VALIDATION REPORT K2011/117952/07 (PTY) LTD (SOUTH AFRICA)

VALIDATION OF THE SOUTHERN AFRICAN RENEWABLE ENERGY (SARE) PROGRAMME

BUREAU VERITAS CERTIFICATION

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Summary:

Bureau Veritas Certification has made the validation of the Southern Africa Renewable Energy (SARE) programme project of K2011/117952/07 (Pty) Ltd (South Africa on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the PoA-DD, generic CPA-DD, the baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the PoA design and the baseline and monitoring plan; ii) follow-up interviews with stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the Coordinating/Managing Entity revised its PoA design documents.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology ACM0002 – Consolidated baseline methodology for grid-connected electricity generation from renewable sources – v13.0.0, and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Report No.: BVC/ KENYA-val/0007/2011	Subject Group: CDM	
Project title: Southern African Renewable Energy (SARE) Programme		
Work carried out by: Andrew Kinyanjui – Team Leader James Chirchir – Team member James Mwaniki – Technical Specialist Gerjan Schut – Financial reviewer		
Internal Technical Review carried our by: Mr. H.B Muralidhar		
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Matthieu MARTINI

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1 INTRODUCTION

K2011/117952/07 (Pty) Ltd (South Africa) has commissioned Bureau Veritas Certification to validate its CDM project "Southern African Renewable Energy (SARE) programme" (hereafter called "the project"). The PoA will be located within the 6 Southern Africa countries namely Botswana, Lesotho, Mozambique, Namibia, South Africa, and Swaziland.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The validation serves as programme design verification and is a requirement of all programmes. The validation is an independent third party assessment of the programme design. In particular, the PoA's baseline, the monitoring plan (MP), and the programme's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the programme design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Validation is a requirement for all CDM programmes 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).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

1.2 Scope

The validation scope is defined as an independent and objective review of the programme design documents, the PoA's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

The validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the programme design.

1.3 Validation team

The validation team and internal technical reviewer consist of the following personnel:

FUNCTION	NAME	CODE HOLDER	TASK PERFORMED*
Team Leader	Andrew Kinyanjui	☐Yes ☒ No	☒DR ☐SV ☒RI
Team Member	James Chirchir	☐Yes ☒ No	☒DR ☒SV ☒RI
Financial Specialist	Gertjan Schut	☐Yes ☒ No	☒DR ☐SV ☒RI
Technical Specialist	James Mwaniki.	☒Yes ☐ No	☒DR ☒SV ☐RI
Internal Technical Reviewer (ITR)	Mr. H.B Muralidhar	☒Yes ☐ No	☒DR ☐SV ☒RI
Specialist supporting ITR	N/A	☐Yes ☐ No	☐DR ☐SV ☐RI

*DR = Document Review; SV = Site Visit; RI = Report issuance

2 METHODOLOGY

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a validation protocol was customized for the project, according to the version 01.2 of the Clean Development Mechanism Validation and Verification Manual, issued by the Executive Board at its 55th meeting on 30/07/2010 and version 04.1 of Procedures for registration of a programme of activities as a single CDM project activity and issuance of certified emission reductions for a programme of activities dated 02/08/2010(EB55 Annex38). The protocol shows, in a transparent manner, criteria (requirements), means of validation and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The completed validation protocol is enclosed in Appendix A to this report.

2.1 Review of Documents

The Project Design Document (PoA-DD) submitted by K2011/117952/07 (Pty) Ltd (South Africa) and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (CDM-PDD), Approved methodology, Kyoto Protocol, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, K2011/117952/07 (Pty) Ltd (South Africa) revised the PDD's namely.

2.1.1 Southern African Renewable Energy(SARE) programme PoA-DD_v01.5 Dated 04/09/2012.Ref. category I /1/.

2.1.2 Southern African Renewable Energy(SARE) programme CPA-Template v01.5 Dated 04/09/2012. Ref. category I /4/.

2.1.3 Southern African Renewable Energy(SARE) programme - African Rainbow Energy PV CPA v01.6 Dated 28/09/2012. Ref. category I /2/.

The validation findings presented in this report relate to the project as described in the PoA -DD version 1.5 and CPA specific/Generic DD

2.2 Follow-up Interviews

On 18th-19th/10/2011 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of K2011/117952/07 (Pty)

Ltd (South Africa) were interviewed (see list of persons interviewed). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
K2011/117952/07 (Pty) Ltd (South Africa)	➢ Project Design and implementation ➢ Solar panel manufacturing/Assembly ➢ Calibration and operation ➢ Monitoring Plan and management procedures ➢ Monitoring data ➢ GHG Calculation ➢ Data uncertainty and residual risks (QA/QC) ➢ Environmental Impacts ➢ Compliance with National Laws and Regulations
Local Stakeholder	➢ Stakeholder engagement ➢ Compliance with National Laws and regulations

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the programme design.

Corrective Action Requests (CAR) is issued, where:

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

(b) The applicable CDM requirements have not been met;

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

The validation team may also use the term Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

The validation team may also raise a forward action request (FAR) during validation to identify issues related to programme implementation that require review during the first verification of the CPA uner the PoA.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Appendix A.

2.4 Internal Technical Review

The validation report underwent a Internal Technical Review (ITR) before requesting registration of the programme.

The ITR is an independent process performed to examine thoroughly that the process of validation has been carried out in conformance with the requirements of the validation scheme as well as internal Bureau Veritas Certification procedures.

The Team Leader provides a copy of the validation report to the reviewer, including any necessary validation documentation. The reviewer reviews the submitted documentation for conformance with the validation scheme. This will be a comprehensive review of all documentation generated during the validation process.

When performing an Internal Technical Review, the reviewer ensures that:

> The validation activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.
>
> The review encompasses all aspects related to the project which includes PoA design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the CME as well as the PoA, review of the stakeholder comments and responses, closure of CARs, CLs and FARs during the validation exercise, review of sample documents.

The reviewer compiles clarification questions for the Team Leader and Validation Team and discusses these matters with Team Leader.

After the agreement of the responses on the 'Clarification Request' from the Team Leader as well as the PP(s) the finalized validation report is accepted for further processing such as uploading on the UNFCCC webpage.

3 VALIDATION CONCLUSIONS

In the following sections, the conclusions of the validation are stated.

The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are described in the Validation Protocol in Appendix A.

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in 15 Corrective Action Requests (CARs) and 46 Clarification Requests (CLs).

The CARs and CLs were closed based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

The number between brackets at the end of each section correspond to the VVM paragraph

3.1 Approval

Letters of Approval from the host countries were received from the project participant and the DOE does not doubt their authenticity.

Letter of approval of PoA from DNA South Africa was received directly from the project participant dated 5th September 2012 confirming that South Africa has ratified Kyoto Protocol and participates voluntarily in this proposed CDM activity.

Letter of approval of PoA from DNA Botswana was received directly from the project participant ref no: MET/WMO/RDD/3066/7C V (61) dated 17th September 2012 confirming Botswana has ratified Kyoto Protocol and participates voluntarily in this proposed CDM activity.

Letter of approval of PoA from DNA Namibia was received directly from the project participant ref no: dated 5th July 2012 confirming Namibia is a party to Kyoto Protocol and participates voluntarily in this proposed CDM activity.

Letter of approval also been obtained from Mozambique DNA ref no: 422 GDN/DNAIA/MICOA/12 dated 10th September 2012 confirming that Mozambique ratified the Kyoto Protocol and participates voluntary in the CDM and authorized K2011/117952/07 (Pty) Ltd (South Africa) trading as African Sustainability Initiative (ASI) participates in this CDM project

Letter of approval of PoA from DNA Swaziland was received directly from the project participant dated 22nd June 2012 confirming Swaziland is a party to Kyoto Protocol and participates voluntarily in this proposed CDM activity.

Letter of approval of PoA from DNA Lesotho was received directly from the project participant dated 25th September 2012 confirming Lesotho is a party to Kyoto Protocol and participates voluntarily in this proposed CDM activity.

Bureau Veritas Certification considers the letters are in accordance with paragraphs 45 - 48 of the VVM.

3.2 Participation

The participation for each project participant has been approved by a Party of the Kyoto Protocol.

The validation team concluded this by referring to UNFCCC website

3.3 Project design document

The CME has developed three Design documents as per the Guidelines for Completing the PoA Design Document (PoA-DD), CDM programme of activities template and design document (CPA-DD) and the applied CDM methodology including the sections especially dedicated to PoA:-

PoA – DD Southern African Renewable Energy(SARE) programme PoA-DD_v01.5 Dated 4/09/2012 (sets a framework for the implementation of the PoA and unambiguously defining a CPA under the PoA).Ref Category I/1/.

CPA1- DD Southern African Renewable Energy(SARE) programme-African Rainbow Energy PV CPA v01.6 Dated 28/09/2012 (specific design document for one real case project) Ref Category I/2/

Southern African Renewable Energy(SARE) programme CPA-Template (template for use by eligible CPA implementers/partners) dated 4/09/2012. Ref Category I/4/

The project design was described using the appropriate template as shown in the DDs, which were confirmed through comparison with the template listed on the UNFCCC website. Relevant information was provided by the Managing entity in the applicable PoA sections. Completeness was assessed through the protocol included in Annex 1.

As described above, BVC deems that the DDs (CDM-PoA-DD, typical CDM-CPA-DD and specific CDM-CPA-DD) are compiled with the appropriate format and are described based on appropriate tools, guidelines, and guidance which are specified and requested by the PoA procedures.

The validation team hereby confirms that the PDD complies with the latest forms of the guidance documents for completion of PDD.

3.4 PoA description

The PoA will be involved in the development of renewable energy projects that will supply energy to the national grid within the boundaries of the participating countries. The main objective of this programme is to incentivise broad scale investment in renewable energy technology and reduce dependence on fossil fuels electricity. These renewable energy sources includes solar, wind, hydro, geothermal, wave and tidal power.

The Coordinating and Managing Entity (CME) for the PoA is K2011/117952/07 (Pty) Ltd trading as African Sustainability Initiative (ASI). A database will be established that contains all the CPA specific data required to identify and locate each CPA. The CME will implement a monitoring protocol that allows the Designated Operational Entity (DOE) to verify all CPAs in the PoA. The DOE conducted a site visit between 18th and 19th October 2011 to interact with the project participant (PP) and other stakeholders.

The boundary of the PoA is located in the following host countries in Southern African: Botswana, Lesotho, Mozambique, Namibia, South Africa and Swaziland within which all the implemented CDM programme activities (CPAs) included in the PoA will be physically installed. A typical CPA will consist of a grid-connected renewable power generation projects which includes solar, hydro, wind, geothermal, wave, or tidal power technologies.

The length of the PoA is 28 years. The Project is expected to produce annual average estimated emission reductions of 51,775 tCO2e in its first CPA 1 during the 7 year renewable crediting period.

The use of renewable energy technologies for the production of electricity displaces the baseline production of grid electricity hence reducing GHG emissions related to electricity generation from fossil fuel based sources.

The process undertaken to validate the accuracy and completeness of project description includes desk review of webhosted PoA DD and CPA DD and interviews with the project participants. In addition, the validation team conducted an on-site visit inspection of the proposed project site on 18th and 19th October 2011 and further desk review on supporting documentation for the proposed project activity.

The DOE hereby confirms that the project description in PoA DD version 1.5 dated 4th September 2012 is accurate and complete in all respects.

3.5 Operational and management arrangements

A clear and transparent description of the operational and management arrangements have been established by the management/coordinating entity and stated in the PoA-DD.

Data collection: The CME will establish and maintain an extensive database for each CPA that uniquely identifies it among other CPAs enrolled in the PoA. Calibration of the monitoring equipment will be done by respecting the calibration frequency as per the manufacturer's requirements and observing any applicable legal requirements of the host country regarding calibration frequency.

Data recording: All project parameters will be monitored by the implementing entity of the CPA and recorded electronically. The data for all monitored parameters will be provided to the CME who will document and store them in an electronic database. However, the primary data will be stored by each CPA implementing entity.

Data reporting: The CME will in responsible for the preparation of the Monitoring Reports and communication with the DOE during verification activities. The Monitoring Report will compile all required monitoring information in order to allow the DOE to verify the emission reductions for each monitoring period of each individual CPA. The unique identification of each CPA will ensure that the data attributed to a monitoring period can be clearly attributed to an individual CPA and will prevent double counting of emission reduction data.

Data archiving: The CME will be responsible for the management of records and data associated with each CPA and all records will be stored for a period of two years after the end of the relevant crediting period.

Data quality control/Assurance: The data and reports provided by each CPA implementing entity to the CME will be checked internally to ensure the accuracy and completeness of data. Corrective action will be applied to avoid recurrence of any errors noted. The CME will ensure that all persons participating in the monitoring process will be suitably qualified and trained in the operation and maintenance of the CPA project activity

The CME was interviewed by validation team during the on-site visit.

Complying with **para.166/VVM** and **EB63 Annex 3,** Bureau Veritas Certification hereby concludes that the operational and management arrangements have been established by the coordinating/managing entity and are suitable for the PoA being validated. Bureau Veritas Certification considers that the arrangements are sufficient to ensure that the coordinating/managing entity will have control of all records and information related to the implementation of individual CPAs.

3.6 Eligibility criteria for inclusion a CPA in the PoA

An eligibility criteria for the inclusion of a distinct type of CPA in the PoA has been defined in section A.4.2.2 in the PoA-DD.

Validation team has assessed the eligibility criteria for inclusion a CPA in the PoA in accordance with "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities"EB 65 Annex 3" . The eligibility

criteria group, eligibility criteria and evaluation criteria are detailed in Annex 5 of the PoA DD; Evaluation of the first CPA under the PoA against the criteria defined are documented in the CPA DD section B.2

Additional criteria have been developed by for specific CPA types of renewable energy sources as indicated in section A.4.2.2 of PoA DD. Validation team confirms that: The eligibility criteria are verifiable; the eligibility criteria are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA.

