarios, (Step-2) Barriers analysis; and/or (Step-3) Investment analysis, (Step-4) Common practice analysis), which were validated below by step:

In Step-1, the PoA-DD selected 4 alternative components out of 6 alternative components appropriately complying with the scope of the PoA, cogeneration with use of biomass residues.

In Step-2, potential barriers including the barrier relevant to the lack of prevailing practice were appropriately provided complying with the applied methodology.

In Step-3, it was instructed to conduct the analysis in line with the latest version of the additionality tool. For the benchmark analysis, detailed calculation methods of WACC and CAPM parameters were provide.

In Step-4, it was instructed appropriately to conduct the common practice analysis with the stepwise approach in line with the latest Guidelines on Common Practice.

Thus JCI can assess the PoA-DD appropriately included eligibility criteria derived from all the relevant requirements contained in the additionality section of the large scale methodologies

In Table 2 of B.2 (PART-I), JCI confirmed the PoA-DD appropriately demonstrated the eligibility criteria as per the PoA Standard /A-15/. Out of 12 criteria specified in the PoA Standard, 8 criteria ((a) – (h)) were applied and the remaining 4 ((i) – (l)) were excluded as being not applicable to the project activity, which were confirmed appropriate. To further meet features of the PoA, 4 specific criteria were added to the eligibility criteria for the inclusion of CPAs. Thus JCI has assessed that the CME demonstrated that compliance with the additionality-related eligibility criteria set in the PoA design document will ensure that all the relevant additionality-related guidelines, tools or any requirements embedded in the methodologies are met.

Through the above arguments, JCI can conclude that the CME has demonstrated appropriately additionality of the PoA as a whole complying with the PoA Standard /A-15/.

6.2 Start date of PoA/CPA and CPA credit start date

1) The start date of the PoA

CAR-2 was raised since the start date of the PoA did not comply with the Glossary of CDM terms (ver. 07). Currently the start date of the PoA was defined as "01/01/2016 (expected date of commissioning of the first CPA in an old version CPA-DD) or the date of inclusion of the first CPA whichever is later," revised from previously defined "01/07/2012 (date of validation services contract signature with the DOE) or the date of inclusion of the first CPA, whichever is later," in the GSC PoA-DD /A-1/. The start date of the PoA was revised appropriately to "14/07/2012, the date of publication of the PoA-DD for global stakeholder consultation." CAR-2, therefore, was closed.

2) The start date of the CPA

JCI confirmed that the CPA-DD (ver. 01.3) appropriately defined the starting date of the CPA as 01/12/2013, at which the project owner Tongaat Hulett is expected to make a non-refundable financial payment for a bidding to export electricity to the grid from the project activity, under the new scheme set by the Energy Department of South Africa for base-load IPP procurement, which was confirmed with news released[67].

3) The credit start date of the CPA

JCI has confirmed that the credit start date was appropriately defined in the CPA-DD as 01/01/2018 reflecting the overall proposed project schedule.

6.3 Identification of alternatives

JCI confirmed that the PoA-DD appropriately presented in Generic CPA section (B.4, Part-II), potential alternative scenarios according to the applied the methodology ACM0006 in providing framework to CPAs. The methodology identified six components as potential categories of the alternatives: 1) Electric power, 2) Heat, 3) Mechanical power, 4) Use of biomass residues, 5) Use of biomass residue from dedicated plantations and 6) Use of biogas components. The PoA-DD, however, excluded 5) Use of biomass from dedicated plantation and 6) Use of biogas components, as the CME has no intention of establishing dedicated plantations and also the use of biogas for CPAs to be included in the PoA.

CAR-8 was raised as this section was not appropriately updated reflecting the update of the version of the applied methodology. In the updated methodology, the alternative 5) use of biomass from dedicated plantations was added but not stated in the relevant section of the PoA. As above, it was described and then excluded with 6) Use of biogas appropriately, CAR-8 was closed.

As a result, below four components of the alternatives were identified for the identification of baseline scenarios.

1) Electric power (P1-P7)

2) Heat (H1-H7)

3) Mechanical power (M1-M5)

4) Biomass residues (B1-B8)

Based on the above, the CPA-DD appropriately identified step-wise realistic and credible alternative scenarios, of which validation results are summarized below:

[6] http://www.engineeringnews.co.za/article/sa-begins-making-preparations-for-baseload-ipp-procurement-programme-2013-08-26

[7] http://browse.feedreader.com/c/SAAEA/313921797

On January 19, 2013 we received the following incomplete notice from UNFCCC regarding the validation of baseline alternatives P5, H5 and B5 - B8.

1. The PoA-DD has stated that the additionality will be demonstrated at CPA level as per ACM0006 version 12. ACM0006 version 12 requires "Identify realistic alternative scenarios that are available to the project participants and that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity" to demonstrate the additionality before using either barrier analysis or investment analysis. The DOE is requested to provide the assessment on how it has validated the appropriateness of excluding alternative scenarios in the first CPA-DD, in particular, P5 (considering that the pre-project scenario is the power and heat generation using biomass), H5, B5-B8 (for biomass types other than onsite bagasse, e.g. leaves and woodchips).

In response to the notice, relevant sections below were corrected.

For the electric power component, the following alternatives are identified:

P1: The proposed project activity not undertaken as a CDM project activity;

P2: If applicable, the continuation of power generation in existing power plants at the project site. The existing plants would operate at the same conditions (e.g. installed capacities, average load factors, or average energy efficiencies, fuel mixes, and equipment configuration) as those observed in the most recent three years prior to the starting date of the project activity;

P3: If applicable, the continuation of power generation in existing power plants at the project site. The existing plants would operate with different conditions from those observed in the most recent three years prior to the starting date of the project activity;

P4: If applicable, the retrofitting of existing power plants at the project site. The retrofitting may or may not include a change in fuel mix;

P5: The installation of new power plants at the project site different from those installed under the project activity;

P6: The generation of power in specific off-site plants, excluding the power grid;

P7: The generation of power in the power grid.

P1 is a possible scenario since this is the same scenario as the proposed project, but without CDM application.

In the absence of the project activity, the existing power plant would be operated with different conditions and would not require retrofitting, P2 and P4, therefore, are excluded appropriately.

P3 is also a possible scenario as there is an existing cogeneration power plant at the project site to be operated with different conditions.

In the absence of the CDM project activity it is considered reasonable that the power would be generated by the existing co-generation power plant but with different conditions to meet new demand. As there is the co-generation power plant in the project site in operation with use of bagasse produced onsite, therefore used as free fuel, it is not considered practical to construct power plants with use of fossil fuels or renewable energy other than that under the CDM project. As demonstrated in the CPA-DD the identified biomass residues are readily available (bagasse is produced on site, and leaves/wood chips are both easily and sufficiently collected from saw mills or farms as assessed in below biomass residues component section) and only energy source of the sugar mill. Other fossil or renewable energy sources, therefore, are not attractive. Thus P5 was excluded appropriately.

It was confirmed during the site visit that there were no specific off-site power plants available other than the power grid to which the proposed project activity would supply electricity. P6, therefore, was excluded appropriately.

P7 was considered realistic, as already electricity has been supplied from the grid to the Amatikulu sugar mill, which was confirmed through the sugar mill observation and the interview with the grid /E-6/.

As a result of above arguments, P1, P3 and P7 are appropriately identified as a plausible and credible alternative.

For the heat component, the following alternatives are identified:

H1: The proposed project activity not undertaken as a CDM project activity;

H2: If applicable, the continuation of heat generation in existing plants at the project site. The existing plants would operate with different conditions from those observed in the most recent three years prior to the project activity;

H3: If applicable, the continuation of heat generation in existing plants at the project site. The existing plants would operate with different conditions from those observed in the most recent three years prior to the CDM project activity;

H4: If applicable, the retrofitting of existing plants at the project site. The retrofitting may or may not include a change in fuel mix;

H5: The installation of new plants at the project site different from those installed under the project activity;

H6: The generation of heat in specific off-site plants;

H7: The production of heat from district heating.

H1 is a possible scenario since this is the same scenario as the proposed project, but without CDM application.

In the absence of the project activity, the heat generation capacity of the power plant needs to be increased to meet the increase of sugar cane supply; therefore, H2 is excluded as cannot fulfil the heat demand.

Also H3 was considered not realistic. Large-scale modifications on the existing sugar mill facilities for energy conservation are planned to be completed before year 2018 when the new cogeneration power plant construction will be completed to introduce high performance boilers and turbo alternators. As a result of the modifications for energy saving, less amount of bagasse would be required than produced from the sugar production process, resulting in significant amount of unused bagasse. H3, therefore, will lead to extra costs for transportation and burning on the fields, which is getting difficult due to tightened regulations, and is considered not realistic.

H4 is a possible alternative as it can fulfil steam and electricity demand from the production process, and also can use up all the bagasse produced with an addition of a boiler with an installed of capacity 37.5 tph.

In the absence of the CDM project activity it is considered reasonable that the heat would be generated by the existing co-generation power plant but with different conditions to meet new demand. As there is the co-generation power plant in the project site in operation with use of bagasse produced onsite, therefore used as free fuel, it is not considered practical to construct power plants with use of fossil fuels or renewable energy other than that under the CDM project. As demonstrated in the CPA-DD the identified biomass residues are readily available (bagasse is produced on site, and leaves/wood chips are both easily and sufficiently collected from saw mills or farms as assessed in below biomass residues component section) and only energy source of the sugar mill. Other fossil or renewable energy sources, therefore, are not attractive. Thus H5 was excluded appropriately.

During the site visit, JCI has confirmed there are no off-site power plants or district heating systems in the region; therefore, H6 and H7 are excluded.

In conclusion H1 and H4 were identified appropriately as a plausible and credible alternative.

For the mechanical component, the following alternatives are identified:

M1: The proposed project activity not undertaken as a CDM project activity;

M2: If applicable, the continuation of mechanical power generation from the same steam turbines in existing plants at the project site;

M3: The installation of new steam turbines at the project site;

M4: If applicable, the continuation of mechanical power generation from electrical motors in existing plants at the project site;

M5: The installation of new electrical motors at the project site.

No mechanical power through steam turbine(s) is generated in the project activity as the prime movers will be electrified, the CPA does not include any mechanical component the scenarios M1-M5 in the baseline examination appropriately.

For the biomass residues component, the following alternatives are identified:

B1: The biomass residues are dumped or left to decay mainly under aerobic conditions. This applies, for example, to dumping and decay of biomass residues on fields;

B2: The biomass residues are dumped or left to decay under clearly anaerobic conditions. This applies, for example, to landfills which are deeper than 5 meters. This does not apply to biomass residues that are stock-piled or left to decay on fields;

B3: The biomass residues are burnt in an uncontrolled manner without utilizing it for energy purposes;

B4: The biomass residues are used for power or heat generation at the project site in new and/or existing plants;

B5: The biomass residues are used for power or heat generation at other sites in new and/or existing plants;

B6: The biomass residues are used for other energy purposes, such as the generation of biofuels;

B7: The biomass residues are used for non-energy purposes, e.g. as fertilizer or as feedstock in processes (e.g. in the pulp and paper industry);

B8: Biomass residues are purchased from a market, or biomass residues retailers, or the primary source of the biomass residues and/or their fate in the absence of the project activity cannot be clearly identified.

Both B1 and B2 are not considered practical. As common practice, bagasse produced onsite has been used as the main fuel for power plants in sugar mills, and leaves and wood chips (sawmill waste) have been burnt in fields in an uncontrolled manner, which was confirmed through the interview with relevant entities /E-3/, /E-5/, /E-6/. The leaves are waste from sugar cane after harvesting in own and contracted farms and wood chips are expected to be collected from nearby saw mills. Both B1 and B2 were excluded appropriately in the CPA-DD.

B3, therefore, is considered as a plausible and credible alternative of leaves and wood chips in the absence of the CDM project activity in the CPA-DD. B3 is not a plausible and credible alternative of bagasse, as already has been used as the primary fuel in the sugar mill.

B4 is considered as a plausible and credible scenario of bagasse in the absence of the CDM project since this is the same situation as the pre-project scenario prior to the project implementation. During the site visit, JCI has confirmed that all the bagasse produced at the sugar mill has been used up as the main fuel for the existing power plant for heat and power generation. JCI has also confirmed that leaves and wood chips have not been used as fuel in the region, except cases of some sawmills where wood chips have been used as fuel for in-house power which was reported in an official report /C-9/. Thus B4 was appropriately identified as a plausible and credible scenario of bagasse in the CPA-DD, and at the same time excluded from a plausible and credible scenario of leaves or wood chips.

B5 is not considered practical. Bagasse produced onsite has been used within the sugar mills as the primary fuel for the power plants, and leaves and wood chips have not been used as fuel in the region; as described above, leaves and wood chips have been burnt in an uncontrolled manner. Thus B5 was excluded appropriately in the CPA-DD.

B6 is not considered practical. As described above, the bagasse produced onsite has been used at the sugar mills, and leaves and wood chips have been burnt in fields. The use of the biomass residues for other energy purposes, such as fertilizer or as feedstock in the process, therefore, is considered not practical. Thus B6 was excluded appropriately in the CPA-DD.

B7 was not considered practical as a plausible and credible scenario of bagasse, leaves, or wood chips. In the region only wood chips have been used for non-energy purposes as feedstock in some industries according to an official report /C-9/. However, it revealed that "*the waste (wood chips) generated by sawmills in the region usually far exceeded the waste supplied to the pulp, paper and board industries*." It, therefore, is considered not practical to identify scenario B7 as a plausible and credible scenario of wood chips. Thus B7 was excluded appropriately in the CPA-DD.

B8 was not considered as a plausible and credible scenario of the biomass residues. As demonstrated in the CPA-DD, there is no market for biomass residues in the region, which was confirmed during the site visit. Further the primary source of the biomass residues and their fate in the absence of the CDM project activity are clearly identified above. Thus B8 was excluded appropriately in the CPA-DD.

In conclusion the plausible and credible alternative was identified appropriately complying with methodology: scenario B3 for both the leaves and the wood chips, and B4 for the bagasse.

JCI confirmed the CPA-DD appropriately defined plausible and credible alternative scenario for the use of biomass residues as per the guidance stipulated in the methodology. The baseline scenario for the use of biomass residues was separately identified for the three different categories of biomass residues as argued above, covering the whole amount of biomass residues supposed to be used in the CPA during the crediting period, and consistent with the alternative scenarios selected for power and heat generation. Bagasse and cane leaves are both part of sugar cane; however, they are treated separately as their fates are different in the absence of the CPA: bagasse is used as the primary fuel, cane leaves are burnt in fields and wood chips are burnt/destroyed at the saw mill sites. JCI could confirm that these fates are common practice in the region with the interviews with the farmers and the Amatikulu sugar mill staff /E-3/ and the relevant survey report /C-9/. The CPA-DD appropriately demonstrates the fates of three kinds of biomass residues in the CPA: bagasse, cane leaves and wood chips are used as fuel.

Availability of leaves and wood chips to be used in the CPA-DD was confirmed as below:

1) Leaves: produced at a rate of 15% of sugar cane in weight, while bagasse 70% and tops 15% according to the farmers interviewed with during the site visit /E-3/. It is, therefore, considered feasible to collect leaves at a rate of 10% cane (heat energy basis) as per the CPA-DD. According to the Bosch engineering document /C-4/, the ratio of leaves is instructed to below 10% of cane-based fuel on energy basis, to avoid chemical corrosion of boiler materials by burning leaves.

2) Wood chips: a relevant survey /C-9/ reported that in the province of KwaZulu Natal there were 77 saw mills and the average annual mass of sawmill waste was estimated at 416,000 tons, while the CPA-DD plans to use 28,473 tons/y (wet base at 70% moisture, equivalent to 19,931 tons/y on dry basis), or 7 % of the total waste. It is, therefore, considered feasible to collect wood chips as planned in the CPA-DD.

Consistency of the identified scenarios with mandatory applicable laws and regulations was discussed and confirmed in the CPA-DD.

As a result of the above, two combinations of baseline scenario were identified.

1) P1+H1＋B4: The proposed project activity, not taken as a CDM project activity

2) P3/P7 + H4 + B3/B4: The existing low efficiency, expanded cogeneration power plant.

Assessment of Remaining Lifetime

On January 19, 2013 we received the following incomplete notice from UNFCCC regarding the assessment of the remaining lifetime:

2. In the First CPA, as per ACM0006 version 12.1.0 (page 12), the remaining lifetime of the existing equipment has to be determined and a baseline based on historical performance only applies until the existing power plant would have been replaced or retrofitted in the absence of the project activity. The DOE is request to provide the information on how it has validated the remaining lifetime of the existing boilers prior to the implementation of the project activity, as per latest version of Tool to determine the remaining lifetime of equipment.

In response to the notice, the remaining lifetime of existing boilers and turbo-alternators was validated below, based on the assessment report dated June 2013 /C-34/ and representative evidence both provided by the project participant as per the relevant tool:

The remaining lifetime of the equipment involved in the baseline scenario was assessed by an expert (Bosh Projects[8]) as per the option (b) of the relevant tool /A-21/.

According to the report, the expert visited the co-generation power plant of the Amatikulu sugar mill in March 2013 and surveyed the histories of operation, maintenance and repair records of the equipment and also statutory inspection records by approved inspection authorities stipulated in South Africa regulations /C-46/, /C-47/[9].

Based on the survey, the expert issued the assessment report /C-34/ and concluded in the report that the remaining lifetime of the equipment (boilers, turbo-alternators and their ancillary equipment) is at least 25 years after the date of the report, provided continuation of current phased inspection and test resime combined with the necessary maintenance and repair requirements.

With relevant evidence provided by the project participant /C-34/ - /C-45/, JCI could confirm the appropriateness and correctness of the content of the assessment report as well as descriptions in the section A.5 of the CPA-DD about the current maintenance, overhaul and repair scheme of the equipment.

JCI has confirmed during the site visit that the boilers and turbo-alternators in the co-generation power plant had been used for a long time by repeating inspection, overhaul and replacement of some components if necessary, taking the off-crop season for 3-4 months every year during which milling operation completely stops. This practice in sugar mills in South Africa is indicated in provided document /C-8/. Thus it was considered feasible for the power plant to keep operating existing equipment under the current maintenance cycle further for coming 25 years as assessed in the report.

JCI validates the remaining lifetime of the equipment involved in the baseline scenario was assessed appropriately to be at least 25 years by the expert in line with the relevant tool.

Regarding the remaining lifetime of the equipment involved in the proposed project activity, the CPA-DD appropriately assumed to be 25 years as per the default value for newly installed equipment (boilers and steam turbine/generator) as per the relevant tool /A-21/.

In summary JCI can conclude that the project lifetime issue of both the baseline scenario and the project activity was assumed to be 25 years appropriately and thus sufficiently covers the proposed crediting period of 10 years.