Complying with **Para.167/VVM,** Bureau Veritas Certification hereby confirms that the specified eligibility criteria in the PoA-DD are sufficient to ensure that all CPAs would comply with the CDM requirement applicable to the PoA, which includes the means of demonstrating the additionality of the CPA and the applicability of the applied methodology.

3.7 Baseline and monitoring methodology

3.7.1 Applicability of the selected baseline and monitoring methodology

The PoA uses the approved simplified baseline and monitoring methodologies ACM 0002 version 13.0.0 which has been approved by CDM EB at EB67 meeting report.

The methodology ACM 0002 version 13.0.0 is applicable to grid-connected renewable power generation project activities that: (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s). Among other conditions set, the methodology is applicable the project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit.

The methodology is applicable to the Sothern African Renewable Energy(SARE) programme of Activities since the proposed PoA is a programme for the development of renewable energy projects that will supply energy to the national grid within the host countries. A typical CPAs to be included in the PoA will include power generation by solar, hydro, wind, geothermal, wave, or tidal power technology which will supply power to the grid, hence the methodology is applicable to the CPAs

3.7.2 Project Boundary

The project boundary defined for the PoA is the geographical area within which all the implemented CDM programme activities (CPAs) included in the PoA will be physically installed. All installations of renewable energy projects which are enrolled in the CPAs under this PoA will be within the borders of the Host Parties listed in section A.4.1.1 of the PoA-DD, i.e Botswana, Lesotho, Mozambique, Namibia, South Africa, and Swaziland. All sources and GHGs required by the methodology have been included within the project boundary as described in section E.3 of the PoA DD. The validation team considers the project boundary appropriate for the PoA level activity.

Each CPA will define the geographical boundary within which it operates; hence the accuracy of project boundary delineation would be assessed at CPA level.

According to the applied methodology ACM 0002 ver 13.0.0, the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to.

The first CPA of the PoA is located within the geographical boundary of South Africa, which is a host country to the PoA, and it includes the national grid which is connected to the renewable energy installation as illustrated in section B.4 of the CDM-CPA-DD. During the site visit, the DOE confirmed the existence of electricity transmission lines which is part of the South African national grid next to the proposed project site. The DOE also confirmed the South African national grid on Eskom annual reports on www.eskom.co.za

Based on the above assessment, the DOE hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity.

3.7.3 Baseline identification

The methodology ACM 0002 ver 13.0.0 describes a number of baseline scenarios due to the varying nature of grid connected renewable energy power generation technologies.

If the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the Tool to calculate the emission factor for an electricity system.

If the project activity is a capacity addition to existing grid-connected renewable power plant/unit, the existing facility (baseline scenario) would continue to supply electricity to the grid at historical levels, until the time at which the generation facility would likely be replaced or retrofitted. From that point of time onwards, the baseline scenario is assumed to correspond to the project activity, and no emission reductions are assumed to occur.

If the project activity is the retrofit or replacement of existing grid-connected renewable power plant/unit(s) at the project site, a step-wise procedure as described in the methodology shall be applied to identify the baseline scenario.

A description of how the baseline scenario for each CPA has been identified will be provided for each CPA. The above baseline scenarios have been correctly identified in the PoA DD section E.4

3.7.4 Algorithms and/or formulae used to determine emission reductions

The steps taken to assess the requirements outlined in para 89 of VVM are described below.

For all the CPAs included in the PoA, the emission reductions generated are calculated in accordance with the baseline and monitoring methodology ACM 0002 version 13.0.0 and its recommended tools. The emission reductions are calculated as follows:

Project Emissions

For most of the renewable power generation CPA project activities, PEy = 0.

For CPAs that makes use of fossil fuels, PEy shall be accounted for using equation below.

PEy = PEff,y + PEGP,y + PEHP,y

Where:

PEy	=	Project emissions in year y (tCO2e)
PEff,y	=	Project emissions from fossil fuel consumption in year y (tCO2)
PEGP,y	=	Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO2e)
PEHP,y	=	Project emissions from reservoirs of hydro power plants in year y (tCO2e)

Emissions from fossil fuel combustion($PE_{FC,I,y}$) calculated based on the quantity of fuels combusted and the CO_2 emission coefficient of those fuels will be calculated as

$$PE_{FC,j,y} = \sum_i FC_{i,j,y} \times COEF_{i,y}$$

Where:

$\mathbf{PE_{FC,j,y}}$	=	Are the CO_2 emissions from fossil fuel combustion in process *j* during the year *y* (tCO_2/yr)
$\mathbf{FC_{i,j,y}}$	=	Is the quantity of fuel type *i* combusted in process *j* during the year *y* (mass of volume unit/yr)
$\mathbf{COEF_{i,y}}$	=	Is the CO_2 emission coefficient of fuel type *i* in year *y* (tCO_2/mass or volume unit)
i	=	Are the fuel types combusted in process *j* during the year *y*

The CO_2 emission coefficient $COEF_{jy}$ can be calculated using one of the following two options, depending on the availability of data on the fossil fuel type *i*, as follows:

<u>Option A</u>: The CO_2 emission coefficient $COEF_{i,y}$ is calculated based on the chemical composition of the fossil fuel type *i*, using the following approach:

If $FC_{i,j,y}$ is measured in a mass unit: $\mathbf{COEF_{i,y} = w_{c,i,y} * 44/12}$

If $FC_{i,j,y}$ is measured in a volume unit: $\mathbf{COEF_{i,y} = w_{c,i,y} * \rho_{i,y} * 44/12}$

Where:

$\mathbf{COEF_{i,y}}$	=	Is the CO_2 emission coefficient of fuel type *i* (tCO_2/mass or volume unit)
$\mathbf{w_{c,i,y}}$	=	Is the weighted average mass fraction of carbon in fuel type *i* in year *y*
$\rho_{i,y}$	=	Is the weighted average density of fuel type *i* in year *y* (mass unit/volume unit of the fuel).
i	=	Are the fuel types combusted in process *j* during the year *y*

Option B: The CO_2 emission coefficient $COEF_{i,y}$ is calculated based on net calorific value and CO_2 emission factor of the fuel type *i*, as follows:

$$\mathbf{COEF_{i,y} = NCV_{i,y} * EF_{CO2,I,y}}$$

Where:

$\mathbf{COEF_{i,y}}$	=	Is the CO_2 emission coefficient of fuel type *i* in year *y* (tCO_2/mass or volume unit)
$\mathbf{NCV_{i,y}}$	=	Is the weighted average net calorific value of the fuel type *i* in year *y* (GJ/mass or volume unit)
$\mathbf{EF_{CO2,I,y}}$	=	Is the weighted average CO_2 emission factor of fuel type *i* in year *y* (tCO_2/GJ)
i	=	Are the fuel types combusted in process *j* during the year *y*

As per the requirements of the tool to calculate project or leakage CO2 emissions from fossil fuel combustion, Option A should be the preferred approach, if the necessary data is available. Each CPA will document which option has been applied if calculation of emissions due to the use of fossil fuels is necessary.

<u>Emissions of non-condensable gases from the operation of geothermal power plants ($PEGP_{,y}$)</u>

$PE_{GP,y}$ is calculated as follows:

$$\mathbf{PE_{GP,y} = (w_{steam,CO2,y} + w_{steam,CH4,y} * GWP_{CH4}) * M_{steam,y}}$$

Where:

$\mathbf{PE_{GP,y}}$	=	Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year *y* (tCO_2e)

$w_{steam,CO2,y}$	=	Average mass fraction of carbon dioxide in the produced steam in year *y* (tCO_2/t steam)
$w_{steam,CH4,y}$	=	Average mass fraction of methane in the produced steam in year *y* (tCH_4/t steam)
GWP_{CH4}	=	Global warming potential of methane valid for the relevant commitment period (tCO_2e/tCH_4)
$M_{steam,y}$	=	Quantity of steam produced in year *y* (t steam)

Emissions from water reservoirs of hydro power plants ($PE_{HP,y}$)

a) If the power density of the CPA project activity (PD) is greater than 4 W/m^2 and less than or equal to 10 W/m^2:

$$PE_{HP,y} = \frac{EF_{Res} \cdot TEG_y}{1000}$$

Where:

$PE_{HP,y}$	=	Project emissions from reservoirs of hydro power plants in year *y* (tCO_2e)
EF_{Res}	=	Default emission factor for emissions from reservoirs of hydro power plants ($kgCO_2e$/MWh)
TEG_y	=	Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year *y* (MWh)

(b) If the power density of the CPA project activity (PD) is greater than 10 W/m^2:

$PE_{HP,y} = 0$

The power density of the CPA project activity (PD) is calculated as follows:

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}}$$

Where:

PD	=	Power density of the CPA project activity (W/m^2)
Cap_{PJ}	=	Installed capacity of the hydro power plant after the implementation of the CPA project activity (W)
Cap_{BL}	=	Installed capacity of the hydro power plant before the implementation of the project activity (W). For new hydro power plants, this value is zero.
A_{PJ}	=	Area of the reservoir measured in the surface of the water,

		after the implementation of the project activity, when the reservoir is full (m^2)
A_{BL}	=	Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m^2). For new reservoirs, this value is zero.

Each CPA will document which option has been applied in the case of a hydro-power plant.

Baseline emissions

The baseline emissions will be calculated as follows:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

Where:

BE_y	=	Baseline emissions in year *y* (tCO_2)
$EG_{PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year *y* (MWh)
$EF_{grid,CM,y}$	=	Combined margin CO_2 emission factor for grid connected power generation in year *y* calculated using the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh)

Calculation of $EG_{PJ,y}$

(a) Greenfield renewable energy power plants

$EG_{PJ,y}$ is calculated as follows:

$$EG_{PJ,y} = EG_{facility,y}$$

Where:

$EG_{PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year *y* (MWh)
$EG_{facility,y}$	=	Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y* (MWh)

(b) Retrofit of an existing renewable energy power plant

$EG_{PJ,y}$ is calculated as follows:

$$EG_{PJ,y} = EG_{facility,y} - (EG_{historical} + \sigma_{historical}); \text{ until } DATE_{BaselineRetrofit}$$

and

$$EG_{PJ,y} = 0; \text{ on/after } DATE_{BaselineRetrofit}$$

Where:

$EG_{PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year *y* (MWh)
$EG_{facility,y}$	=	Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y* (MWh)
$EG_{historical}$	=	Annual average historical net electricity generation delivered to the grid by the existing renewable energy plant that was operated at the project site prior to the implementation of the project activity (MWh)
$\sigma_{historical}$	=	Standard deviation of the annual average historical net electricity generation delivered to the grid by the existing renewable energy plant that was operated at the project site prior to the implementation of the project activity (MWh)
$DATE_{BaselineRetrofit}$	=	Point in time when the existing equipment would need to be replaced in the absence of the project activity (date)

(c) Capacity addition to an existing renewable energy power plant

$$EG_{PJ,y} = EG_{PJ_Add,y}$$

Where:

$EG_{PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year *y* (MWh)
$EG_{PJ_Add,y}$	=	Quantity of net electricity generation supplied to the grid in year *y* by the project plant/unit that has been added under the project activity (MWh)

Leakage

No leakage emissions are considered.

Emission reductions

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y \quad (11)$$

Where:

ER_y	=	Emission reductions in year *y* (t CO_2e)
BE_y	=	Baseline emissions in year *y* (t CO_2)
PE_y	=	Project emissions in year *y* (t CO_2e)

Calculation of Grid Emission Factor ($EF_{grid,CM,y}$)

Grid Emission Factor (EFgrid,CM,y) for each CPA is calculated as per the "Tool to calculate the Emission Factor for an electricity system.", to determine combined margin(CM), which consists of operating margin(OM), and build margin(BM).

The calculations follow the following steps;

1. Identify the relevant electricity systems.
2. Choose whether to include off-grid power plants in the project electricity system (optional).
3. Select a method to determine the operating margin (OM).
4. Calculate the operating margin emission factor according to the selected method.
5. Calculate the build margin (BM) emission factor.
6. Calculate the combined margin (CM) emissions factor

The use of specific values for the calculations of specific parameters using the above steps and formulae are appropriately evaluated for each CPA. However, the following parameters and values have been correctly defined at the PoA level.

Parameter	Definition	Value applied	Means of validation
$GWPCH_4$	Global warming potential of methane	21 tCO_2e/tCH_4	2006 IPCC default value
EF_{Res}	Emission factor for emissions from reservoirs of hydro power plants	90 $kgCO_2e/MWh$	Default emission factor for emissions from reservoirs of hydro power plants, EB23 Annex 5

The validation team has verified the data and parameters used in the equations, including references to any other data sources used, by cross-checking them against the PoA-DD version 1.5 category 1/1/, the methodology ACM0002 version 13.0.0 category 1 /3/, the Tool for the

demonstration and assessment of additionality version 06.0.0 category 1/12/, the Tool to calculate the emission factor for an electricity system version 02.2.1 category 1/13/, the Tool to calculate project or leakage CO2 emissions from fossil fuel combustion version 02 category 1/14/, the 2006 IPCC Guidelines for National Greenhouse Gas Inventories category 1 /17/, other references referred to by the PP, the UNFCCC site and follow-up interviews with representatives of the Project Participants.

Based on the above assessment, the DOE hereby confirms that:
a) All assumptions and data used by the project participants are listed in the PDD, including their references and sources;
(b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD;
(c) All values used in the PDD are considered reasonable in the context of the proposed CDM project activity;
(d) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, and leakage and emission reductions;

3.8 Additionality of PoA

3.8.1 Start date of the PoA/CPA

Bureau Veritas Certification confirms that the start date of any CPA is not prior to the commencement of the validation of the PoA, which is the date of the CDM-PoA-DD, is first published for global stakeholder consultation on 16/9/2011.

3.8.2 Demonstration of additionality of the PoA as a whole

Additionality of PoA is demonstrated in line with the Standard for demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities. The methodology ACM0002 version 13.0.0 stipulates the use of the "*Tool for the demonstration and assessment of additionality*". The tool follows a stepwise approach consisting of: Identification of alternatives to the project activity; Investment analysis; Barrier analysis; and Common practice analysis.

Identification of alternatives.

All realistic and credible alternative(s) available to the project developer which are also compliant with mandatory legislation and regulations taking into account the enforcement in the region or country and EB decisions on national and/or sectoral policies and regulations for example, the project is undertaken without registration as a CDM project; or No project activity is undertaken should be identified by each CPA.

Investment Analysis

It is envisioned that in the majority the CPAs in the PoA will produce revenue through the sale of renewable energy, and since one alternative will include not investing in the project, a benchmark investment comparison analysis is expected to be the be most appropriate choice for most CPAs. The tool specifies the sources of discount rates and benchmarks to be used in the analysis. "Guidelines on the assessment of investment analysis", EB62, Annex 5, provides default values for the expected rate of return on equity (calculated after taxes) for different countries.

Calculation of suitable financial indicator for the proposed CPA project activity, including all relevant costs e.g. the investment cost, the operations and maintenance costs and revenues

(excluding CER revenues, but possibly including inter alia subsidies/fiscal incentives, ODA), and as appropriate, non-market cost and benefits in the case of public investors if this is standard practice for the selection of public investments in the host country shall be performed.

Investment analysis in a transparent manner and all the relevant assumptions shall be presented by each CPA. All critical techno-economic parameters and assumptions (such as capital costs, fuel prices, lifetimes, and discount rate or cost of capital) should be identified. In calculating the financial/economic indicator, the project's risks can be included through the cash flow pattern, subject to project-specific expectations and assumptions (e.g. insurance premiums can be used in the calculation to reflect specific risk equivalents).

A clear comparison of the financial indicator for the proposed CPA project activity and the financial benchmark (from option III - benchmark analysis), as well as, if necessary, the "EB62 Annex 5 Guidelines on the assessment on investment analysis" country specific benchmark shall be presented in the CPA DD. If the CDM project activity has a less favourable indicator (e.g. lower IRR) than the benchmark, then the CPA project activity cannot be considered as financially attractive and can thus be concluded to be additional.

A sensitivity analysis that shows whether the conclusion regarding the financial/economic attractiveness is robust to reasonable variations in the critical assumptions shall be included. The investment analysis provides a valid argument in favour of additionality only if it consistently supports (for a realistic range of assumptions) the conclusion that the project activity is unlikely to be the most financially/economically attractive or is unlikely to be financially/economically attractive

Barrier analysis

This is an optional step and will only be conducted if the IRR is greater than or equal to the benchmark value.

Common Practice analysis

Common practice would be performed in two steps; i.e analysis of other activities similar to the proposed project activity and a discussion of any similar Options that are occurring.

Analysis of any other activities that are operational and that are similar to the proposed project activity shall be provided. If similar activities are identified above, a comparison of the proposed CPA project activity to the other similar activities, indicating and explaining essential distinctions should be provided.

Validation team has assessed the additionality of the first CPA under the PoA in accordance with Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities and confirms that the implemented CPA would not occur in the absence of CDM.

3.9 Monitoring plan

The DOE hereby confirms that the monitoring plan complies with the requirements of the methodology.

The Project uses the approved consolidated monitoring methodology ACM0002 version 13.0.0 for grid connected electricity generation from renewable sources. The applicability of this methodology in the proposed project activity is justified since it involves grid connected power generation from solar energy which is a renewable power source.

Operational management for the project activity is comprehensively detailed in the CPA DD and this includes description of the responsibility, calibration frequency, data recording, reporting and archiving, and maintenance arrangements.

By conducting on-site interview with the PP, the DOE confirms that the monitoring arrangements described in the monitoring plan are feasible within the project design, and the means of implementation of the monitoring plan are sufficient to ensure the emission reductions achieved by the Project can be reported ex post and verified.

The DOE hereby confirms that the monitoring plan complies with the requirements of the methodology and the project participants are able to implement the monitoring plan.

3.10 Environmental impacts

The CME will undertake both environmental analysis and environmental impacts at CPA level.

The PoA allows for large scale project activities for various renewable energy types and hence it is inappropriate to conduct an environmental analysis at the PoA level. The type of CPA activity and location will determine whether or not a full scale EIA process will be needed.

The degree of complexity and detail required for each individual CPA may vary depending on the installed capacity and other technical specifications, as well as local regulations. The CME will evaluate if a CPA wishing to be included in the PoA complies with local regulations related to EIAs. The DOE is of the opinion that the arrangements for environmental analysis and environmental impact assessment is adequate considering unique requirements for the host countries.

3.11 Local stakeholder consultation

Local stakeholder consultation will be conducted at CPA level.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD using methodology ACM0002 – Consolidated baseline methodology for grid-connected electricity generation from renewable sources – v13.0.0 was webhosted on the UNFCCC for global stakeholders' comments as per CDM requirements. The project was webhosted from 16 Sep 11 to 15 Oct 11.
No comments were received.

5 VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the Southern African Renewable Energy (SARE) programme Project to be implemented in 6 Southern African countries namely; Botswana, Lesotho, Mozambique, Namibia, South Africa, and Swaziland.

The validation was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

Project participant/s used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides analysis of investment to determine that the project activity itself is not the baseline scenario.

By displacing fossil fuel based grid electricity, the project is likely to result in reductions of GHG emissions partially. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions. All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

The review of the project design documentation (version 1.5) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria. Bureau Veritas Certification thus requests registration of Southern African Renewable Energy (SARE) programme as CDM project activity.

6 REFERENCES

Category 1 Documents:
Documents provided by K2011/117952/07 (Pty) Ltd (South Africa) that relates directly to the GHG components of the project.

/1/ Southern African Renewable Energy(SARE) programme PoA DD ver 1.5 dated 4/9/2012
/2/ Southern African Renewable Energy(SARE) programme –African Rainbow Energy PV CPA DD ver 1.6 dated 28/9/2012
/3/ ACM0002:Consolidated baseline methodology for grid connected electricity generation from renewable sources ver 13.0.0
/4/ Southern African Renewable Energy(SARE) programme CPA DD template document
/5/ LoA – South Africa
/6/ MoC
/7/ LoA – Botswana
/8/ LoA – Lesotho
/9/ LoA – Mozambique
/10/ LoA – Namibia
/11/ LoA – Swaziland
/12/ Tool for the demonstration and assessment of additionality v06.0.0
/13/ Tool to calculate the emission factor for an electricity system v2.2.1
/14/ Tool to calculate project or leakage CO2emissions from fossil fuel combustion, v02
/15/ Combined tool to identify the baseline scenario and demonstrate additionality v.04.0.0
/16/ Guidelines on the assessment of investment analysis v05.
/17/ 2006 IPCCC default values

Category 2 Documents:
Background documents related to the design and/or methodologies employed in the design or other reference documents.

/1/ 1048 Southern Africa GEF Upington PV tool
/2/ Email communication on proposed project
/3/ Nersa consultation paper- Review of renewable energy feed-in tariff, March 2011
/4/ Intergrated resource plan for electricity 2010-2030, revision 2 final report
/5/ Executive summary of the draft integrated electricity resource plan for South Africa 2010 to 2030 IRP 2010
/6/ South Africa climate change technology needs assessment, synthesis report, September 2007
/7/ Approximate diesel fuel consumption chart
/8/ Environmental impact assessment process final scoping report
/9/ 3005 Confidential ARE PV CPA financial model and ER calc
/10/ 3010 Sens.anal.energy yield 10percent
/11/ 3010 Sens. Anal.energy yield minus 10 percent
/12/ 3012 Sens.anal.tarrif minus 10 percent.
/13/ 3013 Sens anal tariff minus 10percent
/14/ 3014 Sens anal. Construct cost 10 percent
/15/ 3015 Sens anal. Construct cost minus 10 percent
/16/ 3016 Sens anal ave O&M cost 10 percent

/17/ 3017 Sens anal ave O&M cost minus 10 percent
/18/ 3001 Climate change application form SARE CME
/19/ 3002 K2011 11795207 Pty Ltd
/20/ 3004 Standard for additionality, Eligibility criteria for PoA V1 EB 65
/21/ 3007 1 Axis HI 3-5 meter gain
/22/ 1051 CM9 Certificate of change of name of company
/23/ 1052 CM26 4 June 2010 Continued change of name of company
/24/ 1056 PVGIS Performance assessment of PV
/25/ 1058 RFP volume 5 Economic development requirements
/26/ 2005 PV facility near Upington FEIR Nov 11
/27/ 2006 African Rainbow Energy PV Env Authorisation Mar 12
/28/ 2008 RECSOLAR panels
/29/ 2017 Load factor calculation
/30/ 2018 Recsolar warranty material
/31/ 2020 Corporate tax rate
/32/ 2021 Exchange rate
/33/ 2022 South Africa Investments
/34/ 2023 African Rainbow Energy sale property agreement 30/8/2010
/35/ 2024 African Rainbow energy add sale agreement 20/10/2010
/36/ 2025 Development premium letter to Ecometrix
/37/ 2026 ARE term sheet signed March
/38/ 2027 Layout 25MW PV plant La Sugarell Italy
/39/ 2028 Interest rate 5.5%
/40/ 2029 RFP Part A General requirements & rules final
/41/ 2030 Prelim budget offer Medenergy 25MV rev
/42/ 2033 Draft insurance due diligence for African Rainbow energy
/43/ 2036 Subordinate Loan IDC
/44/ 2037 Upington PV CPA CAPM
/45/ 2038 African Rainbow Energy Upington cost Est letter 20110609
/46/ F55 Administrative and Staff cost
/47/ Ecometrix Africa website
/48/ SARE Ecometrix PoA – Advert in E.N – scan of ad
/49/ SARE Ecometrix PoA – Advert newspaper(Final with logos)
/50/ SARE Ecometrix PoA – Advert newspaper scan of paper

Persons interviewed:

List persons interviewed during the validation or persons that contributed with other information that are not included in the documents listed above.

/1/ Sean Buchanan(K2011/117952/07 (Pty) Ltd (South Africa)

/2/ Graham Paul (K2011/117952/07 (Pty) Ltd (South Africa)

/3/ Becker Jan(Farmers' Coordinator)

/4/ Gart Retze(Farmer, Witdam Farm)

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7 CURRICULA VITAE OF THE DOE'S VALIDATION TEAM MEMBERS

Team Leader – Andrew Kinyanjui

Andrew Kinyanjui – holds Diploma in Chemical Engineering. He had 5 yrs experience in Industrial production before joining BV. He has obtained 7 years' experience in management systems audits and training and two years' experience in CDM validation / verification at BV. He obtained the certificate of CDM Lead Verifier certificate and Lead auditor for ISO 14001.

Team member – James Chirchir

James Chirchir – holds a Bachelor's degree in Chemical and Process Engineering and had 4 years' experience in manufacturing before joining Bureau Veritas. He is an ISO 9001:2008 and ISO 14000:2004 Lead Auditor and a trained CDM Verifier.

Technical Specialist – James Mwaniki

Graduate in Electrical Engineering with over 25 years of experience power generation (Wind, Solar, Hydro and Geothermal) and power distribution as well as independent energy management assessment. He has supported Validation / Verification for more than 6 CDM/GS Projects

Financial Reviewer – Gertjan Schut

A PhD graduate in Corporate Finance and strategy, currently working with CER partners, where he has been involved in financial reviews of several CDM projects. Graduate in Master of Science in Business Administration. He has 5 years' work experience as a senior consultant with PriceWaterhouse Coopers (PWC), corporate finance, 4 years' experience as a senior manager, Sustainability and Energy in IBM Venture Capital group EMEA/Asia Pacific.

Internal Reviewer – HB Muralidhar

Lead auditor in Bureau Veritas Certification for Environment Management System, Quality Management System and Occupational Health and Safety Management System. Graduate in Electrical Engineering with 25 years of experience power generation and distribution related fields as well as in management system auditing. He is the Lead auditor for Environmental Management System, Quality Management system and Occupational Health and Safety Management System. He has undergone intensive training on Clean Development Mechanism. He is the technical expert & conducted Validation / Verification for more than 50 CDM Projects.