[8] An engineering company who covers Sugar sector including "Steam and Power generation plant integration and co-generation" (*www.**boschprojects**.com/*)

[9] Local regulations in South Africa stipulate statutory inspection of boilers by an approved inspection authority:

1) Inspection of all boilers every three years, including analysis of main generating bank tubes with a magnetic inspection procedure.
1) Inspection of boiler components when rebuilt, repaired or replaced, with modern inspection technologies, such as radiography, magnetic particle dye penetration testing, ultrasonic testing, metallurgical analysis, etc.

6.4 Barrier analysis

The PoA-DD provides an appropriate platform of the analysis as per the applied methodology. It requests firstly to list identified barriers that would prevent the implementation of the alternative scenarios, and then to eliminate them which are prevented by the identified barriers. Depending on remaining alternative scenario(s), the next step to be taken is demonstrated appropriately.

CAR-7 was raised as the guidelines of "First-of-its-kind" were not updated. Complying with the additionality tool /A-6/, the guidelines were updated to version 02.0; therefore, CAR-7 was closed.

The barrier analysis was assessed below:

As the applicable geographical area, Republic of South Africa was selected appropriately complying with the Guidelines that specify the entire host country as the default of applicable geographical area. According to a technical report compiled by Sugar Milling Research Institute in South Africa (SMRI) /C-26/ and an official statement dated 28 August 2012[10] from SMRI /C-27/, at present there are 14 sugar mills in operation within the country, which is considered sufficient as the reference for comparison.

With the survey report[11] as tabulated below and the official statement by the SMRI /C-27/; and interviews with the SMRI /E-4/ and Bosch Projects (an engineering company) /E-5/, JCI could confirm it is reasonable and acceptable that the project participant claims that the project activity is the "First-of-its-kind".

1. Currently there are no sugar mills using cane leaves or wood chips in addition to bagasse as primary fuels for cogeneration in South Africa
2. There are no sugar mills in South Africa operating power units larger than 12 MW, while the CPA plans to install and operate 33.6 MW and 57.7 MW units.

Further JCI has confirmed the existence of technical barrier associated with the introduction of the two high-pressure boilers to be operated at 110 bars / 540 °C. According to the Bosh Projects, there are significant gaps in terms of materials required for manufacturing and boiler water treatment technologies; and also technologies of operation and maintenance between the low/middle-pressure boilers with up to 80 bars operating pressure and the high-pressure boilers with over 100 bars operating pressure. As shown below table at present there are no sugar mills having a boiler operated at over 32 bars, while the CPA plans to install two boilers to be operated at 110 bars.

Table 14. Specifications of Boiler and Turbo-Alternator installed in All Sugar Mills in South Africa

Sugar Mill	Cane Processing Capacity (tons/h)	Max. Boiler Operating Pressure and Temp. (Bars / °C)	Turbo-Alternator Capacity No. x Cap (MW)	Electricity Export Capacity to Grid (MW)
Eston	274	31 / 400	5 + 3.5	2.5
Noodsberg	300	31 / 400	5 + 8	4.0
Pongola	230	31 / 400	5 + 2 + 1 + 0.5	3.125
Sezela	450	31 / 390	8 + 5 + 6	2.0
Umzimkulu	240	21 / 330	4 + 1.5 + 3.75	2.5
Darnall	300	31 / 380	2 x 6.5	1.75

[10] An official letter /C-27/ was sent to JCI to answer inquiries raised in the interview during the site visit.

[11] Titled Sugar Factory Plant Installations based on extensive research in 2007 /C-26/. It was confirmed through a follow-up research conducted in August 2012 at our request that situation of the plant installations were not changed from those described in the report. The follow-up survey result was stated in the official letter above.

Felixton	600	31 / 400	3 x 10.5	9.0
Maidstone	520	31 / 400	2 x 7.25 + 6 + 2	6.25
Komati	500	31 / 410	2 x 10	14.0
Malalane	440	31 / 400	12 + 8 + 6.4	5.5
Union Co-op	150	21 / 281	3.75 + 1.875	3.5
Umfolozi	300	31 / 400	10 + 6	4.5
Gledhow	300	30 / 370	6.45 + 5 + 2.75	1.5
Amatikulu (existing)	385	32 / 370	3 x 4.0	5.0
Amatikulu (CPA-DD)	**433**	**110 / 540**	**33.6 + 57.7**	**55.1**

The above table clearly indicates that the specifications of the turbo alternators of the CPA are significantly different from those of current sugar mills in South Africa from technical viewpoints: 33.6 MW and 57.7 MW vs. 0.5 – 12 MW per unit.

And the CPA will introduce cane leaves and wood chips as primary fuels for the first time in the country.

These significant differences are considered sufficient in fulfilling the requirement stipulated in the relevant guidelines.

As demonstrated in the CPA-DD, even if expand the industry scope other than sugar industries, the highest operating pressure of boilers in South Africa didn't exceed 70 bars in utility and paper industries, where bagasse or cane leaves have not been used as primary fuels, according to a currently available latest survey report /C-8/.

In conclusion JCI can validate above arguments clearly justify the claim in line with the Guidelines that the project activity is the "First-of-its-kind" and therefore, is additional.

6.5 Investment analysis

1) PoA-DD

JCI has confirmed that the PoA-DD provides an appropriate platform of the investment analysis based on the latest version of "Tool for the demonstration and assessment of additionality" /A-6/ which shall be supplemented with the latest version of the "Guidelines on the assessment of investment analysis." /A-20/. Assessment results are summarized below:

Sub-step 3a: According to the tool, the PoA-DD described three alternative analysis methods; however, recommended use of the benchmark analysis as most commonly used, which was assessed reasonable.

Sub-step 3b: For the benchmark analysis, the use of project IRR was instructed. As a candidate of the benchmark IRR, the use of WACC was advised, with demonstration of its calculation methods, which were assessed appropriate and correct. JCI confirmed that the Table 7**:** *Parameters for IRR calculation* includes all the necessary parameters for project IRR calculations with their expected data sources appropriately.

Sub-step 3c: The definition and the calculation method of the project IRR are appropriately demonstrated with detailed explanations of parameters required for the calculation. The three calculation methods for the equity financing cost (CAPM, Build-up Approach and Default Approach) are appropriately presented.

Sub-step 3d: Further to ensure the result of the benchmark analysis above, application of a sensitivity analysis was instructed as per the guidelines /A-20/.

2) CPA-DD

As the barrier analysis was applied for the demonstration of additionality of the CPA, this section was skipped as per the applied methodology.

6.6 Common practice analysis

1) PoA-DD

JCI has confirmed that the PoA-DD provides an appropriate platform of the common practice analysis based on the latest version of "Guidelines on Common Practice" /A-18/. It clearly demonstrates criteria to identify similar project activities and also analysis methods of essential distinctions of those identified from the proposed project activity.

2) CPA-DD

The CPA-DD appropriately skipped the common practice as it appropriately demonstrated that the CPA is not common practice as there are no similar project activities in South Africa that were fully clarified through the arguments in the above barrier analysis section using the guidelines of "First-of-its-kind."

7. Eligibility criteria for inclusion of a CPA in the PoA

JCI assessed the specified eligibility criteria in the PoA-DD to determine if those criteria are sufficiently developed by the CME and are verifiable to ensure the inclusion of CPAs under the proposed PoA.

The CME demonstrated the specified criteria for the inclusion of CPAs in the section B.2 of the PoA-DD, as shown below Table 10.

JCI assessed the demonstration by the CME about the criteria, and noted DOE's assessment at the foot line of each corresponding item of Table 10 below, through *Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities* (version 03.0) (hereafter called "the *Standard*") /A-15/, and Approved methodology ACM0006 - *Consolidated methodology for electricity and heat generation from biomass* (version 12.1.1) /A-7/.

The below Table 10 summarized under the items (the column with symbol #) which correspond to the items listed at Para.16 of the *Standard* /A-15/ "Eligibility criteria noted by CME" and its "Means of verification by CME" (the conditions for inclusion of each CPA) are listed by each # item, and Assessment by DOE by each # item are also listed as JCI's assessment comment whether the listed "Means of verification" are verifiable to ensure the inclusion of CPAs under the proposed PoA.

Table 15. Eligibility Criteria Check

#	Eligibility criteria noted by CME at PoA-DD B.5.	Means of verification by CME
a	**Boundary and location of the CPA**	
a.1	The geographical boundary of the CPA is within the Republic of South Africa, in consistency with the geographical boundary set in the PoA.	Location and boundary are stated in the specific CPA-DD, confirming that the industrial facility is located in South Africa. Compliance with this criterion may be substantiated with one (or more) of the following documents: - Detailed project report; - Specifications of equipment supply/civil works; - EIA report; - Other credible documents.
	Assessment by DOE: Eligible	

#	Eligibility criteria noted by CME at PoA-DD B.5.	Means of verification by CME
	The PoA-DD clearly specifies the boundary as within South Africa in Table 2, and in B.5. of PART-II, and as above, measurable and practical means for demonstration of the compliance of CPAs are sufficiently specified. JCI could confirm the compliance of the CPA in terms of the geographical boundary set in the PoA as detailed in section A.7 of the CPA-DD regarding the address of the project site location and the geo co-ordinate with the map, of which correctness was checked during the site visit, further with the EIA report /C-6/ and the project engineering design document /C-4/. Therefore, this criteria are deemed sufficiently established, and they comply with the *Standard* Para.16.(a)	
b	Double counting avoidance	
b.1	The CPA is neither already included in another PoA, nor developed as a stand-alone CDM project.	The CME review confirms that the CPA is not already included in another PoA or developed as a stand-alone CDM project. The "Procedure to avoid double-counting" formulated in the PoA-DD is applied and the assessment is conclusive, based on: - CDM projects/PoA registries (UNFCCC); - DNA projects/PoA portfolio; - Confirmation by CME review.
b.2	The industrial facility included in the CPA is uniquely identified.	The proposed CPA is uniquely identified and defined in an unambiguous manner by amongst other aspects providing geographic information GPS location and/or serial number and/or distinctive plate.
	Assessment by DOE: Eligible The measures to avoid double counting were demonstrated in details in the PoA-DD under Section C (d), which shall be applied to the CPA under the contractual agreements between CME and each CPA implementer. The PoA-DD appropriately described as the criteria, the CME confirms that there is no registration record of the CPA under the different PoA or a stand-alone CDM project 1) through reviews with UNFCCC and DNA registries/portfolios and 2) with assessment and interviews and 3) with the geo co-ordinate information of the project site location. It was also confirmed that the PoA-DD correctly reflect these criteria to the Table in B.5. of PART II. JCI could confirm the compliance of the CPA in terms of Double counting avoidance through cross checking of CDM projects/PoA registries on UNFCCC website and also observation and interviews during the site visit. JCI also confirmed that in the binding agreement signed between the CME and the CPA implementer dated 22 November 2012 /C-29/ the term relevant to the double counting avoidance was included. Therefore, the criteria are deemed sufficient, and they comply with the *Standard* Para.16.(b).	
c	**Technology/measure specifications**	
c.1	The CPA-DD specifies the level and type of service provided by the technology/measure, as well as its performance.	The technology and measures taken are clearly described in the CPA-DD and in line with the technology definition in the PoA-DD. Compliance with this criterion may be substantiated with one (or more) of the following documents:

#	Eligibility criteria noted by CME at PoA-DD B.5.	Means of verification by CME
		- Detailed project report; - Technology provider contractual specifications; - Other credible documents.
	Assessment by DOE: Eligible The PoA-DD clearly described the specifications of the technologies/measures to be introduced to each CPA in terms of thermal energy (boilers and heaters) and electrical energy (turbines) and also their operation mode. And based on the specifications, measures to check the compliance with this criterion were sufficiently demonstrated in the Table of B.5. PART-II. JCI could confirm the compliance of the CPA in terms of Technology/measure specifications through cross checking of the project engineering design document /C-4/ as well as the interviews with the relevant peoples during the site visit /E-1/, /E-4/.	
c.2	The technology/measure implemented within the CPA complies with national and/or international testing/certification requirements.	The CPA implementer meets applicable testing or certification standard in the industry and at national level such as Energy Efficiency measurement and verification standard SATS 50010:2010, in addition to applicable permitting requirements among: - Environmental authorisation (EIA) - Waste license - Air emissions license - Water storage and use authorisation - Electricity generation license - Compliance with the grid connection code - Pressure vessel registration - Stack height compliance - Approval of building plans Compliance with this criterion may be substantiated with one (or more) of the following documents: - Government approvals of the design and/or manufacturing permits; - Regional or national testing papers, evidence of compliance with standards or certificates; - International testing papers, certificates or documents confirming compliance with international standards; - EIA report; - Specifications for equipment supply; - Statement in the CPA-DD; - Other credible documents.
	Assessment by DOE: Eligible The PoA-DD appropriately specified the compliance of the equipment employed in each CPA with relevant national and/or international requirement/certificate to be adopted. And further the POA-DD specified the relevant document examples to substantiate the compliance. JCI could confirm the compliance of the CPA in terms of compliance with national and/or international requirement/certificate with the project engineering document /C-4/ and the EIA report /C-6/	

#	Eligibility criteria noted by CME at PoA-DD B.5.	Means of verification by CME
	Therefore the criterion is deemed sufficient and the procedure complied with the *Standard* Para.16.(c)	
d	**CPA start date**	
d.1	The starting date of the CPA is verifiable through documentary evidence and is not prior to the start of PoA validation.	The CPA-DD determines the start date based on implementation, construction or real action start. Supporting documentary evidence for the starting date is provided and described in CPA-DD section A.8.1.
	Assessment by DOE: Eligible The PoA-DD clearly specified the start date of each CPA to be defined as per the Glossary of CDM terms and it shall not be prior to the start of PoA validation. Further provision of supporting documentary evidence was also specified. JCI could confirm the start date of the CPA was defined appropriately as 01/12/2013 at which the project owner is expected to make a payment relevant to the participation to bidding for electricity supply proposal to the Department of Energy, South Africa, and it is after the start of PoA validation from 13/07/2012. Therefore the Criterion is deemed sufficient, and thus complied with the *Standard* Para.16.(d).	
e	**Compliance and application of the methodology ACM0006**	
e.1	The proposed CPA meets the applicability criteria and other requirements of the latest version of ACM0006 as outlined in section II.B.2. of the PoA-DD.	The CPA-DD shall demonstrate in its section D.2 that all applicability criteria and requirements of ACM0006 methodology are verified
	Assessment by DOE: Eligible The PoA-DD appropriately defined the criterion to check the conformance of CPA-DDs with the applied methodology ACM0006. JCI verified the CPA-DD, which demonstrated the assessment at Table 3 under section D.2. The confirmation of the assessment with evidence was verified and justified as noted at other items of this Table 10, including technical and operational requirements at item c, requirement pertaining to demonstration of additionality at item f, conditions related to undertaking local stakeholder consultations and environmental impact analysis at item g, and baseline identification as demonstrated at Section 8.2. of this validation report. Therefore the criterion is deemed sufficient, and thus complied with the *Standard* Para.16.(e).	
f	**CPA additionality**	
f.1	The CPA is additional, in compliance with the relevant requirements pertaining to the demonstration of additionality (step-by-step additionality demonstration of ACM0006 methodology) as outlined in section II.B.4. of the PoA-DD.	The CPA successfully applies in its section D.4 the step-by-step additionality demonstration of ACM0006 methodology.
	Assessment by DOE: Eligible The PoA-DD under section B.1. appropriately described the demonstration of additionality for PoA, and also described that additionality shall be demonstrated at CPA level, following the methodological requirements for the *Selection of the baseline scenario and demonstration of additionality* step wise approach. In line with the criterion set in the PoA-DD, the CPA-DD clearly demonstrated its additionality in section D.2. as per the latest guidelines of "First-of-its-kind", which was assessed appropriate in this validation report; therefore, the CPA is validated	

#	Eligibility criteria noted by CME at PoA-DD B.5.	Means of verification by CME
	additional. Therefore the criterion is deemed sufficient, and thus complied with the *Standard* Para.16.(e).	
g	**Undertaking of local stakeholder consultations and environmental impact analysis**	
g.1	A local stakeholder consultation has been conducted prior to the inclusion of the CPA.	The CPA-DD details the proceedings of the stakeholder consultation in its section C. Stakeholder consultation attendance sheet and comments.
g.2	If applicable, an environmental impact analysis has been conducted prior to the inclusion of the CPA.	The CPA-DD outlines the EIA requirements and provides details on the EIA process/outcome in its section B EIA report and/or Environmental license.
	Assessment by DOE: Eligible The PoA-DD in SECTION E defined that both "An environmental impact analysis" and "Local stakeholder consultation" are done at CPA level and they shall be executed prior to the inclusion of the CPA. And as the relevant evidence "Stakeholder consultation attendance sheet and comments" and "EIA report and/or Environmental license" are required respectively. Also in SECTION E. the national requirement for EIA in terms of the capacity of renewable power generation and potential key relevant laws and regulatory requirements associated with CPA implementation are demonstrated. The CPA-DD in SECTION C. complying with the criterion above, regarding EIA, relevant laws and regulations applied and assessment results were summarized appropriately. The CPA-DD also sufficiently described the implementation of the local stakeholder consultation on 14/11/2011 including the inviting procedure, the venue and the summary of comments received with the project proponent's answers. Therefore, the criterion is deemed sufficient and this complied with the *Standard* Para.16 (g)	
h	**Non-di**version **of ODA in case of Public funding**	
h.1	Confirmation that the CPA does not involve any public funding from Annex I Parties or that in case public funding is used, it does not result in diversion of Official Development Assistance (ODA)	The CPA-DD confirms that the CPA does not involve any public funding or that in case public funding is used a confirmation that official development assistance is not being diverted to the implementation of the PoA. Confirmation of No diversion of ODA in case of public funding, as per CPA-DD section A.11 statement.
	Assessment by DOE: Eligible As per the criterion it was confirmed that the CPA-DD clearly stated in A.11. that the CPA does not involve any public funding, which was confirmed with the interview with the project participant /E-1/. As the proposed project is to construct a new cogeneration power plant inside the Amatikulu sugar mill owned by Tongaat Hulett, a private company, the statement in the CPA-DD is considered reasonable and appropriate. Further JCI received a statement sent from the CME dated 12/09/2012 declaring non-use of ODA /B-10/. Therefore, this criterion was deemed sufficiently established and this complied with the *Standard* Para.16.(h).	