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APPENDIX A: COMPANY CDM PROGRAMME VALIDATION PROTOCOL

Table 1 Validation requirements based on the Validation and Verification Standard (EB65 Annex 4)

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
1. Approval			*COUNTRY A (South Africa, Botswana, Lesotho)*	*COUNTRY B (Mozambique, Namibia ,Swaziland)*		
1.1. Have all Parties involved approved the project activity?	VVM	44	Yes	Yes	~~CAR 1.~~	OK
1.2. Has the DNA of each Party indicated as being involved in the proposed CDM project activity in section A.3 of the PDD provided a writTen letter of approval? (If yes, provide the reference of the letter of approval, any supporting documentation, and specify if the letter was received from the project participatn or directly from the DNA)	VVM	45	Yes	Yes	~~Pending CAR 1~~	OK
1.3. Does the letter of approval from DNA of each Party involved:	VVM	45	Yes	Yes	~~Pending CAR 1~~	OK
1.3.1. confirm that the Party is a Party of the Kyoto Protocol?	VVM	45.a	Yes	Yes	~~Pending CAR 1~~	OK
1.3.2. confirm that participation is voluntary?	VVM	45.b	Yes	Yes	~~Pending CAR 1~~	OK
1.3.3. confirm that, in the case of the host Party, the proposed CDM project activity contributes to the sustainable development of the country?	VVM	45.c	Yes	Yes	~~Pending CAR 1~~	OK
1.3.4. Refers to the precise proposed CDM project activity title in the PDD being submitted	VVM	45.d	Yes	Yes	~~Pending CAR 1~~	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
for registration?						
1.4. Is(are) the letter(s) of approval unconditional with respect to (i) to (iv) above?	VVM	46	Yes	Yes	~~Pending CAR 1~~	OK
1.5. Has(ve) the letter(s) of approval been issued by the respective Party's designated national authority (DNA) and is valid for the CDM project activity under validation?	VVM	47	Yes	Yes	~~Pending CAR 1~~	OK
1.6. Is there doubt with respect to the authenticity of the letter of approval?	VVM	48	No	No	~~Pending CAR 1~~	OK
1.7. If yes, was verified with the DNA that the letter of approval is authentic?	VVM	48	N/A	N/A	~~Pending CAR 1~~	OK
2. Participation			*PP1 (insert PP1 name)*	*PP2 (insert PP2 name)*		
2.1. Have all project participants been listed in a consistent manner in the project documentation?	VVM	51	Yes. The PP1 have been consistently listed as K2011/117952/07 (Pty) Ltd (South Africa) trading as African Sustainability Initiative	The PP2 have been consistently listed as African Rainbow Energy(Pty) Ltd.	OK	OK
2.2. Has the participation of the project participants in the project activity been approved by a Party to the Kyoto Protocol?	VVM	51	Yes	Yes	~~Pending CAR 1~~	Ok
2.3. Are the project participants listed in tabular form	VVM	52	No,project participants	No, project	~~CAR 2.~~	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
in section A.3 of the PDD?			are not listed in tabular form in section A.3 of the PDD as per guidelines for completing CDM-SSC-PDD version 5,	participants are not listed in tabular form in section A.3 of the PDD as per guidelines for completing CDM-SSC-PDD version 5,		
2.4. Is the information in section A.3 consistent with the contact details provided in annex 1 of the PDD?	VVM	52	Clarify contact information for African Rainbow Energy (Pty) Limited.		~~CL 1.~~	OK
2.5. Has the participation of each of the project participants been approved by at least one Party involved, either in a letter of approval or in a separate letter specifically to approve participation? (Provide reference of the approval document for each of the project participants)	VVM	52	Letter of approval has been given for each party involved		~~Pending CAR 1~~	OK
2.6. Are any entities other than those approved as project participants included in these sections of the PDD?	VVM	52	No		~~Pending CAR 1~~	Ok
2.7. Has the approval of participation issued from the relevant DNA?	VVM	53	Yes		~~Pending CAR 1~~	OK
2.8. Is there doubt with respect to (g) above?	VVM	53	No		~~Pending CAR 1~~	OK
2.9. If yes, was verified with the DNA that the	VVM	53	Not applicable		~~Pending~~	Ok

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
approval of participation is valid for the proposed CDM project participant?				~~CAR 1~~	
3. Project design document					
3.1. Is the PDD used as a basis for validation prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website?	VVM	55	Yes. The correct version of the PDD version 01 was used	OK	OK
3.2. Is the PDD in accordance with the applicable CDM requirements for completing the PDD?	VVM	56	Yes. In section A. 1 of the generic CPA-DD , the following are not provided:CPA No.XX “Name of CPA implementer or partner organization” The table provided in section A.3 of the CPA DD to be moved to section A.3 of PoA DD. In its place provide the party responsible for the CPA. Give a provision for name/contact details of the CPA implementer in section A.4.1.2 of the generic CPA DD and update the same info on the current CPA DD. For all dates (indicated as “date”) in the generic CPA DD, revise as XX/XX/20XX.	~~CL 37~~	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			Indicate the number of times the crediting period is renewable in section A.4.3.2 of the generic and current CPA DD. The date and version of the registered PoA in section B.1 of generic CPA DD is missing. Provide this info and update the same in the current CPA DD. The name of the CPA in section A.4.6 of CPA DD is not the same one given in section A.1. Please revised all sections affected by the disparity with the correct name.		

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
3.3. In PoA DD section A.1 are the following provided?	EB 41	Ann 12			
3.3.1. Title of project	EB 41	Ann 12	The title is Southern African Renewable Energy programme – African Rainbow Energy PV CPA	OK	OK
3.3.2. Current version number and date of document	EB 41	Ann 12	Version 01.5 dated 04/9/2012	OK	OK
3.4. In CDM-PDD section A.2 are following provided (max. one page)?	EB 41	Ann 12			
3.4.1. A brief description ot the project activity covering purpose which includes the scenario existing prior to the start or project, present scenario and baseline scenario	EB 41	Ann 12	The scenario existing prior to the start or project,present scenario and baseline scenario have not been clearly stated in the section A.2 of the CDM PDD	~~CL 2.~~	OK
3.4.2. Explanation on how the GHG emission reductions are effected	EB 41	Ann 12	Yes. GHG reductions will be effected through the displacement of grid electricity from predominantly carbon intensive fuels by electricity from renewable sources	OK	OK
3.4.3. The PP's vies on the contribution of project activity to sustainable development	EB 41	Ann 12	It is not clear how the project will contribute to sustainable development according to the PP.	~~CL 3.~~	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
3.4.4. Are there any changes/modifications compared to the webhosted PDD?	EB 41	Ann 12	Yes. Zambia and Zimbabwe have been excluded as host countries in the revised PDD	Ok	OK
3.5. In CDM-PDD section A.3 are following provided in the tabular format?	EB 41	Ann 12			
3.5.1. List of project participants and parties	EB 41	Ann 12	Yes	Ok	OK
3.5.2. Identification of Host Party			Yes	Ok	OK
3.5.3. Indication whethre the Party wishes to be considered as project participant	EB 41	Ann 12	Yes	Ok	OK
3.6. In CDM-PDD section A.4.1 are following provided?	EB 41	Ann 12			
3.6.1. Technical description, location, host party(ies) and address as required	EB 41	Ann 12	Yes	~~CL 4.~~	OK
3.6.2. Detailed physical location with unique identification of the project activity (eg. Longitude/latitude) – not to exceed one page	EB 41	Ann 12	The GPS system has been used to as: 28º 23' 14" S 21º 22' 26" E The physical location not identified in the CPA-DD	~~CL 5.~~	OK
3.6.3. Are there any changes/modifications compared to the webhosted PDD?	EB 41	Ann 12	Yes. Zambia and Zimbabwe have been excluded as host countries in the revised PDD	Ok	Ok

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
3.7. In CDM-PDD section A.4.2 is the list of categoreis of project activities provided?	EB 41	Ann 12	Yes, as follows: a) installation of a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant); b) involves a capacity addition; c) involves a retrofit of (an) existing plant(s); or involves a replacement of (an) existing plant(s). The grid-connected renewable power generation CPA project activity will be developed within the borders of the Countries. A grid-connected renewable power generation CPA may be one technology of either a: • hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), • wind power plant/unit, • geothermal power plant/unit, • solar power plant/unit, • wave power plant/unit; or tidal power plant/unit	OK	OK
3.8. In CDM-PDD section A.4.3 are following provided?	EB 41	Ann 12			
3.8.1. A description of how environmentally safe	EB	Ann	Not described in the PDD	~~CL 6.~~	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
and sound technology, and know-how, is transferred to the Host Party(ies)	41	12			
3.8.2. Explanation of purpose of project activity with scenario existing prior to the start of project, scope or present activities and the baseline scenario	EB 41	Ann 12	This has not been exclusively stated in the PDD	~~CL 7.~~	OK
3.8.3. List and arrangement of the main manufacturing/production technologies, systems and equipments involved	EB 41	Ann 12	a. Different types of photovoltaic „solar" panels that generate electrical power by converting solar radiation into electricity via a panel composed of a number of cells containing a photovoltaic material. The panels are placed in direct sunlight and may be complemented with a battery pack to store electricity for use after dark; b. Solar thermal plants, i.e. concentrated solar thermal, that use solar energy to produce high temperatures in a working fluid which is used to produce electricity usually through a steam turbine; c. Hydro power plants which use the potential energy stored in water	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			reservoirs or the natural course of rivers, to produce electricity d. Wind turbine farms which use wind energy converted via a large wind turbine into electrical energy which is supplied to the grid; e. Geothermal energy plants which use the heat available in subterranean locations to heat a working fluid which is then used to produce electricity usually by way of a steam turbine		

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
3.8.4. The emissions sources and GHGs involved	EB 41	Ann 12	Yes	Ok	Ok
3.8.5. Are there any changes/modifications compared to the webhosted PDD?	EB 41	Ann 12	Yes. Zambia and Zimbabwe have been excluded as host countries in the revised PDD	Ok	OK
3.9. In CDM-PDD section A.4.4 is the estimation of emission reductions provided as requested in a tabular format?	EB 41	Ann 12	Yes. The estimation of emission reductions provided as requested in a tabular form in section A.4.4 of the CDM-PDD	OK	Ok
3.10. In CDM-PDD section A.4.5 is Information regarding Public funding provided?	EB 41	Ann 12	Yes. The proposed PoA will not receive any public funds resulting from official development assistance from Parties included in Annex I to the Convention	OK	OK
3.11. In CDM-PDD section B.1 are following provided?	EB 41	Ann 12			
3.11.1. The approved methodology and version	EB	Ann	Consolidated baseline methodology for grid-	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
number	41	12	connected electricity generation from renewable sources" version 13.0.0 Is provided		
3.11.2. Any methodologies or tools which the above approved methodology draws upon and their version noumber	EB 41	Ann 12	i. Tool for the demonstration and assessment of additionality v.2.1, EB39, Annex10; ii. Tool to calculate the emission factor for an electricity system v2.2.0, EB61, Annex 12 Incorrect version iii. PROGRAMME OF ACTIVITIES DESIGN DOCUMENT FORM (CDM-PoA-DD) - Version 01 CDM – Executive Board page 19 iv. Combined tool to identify the baseline scenario and demonstrate additionality v.3, EB60, Annex7 – Incorrect version v. Tool to calculate project or leakage CO2emissions from fossil fuel combustion, v.2, EB41, Annex 11	~~CAR 3.~~	OK
3.12. In CDM-PDD section B.2 are following provided?	EB 41	Ann 12			
3.12.1. Justification ot the choice of methodology	EB	Ann	Justification of the methodology used and	~~CL 8.~~	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
that the project activity meets each of the applicability conditions	41	12	compliance to applicability conditions was provided in section E.2 of the PoA DD. It is not clear how the applicability conditions for the tools referred were addressed		
3.12.2. Documentations with references that had been used. This can be provided in Annex 3 instead	EB 41	Ann 12	The references used have been documented in form of footnotes in the PDD	OK	OK
3.13. In CDM-PDD section B.3 are following provided?	EB 41	Ann 12			
3.13.1. Description of all sources and gases included in the project boundary in the table	EB 41	Ann 12	This has been provided in section E.3 of the PoA DD	OK	OK
3.13.2. A flow diagram of the project boundary physically delineating the project activity	EB 41	Ann 12	Not provided	~~CAR 4.~~	OK
3.13.3. The flow diagram with all equipments, systems and flows of mass and energy etc	EB 41	Ann 12	Not provided	~~CAR 5.~~	OK
3.14. In CDM-PDD section B.4 are following provided?	EB 41	Ann 12			
3.14.1. Explanation how the most plausible	EB	Ann	The methodology defines the baselines for	Ok	OK

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baseline scenario is identified in accordance with the selected baseline methodology	41	12	various form and scenarios of renewable energy and this was considered in the baseline identification for the current CPA		
3.14.2. Justification of key assumptions and rationales	EB 41	Ann 12	No clear assumptions and justifications have been provided	~~CAR 6.~~	OK
3.14.3. Transparent illustration of all data used to determine the baseline scenario (variables, parameters, data sources, etc.)	EB 41	Ann 12	Not applicable since the baseline of the current CPA was identified in the methodology	OK	OK
3.14.4. A transparent and detailed description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed project activity	EB 41	Ann 12	Yes. The baseline scenario is described in the methodology used	Ok	OK
3.14.5. Are there any changes/modifications compared to the webhosted PDD?	EB 41	Ann 12	The changes made additional information requested in the validation protocol		OK
3.15. In CDM-PDD section B.5 are following provided?	EB 41	Ann 12			
3.15.1. Explanation of how and why this project activity is additional and therefore not the baseline scenario in accordance with the selected baseline methodology	EB 41	Ann 12	Yes	Ok	Ok

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
3.15.2. Justification of key assumptions and rationales	EB 41	Ann 12	Assumptions and rationales and their justification have not been clearly stated	~~CL 9.~~	OK
3.15.3. Transparent illustration of all data used to determine the baseline scenario (variables, parameters, data sources etc)	EB 41	Ann 12	The baseline scenario has been stated in the methodology used.	OK	OK
3.15.4. Evidence that the incentive from the CDM was seriously considered in the decision to proceed with the project activity, if the starting date of the project activity is before the date of validation	EB 41	Ann 12	Not applicable since the start date is after the date of validation i.e. 1st March 2012	OK	OK
3.16. In CDM-PDD section B.6.1 are following provided?	EB 41	Ann 12			
3.16.1. Explanation as to how the procedures, in the approved methodology to calculate project emissions, baseline emissions, leakage emissions and emission reductions are applied to the proposed project activity	EB 41	Ann 12	These has been provided in section E.6 and B.5 of the PoA DD and CPA DD respectively	OK	OK
3.16.2. Equations used in calculating emission redutions	EB 41	Ann 12	These has been provided in section E.6 and B.5 of the PoA DD and CPA DD respectively	OK	OK
3.16.3. Explanation and justification for all relevant methodological choices, including different scenarios or cases, options and default values	EB 41	Ann 12	Yes	Ok	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
3.17. In CDM-PDD section B.6.2 are following provided?	EB 41	Ann 12			
3.17.1. A compilation of information on the data and parameters that are not monitored throughout the crediting period but that are determined only once and thus remains fixed throughout the crediting period AND that are available when validation is undertaken	EB 41	Ann 12	The information was provided in section of the PDD	Ok	Ok
3.17.2. The actual value period	EB 41	Ann 12	Provided	Ok	OK
3.17.3. Explanation and justification for the choice of the source of data	EB 41	Ann 12	Provided	Ok	Ok
3.17.4. Clear and transparent references or additional documentation in Annex 3	EB 41	Ann 12	Yes	OK	OK
3.17.5. Where values have been measured, a description of the measurement methods and procedures (e.g. which standards have been used), indicated the responsible person/entity having undertaken the measurement, the date of measurement(s) and the measurement results	EB 41	Ann 12	Not clear from the PDD	~~CL 10.~~	OK
3.18. In CDM-PDD section B.6.3 are following provided?	EB 41	Ann 12			

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
3.18.1. A transparent *ex ante* calculation of project emissions, baseline emissions (or, where applicable, direct calculation of emission reductions) and leakage emissions expected during the crediting period, applying all relevant equations provided in the approved methodology	EB 41	Ann 12	Yes. All the emissions identified here have been provided as required.	Ok	OK
3.18.2. Documentation how each equation is applied, in a manner that enables the reader to reproduce the calculation	EB 41	Ann 12	Yes. The equations used have been documented	Ok	Ok
3.18.3. Additional background information and or data in Annex 3, including relevant electronic files (i.e. spreadsheets)	EB 41	Ann 12	Yes	~~CAR 7.~~	OK
3.19. In CDM-PDD section B.6.4 are the results of the *ex ante* estimation of emission reductions for all years of the crediting period, provided in a tabular format?	EB 41	Ann 12	The estimates are provided in B.5.3 of the CPA DD	OK	OK
3.20. In CDM-PDD section B.7.1 are following provided?	EB 41	Ann 12			
3.20.1. Specific information on how the data and parameters that need to be monitored would actually be collected during monitoring for the project activity	EB 41	Ann 12	The information has been provided in section B.6.1 of the CPA DD	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
3.20.2. For each parameter the following below information, using the table provided:	EB 41	Ann 12			
a. The source(s) of data that will be actually used for the proposed project activity (e.g. which exact national statistics). Where several sources may be used, explain and justify which data sources should be preferred.	EB 41	Ann 12	The data sources were identified. However, it is not clear which data should be preferred if multiple sources may be used.	~~CL 11.~~	OK
b. Where data or parameters are supposed to be measured, specify the measurement methods and procedures, including a specification which accepted industry standards or national or international standards will be applied, which measurement equipment is used, how the measurement is undertaken, which calibration procedures are applied, what is the accuracy of the measurement method, who is the responsible person/entity that should undertake the measurements and what is the measurement interval; (i) A description of the QA/QC procedures (if any) that should be applied; (ii) Where	EB 41	Ann 12	The information provided in section B.6.1 of the CPA DD adequately covers data measurement methods and equipments including reference to the relevant industry and applicable local relations and practices.		Ok

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
relevant: any further comment. Provide any relevant further background documentation in Annex 4.					
3.21. In CDM-PDD section B.7.2 are following provided?	EB 41	Ann 12			
3.21.1. A detailed description of the monitoring plan	EB 41	Ann 12	This has been provided in section E.7 of the PoA DD	OK	OK
3.21.2. The operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage effects generated by the project activity	EB 41	Ann 12	The CME will implement a monitoring protocol that allows for verification of all CPA as described in section B.6.1 of the PoA DD	OK	OK
3.21.3. The responsibilities for and institutional arrangements for data collection and archiving	EB 41	Ann 12	The CME will be responsible for establishing and maintaining the project database while Upington PV CPA will be responsible for monitoring project parameters and storage of the primary data	Ok	OK
3.21.4. Indication that the monitoring plan reflect good monitoring practice appropriate to the type of project activity	EB 41	Ann 12	It is not clear from the PPs view if the monitoring plan reflect good monitoring practice appropriate for the projects activity type	~~CL 12.~~	OK
3.21.5. Relevant further background information in Annex 4	EB 41	Ann 12	All information have been provided in E.7 of the PDD	OK	OK
3.22. In CDM-PDD section B.8 are following	EB	Ann			

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
provided?	41	12			
3.22.1. Date of completion of the application of the methodology to the project activity study in DD/MM/YYYY	EB 41	Ann 12	Yes	Ok	OK
3.22.2. Contact information of the person(s)/entity(ies) responsible for the application of the baseline and monitoring methodology to the project activity	EB 41	Ann 12	Yes	Ok	Ok
3.22.3. Indication if the person/entity is also a project participant listed in Annex 1	EB 41	Ann 12	Yes	Ok	Ok
3.23. In CDM-PDD section C.1.1 are following provided?	EB 41	Ann 12			
3.23.1. The starting date of a CDM project activity, which is the earliest of the date(s) on which the implementation or construction or real action of a project activity begins/has begun (EB33, Para 76/CDM Glossary of terms/EB41, Para 67)	EB 41	Ann 12	Yes. The start date is 1st March 2012 but its not clear why this date was chosen	~~CL 13.~~	OK
3.23.2. A description of how this start date has been determined, and a description of the evidence available to support this start date	EB 41	Ann 12	Yes. This information was provided but the PP and cross checked during the site visit.	Ok	OK
3.23.3. If this starting date is earlier than the date of publication of the CDM-PDD for global	EB 41	Ann 12	Not applicable	Ok	OK

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stakeholder consultation by a DOE, description in Section B.5 contain a of how the benefits of the CDM were seriously considered prior to the starting date (EB41, Para 68).					
3.24. In CDM-PDD section C.1.2 is the expected operational lifetime of the project activity in years and months provided?	EB 41	Ann 12	The expected lifetime was provided as 28 years	Ok	OK
3.25. In CDM-PDD section C.2 is it stated whether the project activity will use a renewable or a fixed crediting period and is C.2.1 or C.2.2 completed accordingly?	EB 41	Ann 12	CPA will use renewable crediting period as defined in A.4.3.2 of the CPA DD	OK	OK
3.26. In CDM-PDD section C.2.1 is it indicated that each crediting period shall be at most 7 years and may be renewed at most two times, provided that, for each renewal, a designated operational entity determines and informs the Executive Board that the original project baseline is still valid or has been updated taking account of new data where applicable?	EB 41	Ann 12	Yes	Ok	Ok
3.27. In CDM-PDD section C.2.1.1 are dates in the following format: (DD/MM/YYYY) provided?	EB 41	Ann 12	NO	~~CAR 8.~~	OK
3.28. In CDM-PDD section C.2.1.2 is the length of the first crediting period in years and months	EB 41	Ann 12	Yes	OK	OK

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provided?					
3.29. In CDM-PDD section C.2.2 is the fixed crediting period at most ten (10) years provided?	EB 41	Ann 12	Not applicable	-	-
3.30. In CDM-PDD section C.2.2.1are the dates provided in the following format: (DD/MM/YYYY)?	EB 41	Ann 12	Yes	Ok	Ok
3.31. In CDM-PDD section C.2.2.2 is te length of the crediting period in years and months Provided?	EB 41	Ann 12	Years	Ok	Ok
3.32. In CDM-PDD section D.2 are the conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the Host Party, if environmental impacts are considered significant by the project participants or the Host, provided?	EB 41	Ann 12	Yes	Ok	OK
3.33. In CDM-PDD section E.1 are the following provided?	EB 41	Ann 12			
3.33.1. The process by which comments by local stakeholders have been invited and compiled. An invitation for comments by local stakeholders shall be made in an open and transparent manner, in a way that facilities comments to be received from local stakeholders and allows for a reasonable time	EB 41	Ann 12	It's mentioned in the CPA-DD that the stakeholder comments and queries had been invited through direct contact; an advert was placed in the Business Daily on 22nd July 2011 and Engineering Weekly on 30th July 2011 alongside the Ecometrix website Copies of the adverts made were reviewed	Ok	OK

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for comments to be submitted.			during the site visit.		
3.33.2. The project activity is described in a manner, which allows the local stakeholders to understand the project activity, taking into account confidentiality provisions of the CDM modalities and procedures.	EB 41	Ann 12	Yes. The PP has provided a clear description of the project activity for easy understanding by local stakeholders.	Ok	Ok
3.33.3. The local stakeholder process has been completed before submitting the proposed project activity to the DOE for validation.	EB 41	Ann 12	Yes	Ok	OK
3.34. In CDM-PDD section E.2 are following provided?	EB 41	Ann 12			
3.34.1. Identification of local stakeholders that have made comments	EB 41	Ann 12	Yes	Ok	OK
3.34.2. A summary of this comments.	EB 41	Ann 12	Comments were summarized in Table 24 in D.3 of the CPA DD		OK
3.35. In CDM-PDD section E.3 is the explanation of how due account have been taken of comments received from local stakeholders provided?	EB 41	Ann 12	Yes		OK
3.36. In CDM-PDD Annex 1 are the following provided?	EB 41	Ann 12			
3.36.1. Contact information of project participants	EB 41	Ann 12	Yes		Ok
3.36.2. For each organisation listed in section A.3	EB	Ann	Yes. Provided in annex 1		OK

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the following mandatory fields: Organization, Name of contact person, Street, City, Postfix/ZIP, Country, Telephone and Fax or e-mail	41	12			
3.37. In CDM-PDD Annex 2 is information from Parties included in Annex I on sources of public funding for the project activity which shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of those Parties provided?	EB 41	Ann 12	The proposed PoA will not receive any public funds resulting from official development assistance from Parties included in Annex I to the Convention	OK	OK
3.38. In CDM-PDD Annex 3 is the background information used in the application of the baseline methodology provided?	EB 41	Ann 12	NO	~~CAR 9.~~	OK
3.39. In CDM-PDD Annex 4 is the background information used in the application of the monitoring methodology provided?	EB 41	Ann 12	Provided in E.7 of the PDD	Ok	Ok
4. Project description					
4.1. Does the PDD contain a clear description of the project activity that provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its	VVM	58	Yes. The description of the project activity provides a good understanding regarding the nature of the project including the technical asoects of the project.	OK	OK

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implementation?					
4.2. Is the description of the proposed CDM project activity as contained in the PDD:	VVM	59			
4.2.1. sufficiently covering all relevant elements?	VVM	59	All elements of the project description have been covered.	OK	OK
4.2.2. acurate?	VVM	59	Yes.	OK	Ok
4.2.3. providing the reader with a clear understanding of the nature of the proposed CDM project activity?	VVM	59	Yes. The description of the proposed projects is clear.	OK	OK
4.2.4. Are there any changes/modifications compared to the webhosted PDD?	VVM	59	Yes. Zambia and Zimbabwe have been excluded as host countries in the revised PDD		OK
4.3. Is the proposed CDM project activity in existing facilities or utilizing existing equipments?	VVM	60	Yes. The power generated by the proposed projects will be put into the grid hence using the existing equipments.	OK	OK
4.4. Is the CDM project activity one of the following types:	VVM	60			
4.4.1. Large scale?	VVM	60	Yes. The CDM project activity is a large scale programme of activities	OK	OK
4.4.2. Non-bundled small scale projects with emission reductions exceeding 15,000 tonnes per year?	VVM	60	Not applicable	Ok	Ok
4.4.3. Bundled small scale projects, each with emission reductions not exceeding 15,000	VVM	60	Not applicable	OK	OK

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tonnes?					
4.5. If yes to (c) and (d) above, was a physical site inspection conducted to confirm that the description in the PDD reflects the proposed CDM project activity, unless other means are specified in the methodology?	VVM	60	Yes. Physical site inspection was done on 20th October 2011 at Upington site.	Ok	OK
4.6. If yes to (d.iii) above, was the number of physical site visits base on samping?	VVM	60	There is only one site for this CPA	Ok	OK
4.7. If yes is the sampling size appropriately justified through statistical analysis?	VVM	60	Not applicable	-	-
4.8. For other individual proposed small scale CDM project activities with emission reductions not exceeding 15,000 tonnes per year, was a physical site inspection conducted?	VVM	61	Not applicable	-	-
4.9. For all other proposed CDM project activities not referred to in paragraphs 59 – 61, was a physical site inspection conducted?	VVM	62	Yes. The site visit was conducted between 18th and 20th October 2011	Ok	OK
4.10. If no, was it appropriately justified?	VVM	62	Not applicable	-	-
4.11. Does the proposed CDM project activity involve the alteration of an existing installation or process?	VVM	63	Yes. The proposed project activity may involve the alteration of an existing installation or process	OK	OK
4.12. If yes, does the project description clearly state the differences resulting from the project activity	VVM	63	Yes. The change will involve the reduction of GHG emissions due to the use of renewable	OK	Ok

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compared to the pre-project situation?			energy generating sources.		
5. Baseline and monitoring methodology					
5.1. General requirement					
a. Do the the baseline and monitoring methodologies selected by the project participants comply with the methodologies previously approved by the CDM Executive Board?	VVM	65	Yes. The PP has selected *Consolidated baseline methodology for grid-connected electricity generation from renewable sources*" version 12.1.0. which is the latest version approved by the CDM executive board	OK	OK
b. Is the selected methodology applicable to the project activity?	VVM	66	Refer to (5.b.a) below	-	-
c. Had the PP correctly applied the selected methodology?	VVM	66	Refer to (5.b.d) below	-	-
d. Had the selected methodology been correctly applied with respect to project boundary?	VVM	67	Refer to (5.c) below	-	-
e. Had the selected methodology been correctly applied with respect to baseline identification?	VVM	67	Refer to (5.d) below	-	-
f. Had the selected methodology been correctly applied with respect to Algorithms and/or formulae used to determine emission reductions?	VVM	67	Refer to (5.e) below	-	-
g. Had the selected methodology been correctly applied with respect to additionality?	VVM	67	Yes	Ok	OK
5.1.1. Has the additionality of the project activity	ACM	0002	No, The PDD has stated the tool as *Tool for the*	~~CAR 10.~~	OK