#	Eligibility criteria noted by CME at PoA-DD B.5.	Means of verification by CME
i	**Target Group/distribution mechanism**	
	NA	-
	Assessment by DOE: OK As demonstrated in the PoA-DD, CPAs to be included do not involve distribution to target groups. Therefore it was assessed appropriate that the PoA-DD have judge this criterion as NA.	
j	**Sampling requirements**	
	NA	-
	Assessment by DOE: OK As demonstrated in the PoA-DD, CPAs to be included do not require sampling, as relevant data are to be monitored directly from facilities to be introduced. Therefore, it was assessed appropriate that the PoA-DD have judged this criterion as NA.	
k	**Thresholds criteria**	
	NA	-
	Assessment by DOE: OK As demonstrated in the PoA-DD, CPAs to be included belong to large scale; therefore, do not require assessing its scale. Therefore, it was assessed appropriate that the PoA-DD have judged this criterion as NA.	
l	**Debundling check**	
	NA	-
	Assessment by DOE: OK As demonstrated in the PoA-DD, CPAs to be included belong to large scale; therefore, do not require assessing its scale. Therefore, it was assessed appropriate that the PoA-DD have judged this criterion as NA.	
Supplemental eligibility criteria required by the CME		
1	Awareness and agreement of those operating a CPA on PoA subscription	
1.a	The CPA is either implemented by the Coordinating/managing entity or by another entity that acknowledges its participation in the PoA.	The CPA-DD shall state the name of the CPA implementer and shall confirm that it is the CME or that a binding agreement has been signed with the CME, which ensures that CPA implementer is aware and agrees that its project activity is subscribed to a PoA. Binding agreement signed between the CPA implementer and the CME.
	Assessment by DOE: Eligible With the interviews with Tongaat Hulett Ltd, JCI confirmed that they are the CPA implementer as described in the CPA-DD. JCI also confirmed with the binding agreement with the CME dated 09/11/2012 /C-29/ which covers the above conditions appropriately.	
2	**Approval of CPA by CME**	
2.a	The CPA-DD has been reviewed by the Coordinating/managing entity and	The CPA implementer shall submit a CPA-DD to the CME with all underlying evidence for review. If

#	Eligibility criteria noted by CME at PoA-DD B.5.	Means of verification by CME
	submitted to a DOE for inclusion into the PoA	the conclusion of CME review is positive, the CME shall notify the CPA implementer of the submission of the CPA-DD to the DOE for inclusion. Otherwise conclusion of the CME review shall be sent to the CPA implementer Communication from the CME to the DOE (cc/ CPA implementer) submitting the proposed CPA-DD for inclusion into the PoA
	Assessment by DOE: Eligible The CPA-DD was submitted by the CME to JCI as per the specified procedure above to demonstrate the CME approval of the CPA-DD.	
3	**Crediting period**	
3.a	The crediting period of the CPA shall not exceed the length of the PoA (i.e. 28 years) regardless of the time of inclusion of CPA in the PoA	The CPA-DD verifies that the crediting period of the CPA does not exceed the length of the PoA. CPA implementer's statement and chosen crediting period in CPA-DD
	Assessment by DOE: Eligible JCI confirmed with the CPA-DD that its proposed crediting period is fixed 10 years and is well within the crediting period of the PoA 28 years, considering the expected CPA credit starting date of 01/01/2018.	
4	**CER ownership**	
4.a	The CPA is either implemented by the Coordinating/managing entity or by another entity that relinquishes its carbon rights to the CME.	The CPA-DD shall state and confirm that the CPA implementer has signed a binding agreement with the CME, which ensures that CPA implementer is aware and agrees that its carbon rights have to be relinquished to CME. Binding agreement signed by CPA implementer and the CME.
	Assessment by DOE: Eligible JCI confirmed with the interviews with Tongaat Hulett that they were aware of the carbon rights and the binding agreement was contracted between the SBP and Tongaat Hulett dated 22/11/2012 /C-29/ .	

CL-2 was raised as provision of evidence used for justification of the eligibility of the CPA was not sufficient. Additional evidence was provided sufficiently by the project participant, CL-2 was closed.

CL-18 was raised since descriptions about "Mean of proof/Evidence Documents" of the CPA-DD were not clear. In most of items, its descriptions were not clear in terms of what evidence/documents were applied to assess the eligibility of the CPA; some were indicated in bold but not in others; and also whether relevant assessment was actually implemented or not by the CME on all the specified criteria.

Relevant sections were revised and confirmed that they clearly indicated actually applied "Mean of proof/Evidence Documents" in assessing the eligibility and include actual results. CL-18, therefore, was closed.

Also CL-16 was raised as a non double-counting statement and a binding agreement were not provided. The non double-counting issue was clarified appropriately and the binding agreement was provided /C-29/, CL-16 was closed.

7.1 Application of multiple methodologies

JCI has confirmed that both the PoA-DD and the CPA-DD applied only methodology ACM0006 version 12.1.1.

7.2 Applicability of the selected baseline and monitoring methodology to the project activity

JCI assessed for the applicability of the applied methodology ACM0006 with the following steps in accordance.

1) Step-1 Document review:

   After reviewing the PoA-DD, the CPA-DD, the emission reductions calculation sheet and related documents such as technical specifications, JCI had issued the Initial Findings prior to the site visit for the preparation for interviews.

2) Step-2 Site visit:

   JCI observed current sugar manufacturing operation in the Amatikulu sugar mill from the cane receiving yard through the raw sugar shipping yard, the existing cogeneration power plant and also the new cogeneration power plant construction space inside the sugar mill site. Interviews with relevant entities including sugar mill managers/staffs were implemented.

3) Step-3 Further follow-up actions
   Through correspondences with the project participant on the Protocol, CARs and CLs were closed:

JCI validated and concluded that application of ACM0006 version 12.1.1./A-7/ to the project activity was appropriate after clarifications with the project participant as shown in the below applicability's check in Table 11.

JCI has confirmed with desk reviews and observation and interviews during the site visit that the PoA-DD demonstrated the applicability regarding following conditions appropriately as below, complying with the applied methodology ACM0006 reflecting project specific requirements to CPAs for inclusion.

Table 16. Applicability assessment result

Para No.	ACM0006 requirements	Descriptions of qualification
		PoA-DD (Generic CPA)
		Amatikulu CPA
(1)	No biomass types other than biomass residues and/or biomass from dedicated plantations are used in the project plant;	By-product, residue or waste stream from agriculture, forestry and related industries and/or biomass from dedicated plantations are the only biomass types authorized in a typical CPA plant (e.g. sugar cane bagasse and leaves).
		Amatikulu CPA plant will only use cane bagasse (by-product of sugar production), trash from cane cultivation (leaves) and woodchips from waste, i.e. biomass residues only.
	Assessment by DOE : Applicable It was confirmed that the PoA－DD's descriptions above complied with the requirements by the methodology with an appropriate potential evidence list and sufficiently covered criterion for CPAs to be included. The compliance of the descriptions in the CPA were confirmed with the final EIA report /C-6/, one of evidence specified in the PoA-DD, that only biomass residues of bagasse, cane	

Para No.	ACM0006 requirements	Descriptions of qualification PoA-DD (Generic CPA) Amatikulu CPA
	leaves and wood chips are to be used as fuel for the new power plant. JCI can conclude the DDs are in compliance with this criterion.	
(2)	Fossil fuels may be co-fired in the project plant. However, the amount of fossil fuels co-fired does not exceed 80% of the total fuel fired on an energy basis;	No co-firing of fossil fuels in amounts exceeding 80% of total energy consumption is envisaged in a typical CPA plant (mostly start-ups and emergency use).
		No co-firing of fossil fuels is envisaged in Amatikulu CPA plant, except negligible amounts of coal in case of emergency.
	Assessment by DOE : Applicable It was confirmed that the PoA-DD's descriptions above complied with the requirements by the methodology, the limitation of co-fired fossil fuel consumption below 80% of total energy consumption with appropriate evidence list, which was considered sufficient as the criterion for CPAs to be included. The CPA-DD stated no co-firing of fossil fuels, which was confirmed with the engineering design document/C-4/ and with the interviews during the site visit /E-3/, /E-4/. In the baseline scenario coal is used as the auxiliary fuel mainly for start up of boiler operation, as every Monday the power plant has discontinued operation for regular maintenance of the sugar mill for some hours and then restarted operation. In the past record and relevant supplemental sheet /C-30/, the coal energy share against the total generated energy was reported at 4% for 1 July 2009 to 30 June 2010, 7% for 1 July 2010 to 30 June 2011 and 6% for 1 July 2011 to 30 June 2012. In the CPA, the use of coal is not planned except emergency cases. JCI, therefore, can conclude the DDs are in compliance with this criterion.	
(3)	For projects that use biomass residues from a production process (e.g. production of sugar or wood panel boards), the implementation of the project does not result in an increase of the processing capacity of raw input (e.g. sugar, rice, logs, etc.) or in other substantial changes (e.g. product change) in this process;	The implementation of a typical CPA does not result in an increase of the processing capacity of raw input or in other substantial change.
		The implementation of Amatikulu CPA does not result in an increase of the processing capacity of raw input or in other substantial change
	Assessment by DOE : Applicable It was confirmed that the PoA-DD's descriptions above complied with the requirements by the methodology: no processing capacity increase by the project activity and no substantial changes in the process. And an appropriate potential evidence list was provided. The descriptions of the PoA-DD were considered sufficient as the criterion for CPAs to be included. The CPA-DD stated that the project activity does not result in the capacity increase and also other substantial changes, which were cross-checked with the baseline scenario selection section and also the emission reduction calculation sheet. JCI can conclude the DDs are in compliance with this criterion.	
(4)	The biomass used by the project facility are not stored for more than one year;	A typical CPA does not store the biomass at use longer than a few months.
		The cane bagasse, leaves and woodchips will not be stored longer than a few months, since integrally consumed within

Para No.	ACM0006 requirements	Descriptions of qualification PoA-DD (Generic CPA) Amatikulu CPA
		the milling season.
	Assessment by DOE : Applicable The DDs clearly described not to store the biomass residues longer than a few months, shorter than one year stipulated as the threshold in the methodology. As demonstrated in the spreadsheet of the emission reduction calculations, bagasse produced on the sugar manufacturing line has been fed to directly to boilers as the primary fuel, which will be continued after the project implementation. During the site visit it was visually confirmed that bagasse produced on the sugar manufacturing line has been dewatered by the compressing rolls and then directly fed to the boilers. There observed only a small storage equivalent to a few days' consumption for operating buffer. As leaves and wood chips would be delivered from farms or saw mills to the power plant, it is considered not realistic to store them for over one year inside the sugar mill site. JCI can conclude the DDs are in compliance with this criterion.	
(5)	The biomass used by the project facility are not obtained from chemically processed biomass (e.g. through esterification, fermentation, hydrolysis, pyrolysis, bio- or chemical degradation, etc.) prior to combustion. Moreover, the preparation of biomass-derived fuel do not involve significant energy quantities, except from transportation or mechanical treatment so as not to cause significant GHG emissions;	No chemical process is involved in the biomass preparation prior to combustion in a typical CPA.
		No chemical process is involved in the biomass preparation prior to combustion: - Bagasse is directly fed from the crushing mills to the boilers, without any new transformation process, - Leaves will be shredded before combustion, - Woodchips will be burnt untreated.
	Assessment by DOE : Applicable It was confirmed that the PoA-DD appropriately described the criterion of no chemical treatment of biomass residues complying with the methodology requirements, which was validated appropriate for CPAs to be involved. The CPA-DD specified the treatment of the three kinds of the biomass residues to be used. The descriptions were cross checked with the final EIA report /C-6/ and their appropriateness was confirmed. During the site visit it was observed bagasse after dewatering process was sufficiently dried ready to be burnt in the boilers, and confirmed through interviews that leaves would be shredded for easier handling and wood chips would be burnt without treatment as described in the EIA report /C-6/. JCI can conclude the DDs are in compliance with this criterion.	
(6)	In the case of fuel switch project activities, the use of biomass or the increase in the use of biomass as compared to the baseline scenario is technically not possible at the project site without a capital investment in: • The retrofit or replacement of existing heat generators/boilers;	In case of a typical CPA that consists in fuel switch, the use (or increase) of biomass compared to the baseline scenario is made technically possible by significant capital investment in retrofit, replacement or installation of heat generators/boilers, or biomass dedicated supply chain, preparation or feeding equipments.

Para No.	ACM0006 requirements	Descriptions of qualification PoA-DD (Generic CPA) Amatikulu CPA
	or • The installation of new heat generators/boilers; or • A new dedicated biomass residues supply chain established for the purpose of the project (e.g. collecting and cleaning contaminated new sources of biomass residues that could otherwise not be used for energy purposes); or • Equipment for preparation and feeding of biomass.	Not applicable as no fuel switch is at stake in Amatikulu CPA.
	Assessment by DOE : Appropriate It was confirmed that the PoA-DD appropriately described the criterion as per the requirements that for switching fuel to biomass residue significant investment is required and also appropriate potential evidence was listed. As the CPA does not involve fuel switch, but addition of biomass residues (leaves and wood chips) to current bagasse only consumption as argued above, the CPA-DD described this criterion as NA appropriately. JCI can conclude the relevant descriptions of the PoA-DD were in compliance with this criterion and those of the CPA-DD are appropriate as correctly reflect its features.	
(7)	In the case that biogas is used in power and/or heat generation, this methodology is applicable under the following conditions: • The biogas is generated by anaerobic digestion of wastewater (to be) registered as a CDM project activity and the details of the registered CDM project activity must be included in the PDD. Any CERs from biogas energy generation should be claimed under the proposed project activity registered under this methodology; • The biogas is generated by anaerobic digestion of wastewater that is not (and will not) be registered as a CDM project activity. The amount of biogas does not exceed 50% of the total fuel fired on an energy basis.	Not applicable as no biogas recovery for power or heat generation is envisaged in a typical CPA. Not applicable as no biogas recovery for power or heat generation is envisaged in Amatikulu CPA.
	Assessment by DOE : Appropriate The DDs described this criterion as NA as no biogas use is expected in CPAs under the PoA as	

Para No.	ACM0006 requirements	Descriptions of qualification PoA-DD (Generic CPA) Amatikulu CPA
	demonstrated in B.5. the alternative scenario section of the PoA-DD, and reflected to the D.4 of the CPA-DD appropriately in identifying the baseline scenarios. Thus JCI can conclude that the DDs appropriately reflected their features and defined the criterion as NA.	
(8)	In the case of biomass from dedicated plantations: (a) The cultivated land can be clearly identified and used only for dedicated energy biomass plantations; (b) The CDM project activity does not lead to a shift of pre-project activities outside the project boundary, i.e. the land under the proposed project activity can continue to provide at least the same amount of goods and services as in the absence of the project; (c) The plantations are established: (i) On land which was, at the start of the project implementation, classified as degraded or degrading; or (ii) On a land area that is included in the project boundary of one or several registered A/R CDM project activities; (d) The plantations are not established on organic soil (notably peatlands); (e) The land area of the dedicated plantations will be planted by direct planting and/or seeding; (f) After harvest, regeneration will occur either by direct planting, seeding or natural sprouting; (g) Grazing will not occur within the plantation; (h) No irrigation is undertaken for the biomass plantations; (i) The land area where the dedicated plantation will be	Not applicable as no biomass from dedicated plantations is envisaged in a typical CPA. Not applicable as no biomass from dedicated plantations is envisaged in Amatikulu CPA.

Para No.	ACM0006 requirements	Descriptions of qualification
		PoA-DD (Generic CPA)
		Amatikulu CPA
	established is, prior to project implementation, severely degraded and in absence of the CDM project activity would have not been used for any other agricultural or forestry activity; (j) Only perennial plantations are eligible	
	Assessment by DOE : Appropriate The DDs described this criterion as NA as no biomass from dedicated plantations is envisaged in a CPA under the PoA. This was confirmed with the interviews with the farmers and the sugar mill managers /E-3/ that sugar cane has been purchased from farmers, and leaves would be purchased from the farmers the same as sugar cane and wood chips would be purchased from sawmills. Thus JCI can conclude that the DDs appropriately reflected their features and defined the criterion as NA.	

CL-11 was raised since evidence relevant to the applicability was not sufficiently provided. As addressed in the Protocol, necessary data were provided, CL-11 was closed.

In conclusion JCI can validate that the PoA-DD demonstrated appropriate framework of the methodology applicability for CPAs to be included in the generic CPA section reflecting the features of the CPA correctly and also complying with the applied methodology; and the CPA-DD appropriately demonstrated the applicability complying with the conditions stipulated in Generic CPA in the PoA-DD and also with the applied methodology.

7.3 Boundary

1) Boundary for the PoA and the CPA in terms of geographical area

JCI confirmed that the geographical boundary of the PoA was defined within all the provinces of South Africa appropriately. All CPAs to be implemented under the PoA, therefore, shall be located inside South Africa.

During the site visit, JCI could confirm visually and also with relevant documents provided by the project participant that the CPA will be implemented within the Amatikulu sugar mill site, located in Amatikulu, KwaZulu-Natal (KZN), South Africa as demonstrated in the CPA-DD appropriately. The CPA is to construct a new cogeneration plant inside the sugar mill site to supply steam and electricity to the mill for sugar manufacturing; and also supply excess electricity to the grid (Eskom). The steam and electricity supply plan to the mill was confirmed with the project drawings compiled in the project engineering documents /C-3/ as well as observation during the site visit. The electricity supply plan to the grid was confirmed with the interviews with the project owner /E-1/, the sugar mill staffs /E-3/ and the grid /E-6/; and the final EIA report /C-6/.

JCI also confirmed that there were no emission sources that will be affected by the implementation of the proposed project activity and which are expected to contribute more than 1% of the overall expected average annual emissions reductions, and are not addressed by the selected approved methodology.

2) Sources and GHGs in CPA-Generic and the CPA

JCI has confirmed that the PoA DD (CPA-Generic) appropriately defined the sources of GHGs to be included or excluded in the project boundary based on the features of CPAs to be included in the PoA complying with the methodology.

Further JCI has confirmed that the CPA-DD also defined the sources of GHGs to be included or excluded in the project boundary complying with the PoA-DD and also the applied methodology.

Summary of their comparison is tabulated below and assessment results were also summarized by the table:

Table17. Summary of comparison of Sources and GHGs in ACM0006, PoA-DD and CPA-DD

Source		Gas	ACM0006	PoA-DD	CPA-DD	Assessment of justification in the DDs
Baseline	Electricity and heat generation	**CO_2**	Included	Included	Included	OK, included as the main emission source
		CH_4	Excluded	Excluded	Excluded	OK, excluded for simplification conservatively
		N_2O	Excluded	Excluded	Excluded	OK, excluded for simplification conservatively
	Uncontrolled burning or decay of surplus biomass residues	CO_2	Excluded	Excluded	Excluded	OK, excluded as no changes in carbon pools are estimated.
		CH_4	To be decided by project participants	Excluded	Excluded	OK, excluded conservatively
		N_2O	Excluded	Excluded	Excluded	OK, excluded for simplification conservatively
Project Activity	On-site fossil fuel consumption	**CO_2**	Included	Included	Included	OK, included as fossil fuel consumptions for emergency case
		CH_4	Excluded	Excluded	Excluded	OK, excluded for simplification
		N_2O	Excluded	Excluded	Excluded	OK, excluded for simplification
	Off-site transportation of biomass	**CO_2**	Included	Included	Included	OK, included as an important emission source
		CH_4	Excluded	Excluded	Excluded	OK, excluded for simplification
		N_2O	Excluded	Excluded	Excluded	OK, excluded for simplification

	Combustion of biomass for electricity and heat	CO_2	Excluded	Excluded	Excluded	OK, excluded as no changes in carbon pools are estimated.
		CH_4	Included or Excluded	Excluded	Excluded	OK, excluded consistent with the baseline emission sources
		N_2O	Excluded	Excluded	Excluded	OK, excluded for simplification
	Storage of biomass	CO_2	Excluded	Excluded	Excluded	OK, excluded as no changes in carbon pools are estimated.
		CH_4	Excluded	Excluded	Excluded	OK, excluded for simplification as less than one year storage of biomass is expected
		N_2O	Excluded	Excluded	Excluded	OK, excluded for simplification
	Wastewater from the treatment of biomass	CO_2	Excluded	Excluded	Excluded	OK, no changes in carbon pools estimated.
		CH_4	Included	Included or excluded	Excluded	OK, no additional wastewater treatment is expected
		N_2O	Excluded	Excluded	Excluded	OK, excluded for simplification
	Cultivation of land to produce biomass feedstock	CO_2	Included	Excluded	Excluded	OK, no biomass residues from dedicated plantations are expected.
		CH_4	Included	Excluded	Excluded	OK, no biomass residues from dedicated plantations are expected.
		N_2O	Included	Excluded	Excluded	OK, no biomass residues from dedicated plantations are expected.

Baseline: The PoA-DD appropriately included CO_2 from "Electricity and heat generation" for CPA-Generic as the main emission source, complying with the methodology. CH_4 from "Uncontrolled burning or decay of surplus biomass residues" was excluded for conservativeness by the CME. Other gasses were all excluded appropriately complying with the methodology. The CPA-DD included CO_2 from

"Electricity and heat generation" as the main emission source complying with the methodology, and the PoA-DD. Other gasses were excluded as per the PoA-DD appropriately.

Project activity: The PoA-DD appropriately included CO_2 from "On-site fossil fuel consumption" and "Off-site transportation of biomass" complying with the methodology. CH_4 from "Wastewater from the treatment of biomass" was defined as to be decided by each CPA level, described as "excluded or include" in the PoA-DD. The methodology specified to include it in case biomass wastewater is treated under anaerobic condition. As the use of "Cultivation of land to produce biomass feedstock dedicated plantations" was not included in the baseline scenario of the PoA-DD, all relevant gasses, therefore, were appropriately excluded.

The CPA-DD appropriately included the two CO_2 emission sources the same as the PoA-DD, and excluded CH_4 from "Wastewater from the treatment of biomass".

As fossil fuel consumptions for emergency and transport of leaves and wood chips were part of scope of the CPA, relevant CO_2 emissions were appropriately included.

As no additional wastewater generation was expected associated with the implementation of the project activity, relevant CH_4 emissions were excluded appropriately. Sugar cane would be treated the same way as it has been: Currently cane has been crushed twice under dry conditions prior to be fed to the subsequent sugar manufacturing process. After undergo the sugar extracting process, bagasse has been transferred to the roll-pressuring process for dewatering prior to be fed to boilers. The CPA will apply the same process as it has been. Leaves transferred from farms will be shredded under a dry condition prior to be fed to boilers, and wood chips transferred from saw mills will be fed to boilers as they are or after being shredded. As such no additional wastewater will be generated compared with the baseline scenario. As a result, no additional wastewater treatment is required associated the project implementation.

JCI can conclude that all the GHG sources were appropriately excluded or included in the PoA-DD and the CPA-DD.

7.4 Description of baseline scenario

JCI assessed the baseline scenario established in the CPA with the following steps:

1) Document review

JCI has reviewed the Engineering Design Document /C-4/ and the final EIA report /C-6/, and confirmed that the CPA is to construct a new cogeneration power plant inside the Amatikulu sugar mill site to install two new high-pressure boilers and two new high-capacity turbo-alternators, to replace existing low-pressure boilers and low-capacity turbo-alternators, and excess electricity would be supplied to the grid (Eskom).

2) On-site visit from 20 August through 23 August 2012

JCI has confirmed the detailed project plans through the interviews with the sugar mill technical staffs /E-3/ and with the engineering company /E-4/. Electricity supply plan from the project activity was confirmed with the interview with the grid company /E-6/. Currently small amount of excess electricity (contracted under below 5MW/h condition) has been supplied to the grid company from the existing cogeneration power plant. During the power plant stops for regular maintenance on every Monday, necessary power during such period has been supplied to the mill from the grid as well as minimum power supply during the off season of sugar manufacturing to maintain the mill facilities. Also it was confirmed through interviews with relevant peoples and entities /E-3/, /E-5/, /E-6/, /E-7/, that cane leaves have been burnt in fields and wood chips have been destroyed at saw mills without control as common practice in the region.

The project participant appropriately demonstrated the baseline scenario development in section 6.7 "Identification of alternatives". The PoA-DD first narrowed down components to be included by excluding the dedicated plantation use (L1-L3) and the bio gas (BG1-BG4) components as they were not included in the scope of generic CPA. Then the CPA-DD further narrowed down remaining components by appropriately excluding scenarios not applicable to the CPA. As a result of this process, the plausible and credible baseline scenario appropriate to the CPA was established as "The existing low efficiency,

expanded cogeneration power plant". The scenario includes the additional installation of a new boiler to meet the increase steam demand by the sugar mill consuming all bagasse produced on the sugar manufacturing line. Insufficient electricity supply capacity of the power plant would be supplemented by electricity supply from the grid.

The baseline scenario of implementing the CPA without CDM application was appropriately excluded with the justification of the barrier analysis with use of the "First-of-its-kind" guidelines /A-19/.

In conclusion JCI can validate the baseline scenario was appropriately identified in the CPA-DD as the PoA-DD which was prepared based on the baseline methodology applied.

Complying with VVS/A-14/, JCI hereby confirmed that:

(a) All the assumptions and data used by the project participants are listed in the PoA-DD/A-2/, the CPA-DD /A-4/, including their references and sources;

(b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PoA-DD/A-2/, the CPA-DD /A-4/;

(c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;

(d) Relevant national and/or sectoral policies and circumstances are considered and listed in the the PoA-DD/A-2/, the CPA-DD /A-4/,

(e) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

In conclusion JCI can validate the baseline scenario was appropriately identified in the CPA-DD as the PoA-DD which was developed based on the baseline methodology applied.

7.5 Estimation of emission reductions of the CPA

In the CPA-DD emission reductions are calculated as per the PoA-DD as follows:

( ): equation number specified in the CPA-DD

$$ER_y = BE_y - PE_y - LE_y \quad (1)$$

Where:

ER_y	Emissions reductions in year *y* (tCO_2)
BE_y	Baseline emissions in year *y* (tCO_2)
PE_y	Project emissions in year *y* (tCO_2)
LE_y	Leakage emissions in year *y* (tCO_2)

CL-15 was raised as historical sugar mill operation data which were used in the following calculations were not sufficiently provided. As responded in the Protocol, relevant date was provided appropriately, CL-15 was closed.

The objectivity of laboratory analysis data on sugar cane was confirmed during the site visit that they have been analyzed by an independent laboratory staying in the Amatikulu mill as per relevant regulations of the country.

1) Baseline emissions (BE_y)

The emissions were calculated based on the following equation as per the methodology

$$BE_y = EL_{BL,GR,y} \cdot EF_{EG,GR,y} + \sum_f FF_{BL,HG,y,f} \cdot EF_{FF,y,f} + EL_{BL,FF/GR,y} \cdot \min(EF_{EG,GR,y}, EF_{EG,FF,y}) + BE_{BR,y} \quad (2)$$

Where:

BE_y	Baseline emissions in year *y* (tCO_2)
$EL_{BL,GR,y}$	Baseline minimum electricity generation in the grid in year *y* (MWh)
$EF_{EG,GR,y}$	Grid emission factor in year *y* (tCO_2/MWh)
$FF_{BL,HG,y,f}$	Baseline fossil fuel demand for process heat in year *y* (GJ)
$EF_{FF,y,f}$	CO_2 emission factor for fossil fuel type f in year *y* (tCO_2/GJ)
$EL_{BL,FF/GR,y}$	Baseline uncertain electricity generation in the grid or on-site in year *y* (MWh)
$EF_{EG,FF,y}$	CO_2 emission factor for electricity generation with fossil fuels at the project site in the baseline in year *y* (tCO_2/MWh)
$BE_{BR,y}$	Baseline emissions due to disposal of biomass residues in year *y* (tCO2e)
y	Year of the crediting period
f	Fossil fuel type

BE_y was calculated with the following steps as per the methodology:

Step 1: Determine biomass availability, generation and capacity constraints, efficiencies and power emission factors in the baseline:

- In Step 1.1, this step was not applied as addressed in the CPA-DD, the project owners have decided to conservatively neglect emission reductions from the displacement of heat. The calculations of heat balance around the boilers were skipped accordingly.

- In Step 1.2, the total baseline electricity generation (**$EL_{BL,y}$**) was appropriately determined to be 356,443MWh/y as per the stipulated equation (3) in the CPA-DD ($EL_{BL,y} = EL_{PJ,gross,y} + EL_{PJ,imp,y} - EL_{PJ,aux,y}$). JCI confirmed all the electricity data were sourced appropriately from the Bosch design document /C-4/ and the historical data in the spreadsheet /C-28/.

  The parameter $EL_{PJ,aux,y}$ included the load by the prime mover (26,244MWh/y) in addition to the auxiliary load of the new cogeneration plant (63,366 MWh/y) in a conservative manner as addressed in Step 4 of the CPA-DD. The electricity import was appropriately assumed to be 10,531 MWh/y as a fixed figure based on historical data. It includes electricity consumption for regular maintenance conducted every Monday from 2:00 to 16:00, during which the operation of the sugar mill and the power plant stops and necessary electricity has been supplied by the grid as well as minimum electricity supply during off-crop season of sugar milling for 3-4 months every year of which conditions were assumed to continue after proposed project implementation.

- In Step 1.3, the baseline capacity of electricity generation (**$CAP_{EG,Total,y}$**) was determined to be 63,504 MWh/y based on appropriately estimated length of the operational campaign (6,048 hours/y), the baseline electricity generation capacity of heat engine 12MW (the same as current

max. capacity) and the baseline load factor 87.5% (the power plant is assumed to be operated on a cogeneration mode all time).

$\mathbf{CAP_{EG,\,Total,y}}$ = 6,048*12*0.857=63,504 MWh/y

- In Step 1.4, the baseline availability of biomass residues ($\mathbf{BL_{PJ,n,y}}$) was appropriately determined to be 425,232 tons/y as the sum of bagasse, leaves and wood chips based on historical data and appropriate assumptions. Available amount of leaves is limited to below 10 % of cane-based fuel to minimize potential chemical erosion by leaves to heating system equipment, while up to 15% of sugar cane weight is generated from sugar cane, according to the information provided by the farmers (local stakeholders) interviewed during the site visit /E-3/. Also approx. 5% of wood chips were assumed for fulfilling total fuel demand.

- In Step 1.5, the efficiencies of heat generators, and efficiencies and heat-to-power ratio of heat engines were determines appropriately as below:

  - Efficiencies of heat generators : 81.8%

    Option 3 was selected and as per the equation (5), the efficiencies of the last three calendar years were calculated based on historical records of the sugar mill: 64.8% for year 2009; 75.9% for year 2010 and 81.8% for year 2011. As a result, the maximum efficiency 81.8% for year 2011 was selected as the efficiency in line with the equation (5).

  - Efficiency of heat engines : 0.039 MWh/GJ

    Option 3 was selected and as per the equation (6), the efficiencies of the last three calendar years were calculated based on historical records of the sugar mill: 0.0393 for year 2009; 0.0393 for year 2010 and 0.0393 for year 2011. As a result, the maximum efficiency 0.0393 was selected appropriately as the efficiency in line with the equation (6).

  - Heat-to-Power ratio : 6.05

    Case 1 was selected and as per the equation (7), the ratio of the last three calendar years were calculated appropriately based on historical records of the sugar mill: 6.05 for year 2009; 6.05 for year 2010 and 6.05 for year 2011. As a result, the ratio 6.05 was selected appropriately.

- In Step 1.6, $\mathbf{EF_{EG,FF,y}}$ = $\mathbf{EF_{EG,GR,y}}$ was defined appropriately as per the methodology since no fossil-fuel based power generation was conservatively accounted for as part of the baseline scenario.

- In Step 1.7, the grid emission factor ($\mathbf{EF_{EG,GR,y}}$) 0.9644 tCO2/MWh derived from the Standardized Baseline /A-22/ was applied appropriately. As argued above the CPA-DD assumed the application of the Standardized Baseline as CPAs to be included will comply with the stipulated eligibility criteria.

Step 2: Determine the minimum baseline electricity generation in the grid ($\mathbf{EL_{BL,GR,y}}$)

It was confirmed that the minimum baseline electricity generation in the grid was determined appropriately to be 292,939 MWh/y as the "Baseline electricity generation in year y (MWh)" minus "the Baseline electricity generation capacity in year y (MWh)" as per the equation (8). Both parameters were already calculated appropriately in Step 1.2 and Step 1.3 above respectively.

Step 3: Determine the baseline biomass-based heat and power generation:

This step was not applied as addressed in the CPA-DD the project owners have decided to conservatively neglect emission reductions from the displacement of heat.

Step 4: Determine the baseline demand for fossil fuels to meet the balance of process heat and the corresponding electricity generation

As no fossil fuel consumptions were assumed in the baseline scenario conservatively, Step 4 was not applied as demonstrated in the CPA-DD appropriately ($\mathbf{FF_{BL,HG,y,f}} = \mathbf{EL_{BL,FF/GR,y}} = 0$). JCI confirmed that emissions from co-firing of coal at 5-10% were conservatively neglected by the project owners as well as baseline uncertain electricity generation in the grid and occasional coal consumption on site while they were actually implemented as a pre-project scenario.

JCI raised CL-6 since the exclusion of emissions from the on-site fossil fuel consumption was not sufficiently justified while coal consumption was reported in the historical data provided by the project participant. As appropriately justified in the response of the Protocol, CL-6 was closed.

Step 5: Determine the baseline emissions due to uncontrolled burning or decay of biomass residues

As addressed above they were excluded from the baseline emissions, the CPA-DD appropriately assumed to be zero ($\mathbf{BE_{BR,y}} = 0$).

Step 6: Calculate baseline emissions

The emissions were correctly calculated in the CPA-DD based on the above results to be 282,510 tCO2e/y, by multiplying the minimum baseline electricity generation in the grid ($\mathbf{EL_{BL,\,GR,\,y}}$) calculated in Step 2 above to be 292,939 MWh/y by the grid emission factor ($\mathbf{EF_{EG,GR,y}}$) defined in Step 1.7 above to be 0.9644 tCO_2/MWh.

2) Project emissions (PEy)

The emissions were calculate based on the following equation as per the methodology

$$\mathbf{PE_y} = \mathbf{PE_{FF,y}} + \mathbf{PE_{GR1,y}} + \mathbf{PE_{GR2,y}} + \mathbf{PE_{TR,y}} + \mathbf{PE_{BR,y}} + \mathbf{PE_{WW,y}} + \mathbf{PE_{BG2,y}} + \mathbf{PE_{BC,y}} \quad (17)$$

The applicability of each emission to the project activity was summarized in the table below:

Table18. Applicability of emissions to the CPA

Emissions Assumed in the PoA-DD	Description	Applicability to the CPA
$\mathbf{PE_{FF,y}}$	Emissions during the year y due to fossil fuel consumption at the project site (tCO_2)	Yes, fossil fuel consumptions at the project site for emergency cases were included in the project activity.
$\mathbf{PE_{GR1,y}}$	Emissions during the year y due to grid electricity imports to the project site (tCO_2)	Yes, grid electricity imports to the project site are included in the project activity.
$\mathbf{PE_{GR2,y}}$	Emissions due to a reduction in electricity generation at the project site as compared to the baseline scenario in year *y* (tCO_2)	No, as no reduction in electricity generation at the project site assumed as compared to the baseline scenario.
$\mathbf{PE_{TR,y}}$	Emissions during the year y due to transport of the biomass residues to the project plant (tCO_2)	Yes, Emissions due to transport of the biomass residues (leaves and wood chips) to the project plant are included.
$\mathbf{PE_{BR,y}}$	Emissions from the combustion of biomass residues during the year *y* (tCO_2e)	No, no emissions from the combustion of biomass residues

		were assumed in the project activity
$\mathbf{PE_{WW,y}}$	Emissions from wastewater generated from the treatment of biomass residues in year *y* (tCO_2e)	No, no additional wastewater treatment was assumed in the project activity
$\mathbf{PE_{BG2,y}}$	Emissions from the production of biogas in year *y* (t CO_2e)	No, the use of biogas was not included in the project activity
$\mathbf{PE_{BC,y}}$	Project emissions associated with the cultivation of land to produce biomass in year *y* (t CO_2)	No, the emissions associated with the cultivation was not included in the project activity

Based on the above result of the applicability assessment, the calculations of the above three project emissions were assessed as below:

$\mathbf{PE_{FF,y}}$: Appropriately assumed to be zero in ex-ante calculations, as the use of fossil fuels were assumed for only emergency cases. The monitoring of relevant parameters was appropriately planned as demonstrated in the relevant section.

$\mathbf{PE_{GR1,y}}$: Appropriately calculated to be 10,156 tCO_2e/y based on the grid emission factor (0.9644 tCO_2/MWh) and estimated electricity import data (10,531 MWh/y).

$\mathbf{PE_{TR,y}}$: Confirmed that $\mathbf{PE_{TR,y}}$ was appropriately calculated to be 2,403 tCO_2e/y selecting Option B to use conservative values and using conservatively estimated transport distance.

CAR-3 was raised as there found an inconsistency of the parameter values "Return trip road distance" used in spreadsheets between "Project Emissions" and "Project data". The value was revised to indicate 200 km as the "Return trip road distance", CAR-3 was closed.

CL-10 was raised as the specified transportation distance for collecting wood chips was not sufficiently explained. The specified distance was appropriately explained and justified, CL-10 was closed. The same distance was assumed to transportation for collecting leaves in a conservative manner. Leaves can be collected from sugar cane farms located in shorter distance than assumed 100km in average.

As results of above, JCI confirmed that $\mathbf{PE_{GR1,y}}$ and $\mathbf{PE_{TR,y}}$ were appropriately calculated to 10,156 tCO_2/y and 2,403 tCO_2/y respectively and then $\mathbf{PE_y}$ to be 12,558 tCO_2e/y.

3) Leakage emissions (LE_y)

The leakage emissions were appropriately assumed to be zero, as the baseline scenario does not include B5, B6, B7 or B8.

4) Emission reductions (ER_y)

Based on the above results, the reductions were calculated correctly.

Baseline emissions (BEy): 284,853 tCO2e/y

Project emissions (PE_y): 12,558 tCO_2e/y

Leakage emissions (LE_y): 0 tCO_2e/y

Emissions reductions (ER_y): 269,952 tCO_2e/y (=BEy - PE_y - L_y)

7.6 Monitoring plan

1) The PoA-DD (Generic CPA)

The PoA-DD specified that the detailed monitoring plan will be described in each CPA to meet its specific features under the PoA. However, JCI assessed relevant descriptions were insufficient in providing a framework of the monitoring plan as the PoA-DD; and also the role and responsibility sharing between the CMA and each CPA implementer in implementing the monitoring was not clearly addressed.