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been demonstrated and assessed using the latest version of the "Tool for the demonstration and assessment of additionality" agreed by the Board, which is available on the UNFCCC website?		v.11	*demonstration and assessment of additionality* (version 5.2) which is not the latest version provided by the CDM EB		
h. Had the selected methodology been correctly applied with respect to monitoring methodology?	VVM	67	Refer to (7.g), (7.h), (7.i), (7.j) and (7.k) below		
5.2. Applicability of the selected methodology to the project activity					
i. Is the selected baseline and monitoring methodology, previously approved by the CDM Executive Board, applicable to the project activity? Is the used version valid?	VVM	68	Yes. The proposed project activity uses ACM 002 "*Consolidated baseline methodology for grid-connected electricity generation from renewable sources*" version 13.0.0.	Ok	OK
5.2.1. This methodology is applicable to grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plants); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).	ACM	0002 v.11	Yes. The project activity is a programme for the development of renewable energy projects that will supply energy to the national grid within the country of concern and the methodology selected is applicable and the current version was used. The CPA consists of a system of solar photovoltaic panels of approximately 25MW installed capacity connected to the South African national grid	OK	OK
ii. Has the DOE applied specific guidance provided	VVM	69	Yes. Applicability conditions as provided in	Ok	OK

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by the CDM Executive Board in respect to the applicable approved methodology?			CDM methodology booklet were applied.		
iii. Is the methodology correctly quoted?	VVM	70	Yes. The methodology as quoted in the PDD is correct,	Ok	Ok
iv. Are the applicability conditions of the methodology met?	VVM	71	Yes	Ok	OK
i. The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit	ACM	0002 v.11	The proposed project activity is a combination of the various forms as indicated. However, specific CPA will conform to one of the forms and applicability will be demonstrated at the CPA level. The current CPA involves the installation of solar power plant/unit.	OK	OK
ii. In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition projects which use Option 2: on page 10 to calculate the parameter $EG_{PJ,y}$): the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline	ACM	0002 v.11	Not applicable for the CPA		-

	CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	emission section, and no capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.					
iii.	In case of hydro power plants, one of the following conditions must apply: - The project activity is implemented in an existing reservoir, with no change in the volume of reservoir; or - The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m2; or - The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m2.	ACM	0002 v.11	Not applicable for the CPA		-
iv.	The methodology is not applicable to the following conditions. Please confirm - Project activities that involve switching from	ACM	0002 v.11	Not applicable for the CPA		-

	CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	fossil fuels to renewable energy sources at the site of the project activity - Biomass fired power plants; - Hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m2.					
v.	In the case of retrofits, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, i.e. to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	ACM	0002 v.11	Not applicable for the CPA		-
v.	Is the proeject activity expected to result in emissions other than those allowed by the methodology?	VVM	71	No. the project activity emissions is limited to CO_2 and CH_4 which are allowed by the methodology	OK	OK
vi.	Is the choice of the methodology justified?	VVM	71	Justification for the choice of methodology has been given in section E.2 of the PDD		
vii.	Have the project participants shown that the	VVM	71	Refer to (5.b.d) above	-	-

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	project activity meets each of the applicability conditions or the approved methodology?					
viii.	Have the project participants shown that the project activity meets each of the applicability conditions of any tool or other methodology component referred to the methodology?	VVM	71	How the applicability conditions of the methodology have been met by the CPA has been shown in table 2 of section B.2 of the CPA DD. However, it is not clear how the applicability conditions of the tools referred to by the methodology have been made.	~~CL 14.~~	OK
i.	Are each of the applicability conditions of the "Tool to calculate the emission factor for an electricity system" met?	EB 50	Ann 40	It is not clear how the applicability conditions of the tool referred by the methodology have been made.	~~CL 15.~~	OK
ii.	Are each of the applicability conditions of the "Tool for the demonstration and assessment of additionality" met?	EB 39	Ann 10	It is not clear how the applicability conditions of the tool referred by the methodology have been made.	~~CL 16.~~	OK
iii.	Are each of the applicability conditions of the "Combined tool to identify the baseline scenario and demonstrate additionality" met?	EB 28	Ann 14	It is not clear how the applicability conditions of the tool referred by the methodology have been made.	~~CL 17.~~	OK
iv.	Are each of the applicability conditions of the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" met?	EB 41	Ann 11	It is not clear how the applicability conditions of the tool referred by the methodology have been made.	~~CL 18.~~	OK
ix.	Is the DOE, based on local and sectoral knowledge, aware that comparable information is	VVM	71	Yes. Comparable information is available from other sources such as journals, internet and	Ok	OK

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	available from sources other than that used in the PDD?			research papers.		
x.	If yes, was the PDD cross checked agains the other sources to confirm that the project activity meets the applicability conditions of the methodology? (provide the reference to these choices)	VVM	71	Yes		OK
xi.	Can a determination regarding the applicability of the selected methodology to the proposed CDM project activity be made?	VVM	72	Yes.		ok
xii.	If no, clarification of the methodoloy was requested, in accordance with the guidance provided by the CDM Executive Board?	VVM	72	Not applicable		-
xiii.	If answer to (5.b.d) above is “no”, revision or deviation from the methodology was requested, in accordance with the guidance provided by the CDM Executive Board?	VVM	73	Not applicable		-
xiv.	If yes to (5.b.l) and (5.b.m) above, a request for registration was submited before the CDM Executive Board has approved the proposed deviation or revision?	VVM	74	Not appliacble		-
	5.3. Project boundary					
a.	Does the PDD correctly describe the project	VVM	78	The PoA project boundary will be within 6	~~CL 19.~~	OK

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boundary, including the physical delineation of the proposed CDM project activity included within the project boundary for the purpose of calculating project and baseline emissions for the proposed CDM project activity?			countries in Southern Africa namely Botswana, Lesotho, Mozambique, Namibia, South Africa, and Swaziland. It is however not clear where the CPA will be located within the Republic of South Africa		
5.3.1. Does the extent of the project boundary, as described in the PDD, includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to?	ACM	0002 v11	*Yes*	Ok	Ok
5.3.2. Are the greenhouse gases and emission sources that are included in or excluded from the project boundary shown in a table format as per applicable methodology?	ACM	0002 v 11	The gases and emission sources are shown in section E.3 of the CDM-PoA-DD and section B.4 of the CDM-CPA-DD	OK	OK
b. Is the delineation in the PDD of the project boundary correct and include identification of all locations, processes and equipment including secondary equipment and associated processes such as logistics etc.?	VVM	79	The PoA project boundary will be within 6 countries in Southern Africa namely Botswana, Lesotho, Mozambique, Namibia, South Africa, and Swaziland. It is however not clear where the CPA will be located within the Republic of South Africa. Project processes and equipment including secondary equipment and associated processes such as logistics have not been identified	~~CL 20.~~	OK

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c. Does the delineation in the PDD of the project boundary meet the requirements of the selected baseline?	VVM	79	Yes. The project boundary has been appropriately described and meets the requirements of the selected baseline	Ok	OK
d. Have changes been made to the project boundary in comparison to the webhosted PDD. If yes please comment on the reason for the changes.	VVM	79	No	Ok	Ok
e. Have all sources and GHGs required by the methodology been included within the project boundary?	VVM	79	Yes, they have been included in section E.3 of the PDD and section B.4 of the CPA DD	OK	OK
f. Does the methodology allow project participant to choose whether a source or gas is to be included within the project boundary	VVM	79	No. The methodology states the sources and gases to be included within the projects boundary	OK	OK
g. If yes, have the project participants justified that choice?	VVM	79	Not applicable	-	-
h. If yes, is the justification provided reasonable? (provide reference to the supporting documented evidence provided by the project participants)	VVM	79	Not applicable	-	-
5.4. Baseline identification					
a. Does the PDD identify the baseline for the proposed CDM project activity, defined as the scenario that reasonably represents the anthropogenic emissions by sources of GHGs	VVM	81	The PDD has described the baseline scenarios for the various forms of renewable energy projects. In the current CPA of proposed project,	Ok	OK

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that would occur in the absence of the proposed CDM project activity?			the baseline scenario has been identified as the use of grid electricity ahich is predominantly from fossil fuel fired power generation units.		
b. Has any procedure contained in the methodology to identify the most reasonable baseline scenario, been correctly applied?	VVM	82	Yes	Ok	OK
5.4.1. If the project activity is the install a new grid-connected renewable power plant/unit (greenfield plant), is the baseline scenario identified appropriately in accordance with the ACM0002 ver.11?	ACM	0002 v11	Yes. The baseline scenario would be the use of grid electricity from predominantly fossil fuel fired power generation units with significantly high emissions	Ok	OK
5.4.2. If the project activity is a capacity addition to existing grid-connected renewable power plant/unit, is the baseline scenario identified appropriately in accordance with the ACM0002 ver. 11? And is the point of time at which the generation facility would likely be replaced or retrofitted (DATE Baseline Retrofit) reasonably defined?	ACM	0002 v11	The baseline scenario has been correctly identified as per section E.4 of the PDD. This is however not applicable for the current CPA	OK	OK
5.4.3. If the project activity is the retrofit or replacement of existing grid-connected renewable power plant/unit, is the baseline scenario identified following the step-wise	ACM	0002 v11	The baseline scenario has been correctly identified as per section E.4 of the PDD. This is however not applicable for the current CPA	OK	OK

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procedure in accordance with the ACM0002 ver.11?					
5.4.4. Are the realistic and credible alternative baseline scenarios for power generation appropriately identified following the Step 1 of the "Combined tool to identify the baseline scenario and demonstrate additionality"? (Step 1)	ACM	0002 v11	The baseline scenario has been correctly identified as per section E.4 of the PDD. This is however not applicable for the current CPA	OK	OK
5.4.5. Are the realistic and credible alternative baseline scenarios i.e. P1, P2 and P3 appropriately applied ***Barrier analysis*** following the Step 2 of the "Combined tool to identify the baseline scenario and demonstrate additionality"? (Step 2)	ACM	0002 v11	The baseline scenario has been correctly identified as per section E.4 of the PDD. This is however not applicable for the current CPA	OK	OK
5.4.6. If more than one alternative is remaining after Step 2, is ***Investment analysis*** appropriately applied (apply an Investment Comparison as per step 3 of the "Combined tool to identify the baseline scenario and demonstrate additionality" or a Benchmark Analysis as per step 2b of the "Tool for the demonstration and assessment of additionality")? (Step 3)	ACM	0002 v11	The baseline scenario has been correctly identified as per section E.4 of the PDD. This is however not applicable for the current CPA	OK	OK

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c. Does the selected methodology require use of tools (such as the "Tool for the demonstration and assessment of additionality" and the "Combined tool to identify the baseline scenario and demonstrate additionality") to establish the baseline scenario?	VVM	82	Yes. The methodology requires the use of these tools in case the proposed project activity involves retrofit or replacement of existing grid connected renewable power unit/plant. This is however not applicable for the current CPA.	OK	OK
d. If yes, was the methodology consulted on the application of these tools? (In such cases, the guidance in the methodology shall supersede the tool.)	VVM	82	This will apply at PoA level but not applicable for the current CPA	OK	OK
e. Does the methodology require several alternative scenarios to be considered in the identification of the most reasonable baseline scenario?	VVM	83	Yes.	OK	OK
f. If yes, are all scenarios that are considered by the project participants and are supplementary to those required by the methodology reasonable in the context of the proposed CDM project activity?	VVM	83	Not applicable for the current CPA	-	-
g. Has any reasonable alternative scenario been excluded?	VVM	83	Not applicable for the current CPA	-	-
h. Is the baseline scenario identified reasonably supported by:	VVM	84			
i. Assumptions?	VVM	84	It is not clear if there are any assumptions considered to support the baseline scenario	~~CL 21.~~	OK

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ii. Calculations?	VVM	84	No calculations were provided to support baseline scenario identification	ok	Ok
iii. Rationales?	VVM	84	It is not clear if there are any rationales considered to support the baseline scenario	~~CL 22.~~	OK
i. Are the documents and sources referred to in the PDD correctly quoted and interpreted?	VVM	84	Yes	Ok	Ok
j. Was the information provided in the PDD cross checked with other verifiable and credible sources, such as local expert opinion, if available? (idendify the sources)	VVM	84	Yes.	Ok	Ok
k. Have all applicable CDM requirements been taken into account in the identification of the baseline scenario for the proposed CDM project activity?	VVM	85	The methodology describes the baseline scenario which has been adopted by the proposed CDM project activity	Ok	OK
l. Have all relevatn policies and circumstances been identified and correctly considered in the PDD, in accordance with the guidance by the CDM Executive Board?	VVM	85	It's not clear how relevant policies and circumstances have been identified and correctly considered in the PDD	~~CL 38~~	OK
m. Does the PDD provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM	VVM	86	Yes.	Ok	OK

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project activity?					
5.5. Algorithms and/or formulae used to determine emission reductions					
a. Do the steps taken and equations applied to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected baseline and monitoring?	VVM	89	Yes, hence the equation $ER_y = BE_y - PE_y$		
b. Have the equations and parameters in the PDD been correctly applied with respect those in the select approved methodology?	VVM	90	Equations in the PDD have been correctly applied.	OK	OK
5.5.1. Are the Project emissions appropriately calculated?.	ACM	0002 v.11	Justification for choice of Option B over the preferred option A for the calculation of $COEF_{i,y}$ has not been provided	~~CL 23.~~	OK
5.5.2. Are the Baseline emissions appropriately calculated specifically for (a)greenfield plants or (b) retrofit and replacements or (c) capacity additions?	ACM	0002 v.11	The baseline emissions have been appropriately calculated for the current CPA as shown by the equation (6) in section E.6.2 of the PoA DD	OK	OK
5.5.3. Are the Leakage appropriately calculated?	ACM	0002 v.11	Not applicable since they are not considered	OK	OK
5.5.4. Are the Emission reductions appropriately calculated?	ACM	0002 v.11	Yes		
c. Have project participants prepared as part of the	ACM	0002	Estimate for the emission reductions have been	OK	OK

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CDM-PDD an estimate of likely emission reductions for the proposed crediting period? This estimate should, in principle, employ the same methodology as selected for the calculation of emission reductions. Where the grid emission factor (EFCM,grid,y) is determined ex post during monitoring, project participants may use models or other tools to estimate the emission reductions prior to validation.		v.11	provided in section A.4.4 of the CPA DD		
d. Does the methodology provide for selection between different options for equations or parameters?	VVM	90	Yes	-	OK
e. If yes, has adequate justification been provided (based on the choice of the baseline scenario, context of the proposed CDM project activity and other evidence provided)?	VVM	90	Yes	-	Ok
f. If yes, have correct equations and parameters been used, in accordance with the methodology selected?	VVM	90	Refer to (5.e.b) above	-	-
g. Will data and parameters be monitored throughout the crediting period of the proposed CDM project activity?	VVM	91	Yes. Data and parameters applicable to the proposed project will be monitored throughout the crediting period.	OK	OK
h. If no, and these data and parameters will remain	VVM	91	Not applicable.		