CL-7, therefore, was raised to the project participant to appropriately address these issues in the PoA-DD as the CME. Since the PoA-DD provided an appropriate framework for the monitoring plan to be incorporated in the monitoring plan of each CPA as below and also the role and responsibility sharing was clearly addressed, CL-7 was resolved and then closed.

Each CPA implementer is requested prior to the start of the crediting period, to establish a dedicated CDM team with adequately trained members. And under the newly appointed CDM coordinator, clear assignment to each member of roles and responsibilities are requested. Further as the key person of the monitoring, the responsibilities of the CDM coordinator are developed in details appropriately, including monitoring equipment inspection, monitoring implementation, relevant process developments/improvements, reporting and verification in future.

Further the PoA-DD clearly specified the roles of the CME itself, which included the registration of each CPA data and its monitoring data with use of a data base. Data to be monitored were appropriately listed in section B.8.1. of the PoA-DD as shown in below Table 19.

It was also requested to each CPA implementer to specify monitoring procedures in details including QA/QC procedures to maintain its quality. Further to ensure the data quality the audit by the CME was addressed.

JCI can conclude that the CME has provided an appropriate framework for the monitoring plan to be incorporated to the monitoring plan by each CPA implementer.

2) The CPA-DD

JCI assessed the CPA monitoring plan as below steps:

(1) Monitoring organization

As shown in Figure 6 of the CPA-DD, the CPA implementer plans to establish monitoring organization assuming the Plant Manager as the CDM coordinator as specified in the PoA-DD above. Further the project owner's Technical/Engineering/Maintenance Departments are also expected to participate as key monitoring functions under the Plant Manager.

(2) Parameters to be monitored ex-post

As below table JCI confirmed that the PoA-DD and the CPA-DD appropriately identified the parameters to be monitored ex-post in section B.8.1. based on baseline scenario examinations and GHG emissions within the project boundary. It was also confirmed that relevant information/data were appropriately described in each box of the parameter.

The CPA-DD also appropriately excluded the following nine (9) parameters out of the parameters listed in the PoA-DD in the below table: $BR_{B5/B8,n,y}$, $EF_{BR,n,y}$, $HC_{BL,y}$, $h_{LOW,y}/h_{HIGH,y}$, $V_{WW,y}$, $COD_{WW,y}$, $B_{o,WW}$, MCF_{WW}, $EF_{CO2,LE}$. These exclusions were assessed appropriate reflecting features of the CPA as described in the section of GHGs sources in D.3, of which results are demonstrated in section 7.1.

Table19. Parameters to be monitored ex-post identified in the PoA-DD

Data / Parameter:	Description:
Baseline Emissions	( ) : excluded in the CPA-DD
Biomass categories and quantities used in the CDM project activity	Explain and document transparently in the CDM-PDD, using a table similar to table 2, which quantities of which biomass categories are used in which installation(s) under the CDM project activity and what is their baseline scenario.
For biomass residues categories for which scenarios B1:, B2: or B3: is deemed a	- Quantity of available biomass residues of type n in the region - Quantity of biomass residues of type n that are utilized (e.g. for energy generation or as feedstock) in the defined geographical region - Availability of a surplus of biomass residues type n (which cannot be sold or

plausible baseline alternative, project participants shall demonstrate that this is a realistic and credible alternative scenario	utilized) at the ultimate supplier to the project and a representative sample of other suppliers in the defined geographical region
$BR_{PJ,n,y}$	Quantity of biomass residues of category n used in the CDM project activity in year *y* (tons on dry-basis)
$BR_{B4,n,y}$	Quantity of biomass residues of category n used in the CDM project activity in year y for which the baseline scenario is B4: (tons on dry-basis)
$BR_{B1/B3,n,y}$	Quantity of biomass residues of category n used in the CDM project activity in year y for which the baseline scenario is B1: or B3: (tons on dry-basis)
$(BR_{B5/B8,n,y1})$	Quantity of biomass residues of category n used in the CDM project activity in year y , for which the baseline scenario is B5:, B6:, B7: or B8:
$EF_{FF,y,f}$	CO_2 emission factor for fossil fuel type f in year y
$(EF_{BR,n,y})$	CH_4 emission factor for uncontrolled burning of the biomass residues category n during the year y
$(HC_{BL,y})$	Baseline process heat generation in year y
$EL_{PJ,gross,y}$	Gross quantity of electricity generated in all power plants which are located at the project site and included in the project boundary in year *y*
$EL_{PJ,imp,y}$	Project electricity imports from the grid in year y
$EL_{PJ,aux,y}$	Total auxiliary electricity consumption required for the operation of the power plants at the project site in year y
$NCV_{BR,n,y}$	Net calorific value of biomass residue of category n in year y
$(h_{LOW,y})$ $(h_{HIGH,y})$	$h_{LOW,y}$ = Specific enthalpy of the heat carrier at the process heat demand side $h_{HIGH,y}$ = Specific enthalpy of the heat carrier at the heat generator side
Moisture content of the biomass residues	Moisture content of each biomass residues type *k*
P_y	Quantity of the main product of the production process (e.g. sugar cane, rice) produced in year y from plants operated at the project site
LOC_y	Length of the operational campaign in year y
Project Emissions	
$FC_{i,j,y}$	Quantity of fuel type *i* combusted in process *j* during the year *y*
$NCV_{i,y}$	Weighted average net calorific value of fuel type *i* in year *y*
$EF_{CO2,i,j}$	Weighted average CO_2 emission factor of fuel type *i* in year *y*
$\mathbf{D_{f,y}}$	Return trip road distance between the origin and destination of freight transportation activity f in year *y*
$\mathbf{FR_{f,y}}$	Total mass of freight transported n freight transportation activity f in year y
$(V_{WW,y})$	Quantity of waste water generated in year y
$(COD_{WW,y})$	Average chemical oxygen demand of the waste water in year y
$(B_{o,WW})$	Methane generation potential of the waste water
(MCF_{WW})	Methane correction factor for the waste water
$(EF_{CO2,LE})$	CO_2 emission factor of the most carbon intensive fossil fuel used in the country

CL-17 was raised as there found inconsistency between the baseline scenario and the parameters to be monitored. The parameter $BR_{B5/B8,n,y1}$ was included in the monitoring plan; however, scenarios B5 and B8 were not included in the baseline scenario of the project activity. As the parameter $BR_{B5/B8,n,y1}$ was excluded from the CPA-DD appropriately complying with the baseline scenario, CL-17 was closed.

JCI has confirmed that the contents of each parameter table fully comply with the applied methodology and further specific requirements of meter accuracy and calibration frequency were appropriately added to each parameter where appropriate.

(3) Monitoring instruments to be installed

During the site visit, JCI could confirm that the project owner will install advanced and automated monitoring systems to meet CDM requirements for monitoring, which was confirmed with the Bosch engineering design document /C-4/ and also interviews with the sugar mill technical staffs /E-3/.

Through the interviews and the site visit JCI has confirmed that the project owner Tongaat Hulett has sufficient capability of implementing the CDM monitoring in line with the monitoring plan as demonstrated in the CPA-DD.

8. Environmental impacts

8.1 The PoA-DD (Generic CPA)

The PoA-DD specified that the environmental impact analysis (EIA) shall be implemented at each CPA level complying with national regulations/laws and further described list of regulations and acts which may be applied to each CPA to be implemented in South Africa under the PoA.

8.2 The CPA-DD

Complying with national regulations the CPA-DD clearly described the necessity of EIA for the proposed project activity and the full scoping EIA report needs to be submitted to the national Department of Environmental Affairs (DEA). Further the necessity of licensing for emissions by the boilers to be introduced and for the treatment of ash and unburnt combustibles from the boilers was described appropriately based on current regulations in South Africa.

As a summary of the EIA compiled by a consulting institute (Geomeasure Group), implications and mitigations of each environmental aspect were tabulated in Table 2 of the CPA-DD separated to two major categories; Biophysical Impact and Social Impacts, which were further divided to more specific items. In the table, the magnitude by each item was assessed from wider viewpoints: extent, duration, probability, and significance with/without mitigation.

The final EIA report was submitted to the Department of Environment Affairs which was confirmed with the acknowledgement letter of receipt on 18/09/2012 issued by the Department dated 02/10/2012 /C-22/. As the result, the proposed project activity was authorized by the Department on 28/03/2013, which was confirmed with the evidence /C-32/.

9. Local stakeholder consultation

9.1 The PoA-DD (Generic CPA)

According to the specification in the PoA-DD, the Local Stakeholder Consultation is to be conducted at CPA level.

9.2 The CPA-DD

As demonstrated in SECTION C. of the CPA-DD, a public meeting was held on 14/11/2011 with advance announcement as per the regulation stipulated. In the meeting not only local residents but many government officials attended as demonstrated.

As covered by the CPA-DD, in the meeting many questions and concerns were raised from the attendees as summarized with the project proponent’s responses. Mostly are the contributions by the project activity

to emissions reductions and also to local economy. As demonstrated there were no negative or opposition comments from the attendees.

In the CPA-DD subsequent comments from registered Interested and Affected Parties, stakeholders and relevant authorities were summarized with appropriate responses from the project proponent.

JCI also received comments from the two farmers through the interview during the site visit. They were expecting the contribution by the project activity in providing huge expansion of job opportunities resulting in the development of local economy, and also in improving local environment.

Based on the above, JCI has confirmed and validated that the CPA is basically supported by the majority of local stakeholders, and gave no significant adverse impacts on environment, and instead would contribute to the improvement of local economy.

End of document

Appendix A Protocol for CDM (PoA) Project

Abbreviation

CAR	Corrective Action Request	**CL**	Clarification Request	**FAR**	Forward Action Request,
VVS	Validation and Verification Standard	**PDD GL**	PDD Guidelines	**NA**	Not Applicable
TBV	To be verified	**PA**	Project Activities	**PP**	Project Participants
PoA	Programme of Activities	**CPA**	Component Project Activity	**PoA GL, CPA GL**	PoA-DD, CPA-DD Completion Guidelines
Std Add.	Standard for Demonstration of Additionality, Eligibility Criteria and application of Multiple methodologies for Programme of Activities.				
Std. Sampling	Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities				

TABLE-1 REQUIREMENTS CHECKLIST (POA) **(OK/Not OK/NA/TBV)**

PoA-DD Section	Check Points (according to EB 74 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.04.0)	Reference GL,DD	Check Comment	CAR, CL, No.
	General guidelines(PoA)		--	--
	Title of the project activity:		--	--
1.	Confirm that the PoA-DD Form applies **version 03.0 of F-CDM-PoA-DD.**	PoA GL	OK, confirmed that the latest version is applied	
2.	Confirm that the PoA-DD is completed **in English.** (all attached documents must be in English)	PoA GL	OK, confirmed that English is used.	
3.	Confirm that the PDD is completed using the same format **without modifying its font, headings or logo,** and without any other alteration to the form.	PoA GL	OK, no modification confirmed	
4.	Confirm that the tables and their columns in the PoA-DD are **not modified or deleted.**	PoA GL	OK, not modified	
5.	Confirm that the **blanks are left intentionally** for the "not applicable section" of the PoA-DD.	PoA GL	OK	
6.	Confirm that the values in the PoA-DD are presented in an internationally recognized format.{For example: digits grouping in thousands and a decimal point with a dot (.), not with a comma (,)} (e.g 1,000 representing one thousand and 1.0 representing one. Confirm that the units used for weights/currency are in S.I. units/norms (thousand/million)	PoA GL	OK, confirmed	
	Check for PoA-DD			
PART I.	**Programme of activities (PoA)**		--	--
Section A.	**General description of PoA**			
A.1	**Title of the PoA:**			
	Confirm the followings related to the title of the PoA.			
(a)	The title of the PoA.	PoA GL	OK, confirmed the title is described appropriately	
(b)	The version number of the PoA-DD.	PoA GL	OK, confirmed the version number is described	

TABLE-1 REQUIREMENTS CHECKLIST (POA) **(OK/Not OK/NA/TBV)**

PoA-DD Section	Check Points (according to EB 74 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.04.0)	Reference GL,DD	Check Comment	CAR, CL, No.
			appropriately	
(c)	The date of the PoA-DD is in DD/MM/YYYY.	PoA GL	OK, confirmed the date is described appropriately	
A.2.	**Purpose and general description of the PoA:**			
(a)	Confirm that the description is provided on the policy/measure or stated goal of the PoA.	PoA GL	OK, confirmed they are described appropriately	
(b)	Confirm that the description is provided on the framework for the implementation of the PoA.	PoA GL	OK, confirmed the framework is described appropriately	
(c)	Confirm that the description is provided on the voluntary action by the CME for PoA.	PoA GL	OK, confirmed it is described appropriately	
A.3	**CMEs and participants of PoA**			
(a)	Confirm that the identification of the CME is provided for the PoA.	PoA GL	OK, the CME for the PoA is identified	
(b)	Confirm that the description is provided on Project participants of the PoA.	PoA GL	OK, the description on the participants is provided	
A.4	**Party(ies)**			
(a)	Confirm that the Party(ies), PPs and CMEs are listed in the table.	PoA GL	OK, confirmed that the PP is listed	
(b)	Confirm that the "(host)" is indicated in the table.	PoA GL	OK, (host) is indicated	
(c)	Confirm that the name of PPs are consistent with the contact information in Appendix 1	PoA GL	OK, the consistency was confirmed	
A.5.	**Physical/ Geographical boundary of the PoA**			
	Confirm that the description is provided on the defined boundary of PoA as a geographical area. (e.g. municipality, region within a country, country or several countries)	PoA GL	Not OK, please review the current definition of the boundary, which is not considered clear enough; whether it includes all the provinces or the 9 provinces out of all the provinces of SA.	**CL-1**
A.6.	**Technologies/measures**			
	Confirm that the description is provided on the technologies for the CPAs.	PoA GL	OK, descriptions on technologies are provided	

TABLE-1 REQUIREMENTS CHECKLIST (POA) **(OK/Not OK/NA/TBV)**

PoA-DD Section	Check Points (according to EB 74 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.04.0)	Reference GL,DD	Check Comment	CAR, CL, No.
A.7.	**Public funding of PoA**			
(a)	Confirm that the description is provided on no public funding from Parties for PoA.	PoA GL	OK, no expectation of public funding is described	
(b)	If public fund has received for PoA, (b-1)Provide information on Parties providing public funding; (b-2)Attach in Appendix 2: the affirmation obtained from such Parties	PoA GL	NA, as no public funding expected	
Section B.	**Demonstration of additionality and development of eligibility criteria**			
B.1	**Demonstration of additionality for PoA**			
B.1.1	Confirm that additionality is demonstrated by establishing that in the absence of CDM, none of the implemented CPAs would occur.	Std Add.	OK, confirmed that in the absence of CDM, no CPAs would occur.	
B.1.2	If PoA consists of one or more microscale projects as CPAs, confirm that PoA includes eligibility criteria derived from all the relevant requirements of the *"Guidelines for demonstrating additionality of microscale project activities".*	Std Add.	NA, as large-scale projects are specified in the PoA.	
B.1.3	If PoA consists of one or more small-scale projects as CPAs, confirm that PoA includes eligibility criteria derived from all the relevant requirements of *attachment A of Appendix B of the "Simplified modalities and procedures for small-scale CDM project activities".*	Std Add.	NA, as large-scale projects are specified in the PoA	
B.1.4	If PoA consists of one or more large scale projects as CPAs, confirm that PoA includes eligibility criteria derived from all the relevant requirements contained in the additionality section of the large scale methodologies.	Std Add.	Not OK, though the PoA will include one or more large scale projects, inclusion of relevant eligibility criteria is not described.	**CAR-9**
B.1.5	Confirm whether the CME demonstrates that compliance with the additionality-related eligibility criteria set in the PoA-DD ensures that all the relevant additionality-related guidelines, tools or any requirements embedded in the methodologies are met.	Std Add.	OK, the CME demonstrates the eligibility appropriately	
B.1.6	Confirm that for PoA involving combinations of technologies/measures and/or methodologies, the eligibility criteria relative to each of them are proposed to demonstrate additionality. Types of combinations as indicated in Std Add. shall be taken into account.	Std Add.	NA, as the proposed PoA does not apply multiple methodologies and only covers biomass (co-)fired power-and-heat plants technology	
B.2.	**Eligibility criteria for inclusion of a CPA in the PoA**			
B.2.1	Confirm that the description is provided on the eligibility criteria.	PoA GL	OK, confirmed	
B.2.2	Confirm that the CME developed eligibility criteria for inclusion of a CPA under the PoA and shall include these criteria in the PoA design documents (e.g. CDM-PoA-DD, CDM-SSC-PoA-DD).	Std Add.	OK, confirmed	

TABLE-1 REQUIREMENTS CHECKLIST (POA) **(OK/Not OK/NA/TBV)**

PoA-DD Section	Check Points (according to EB 74 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.04.0)	Reference GL,DD	Check Comment	CAR, CL, No.
B.2.3	Confirm that the eligibility criteria shall cover as a minimum the following	Std Add.		
(a)	(a) The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA;		OK, confirmed	
(b)	(b) Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);		OK, confirmed	
(c)	(c) The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications		OK, confirmed	
(d)	(d) Conditions to check the start date of the CPA through documentary evidence;		OK, confirmed	
(e)	(e) Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs;		OK, confirmed	
(f)	(f) The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as specified in Section A above;		OK, confirmed	
(g)	(g) The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;		OK, confirmed	
(h)	(h) Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance		OK, confirmed	
(i)	(i) Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid-connected/off-grid) and distribution mechanisms (e.g. direct installation);		NA	
(j)	(j) Where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling and surveys;		NA	
(k)	(k) Where applicable, the conditions that ensure that every CPA in aggregate meets the small-scale or microscale threshold criteria and remains within those thresholds throughout the crediting period of the CPA;		NA	
(l)	(l) Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories.		NA	
B.3.4	Confirm that the eligibility criteria are verifiable.	Std Add..	OK, confirmed the criteria are verifiable	
B.3.5	Determine whether the eligibility criteria are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA.	Std Add.	OK, confirmed	
B.3.6	Confirm that the CPAs shall be included in the PoA on the basis of the DOE's confirmed eligibility of CPAs where applicable undertaking sample-based checks in accordance with the approved guidelines/standard from the Board.	Std Add.	OK, this can be implemented with the assessment of the eligibility of the CPAs to be demonstrated in the CPA-DD	
B.3.7	For PoAs that include combinations of technologies/measures and/or methodologies, confirm that distinct eligibility criteria are developed per combination as specified in paragraph 29(a) to 29(d), in Section C below.	Std Add.	NA	

TABLE-1 REQUIREMENTS CHECKLIST (POA) **(OK/Not OK/NA/TBV)**

PoA-DD Section	Check Points (according to EB 74 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.04.0)	Reference GL,DD	Check Comment	CAR, CL, No.
B.3	**Application of methodologies**			
B.3.1	Confirm that the description is provided on the technology/measures and indicate the methodology chosen.	PoA GL	OK, the methodology application was demonstrated appropriately.	
Section C.	**Management system**			
C.1	Confirm that the description is provided on the management system.	PoA GL	OK, confirmed the description	
C.2	Confirm whether the management system described in the PoA design document (CDM PoA-DD) in accordance with the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities.	PoA GL	OK	
C.3	Confirm whether the CME has the competencies to check the features of potential CPAs and ensure that each CPA meets all requirements and eligibility criteria before inclusion in the registered PoA.	Std Add	Not OK, the competencies of the CME have not been demonstrated.	**CL-8**
C.4	Confirm that the CME develop and implement a management system that includes the following made available to the DOE at the time of validation of the PoA:	Std Add	Not OK, confirmed that the relevant descriptions were provide; however, the document CPA-IMS for validation as specified in the Std Add. is not provided.	**CL-5**
(a)	A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies		OK	
(b)	Records of arrangements for training and capacity development for personnel		OK	
(c)	Procedures for technical review of inclusion of CPAs		OK	
(d)	A procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA);		OK	
(e)	Records and documentation control process for each CPA under the PoA		OK	
(f)	Measures for continuous improvements of the PoA management system		OK	
(g)	Any other relevant elements.		OK	
C.5	Confirm whether the elements of the management system referred to are appropriate as part of the validation of the PoA or as part of the validation of the CPA inclusion.	Std Add	OK	
Section D.	**Duration of PoA**			
D.1.	**Start date of PoA**			
D.1	Confirm the start date is described.	PoA GL	Not OK, the defined start date was not complying with the latest version of the Glossary of	**CAR-2**

TABLE-1 REQUIREMENTS CHECKLIST (POA) **(OK/Not OK/NA/TBV)**

PoA-DD Section	Check Points (according to EB 74 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.04.0)	Reference GL,DD	Check Comment	CAR, CL, No.
			CDM terms	
D.2.	**Length of the PoA**			
D.2	Confirm that the length of the PoA is described in years.	PoA GL	OK, confirmed that 28 years were expected as the length of the PoA	
Section E.	**Environmental impacts**			
E.1.	**Level at which environmental analysis is undertaken**			
E.1.1	Confirm whether the environmental analysis is performed at the PoA and/or the CPA level.	PoA GL	OK, confirmed the analysis has been taken at the CPA level	
	If yes, Confirm that the environmental analysis is performed for the CPA.	PoA GL	OK	
E.1.2	Confirm that the PP has conducted an analysis of the environmental impacts of the PA, including trans boundary impacts,	PoA GL	NA, as the analysis is specified to be conducted at CPA level, the PP has not conducted the analysis.	
E.1.3	Determine that those impacts are considered significant by the project participants or the host Party.	PoA GL	NA, same as above	
E.2.	**Analysis of the environmental impacts**			
E.2.1	Confirm whether the analysis of the environmental impacts is undertaken or not.	PoA GL	NA, the analysis was undertaken at CPA level as per the PoA DD	
E.2.2	If yes, Confirm the description on the analysis for the PoA.	PoA GL	NA.	
E.3.	**Environmental impact assessment**			
E.3.1	Confirm if the EIA is required or not.	PoA GL	OK, confirmed that the necessity of the EIA depends on the scale of the project activity as per relevant regulations in SA	
E.3.2	If EIA required, Confirm that the conclusions of EIA is provided.	PoA GL	NA, as above the EIA would be undertaken at CPA level	
E.3.3	Confirm that the EIA is required by the host Party, in accordance with the host Party's procedures.	PoA GL	OK, as addressed above, it depends on the scale of the project activity	
Section F.	**Local stakeholder comments**			
F.1.	**Solicitation of comments from local stakeholders**			
F.1.1	Confirm whether the local stakeholder consultation process is performed at the PoA and/or the CPA	PoA GL	OK, confirmed it was	

TABLE-1 REQUIREMENTS CHECKLIST (POA) **(OK/Not OK/NA/TBV)**

PoA-DD Section	Check Points (according to EB 74 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.04.0)	Reference GL,DD	Check Comment	CAR, CL, No.
	level. If at PoA level, Confirm that the description is provided on process for local stakeholders in PoA-DD.	PoA GL	implemented at CPA level as per the PoA DD NA	
F.1.2	Confirm that the PP has completed a local stakeholder consultation process.	Para. 138	NA	
F.1.3	Confirm that the due steps were taken to engage stakeholders and solicit comments for the PA.	Para. 138	NA	
F.1.4	Confirm, by means of document review and interviews with local stakeholders as appropriate, that : (a) comments have been invited from local stakeholders that are relevant for the PA.	Para. 139	NA	
F.2.	**Summary of comments received**			
F.2.1	Confirm that the summary is provided on stakeholders comments.	PoA GL	NA	
F.2.2	Confirm, by means of document review and interviews with local stakeholders as appropriate, that : (a) comments have been invited from local stakeholders that are relevant for the PA.	Para. 139	NA	
F.3.	**Report on consideration of comments received**			
F.3.1	Confirm that the consideration is provided for all comments received.	PoA GL	NA	
Section G.	**Approval and authorization**			
G.1	Confirm whether the LoA is available at the time of submitting the PoA-DD to the DOE.	PoA GL	Not OK, the LoA of the host party and the authorization letter of the CME are not provided.	**CAR-1**
G.2	If yes, Confirm that the LOA is provided with following information. (a) approval of the Party(ies) (b) authorization for CME from each Party.	PoA GL	OK, confirmed	
	Check for CPA-DD-Generic			
PART II.	**Generic component project activity (CPA)**			
1	Confirm that this section is used to demonstrate the application of the PoA framework to implement generic CPAs and to demonstrate that each type of CPA meets the requirements. Where multiple technologies/measures and/or multiple methodologies are being applied, confirm that the demonstration of the application of the PoA framework to implement generic CPAs must be done for each of the combinations of technologies/measures and/or methodologies. Therefore, repeat all of Part II of these guidelines for each of the combination of technologies/measures and/or methodologies.	PoA GL	OK, confirmed that this section was used to demonstrate the application of the PoA framework to implement generic CPAs and to demonstrate that each type of CPA meets the requirements. And the proposed PoA does not apply multiple methodologies and only covers biomass (co-) fired power-and-heat plants	

TABLE-1 REQUIREMENTS CHECKLIST (POA) **(OK/Not OK/NA/TBV)**

PoA-DD Section	Check Points (according to EB 74 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.04.0)	Reference GL,DD	Check Comment	CAR, CL, No.
			technology	
Section A.	**General description of a generic CPA**			
A.1.	**Purpose and general description of generic CPAs**			
A.1.1	Confirm that the description is provided on purpose of generic CPA.	PoA GL	OK, confirmed that the purpose was described appropriately.	
Section B.	**Application of a baseline and monitoring methodology**			
B.1.	**Reference of the approved baseline and monitoring methodology(ies) selected**			
B.1.1	Confirm that thefollowing reference of the **methodology** is exact.	PoA GL		
(i)	(i) reference number of the methodology.	PoA GL	OK, ACM0006 confirmed	
(ii)	(ii) title of the methodology.	PoA GL	OK, the title confirmed	
(iii)	(iii) version number of the methodology	PoA GL	OK, "12.1.1" confirmed	
B.1.1	Confirm that thefollowing reference of the **Tool** is exact.	PoA GL		
(i)	(i) title of the Tool	PoA GL	OK, confirmed all the tools referred to in the methodology were applied.	
(ii)	(ii) version number of the Tool	PoA GL	OK, their version numbers confirmed	
B.2.	**Application of methodology(ies)**			
B.2.1	Confirm that the description is provided on application of methodology(ies) for generic CPA.	PoA GL	OK, confirmed	
B.2.	**Application of multiple methodologies for programmes of activities**			
B.2.2	If the multiple methodologies are applied, confirm that the combinations of technologies/measures and/or methodologies for a PoA are eligible with demonstration on that there are no cross effects between the technologies/measures applied. [1] ([1] Combinations of approved methodologies contained in the "*"General guidelines to SSC CDM methodologies"*" may be applied without further assessment of cross effects, while other combinations can be applied with the analysis of cross effects)	Std Add.	NA, as the proposed PoA does not apply multiple methodologies and only covers biomass (co-)fired power-and-heat plants technology	
	Where such cross effects do exist, confirm that the CME proposes the methods to account for such cross effects using the "Procedures for requests to the executive board for deviation from an approved methodology" so as to ensure that the calculation of emission reductions is accurate.		NA, as the proposed PoA does not apply multiple methodologies and only covers biomass (co-)fired power-and-heat plants technology	
B.3	**Sources and GHGs**			
B.3	Confirm that the description is provided in the table on the sources and GHGs in generic CPA boundary.	PoA GL	OK, gases are appropriately classified rather conservatively.	

TABLE-1 REQUIREMENTS CHECKLIST (POA) **(OK/Not OK/NA/TBV)**

PoA-DD Section	Check Points (according to EB 74 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.04.0)	Reference GL,DD	Check Comment	CAR, CL, No.
B.4	**Description of baseline scenario**			
B.4	Confirm that the description is provided on the baseline scenario for generic CPA.	PoA GL	Not OK, the version of the methodology applied was updated; however, alternative scenario section was not updated.	**CAR-8**
B.5	**Demonstration of eligibility for a generic CPA**			
B.5.1	Confirm that the description is provided for the demonstration on how generic CPA meets the eligibility criteria of the PoA including the confirmation of additionality of the generic CPA for its inclusion into the PoA.	PoA GL	OK, confirmed that the eligibility criteria were described in the table appropriately including the criterion of the CPA additionality	
B.6	**Estimation of emission reductions of a generic CPA**			
B.6.1.	**Explanation of methodological choices**			
B6.1.1	Confirm the baseline emissions were specified appropriately complying with the definition of CPAs to be included in the PoA DD and calculation methods are demonstrated with appropriately identified equations as per the applied methodology and/or tools	PoA GL	OK, confirmed that the components of the baseline emissions were specified and their calculations were demonstrated appropriately	
B6.1.2	Confirm the project emissions were specified appropriately complying with the definition of CPAs to be included in the PoA DD and calculation methods are demonstrated with appropriately identified equations as per the applied methodology and/or tools	PoA GL	OK, confirmed that the components of the project emissions were specified and their calculations were demonstrated appropriately	
B6.1.3	Confirm the leakage emissions were specified appropriately complying with the definition of CPAs to be included in the PoA DD and calculation methods are demonstrated with appropriately identified equations as per the applied methodology and/or tools	PoA GL	OK, confirmed that the components of the leakage emissions were specified and their calculations were demonstrated appropriately	
B.6.2	**Data and parameters that are to be reported ex-ante**			
B.6.2.1	Confirm that the tables are provided to demonstrate the parameters for not monitoring.	PoA GL	OK, the tables are provided	
B.6.2.2	Confirm that the tables includes all the necessary parameters and data complying with the applied methodology and tools		OK, confirmed that all the necessary parameters are	

TABLE-1 REQUIREMENTS CHECKLIST (POA) **(OK/Not OK/NA/TBV)**

PoA-DD Section	Check Points (according to EB 74 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.04.0)	Reference GL,DD	Check Comment	CAR, CL, No.
			identified.	
B.6.2.2	Confirm that the contents of the tables are sufficient in meeting the requirements identified to comply with the features of the proposed project activity as per the applied methodology and tools		OK, confirmed	
B.6.3	**Ex-ante calculations of emission reductions**			
B.6.3.1	Confirm that the blank tables are provided appropriately.	PoA GL	OK, confirmed that appropriate blank tables were provided	
B.6.3.2	Confirm that the additional background information and/or data are described in Appendix 4 adequately.	PoA GL	NA.	
B.6.3.3	Confirm that sample calculation for each equation is provided	PoA GL	OK, a sample calculation was provided in the CPA DD	
B.7	**Application of the monitoring methodology and description of the monitoring plan**			
B.7.1.	**Data and parameters to be monitored by each generic CPA**			
B.7.1.1	Confirm that the tables are provided with the parameters for monitoring and they include all the relevant parameters that may be required to CPAs.	PoA GL	OK, all the tables which may be required to CPAs were provided	
B.7.1.2	Confirm that the specific information on how the data and parameters that need to be monitored would actually be collected during monitoring is indicated in the tables in Section B.7.1. adequately.	PDD GL	OK, confirmed	
B.7.1.3	Confirm that any relevant further background documentation is provided in Appendix 5.	PDD GL	NA	
B.7.2.	**Description of the monitoring plan for a generic CPA**			
B.7.2.1	Confirm that the description is provided on the monitoring plan for a generic CPA.	PoA GL	Not OK, a monitoring plan to be applied to each CPA is not described appropriately. Further role sharing between the CME and the CPA implementer in monitoring practice is not clearly defined.	**CL-7**
B.7.2.2	Confirm that the detailed description of the monitoring plan of a generic CPA is developed in accordance with the monitoring requirements of the selected methodology is provided in sections B.7.1, B.7.2 and B.7.3.	PDD GL	Ditto	

TABLE-1 REQUIREMENTS CHECKLIST (POA) **(OK/Not OK/NA/TBV)**

PoA-DD Section	Check Points (according to EB 74 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.04.0)	Reference GL,DD	Check Comment	CAR, CL, No.
B.7.3	**Sampling plan**			
B.7.3.1	Confirm that the description of the sampling plan is provided in Section B.7.2. of PDD. (If data and parameters monitored in section B.7.1 are to be determined by a sampling approach)	PDD GL	NA, as not required as per the methodology applied	
B.7.3.2	Confirm that the parameter values are estimated by sampling in accordance with the requirements in the applied methodology separately and independently for each of the CPAs included in a PoA except when a single sampling plan covering a group of CPAs is undertaken applying 95/10 confidence/precision for the sample size calculation.	Std Sampling	NA	
B.7.3.3	Determine whether the proposed sampling plans provide parameter value estimating in an unbiased and reliable manner including determining;	Std Sampling .	NA	
(a)	(a) Whether the proposed sample size and sampling method is adequate to achieve the minimum confidence/precision requirements. DOEs shall be able to reproduce the sample size calculation in order to validate the proposed sample size.		NA	
(b)	(b) Whether the proposed sampling plan will ensure that samples are randomly selected and are representative of the population.		NA	
B.7.3.4	Verify whether the PP has implemented the sampling effort and surveys according to the validated sampling plans. The verification includes determining	Std Sampling	NA	
(a)	(a) Whether the required confidence/precision has been met;		NA	
(b)	(b) Whether the selected sample was representative of the population.		NA	
B.7.3.5	As one means of validation/verification, confirm that sampling approach will be applied when the PP have not applied a sampling approach provided the indicated level of assurance in paragraphs below is met. This is for example the case of a multi-site CDM project activities or CDM PoAs applying small-scale or large scale methodologies.	Std Sampling	NA	
B.7.3.6	Confirm that the acceptance sampling will be used as described in below steps as part of validation/verification activities to meet the requirements of paragraph 20 and 21 above:	Std Sampling	NA	
(a)	(a) Take a random sample of the PPs sample records;		NA	
(b)	(b) Check using own professional judgment. the acceptability (or otherwise) of the data for each record in the PPs sample records, and then;		NA	
(c)	(c) Based on the number of records where there is agreement, determine if the PPs sample records meet the requirements.		NA	
B.7.3.7	Confirm that the size of the sample for field/onsite check is specified in advance, using own professional judgment:	Std Sampling	NA	
(i)	(i) Acceptable quality level or the Level of Assurance, i.e. the proportion of discrepancies between the PPs record and DOE record that are acceptable, e.g. 1%;		NA	
(ii)	(ii) The proportion of discrepancies between the PPs record and DOE record that are unacceptable, e.g.		NA	

TABLE-1 REQUIREMENTS CHECKLIST (POA) **(OK/Not OK/NA/TBV)**

PoA-DD Section	Check Points (according to EB 74 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.04.0)	Reference GL,DD	Check Comment	CAR, CL, No.
	10%.			
B.7.3.7	Confirm that the maximum errors associated with the determination indicated in paragraph 24 shall remain at levels indicated below:	Std Sampling 25.	NA	
(i)	(i) A 5% chance that the DOE will wrongly reject the PPs records (i.e. reject a set of records of acceptable quality);16		NA	
(ii)	(ii) A 5% chance that the DOE will wrongly accept the PPs records (i.e. accept a set of records which is unacceptable)		NA	
B.7.3.9	Determine the following parameters (n, c) using provisions under 24 to 25 the	Std Sampling 26.	NA	
	n: the size of the sample;		NA	
	c: the acceptance number		NA	
	If the number of discrepant records in the sample is observed greater than c, then the PPs set of records is not accepted. If the number of discrepant records is equal to or less than c then the PPs set of records is accepted.		NA	
B.7.4.	**Other elements of monitoring plan**			
B.7.4.1	Confirm that the operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage generated by the project activity are described	PDD GL	OK	
B.7.4.2	Confirm that the responsibilities and institutional arrangements for data collection and archiving are indicated	PDD GL	OK	
B.7.4.3	Confirm that any relevant further background information is provided in Appendix 5: below.	PDD GL	NA	
Appendix 1	**Contact information on entity/individual responsible for the PoA**			
AP.1	Confirm that the following mandatory fields are filled in the table.	PoA GL	OK	
	◆ Organization	PoA GL	OK	
	◆ Street/P.O. Box	PoA GL	OK	
	◆ City, Postcode	PoA GL	OK	
	◆ Country, Telephone	PoA GL	OK	
	◆ Fax,	PoA GL	OK	
	◆ e-mail	PoA GL	OK	
	◆ Name of contact person	PoA GL	OK	
.	Confirm the consistency between the organization listed in above table and that in section A.4.	PoA GL	OK	
Appendix 2	**Affirmation regarding public funding**			
AP.2	Confirm the description on no public funding from Parties for PoA.	PoA GL	OK, confirmed	
(a)	If public fund has received for PoA,	PoA GL	NA	

TABLE-1 REQUIREMENTS CHECKLIST (POA) **(OK/Not OK/NA/TBV)**

PoA-DD Section	Check Points (according to EB 74 " Guidelines for Completing The Programme Design Document Form For CDM Programs of Activities"(Ver.04.0)	Reference GL,DD	Check Comment	CAR, CL, No.
	(a)Provide information on Parties providing public funding;			
(b)	(b)Attach in Appendix 2: the affirmation obtained from such Parties		NA	
Appendix 3	**Application of methodology(ies)**			
AP.3	Confirm that further background information on the applicability of the selected methodology(ies) is provided.	PoA GL	OK, confirmed with relevant documents provided by the PP	
Appendix 4	**Further background information on ex ante calculation of emission reductions**			
AP.4	Confirm that further background information on the ex-ante calculation of emission reductions is provided, and that this may include data, measurement results, data sources, etc.	PoA GL	OK, detailed information, data and calculations of the grid emission factor are provided	
Appendix 5	**Further background information on the monitoring plan**			
AP.5	Confirm that further background information used in the development of the monitoring plan is provided, and that this may include tables with time series data, additional documentation of measurement equipment, procedures etc. ◆ revision of existing methodologies to the Board ◆ publication in a newspaper ◆ interviews with the DNA ◆ earlier correspondence on the project with the DNA or the secretariat.	PoA GL PoA GL PoA GL	NA NA NA NA NA	