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fixed throughout the crediting period, are all data sources and assumptions:					
i. Appropriate and correct?	VVM	91	Not applicable		
ii. Applicable to the proposed CDM project activity?	VVM	91	Not applicable		
iii. Resulting in a conservative estimate of the emission reductions?	VVM	91	Not applicable		
i. Will data and parameters be monitored on implementation and hence become available only after validation of the project activity?	VVM	91	Yes. However, the EF has been calculated using data available before validation of the project activity.	Ok	OK
j. If yes, are the estimates provided in the PDD for these data and parameters reasonable?	VVM	91	Yes. Based on the data provided and cross checked with other sources, the estimates are reasonable.	OK	OK
6. Additionality of a project activity					
a. Does the PDD describe how a proposed CDM projet activity is additional?	VVM	94	The PDD has described how the proposed CDM activity is additional		
b. Does the CDM-PDD state the latest version of the additionality tool being used?	ACM	0002 v.11	No, The PDD has stated the tool as *Tool for the demonstration and assessment of additionality* (version 5.2) which is not the latest version provided by the CDM EB.	~~CL 24.~~	OK
c. Were the following steps of the tool to assess additionality used:	EB 39	Ann 10			
i. Identification of alternatives to the project	EB	Ann	Yes	Ok	OK

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activity?	39	10			
ii. Investment analysis to determine that the proposed project activity is either: 1) not the most economically or financially attractive, or 2) not economically or financially feasible?	EB 39	Ann 10	Yes	Ok	OK
iii. Barriers analysis?	EB 39	Ann 10	Yes	Ok	OK
iv. Common practice analysis?	EB 39	Ann 10	Yes	Ok	OK
d. In step 1 (i) have all the sub-steps as below been followed?	EB 39	Ann 10			
i. Sub-step 1a: Define alternatives to the project activity	EB 39	Ann 10	This step has been followed and realistic and credible alternatives have been defined as the (alternative 1) CPA undertaken without being registered as a CDM project activity and (alternative 2) continuation of the current situation – the proposed CPA is not developed and power continues to be supplied solely from the existing grid.	Ok	OK
ii. Sub-step 1b: Consistency with mandatory laws and regulations	EB 39	Ann 10	Compliance of the alternatives to the South African mandatory Laws and regulations	~~CL 25.~~	OK

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e. Have the following alternatives been included while defining alternatives as per sub-step 1a?	EB 39	Ann 10			
i. (a) The proposed project activity undertaken without being registered as a CDM project activity;	EB 39	Ann 10	Yes	OK	Ok
ii. (b) Other realistic and credible alternative scenario(s) to the proposed CDM project activity scenario that deliver outputs services or services with comparable quality, properties and application areas, taking into account, where relevant, examples of scenarios identified in the underlying methodology;	EB 39	Ann 10	No, as per the *Tool for the demonstration and assessment of additionality (version 05.2.1)* states that project activities in context of approved consolidated methodology ACM 0002, only need to identify that there is at least one credible and feasible alternative that would be more attractive.	Ok	OK
iii. (c) If applicable, continuation of the current situation (no project activity or other alternatives undertaken).	EB 39	Ann 10	Yes	Ok	OK
f. Has the project participant included the technologies or practices that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity and that have been implemented previously or are currently being introduced in the relevant country/region?	EB 39	Ann 10	Yes, power supply from the existing grid	Ok	OK
g. Has the outcome of Step 1a: Identified realistic	EB	Ann	The outcome of step 1a on the identified realistic	~~CL 26.~~	OK

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and credible alternative scenario(s) to the project activity done correctly? Please briefly mention the outcome.	39	10	and credible alternatives has not been defined		
h. Is the alternative(s) in compliance with all mandatory applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution.?	EB 39	Ann 10	Compliance of the alternatives to the South Africa's mandatory Laws and regulations	OK	OK
i. If an alternative does not comply with all mandatory applicable legislation and regulations, has it been shown that, based on an examination of current practice in the country or region in which the law or regulation applies, those applicable legal or regulatory requirements are systematically not enforced and that noncompliance with those requirements is widespread in the country?	EB 39	Ann 10	Compliance of the alternatives to the South Africa's mandatory Laws and regulations	OK	OK
j. Has the outcome of Step 1b: Identified realistic and credible alternative scenario(s) to the project activity that are in compliance with mandatory legislation and regulations taking into account the enforcement in the region or country and EB decisions on national and/or sectoral policies and	EB 39	Ann 10	The outcome of step 1b has not been defined	~~CL 27.~~	OK

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regulations done correctly? Please state the outcome.					
k. Has PP selected Step 2 (Investment analysis) or Step 3 (Barrier analysis) or both Steps 2 and 3?	EB 39	Ann 10	Investment Analysis has been selected	Ok	OK
l. In step 2, have all the sub-steps as below been followed?	EB 39	Ann 10			
i. Sub-step 2a: Determine appropriate analysis method;	EB 39	Ann 10	Yes	Ok	OK
ii. Sub-step 2b: Option I. Apply simple cost analysis;	EB 39	Ann 10	No	Ok	OK
iii. Sub-step 2b: Option II. Apply investment comparison analysis;	EB 39	Ann 10	No	Ok	OK
iv. Sub-step 2b: Option III. Apply benchmark analysis;	EB 39	Ann 10	Yes, Benchmark analysis 9 (Option III) has been selected	Ok	OK
v. Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III);	EB 39	Ann 10	Yes	Ok	OK
vi. Sub-step 2d: Sensitivity analysis (only applicable to Options II and III).	EB 39	Ann 10	Yes	Ok	OK
m. In sub-step 2a has the determination of appropraite method of analysis done as per the guidance as below?	EB 39	Ann 21	Not Applicable	OK	OK
i. Simple cost analysis if the CDM project activity	EB	Ann	*PP has followed and conformed to the*	~~Pending~~	OK

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and the alternatives identified in Step 1 generate no financial or economic benefits other than CDM related income (Option I).	39	21	*benchmark guidelines*		
ii. Otherwise, use the investment comparison analysis (Option II) or the benchmark analysis (Option III). Specify option used with justification.	EB 39	Ann 10			
n. Has the below guideline followed for sub-step 2b Option I. Apply simple cost analysis? Document the costs associated with the CDM project activity and the alternatives identified in Step1 and demonstrate that there is at least one alternative which is less costly than the project activity.	EB 39	Ann 10	*Not applicable*	OK	OK
o. Has the below guideline followed for sub-step 2b Option II. Apply investment comparison analysis? Identify the financial indicator, such as IRR, NPV, cost benefit ratio, or unit cost of service most suitable for the project type and decision-making context. Please specify	EB 39	Ann 10	*Not Applicable*	OK	OK
p. Has the below guideline followed for Sub-step 2b: Option III. Apply benchmark analysis?	EB 39	Ann 10	*PP has followed and conformed to the benchmark guidelines*	~~Pending~~	OK
i. Identify the financial/economic indicator, such as IRR, most suitable for the project type and	EB 39	Ann 10	PP has correctly identified and calculated Equity IRR as the most suitable for the project type.	~~CAR GJS 07~~	OK

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decision context.			Additionally Project IRR has been calculated but omitted as no benchmark was provided.		
ii. When applying Option II or Option III, the financial/economic analysis shall be based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer. Only in the particular case where the project activity can be implemented by the project participant, the specific financial/economic situation of the company undertaking the project activity can be considered.	EB 39	Ann 10	PP has used parameters that are standard in the market and has provided substantiation of the parameters using public availbal information.	OK	OK
iii. Discount rates and benchmarks shall be derived from: (a) Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data; (b) Estimates of the cost of financing and required return on capital (e.g. commercial lending rates and guarantees	EB 39	Ann 21	PP has based its benchmark analysis on default values for the benchmark provided by EB 62 annex 5 appendix 1 paragraph 8 for South Africa Group 1.	OK	OK

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required for the country and the type of project activity concerned), based on bankers views and private equity investors/funds' required return on comparable projects; (c) A company internal benchmark (weighted average capital cost of the company), only in the particular case referred to above in 2. The project developers shall demonstrate that this benchmark has been consistently used in the past, i.e. that project activities under similar conditions developed by the same company used the same benchmark; (d) Government/official approved benchmark where such benchmarks are used for investment decisions; (e) Any other indicators, if the project participants can demonstrate that the above Options are not applicable and their indicator is appropriately justified. Please specify benchmark and justify.					
q. Has the below guideline followed for Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III)?	EB 39	Ann 10	Yes	Ok	Ok
i. Calculate the suitable financial indicator for the proposed CDM project activity and, in the case	EB 39	Ann 10	Project Proponent had calculated adequately Equity and Project IRR which are suitable	OK	OK

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of Option II above, for the other alternatives. Include all relevant costs (including, for example, the investment cost, the operations and maintenance costs), and revenues (excluding CER revenues, but possibly including inter alia subsidies/fiscal incentives, ODA, etc, where applicable), and, as appropriate, non-market cost and benefits in the case of public investors if this is standard practice for the selection of public investments in the host country.			indicators as revenues are received from the selling of electricity. All revenues and costs anticipated are included conform requirements.		
ii. Present the investment analysis in a transparent manner and provide all the relevant assumptions, preferably in the CDM-PDD, or in separate annexes to the CDM-PDD.	EB 65	Ann 21	The investment analysis has been presented in de CDM-PDD in a transparent manner. Detailed calculations and assumptions have been provided in an Excel model and documentation.	OK	OK
iii. Justify and/or cite assumptions.	EB 65	Ann 21	All assumptions have been justified and sources cited	~~CAR BQA 01~~	OK
iv. In calculating the financial/economic indicator, the project's risks can be included through the cash flow pattern, subject to project-specific expectations and assumptions.	EB 65	Ann 21	Project specific risk has mostly been included through the discount rate with the exception of risks that can be covered through insurance premiums. Insurance costs have been substantiated with a due diligence from insurance broker.	OK	OK

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v. Assumptions and input data for the investment analysis shall not differ across the project activity and its alternatives, unless differences can be well substantiated.	EB 65	Ann 21	The same input data has been used across the project.	OK	OK
vi. Present in the CDM-PDD a clear comparison of the financial indicator for the proposed CDM activity.Please specify details for above.	EB 65	Ann 21	A clear comparison between the Equity IRR and the benchmarks are presented in the CDM-PDD.	OK	OK
r. Has the below guideline followed for Sub-step 2d: Sensitivity analysis (only applicable to Options II and III)? Include a sensitivity analysis that shows whether the conclusion regarding the financial/economic attractiveness is robust to reasonable variations in the critical assumptions.	EB 39	Ann 10	PP has provided an adequate sensitivity analysis which included the deviation of the 4 most influential drivers with +10/-10%. The sensitivity analysis did not result in an Equity IRR higher than the benchmark	OK	OK
s. Has the outcome of Step 2 clearly mentioned with justification?	EB 39	Ann 10	Outcome of step 2 has been clearly mentioned and justified in the CPA-DD	OK	OK
t. In step 3: Barrier analysis have all the sub-steps as below been followed?	EB 39	Ann 10	*Barrier analysis was not performed*	OK	OK
i. Sub-step 3a: Identify barriers that would prevent the implementation of the proposed CDM project activity;	EB 39	Ann 10	*N/A*		-
ii. Sub-step 3 b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the	EB 39	Ann 10	*N/A*		-

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proposed project activity).					
u. Has the below guideline followed for Sub-step 3a: Identify barriers that would prevent the implementation of the proposed CDM project?	EB 39	Ann 10			
i. (a) Investment barriers: For alternatives undertaken and operated by private entities: Similar activities have only been implemented with grants or other non-commercial finance terms. No private capital is available from domestic or international capital markets due to real or perceived risks associated with investment in the country where the proposed CDM project activity is to be implemented, as demonstrated by the credit rating of the country or other country investments reports of reputed origin.	EB 39	Ann 10	*N/A*		-
ii. (b) Technological barriers: Skilled and/or properly trained labour to operate and maintain the technology is not available in the relevant country/region, which leads to an unacceptably high risk of equipment disrepair and malfunctioning or other underperformance; Lack of infrastructure for implementation and	EB 39	Ann 10	N/A		-

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logistics for maintenance of the technology, Risk of technological failure: the process/technology failure risk in the local circumstances is significantly greater than for other technologies that provide services or outputs comparable to those of the proposed CDM project activity, as demonstrated by relevant scientific literature or technology manufacturer information, The particular technology used in the proposed project activity is not available in the relevant region.					
iii. (c) Barriers due to prevailing practice: The project activity is the "first of its kind".	EB 39	Ann 10	N/A		-
iv. (d) Other barriers, preferably specified in the underlying methodology as examples.	EB 39	Ann 10	N/A		-
v. Has the outcome from Step 3a clearly mentioned in PDD?	EB 39	Ann 10	*Barrier analysis was not performed*		OK
w. Has the below guideline followed for Sub-step 3 b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity)?	EB 39	Ann 10	*N/A*		-
i. If the identified barriers also affect other	EB	Ann	*N/A*		-