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific **(OK/No/NA/TBV)**

CPA-DD Section	Check Points (according to EB 66 Annex 16 " Guidelines for Completing The Component Project Activity Design Document Form"(Ver.01.0)	Reference GL, DD	Check Comment	CAR, CL, No.
	General guidelines			
1.	Confirm that the CPA-DD Form applies **version 02.0 of F-CDM-CPA-DD.**	CPA GL	OK, confirmed that the latest version was applied	
2.	Confirm that the CPA-DD is completed **in English.** (all attached documents must be in English)	CPA GL	OK, confirmed that English was used	

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific

(OK/No/NA/TBV)

CPA-DD Section	**Check Points** (according to EB 66 Annex 16 " Guidelines for Completing The Component Project Activity Design Document Form"(Ver.01.0)	**Reference GL, DD**	**Check Comment**	**CAR, CL, No.**
3.	Confirm that the CPA-DD is completed using the same format **without modifying its font, headings or logo,** and without any other alteration to the form.	CPA GL	OK, confirmed no modifications on the CPA-DD	
4.	Confirm that the tables and their columns in the CPA-DD are **not modified or deleted.**	CPA GL	OK, confirmed no modifications on the CPA-DD	
5.	Confirm that the **blanks are left intentionally** for the "not applicable section" of the CPA-DD	CPA GL	OK	
	Specific guidelines			
Section A.	**General description of CPA**			
A.1.	**Title of the proposed or registered PoA**			
A.1	Confirm that the reference and title of the PoA to which this CPA is included.	CPA GL	OK, confirmed that the reference and title of the PoA are appropriate.	
A.2.	**Title of the CPA**			
A.2	Confirm the followings related to the title of the PoA.	CPA GL		
(a)	The title of the CPA and the unique identification of the CPA.	CPA GL	OK	
(b)	The current version number of the CPA-DD.	CPA GL	OK	
(c)	The completion date of the CPA-DD in DD/MM/YYYY.	CPA GL	OK	
A.3	**Description of the CPA**			
A.3	Confirm that the description is provided on the technology and/or measures for the CPA.	CPA GL	OK, confirmed the provision of technologies/measures	
A.4	**Entity/individual responsible for CPA**			
A.4	Confirm that the description is provided on the CPA implementers. (Name of PPs of PoA)	CPA GL	OK, confirmed the description on the implementer	
A.5.	**Technical description of the CPA**			
A.5	Confirm that the description is provided on the technologies for the CPA.	CPA GL	OK, confirmed the description on the technologies provided as part of unique features of the CPA	
A.6.	**Party(ies)**			
A.6.1	Confirm that the Party(ies) CPA implementers (PPs) and involvement are listed in the table.	CPA GL	OK, confirmed the PP was listed appropriately	
A.6.2	Confirm that the "(host)" is indicated in the table.	CPA GL	OK, confirmed (host) was indicated	
A.6.3	Confirm that the name of PPs are consistent with the contact information in Appendix 1	CPA GL	OK, the consistency with Annex 1 was confirmed	

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific

(OK/No/NA/TBV)

CPA-DD Section	**Check Points** (according to EB 66 Annex 16 " Guidelines for Completing The Component Project Activity Design Document Form"(Ver.01.0)	**Reference GL, DD**	**Check Comment**	**CAR, CL, No.**
A.7.	**Geographic reference or other means of identification**			
A.7	Confirm that the geographic reference is indicated for the CPA **(within one page)**. (e.g. map, registration number of GPS devices)	CPA GL	OK, confirmed that the reference was indicated appropriately	
A.8.	**Duration of the CPA**			
A.8.1.	**Start date of the CPA**			
A.8.1	Confirm the start date is described in DD/MM/YYYY how the start date was determined..	CPA GL	OK, confirmed that the date was specified appropriately.	
A.8.2.	**Expected operational lifetime of the CPA**			
A.8.2	Confirm that the expected operational lifetime of the CPA is described in years and months.	CPA GL	OK, over 25 years was specified.	
A.9.	**Choice of the crediting period and related information**			
A.9	Confirm that the type of crediting period is chosen in fixed or renewable.	CPA GL	OK, fixed crediting period was selected to comply with the guidelines of the "First-of-its-kind" which was applied to the CPA for additionality demonstration	
A.9.1.	**Start date of the crediting period**			
A.9.1	Confirm that the expected start date of the crediting period of the CPA is described in DD/MM/YYYY.	CPA GL	OK, confirmed that the date was described in the right order	
A.9.2.	**Length of the crediting period**			
A.9.2.1	Confirm that the length of the crediting period is decribed.	CPA GL	OK, fixed 10 years are specified	
A.9.2.2	Confirm that the CPA is limited to the end date of the CPA.	CPA GL	OK, confirmed m	
A.10.	**Estimated amount of GHG emission reductions**			
A.10.1	Confirm that the table is completed by ; • the annual GHG emission reductions for each year of the crediting period • the annual average and the total GHG emission reductions over the chosen crediting period.	CPA GL	OK, confirmed that the table was completed with sufficient emission data	
A.10.2	Confirm that the start date and end date of crediting period are consistent with those dates in Section A.8.1.	CPA GL	OK, the consistency was confirmed	
A.10.3	Confirm that the start date and end date of crediting period are consistent with those dates in table of Section D.6.4.	CPA GL	OK, the consistency was confirmed	
A.11.	**Public funding of the CPA**			
A.11.1	Confirm the description on no public funding from Parties for CPA.	CPA GL	OK, no funding confirmed	

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific

(OK/No/NA/TBV)

CPA-DD Section	**Check Points** (according to EB 66 Annex 16 " Guidelines for Completing The Component Project Activity Design Document Form"(Ver.01.0)	**Reference GL, DD**	**Check Comment**	**CAR, CL, No.**
A.11.2	If public fund has received for CPA, (a)Provide information on Parties providing public funding; (b)Attach in Appendix 2: the affirmation obtained from such Parties	CPA GL	NA, as no public funding involved	
A.12.	**Confirmation for CPA**			
A.12.1	Confirm the confirmation on that the CPA is not an individual registered CDM project nor a part of another registered CPA.	CPA GL	OK, confirmed that the CPA was neither an individual registered CDM project nor a part of another registered CPA.	
Section B.	**Environmental analysis**			
B.1.	**Analysis of the environmental impacts**			
B.1.1	Confirm whether the analysis of the environmental impacts is undertaken or not.	CPA GL	OK, confirmed that the analysis has been undertaken	
B.1.2	If yes, Confirm the description on the analysis for the CPA.	CPA GL	Not OK, the final version EIA report has not yet been provided.	**CL-9**
B.2.	**Environmental impact assessment**			
B.2.1	Confirm if the EIA is required or not.	CPA GL	OK, confirmed that the EIA was required to the CPA	
B.2.2	If EIA required, confirm the conclusions of EIA is provided.	CPA GL	Not OK, the final version EIA report has not yet been provided.	**CL-9**
B.2.3	Confirm that the requirement for the EIA is confirmed by means of a document review and/or using local official sources and expertise.	Para. 136	OK, the requirement was confirmed with the interview with the EIA report author	
B.2.4	Confirm that all the EIA processes were completed as per the relevant regulations and/or laws of the host country.	-	OK, it was confirmed the EIA report has been under assessment by the relevant ministry in South Africa, which was confirmed with its receipt confirmation letter. Later on the final EIA report was provided followed by the authorization letter of the proposed project issued by relevant government office.	
Section C.	**Local stakeholder comments**			
C.1.	**Solicitation of comments from local stakeholders**			

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific

(OK/No/NA/TBV)

CPA-DD Section	**Check Points** (according to EB 66 Annex 16 " Guidelines for Completing The Component Project Activity Design Document Form"(Ver.01.0)	**Reference GL, DD**	**Check Comment**	**CAR, CL, No.**
C.1.1	Confirm that the invitation process is provided on local stakeholders comments for the CPA.	CPA GL	OK, the process was provided in the CPA	
C.1.2	Confirm that the PP has completed a local stakeholder consultation process.	Para. 138	OK, confirmed with provided evidence	
C.1.3	Confirm that the due steps were taken to engage stakeholders and solicit comments for the PA.	Para. 138	OK, the steps were taken	
C.1.4	Confirm, by means of document review and interviews with local stakeholders as appropriate, that comments have been invited from local stakeholders that are relevant for the PA.	Para. 139	OK, confirmed with the interview with local residents	
C.2	**Summary of comments received**			
C.2.1	Confirm that the summary is provided on stakeholders comments.	CPA GL	Not OK, confirmed that the summary was demonstrated appropriately. Information on other three similar projects addressed in the summary was not clarified.	**CL-3**
C.3.	**Report on consideration of comments received**			
C.3.1	Confirm that the consideration is provided for all comments received.	CPA GL	OK, the consideration was given to key comments representing concerns by the attendees demonstrated in the CPA	
Section D.	**Eligibility of CPA and estimation of emissions reductions**			
D.1.	**Title and reference of the approved baseline and monitoring methodology(ies) selected**			
D.1.1	Confirm that thefollowing reference of **the methodology** is exact.	CPA GL	-	
	(i) reference number of the methodology.	CPA GL	OK	
	(ii) title of the methodology.	CPA GL	OK	
	(iii) version number of the methodology	CPA GL	OK	
D.1.2	Confirm that the following reference of the Tool is exact.	CPA GL	-	
	(i) title of the Tool	CPA GL	OK	
	(ii) version number of the Tool	CPA GL	OK	
D.2.	**Application of methodology(ies)**			
D.2	Confirm that the description is provided on demonstration of compliance for applicability conditions of the applied methodology and the PoA.	CPA GL	Not OK, the CPA does not demonstrate the compliance with the applicability specified in the PoA to the generic CPA,	**CAR-6**

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific

(OK/No/NA/TBV)

CPA-DD Section	**Check Points** (according to EB 66 Annex 16 " Guidelines for Completing The Component Project Activity Design Document Form"(Ver.01.0)	**Reference GL, DD**	**Check Comment**	**CAR, CL, No.**
			while demonstrates the compliance only with the applicability specified in the applied methodology. Also relevant evidence used to justify the applicability was not provided.	**CL-11**
D.3.	**Sources and GHGs**			
D.3	Confirm that the description is provided in the table on the sources and GHGs in generic CPA boundary.	CPA GL	Not OK, the GHG sources were demonstrated in the table; however, CH_4 in the wastewater treatment section was not consistent with the PoA which stipulates that relevant emissions shall be included in case waste water is treated under anaerobic conditions. The CPA indicates its application at the project site.	**CL-12**
D.4.	**Description of the baseline scenario**			
D.4	Confirm that the description is provided on how the baseline scenario is identified for the CPA in accordance with the PoA.	CPA GL	-	
D.4.1	Step-1: Confirm that alternative scenarios were identified appropriately as per the methodology	ACM0006	Not OK, explanations of Scenario P3 and P7 are inconsistent.	**CL-13**
D.4.2	Step-2: Confirm that the barrier analysis was conducted appropriately as per the latest additionality tool. In case the "First-of-its-kinds (FOIK)" is applied, it shall be implemented as per the latest relevant guidelines.	ACM0006	Not OK, the latest version of FOIK guidelines is not applied and relevant evidence is not thoroughly provided.	**CAR-7**
D.4.3	Step-3: Confirm that the investment analysis was conducted appropriately as per the relevant latest guidelines	ACM0006	Not OK, in the CPA-DD there is no section of the investment analysis as per the applied tool.	**CAR-5**
D.4.4	Step-4: Confirm that the common practice analysis was conducted appropriately as per the latest Guidelines on Common Practice.	ACM0006	NA, as FOIK was used for demonstration of additionality	
D.4.5	Confirm as a result of above steps, the additionality of the proposed project was addressed appropriately.		OK, confirmed the additionality of the proposed project was addressed appropriately	
D.5.	**Demonstration of eligibility for a CPA**			

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific

(OK/No/NA/TBV)

CPA-DD Section	**Check Points** (according to EB 66 Annex 16 " Guidelines for Completing The Component Project Activity Design Document Form"(Ver.01.0)	**Reference GL, DD**	**Check Comment**	**CAR, CL, No.**
D.5	Confirm that the description is provided on how specific CPA meets the eligibility criteria of the CPA.	CPA GL	Not OK, evidence used to justify the eligibility of the CPA of each category stipulated in the PoA has not been sufficiently provided. Descriptions about "Mean of poof/Evidence Documents" are not clear.	**CL-2** **CL-16** **CL-18**
D.6.	**Estimation of emission reductions**			
D.6.1.	**Explanation of methodological choices**			
D.6.1.1	Confirm that the description is provided on how the methodological steps, in the selected methodology, are applied to specific CPA.	CPA GL	Not OK, the reductions were estimated stepwise as per the methodology; however, calculations of baseline biomass residues availability does not follow the methodology	**CL-4**
D.6.1.2	Confirm that each emission relevant to the project activity were specified and calculated as per the applied methodology and tools.	CPA GL	OK,	
D.6.2.	**Data and parameters that are to be reported ex-ante**			
D.6.2	Confirm that the description is provided on the data and parameters not for monitoring in the Tables.	CPA GL	OK, confirmed that the data and parameters were described appropriately.	
D.6.3.	**Ex-ante calculation of emission reductions**			
D.6.3	Confirm that the ex-ante calculation is provided on emission reductions.	CPA GL		
(a)	Confirm the baseline emissions were calculated appropriately with use of appropriate equations, data, parameters and assumptions	CPA GL	Not OK, it is not clarified that efficiency factors are incorporated in the calculations of available amount of biomass residues in the spreadsheet. The sugar mill operation data demonstrated in the spreadsheet for the three years were not provided. Discrepancy of import/export	**CL-14** **CL-15**

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific

(OK/No/NA/TBV)

CPA-DD Section	**Check Points** (according to EB 66 Annex 16 " Guidelines for Completing The Component Project Activity Design Document Form"(Ver.01.0)	**Reference GL, DD**	**Check Comment**	**CAR, CL, No.**
			electricity was confirmed between the CPA-DD and the relevant spreadsheet.	**CAR-4**
(b)	Confirm the project emissions were calculated appropriately with use of appropriate equations, data, parameters and assumptions	CPA GL	Not OK, the exclusion of the emissions from on-site fossil fuel consumption was not sufficiently justified Not OK, it was found in the spreadsheets that the data of the "Return trip road distance" in "Project Emissions" and "Project data" are inconsistent. Not OK, it was not clarified how the trip distance of 100km was determined for wood chip collection.	**CL-6** **CAR-3** **CL-10**
(c)	Confirm the leakage was calculated appropriately with use of appropriate equations, data, parameters and assumptions	CPA GL	OK, no leakage applied as per the PoA-DD and the methodology	
D.6.4.	**Summary of the ex-ante estimates of emission reductions**			
D.6.4	Confirm that the ex-ante estimates of emission reductions are summarized in the table.	CPA GL	OK, the emissions are summarized in the table	
D.7.	**Application of the monitoring methodology and description of the monitoring plan**			
D.7.1.	**Data and parameters to be monitored ex-post**			
	Confirm that the description is provided on the data and parameters for monitoring in the Tables.	CPA GL	Not OK, monitoring parameters listed are not consistent with the baseline scenario	**CL-17**
D.7.2.	**Description of the monitoring plan**			
D.7.2.1	Confirm that the description is provided on the monitoring plan for a specific CPA.	CPA GL	OK, the monitoring plan was described appropriately as per the methodology. It, however, is recommended to prepare a monitoring manual as the planned monitoring task includes many parameters/data to be reported ex-post; FAR-1 was raised to ensure implementation as per the	**FAR-1**

Table-2 Requirements Checklist (PoA) for CPA-DD-Specific

(OK/No/NA/TBV)

CPA-DD Section	**Check Points** (according to EB 66 Annex 16 " Guidelines for Completing The Component Project Activity Design Document Form"(Ver.01.0)	**Reference GL, DD**	**Check Comment**	**CAR, CL, No.**
			monitoring plan.	
Section E.	**Approval and authorization**			
E.1	Confirm whether the LoA is available at the time of submitting the CPA-DD to the DOE.	CPA GL	NA as the CME requested the LoA.	
	If yes, Confirm that the LOA is provided with following information. (a) approval of the Party(ies) (b) authorization for CME from each Party.	CPA GL	NA	
Appendix 1	**Contact information on entity/individual responsible for the CPA**			
AP.1	Confirm that the following mandatory fields are filled in the table.	CPA GL		
	◆ Organization		OK	
	◆ Street/P.O. Box		OK	
	◆ City, Postcode		OK	
	◆ Country, Telephone		OK	
	◆ Fax,		OK	
	◆ e-mail		OK	
	◆ Name of contact person		OK	
.	Confirm the consistency between the organization listed in above table and that in section A.4.	CPA GL	OK	
Appendix 2	**Affirmation regarding public funding**			
AP.2	Confirm the description on no public funding from Parties for CPA.	CPA GL	OK, no public funding confirmed	
	If public fund has received for CPA, (a)Provide information on Parties providing public funding; (b)Attach in Appendix 2: the affirmation obtained from such Parties	CPA GL	NA	

TABLE-3 Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD & CPA-DD)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1 or 2	Summary of project owner response	Validation team Conclusion
CAR	**Corrective Action Requests**			

TABLE-3 Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD & CPA-DD)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1 or 2	Summary of project owner response	Validation team Conclusion
CAR-1	**Provision of LoA and authorization letter** The LoA of the PP and the authorization letter of the CME by the host party have not been provided.	**G.1. PoA**	The South African LoA approving the Program and authorizing the CME has been issued on 31/10/2012.	OK. The LoA from South Africa was provided and confirmed appropriate. CAR-1 was closed.
CAR-2	**Non compliance of the PoA start date** The start date of the PoA set as 01/01/2016 (expected date of commissioning of the first CPA or date of inclusion of the first CPA, whichever is later) does not comply with the latest Glossary of CDM terms.	**D.1 PoA**	The PoA start date has been corrected as "at *14/07/2012* the date of publication of the PoA-DD for global stakeholder consultation", as per the latest Glossary of CDM terms.	OK It was confirmed the start date of the POA was revised appropriately as per the latest Glossary of CDM terms CAR-2 was closed.
CAR-3	**Inconsistency of the parameter data "Return trip road distance"** It was found in the spreadsheets that the data of the "Return trip road distance" in "Project Emissions" and "Project data" are inconsistent.	**D.6.3 CPA**	The average distance of transportation of off-site biomass residues has been conservatively homogenized at 100 km, thus 2*100=200 km return trip.	OK. It was confirmed that the inconsistency was resolved correctly. CAR-3 was closed.
CAR-4	**Electricity import and export in the ex-ante calculations of the baseline emissions** To maintain the consistency, it is considered necessary to clarify the discrepancy in the following descriptions about electricity import and export relevant to the calculations: • In Table 1 electricity import is demonstrated as part of the baseline scenario explanations • In the spreadsheet, electricity import and export data are described in the sheet of "Historical-Baseline data" • In the ex-ante calculation, electricity import was neglected as considered marginal in section D.6.3.	**D. 6.3 CPA**	CPA-DD section D.6.3 has been revised as : "~~Although~~ Amatikulu sugar mill imports marginal quantities of grid electricity during its weekly maintenance outages (every Monday from 2 am to 4 pm) as well as during the 16 weeks-long off-season for lighting and safety equipments., This minimum grid-reliance is similarly ~~taking place in the baseline scenario and regardless~~ *reflected in the Project Emissions* of the Renewable Energy Generation Facility, therefore ~~not attributed~~ *transparent* to the Project activity *Emission Reductions*."	OK. It was confirmed that descriptions about electricity import from the grid were revised appropriately. CAR-4 was closed.

TABLE-3 Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD & CPA-DD)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1 or 2	Summary of project owner response	Validation team Conclusion
CAR-5	**Demonstration of Investment Analysis Section** The CPA-DD does not include appropriate explanations of the analysis section in the baseline scenario section. .	**D.4.3 CPA**	CPA-DD has been clarified as: "In compliance with the permitted selection between *Step 2 (Barrier analysis)* and *Step 3 (Investment analysis)* available in procedure for the "Selection of the baseline scenario and demonstration of additionality" described in the methodology and referred to in the PoA, the project proponents chose to proceed with *Step 2 (Barrier analysis)* only."	OK, it was confirmed that as the project proponent has selected Step 2 (Barrier analysis); therefore, it is not requested to refer to Step 3 (Investment analysis) as per the relevant tool. CAR-5 was closed.
CAR-6	**Demonstration of the Applicability of the CPA** The applicability of the CPA is not sufficiently demonstrated against that the definition in the PoA specified for a generic CPA as well as that stipulated in the methodology.	**D.2. CPA**	CPA-DD already demonstrates compliance with both methodological applicability conditions (section D.2) and PoA eligibility inclusion criteria for generic CPA (section D.5).	OK, it was confirmed that the applicability conditions specified for generic CPAs are almost the same as those specified in the methodology; therefore, it is considered reasonable to demonstrate the applicability of the CPA against that of the methodology. CAR-6 was closed.
CAR-7	**Application of the latest Guidelines on FOIK** The latest FOIK is not applied to the barrier analysis for demonstration of additionality of the CPA. The application of the latest guidelines is stipulated in the latest additionality tool.	**D.4.2 CPA**	Version 02.0, EB 69 of FOIK Guidelines has been applied in the revised CPA-DD.	OK. It was confirmed that the latest guidelines of FOIK was applied appropriately. CAR-7 was closed.
CAR-8	**Update of alternative scenarios** The version of the applied methodology was updated; however, the alternative scenario section was not updated following the version update.	**B.4. G-CPA**	The PoA alternatives section has been updated with "*Neither dedicated plantation area nor use of biogas is expected under the proposed PoA, thus no baseline alternatives are applicable for the land use where the dedicated plantations are established (L) and the biogas (BG).*"	OK, it was confirmed that the relevant section was updated appropriately reflecting the version update of the methodology. CAR-8 was closed

TABLE-3 Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD & CPA-DD)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1 or 2	Summary of project owner response	Validation team Conclusion
CAR-9	**Description regarding inclusion of relevant eligibility criteria of large scale project** Though large scale projects are expected to be included in the PoA, the inclusion of relevant eligibility criteria was not specified in the PoA-DD.	**B.1.4 PoA**	Eligibility criteria (f) have been updated to reflect the step-by-step additionality demonstration of ACM0006 methodological requirements. Paragraph 10 of the Standard (Version 02.0) has been added, echoing criteria (f) step-by-step additionality demonstration of ACM0006 methodology.	Not OK, this CAR-9 was raised with regard to para 10 of the Standard (Version 02.0). The PoA – DD described its para 7 and 13, but not para 10, in section B.1.*Demonstration of additionality for PoA.* OK, the para 10 was added to the PoA-DD appropriately to comply with the Standard. CAR-9 was closed.
CL	**Clarification Requests**			
CL-1	**Clear definition of the PoA boundary** Please review the current definition of the boundary, which is not considered clear enough; whether it includes all the provinces or the 9 provinces out of all the provinces of SA	**A.5. PoA**	It has been clarified in PoA-DD that the PoA will cover all provinces of SA.	OK, it was confirmed that the boundary was revised appropriately to cover the whole country of SA. CL-1 was closed.
CL-2	**Provision of evidence used in the eligibility demonstration** Please provide all the relevant evidence used for the justification of the eligibility of the CPA	**D.5 CPA**	All relevant evidence justifying the eligibility of the CPA have been provided as follows: - final EIA report (including GPS coordinates) [new submission], - EPC specifications [in GSC package/Specific CPA – Technical information], - MoU/ERPA between the CME and the CPA implementer [new submission]Communication from the CME to the DOE (cc/ CPA implementer) submitting the proposed CPA-DD for inclusion into the PoA.	OK, it was confirmed that relevant documentation was provided sufficiently including the binding agreement between the CME and the CPA implementer. CL-2 was closed.

TABLE-3 Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD & CPA-DD)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1 or 2	Summary of project owner response	Validation team Conclusion
CL-3	**Request for information on other three similar projects** According to a participant's comment, there seem to be three similar projects of renewable power generation. Please provide brief information of the projects.	**C.2.1 CPA**	If Amatikulu CPA is successful, Tongaat Hullet intends to replicate this cogeneration project at its 3 other sugarcane mills in South Africa (Felixton, Maidstone and Darnall). These future plans haven't translated into tangible development stage yet, thus their implementation modalities not available and depending on the return on experience of Amatikulu.	OK, it was confirmed that relevant information was provided sufficiently as left. CL-3 was closed
CL-4	**Step 1.4:Calculations of the baseline availability of biomass residue** Please review the calculations of the baseline biomass residue availability BRB4,n,y in the spreadsheet. It does not follow the method specified in the methodology.	**D.6.1 CPA**	Following clarifications on the applicable methodological situation during on-site visit, this finding was ruled as inapplicable. By the way, Step 1.4 of the CER spreadsheet was clarified with "Although one biomass residue type from one particular source is used in the baseline in two or more heat generators, the use of this biomass residue type from this source does not have to be allocated to the different heat generators as they have the same efficiency". Beyond, the formula used for projection of baseline quantities of bagasse consumption was made more transparent to wave any confusion.	OK, it was confirmed through discussions and interviews during the site visit, that the calculations in Step 1.4 are correct complying with the applied methodology. CL-4 was closed
CL-5	**Provision of CPA-IMS for validation** The document CPA-IMS for validation as specified in para. 17 of Std Add. is not provided in the PoA-DD.	**C.4. PoA**	The Management System has been included exhaustively in Section C of revised PoA-DD Part I. Comment on 23/10: There is no more standalone CPA-IMF document since it was fully included inside the PoA-DD.	Not OK. Though the enhancement of descriptions about the management system was confirmed, please provide the document of CPA-IMF itself for assessment. OK, it was confirmed that documents relevant to CPA-IMF was included in the documents already provided. CL-5 was closed.
CL-6	**Justification of exclusion of the emissions from on-site fossil fuel consumption** Please clarify the background of the exclusion as the PoA–DD included the emission and	**D.6.3 CPA**	The exclusion of on-site fossil fuel consumption has been replaced by inclusion for in Table 4 (section D.3). The footnote on backup diesel generators' indifference to the CDM project activity (section D.6.1 Step 4 – Project Emissions) has been	OK, it was confirmed that on-site fossil fuel consumption was included appropriately in the revised CPA.

TABLE-3 Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD & CPA-DD)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1 or 2	Summary of project owner response	Validation team Conclusion
	occasional coal consumption was addressed in the CPA-DD, though there is no clear description about it consumption with the project implementation.		amended with "The use of coal, although occasionally co-fired at 5-10% in baseline in case of bagasse supply interruption and maintenance, is not intended anymore in the Project thanks to alternative biomass residues sources, and will be limited to operational emergencies not exceeding 48 hours at a time." Besides, the adequate fossil fuel monitoring tables have been conservatively included in the Parameters to be monitored (section D.7.1), under "Parameters to determine project emissions from fossil fuel consumption (if any occurred)"	CL-6 was closed.
CL-7	**Provision of framework of monitoring plan for generic CPAs** There are not sufficient descriptions regarding a monitoring plan to be applied to each CPA as the standard. Though details of each monitoring plan shall be designed to meet specific futures of each CPA by the CPA implementer, an appropriate framework on the monitoring plan was not provided in the PoA. And it is not clarified about the role and responsibility sharing between the CME and the CPA implementer in monitoring practices.	**B.7.2 PoA**	Section B.8.2 of the PoA-DD Part II has been revised in order to better describe the monitoring framework, as well as to clarify the role and responsibility sharing between the CME and the CPA implementer with regards to monitoring.	OK, it was confirmed that an appropriate framework of monitoring was described and in which role and responsibility sharing between the CME and the CPA implementer was also appropriately specified. CL-7 was closed.
CL-8	**Clear and detailed descriptions about the group acting as the CME** The profile of the group acting as the CME with their competencies are not clearly demonstrated.	**C.3 PoA**	CVs of three CME members were provided.	OK, the CME members were clarified with the provision of their CVs, which sufficiently demonstrated their competencies. **CL-2**0 was closed.
CL-9	**Provision of the Final EIA Report** The final version EIA report was not provided.	**B.1.2 B.2.2 CPA**	The final version of EIA report has been provided to the DOE in 7 volumes [new submission].	OK. The final EIA report was provided. CL-9 was closed.

TABLE-3 Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD & CPA-DD)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1 or 2	Summary of project owner response	Validation team Conclusion
CL-10	**Basis of the return trip distance determination for wood chips collection** Please clarify how the distance of 100 km was determined. According to USB LEADERS' LAB 2007, there were 77 saw- mills in KwaZulu-Natal and 416 kilo tons of saw waste were produced annually and the project activity aims to collect 17,703 tons of wood chips annually from saw mills within 100 km from the Amatikulu sugar mill.	**D.6.3 CPA**	Comment on 23/10: The woodchips suppliers are not definitively contracted yet, but the most likely wood chips suppliers are the paper mills from Sappi group: the Saiccor Mill (62,3 km), the Stanger Mill (66km) and the Tugela Mill (77km), respectively located in Umkomaas, Stanger and Mandeni which distances are below the conservative 100km radius from Amatikulu. NB. 416 kilo tons equals 416,000 tons, thus a tremendous excess available.	OK. It was confirmed that the transportation distance from the sugar mill to saw mills to collect wood chips was clearly explained. CL-10 was closed.
CL-11	**Provision of evidence used for justifying the applicability** Please provide all the relevant evidence used in the CPA-DD, but not yet provided	**D.2 CPA**	CPA-DD applicability evidence have been clarified and provided: - Final EIA report's Project activity description [new submission], - Baseline and Project data in Emission Reductions spreadsheet, - EPC specifications [in GSC package/Specific CPA – Technical information].	OK, it was confirmed necessary evidence for applicability assessment were all provided by the project participant. CL-11 was closed.
CL-12	**Explanation of GHG from Wastewater Treatment** The GHG sources were demonstrated in the table; however, CH_4 in the wastewater treatment section was not consistent with the PoA which stipulates that relevant emissions shall be included in case waste water is treated under anaerobic conditions. The CPA indicates its application at the project site.	**D.3 CPA**	As stated in Table 4 of CPA-DD, In comparison of the baseline scenario, no additional waste water from the treatment of biomass residues is expected, let alone treated under anaerobic conditions. Therefore, "The wastewater treatment facilities used to treat the wastewater produced from the treatment of biomass residues" the project boundaries in section D.3	OK, it was confirmed that there will be no changes in the waste water treatment plant associated with the implementation of the proposed project activity compared with the baseline scenario. CL-12 was closed.
CL-13	**Clarification of the inconsistency of explanations of the baseline scenarios** It was confirmed that there is inconsistency in the explanations of the scenarios P3 and P7: in P3 exiting power generation capacity is stated to be enough to cover the sugar factory expanded electricity needs, while in P7 the feasibility of electricity supply from the grid is assumed; and	**D.4.1 CPA**	P7 baseline scenario narrative was revised as follows in order to avoid any confusion with sugar plant irrelevant connection to the grid: "*Feasible given ~~the proximity of the project with~~ the national high-voltage power line which is reliable and under permanent expansion (though heavily fossil-dominated).*" Indeed, P7 corresponds to the baseline scenario applicable to the generation of excess electricity to the grid in the absence of the Project activity extra power export, since the grid is part of the Project boundaries as per methodology	OK, it was confirmed that with the revision the inconsistency was clarified. CL-13 was closed.

TABLE-3 Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD & CPA-DD)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1 or 2	Summary of project owner response	Validation team Conclusion
	they are combined as the electric power component of the baseline scenario.		requirements.	
CL-14	**Clarification of the application of a efficiency factor to biomass residue amount calculations** It was confirmed that in the spreadsheet of "Project data", for the calculations of available amount of leaves and wood chips, 90% and 95% were incorporate respectively and they seem to be a kind of efficiency factor, which are not explained.	**D.6.3 CPA**	The 90% and 95% percentages are not efficiency factors whatsoever, they are only part of the adequate calculation formula for cane leaves and wood chips quantities which are respectively expected as follows: - Leaves are 10% of cane-based fuel, on an energy basis - Wood chips are 5% of total fuel, on an energy basis The formula have been converted with fractions (10/90 and 5/95) in order to avoid confusion. <u>Comment on 23/10:</u> The Bosch Project document reflects the initial plan which evolved into the revised fuel mix has documented in the latest EIA report.	Not OK, please clarify the basis of the mix ratio determination of leaves and wood chips. According to the design sheet developed by Bosch Projects, it was confirmed that only the max mix ratio of leaves was described. OK, it was confirmed that the necessary data were demonstrated in the final EIA report. CL-14 was closed.
CL-15	**Provision of Historical Sugar Mill Operation Data** Please provide the historical data recorded by the sugar mill for last three years for cross check of the data demonstrated in the sheet of "Historical-Baseline data"	**D.6.3 CPA**	Historical sugar mill data records have been provided as follows: - SASTA Annual Reviews 2009, 2010 and 2011 [in GSC package/Specific CPA – Biblio] - AK Steam-bagasse-coal records 2009-2011 [new submission] - NERSA Energy Figures_2009-2011 [new submission] - Power production monthly details 2009-2011 [new submission] - Imports monthly analysis Amatikulu 2010 [new submission] <u>Comment on 23/10:</u> The bagasse moisture content assumption derives from the statistical average of 1,753 laboratory-measured samples over years 2004 to 2011, which Excel source has been provided to the DOE ("2004-2011 Historical Bagasse Data for Amatikulu.xlsx").	Not OK, confirmed that almost all data required were provided; however, please provide further the moisture content data of bagasse analyzed at a laboratory of Amatikulu sugar mill. OK, the data on the moisture content in the past were sufficiently provided supporting the assumption used in the calculations of emissions reductions. CL-15 was closed.

TABLE-3 Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD & CPA-DD)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1 or 2	Summary of project owner response	Validation team Conclusion
CL-16	**Provision of evidence referred to in the eligibility criteria** The following two evidence for validation are not provided: 1. The statement by the CPA implementer on non double counting. 2. Binding agreement between the CME and the CPA implementer	**D.5 CPA**	1. No statement about non double accounting is required from CPA implementer as the double counting avoidance procedure is applied and confirmed by the CME; description of criteria b.1 has been modified accordingly. 2. Mandate letter dated 22 November 2012 between Standard Bank and Tongaat Hulett has been provided	OK, it was confirmed that the double count avoidance was demonstrated in the binding agreement. CL-16 was closed.
CL-17	**Inconsistency of the Parameters to be monitored and the baseline scenario** There found inconsistency between the baseline scenario and the parameters to be monitored. The parameter $BR_{B5/B8,n,y}$ was included in the monitoring plan as one of the parameters to be monitored; however, relevant scenarios B5 to B8 were not included in the baseline scenario of the project activity.	**D.7.1 CPA**	The parameter $BR_{B5/B8,n,y}$ has been removed from CPA-DD monitoring plan.	OK, it was confirmed the parameter was excluded complying with the baseline scenario of the CPA-DD. CL-17 was closed.
CL-18	**Clarification of descriptions about "Mean of proof/Evidence Documents" of the CPA-DD**. In most of items, its descriptions were not clear enough in terms of: 1) what evidence/documents were applied to assess the eligibility of the CPA; some were indicated in bold but not in others; and 2) whether relevant assessment was actually implemented on all the specified criteria by the CME It is considered that in this section, actual implementation results are described with applied evidence and/or documents.	**D.5 CPA**	The Mean of proof / Evidence Document sections of CPA-DD eligibility assessment have clarified to properly describe the specific evidence/document at stake, including description of actual assessment.	OK, the relevant descriptions were revised appropriately to reflect activities by CME and evidence applied. CL-18 was closed.
FAR	**Forward Action Requests**			

TABLE-3 Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests (PoA-DD & CPA-DD)

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1 or 2	Summary of project owner response	Validation team Conclusion
FAR-1	**Preparation of Monitoring Manual** Considering features of the proposed project, it is recommended preparing an appropriate monitoring manual for ensuring implementation of the planned monitoring tasks by the commissioning of the new power plant.	**D.7 CPA**	Noted and agreed.	OK.

APPENDIX B

Certificate of Appointment of Validation Team

Project Title	Biomass residues power generation Programme
Applied Methodology	ACM0006
	Sectoral Scope 1

Date: 09 August 2012

Designated Operational Entity: Japan Consulting Institute (JCI)

Reflecting the competence criteria of JCI in accordance with "Criteria for operational entities of LIST of SECTORAL SCOPES", this is to certify the appointment of validation team of JCI specified below for the PoA and the CPA above, as per CDM Project Activity Registration Form, "**F-CDM-REG**" adopted at the 24th Meeting of CDM Executive Board, and Validation Procedure established by JCI CDM Center.

Signature

Akio Yoshida,
Executive Director, JCI CDM Center

Date: 14 August 2012

Client: Standard Bank Plc

Reflecting the curricula vitae provided, this is to agree the validation team of JCI specified below for the PoA and the CPA above, as per Validation Procedure established by JCI CDM Center.

It is also agreed that Mr. Mutsuo KATO of JCI participates in the validation activities of the said program and project for the quality issues under its quality management scheme.

Signature

(Name) G. SINCLAIR

(Title) HEAD OF CARBON DESK + ACADEMY

Validation Team

Validation Team	Name	Assigned Role
Leader	Toshiaki TAKEDA	All relevant issues
Member	Mitsuo TAKANO	CDM auditor

Technical Reviewer	Haruo SAWADA	Energy Industries