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alternatives, explain how they are affected less strongly than they affect the proposed CDM project activity. In other words, demonstrate that the identified barriers do not prevent the implementation of at least one of the alternatives. Any alternative that would be prevented by the barriers identified in Sub-step 3a is not a viable alternative, and shall be eliminated from consideration.	39	10			
ii. Provide transparent and documented evidence, and offer conservative interpretations of this documented evidence, as to how it demonstrates the existence and significance of the identified barriers and whether alternatives are prevented by these barriers.	EB 39	Ann 10	*N/A*		-
iii. The type of evidence to be provided should include at least one of the following: (a) Relevant legislation, regulatory information or industry norms; (b) Relevant (sectoral) studies or surveys (e.g. market surveys, technology studies, etc) undertaken by universities, research institutions, industry associations, companies, bilateral/multilateral institutions, etc;	EB 39	Ann 10	*N/A*		-

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(c) Relevant statistical data from national or international statistics; (d) Documentation of relevant market data (e.g. market prices, tariffs, rules); (e) Written documentation of independent expert judgments from industry, educational institutions (e.g. universities, technical schools, training centres), industry associations and others. Please specify.					
x. Has the outcome from Step 3 clearly mentioned in PDD?	EB 39	Ann 10	*N/A*		-
y. In step 4: Common practise analysis have all the sub-steps as below followed?	EB 39	Ann 10			
i. Sub-step 4a: Analyze other activities similar to the proposed project activity;	EB 39	Ann 10	Yes	Ok	OK
ii. Sub-step 4b: Discuss any similar Options that are occurring.	EB 39	Ann 10	Yes	Ok	OK
z. Has the below guideline followed for Sub-step 4a: Analyze other activities similar to the proposed project activity? Provide an analysis of any other activities that are operational and that are similar to the proposed project activity. Other CDM project activities are not to be included in this analysis. Provide documented evidence and,	EB 39	Ann 10	Description of other operational projects were analyzed in section B.3 of the CPA DD	OK	OK

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where relevant, quantitative information. On the basis of that analysis, describe whether and to which extent similar activities have already diffused in the relevant region.					
aa. Has the below guideline followed for Sub-step 4b: Discuss any similar Options that are occurring? If similar activities are identified, then it is necessary to demonstrate why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive or subject to barriers. This can be done by comparing the proposed project activity to the other similar activities, and pointing out and explaining essential distinctions between them that explain why the similar activities enjoyed certain benefits that rendered it financially/economically attractive (e.g., subsidies or other financial flows) and which the proposed project activity cannot use or did not face the barriers to which the proposed project activity is subject. In case similar projects are not accessible, the PDD should include justification about non-accessibility of	EB 39	Ann 10	Description of other operational projects were analyzed in section B.3 of the CPA DD in addition, the distinction between the practices and the proposed projects were satisfactorily explained		Ok

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data/information.					
bb. Has the outcome from Step 4 clearly mentioned in PDD?	EB 39	Ann 10	It has been mentioned in the PDD		OK
cc. Has it been proved that the porject is additional?	EB 39	Ann 10	Yes		OK

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6.1. Prior consideration of the clean development mechanism					
a. Is the project ativity start date prior to the date of publication of the PDD for stakeholder comments?	VVM	98	No, start date has been stated as 12/07/2013 in the CPA-DD which is after publication of the PDD for stakeholder comments (16 Sep 11 - 15 Oct 11)		Ok
b. If yes, were the CDM benefits considered necessary in the decision to undertake the project as a proposed CDM project activity?	VVM	98	Yes.		OK
c. Is the start date of the project activity, reported in the PDD, in accordance with the "Glossary of CDM terms", which states that "The starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins."?	VVM	99	The start date has been defined but the basis has not been defined in the PDD	~~CL 28.~~	OK
d. Does the project activity require construction, retrofit or other modifications?	VVM	99	Yes, the project activity requires construction of a new solar power plant	Ok	OK
e. If yes, is it ensured that the date of commissioning cannot be considered as the project activity start date?	VVM	99	Not demonstrated in the PDD	~~CL 29.~~	OK
f. Is it a new project activity (a project activity with a	VVM	100	It is a new project activity with a start date of	Ok	OK

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start date on or after 02 August 2008) or an existing project activity (a project activity with a start date before 02 August 2008)?			after 02 August 2008		
g. For a new project, for which PDD has not been published for global stakeholder consultation or a new methodology proposed to the CDM Executive Board before the project activity start date, had PPs informed the host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status? (Provide reference to such confirmation from host Party DNA and UNFCCC secretariat).	VVM	101	Not applicable		-
h. For an existing project activity, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, are the following evidences provided:	VVM	102	Not applicable		-
ii. evidence that must indicate that awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project, including, inter alia:	VVM	102	N/A		-
a. minutes and/or notes related to the	VVM	102	N/A		-

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consideration of the decision by the Board of Directors, or equivalent, of the project participant, to undertake the project as a proposed CDM project activity?					
iii. reliable evidence from project participants that must indicate that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation, including, inter alia:	VVM	102	N/A		-
a. contract with consultants for CDM/PDD/methodology services?	VVM	102	N/A		-
b. Emission Reduction Purchase Agreements or other documentation related to the sale of the potential CERs (including correspondence with multilateral financial institutions or carbon funds)?	VVM	102	N/A		-
c. evidence of agreements or negotiations with a DOE for validation services?	VVM	102	N/A		-
d. submission of a new methodology to the CDM Executive Board?	VVM	102	N/A		-
e. publication in newspaper?	VVM	102	N/A		-
f. interviews with DNA?	VVM	102	N/A		-

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g. earlier correspondence on the project with the DNA or the UNFCCC secretariat?	VVM	102	N/A		-
h. Has the chronology of events including time lines been appropriately captured and explained/detailed in the PDD?	VVM	102	The chronology of events and timelines have not been captured in the PDD	~~CAR 11.~~	OK
6.2. Identification of alternatives					
a. Does the approved methodology that is selected by the proposed CDM project activity prescribe the baseline scenario and hence no further analysis is required?	VVM	105	Yes, the Consolidated baseline methodology for grid-connected electricity generation from renewable sources ACM 0002 version 12.1.0 has prescribed the baseline scenario, as electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".	Ok	OK
b. If no, does the PDD identify credible alternatives to the project activity in order to determine the most realistic baseline scenario?	VVM	105	Not applicable		-
c. Does the list of alternatives given in the PDD esure that:	VVM	106			
i. the list of alternatives includes as one of the options that the project activity is	VVM	106	Not applicable		-

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undertaken without being registered as a proposed CDM project activity?					
ii. the list contains all plausible alternatives that the DOE, on the basis of its local and sectoral knowledge, considers to be viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity?	VVM	106	Not applicable		-
iii. the alternatives comply with all applicable and enforced legislation?	VVM	106	Not applicable		-
6.3. Investment analysis					
a. Has investment analysis been used to demonstrate the additionality of the proposed CDM project activity?	VVM	108	Yes.The proposed project activity used the investment analysis to demonstrate the additionality.	OK	OK
b. If yes, does the PDD provide evidence that the proposed CDM project activity would not be:	VVM	108	See Below.	-	-
i. the most economically or financially attractive alternative?	VVM	108	Not Applicable.	-	-
ii. economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs)?	VVM	108	Yes. The PDD and the spreadsheet demonstrate that the project is not attractive without the revenue from the sale of certified emission reductions (CERs).	OK	OK
c. Was this shown by one of the following	VVM	109	See Below.	-	-

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approaches?					
i. The proposed CDM project activity would produce no financial or economic benefits other than CDM-related income. Document the costs associated with the proposed CDM project activity and the alternatives identified and demonstrate that there is at least one alternative which is less costly than the proposed CDM project activity.	VVM	109	Not Applicable.	-	-
ii. The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative.	VVM	109	Not Applicable.	-	-
iii. The financial returns of the proposed CDM project activity would be insufficient to justify the required investment.	VVM	109	Yes.The PP demonstrated in the spreadsheet that the financial returns of the proposed CDM project activity are insufficient to justify the required investiment.	OK	OK
d. Is the period of assessment limited to the proposed crediting period of the CDM project activity?	EB 51	Ann 58	No	OK	OK
e. Does the project IRR and equity IRR calculations reflect the period of expected operation of the underlying project activity (technical lifetime), or -	EB 51	Ann 58	**CAR BQA 01** – According to the Guidelines on the Assessment of Investment Analysis version 5, “The period of assessment should not be	~~CAR BQA 01~~	OK

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if a shorter period is chosen - include the fair value of the project activity assets at the end of the assessment period?			limited to the proposed crediting period of the CDM project activity. Both project IRR and equity IRR calculations shall as a preference reflect the period of expected operation of the underlying project activity (technical lifetime), or if a shorter period is chosen, include the fair value of the project activity assets at the end of the assessment period". Provide evidences to support the period of expected operation used in the investment analysis.		
f. Does the IRR calculation include the cost of major maintenance and/or rehabilitation if these are expected to be incurred during the period of assessment?	EB 51	Ann 58	Yes. The Spreadsheet contains the costs of major maintenance through the 'Opex' tab.	OK	OK
g. Do the project participants justify the appropriateness of the period of assessment in the context of the underlying project activity, without reference to the proposed CDM crediting period?	EB 51	Ann 58	Refer to CAR BQA 01	~~CAR BQA 01~~	OK
h. Does the cash flow in the final year include a fair value of the project activity assets at the end of the assessment period?	EB 51	Ann 58	Refer to CAR BQA 01.	~~CAR BQA 01~~	OK
i. Has the fair value been calculated in accordance	EB	Ann	Refer to CAR BQA 01.	~~CAR~~	OK

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with local accounting regulations where available, or international best practice?	51	58		~~BQA 01~~	
j. Does the fair value calculations include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets?	EB 51	Ann 58	Refer to CAR BQA 01.	~~CAR BQA 01~~	OK
k. Was depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, added back to net profits for the purpose of calculating the financial indicator (e.g. IRR, NPV)?	EB 51	Ann 58	Yes.	OK	OK
l. Has taxation been included as an expense in the IRR/NPV calculation in cases where the benchmark or other comparator is intended for post-tax comparisons?	EB 51	Ann 58	No.	OK	OK
m. Are the input values used in all investment analysis valid and applicable at the time of the investment decision taken by the project participant?	EB 51	Ann 58	**CL BQA 1** – Clarify with evidences the moment of investment decision, in order to guarantee that the input values are the correct ones at this moment in the project chronology.	~~CL BQA 01~~	OK
n. Is the timing of the investment decision consistent and appropriate with the input values?	EB 51	Ann 58	Yes	~~CL BQA 01~~	OK
o. Are all the listed input values been consistently	EB	Ann	Yes.	OK	OK

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applied in all calculations?	51	58			
p. Does the investment analysis reflect the economic decision making context at point of the decision to recomence the project in the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM?	EB 51	Ann 58	Not Applicable.	-	-
q. Have project participants supplied the spreadsheet versions of all investment analysis?	EB 51	Ann 58	**CL BQA 02**- Are there another investment analysis spreadsheet versions? Supply all investment analysis spreadsheet versions.	~~CL BQA 02~~	OK
r. Are all formulas used in this analysis readable and all relevant cells be viewable and unprotected?	EB 51	Ann 58	Yes. All formulas and cells are viewable and could be verified by de DOE.	OK	OK
s. In cases where the project participant does not wish to make such a spreadsheet available to the public has the PP provided an exact read-only or PDF copy for general publication?	EB 51	Ann 58	Not Applicable.	-	-
t. In case the PP wishes to black-out certain elements of the publicly available version, is it justifiable?	EB 51	Ann 58	Not Applicable.	-	-
u. Was the cost of financing expenditures (i.e. loan repayments and interest) included in the	EB 51	Ann 58	No.	OK	OK

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calculation of project IRR?					
v. In the calculation of equity IRR, has only the portion of investment costs which is financed by equity been considered as the net cash outflow?	EB 51	Ann 58	Not Applicable.	-	-
w. Has the portion of the investment costs which is financed by debt been considered a cash outflow in the calcualtion of equity IRR? (this is not allowed)	EB 51	Ann 58	Not Applicable.	-	-
x. Was a pre-tax benchmark be applied?	EB 51	Ann 58	Yes	OK	OK
y. In cases where a post-tax benchmark is applied, is actual interest payable taken into account in the calculation of income tax?	EB 51	Ann 58	PP uses the default expected rate of equity provided by the Guidelines on the assessment of investment analysis v05, EB62 Annex 5 as a benchmark for Equity IRR. No appropriate benchmark was provided for Project IRR	~~CAR GJS 07~~	OK
z. In such situations, was interest calculated according to the prevailing commercial interest rates in the region, preferably by assessing the cost of other debt recently acquired by the project developer and by applying a debt-equity ratio used by the project developer for investments taken in the previous three years?	EB 51	Ann 58	Not Applicable.	-	-
aa. In cases where a benchmark approach is used is	EB	Ann	Yes.	OK	OK

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the applied benchmark appropriate to the type of IRR calculated?	51	58			
bb. Has local commercial lending rates or weighted average costs of capital (WACC) selected as appropriate benchmarks for a project IRR?	EB 51	Ann 58	Yes.	OK	OK
cc. Has required/expected returns on equity selected as appropriate benchmark for an equity IRR?	EB 51	Ann 58	Not applicable.	-	-
dd. In case benchmarks supplied by relevant national authorities selected is it applicable to the project activity and the type of IRR calculation presented?	EB 51	Ann 58	Not Applicable.	-	-
ee. In the cases of projects which could be developed by an entity other than the project participant is the benchmark applied based on publicly available data sources which can be clearly validated?	EB 51	Ann 58	Yes.	OK	OK
ff. Have internal company benchmarks/expected returns (including those used as the expected return on equity in the calculation of a weighted average cost of capital - WACC) been applied in cases where there is only one possible project developer?	EB 51	Ann 58	Not applicable.	-	-
gg. In such cases, have these values been used for	EB	Ann	Not Applicable.	-	-

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similar projects with similar risks, developed by the same company or, if the company is brand new, would have been used for similar projects in the same sector in the country/region?	51	58			
hh. Has a minimum clear evidence of the resolution by the company's Board and/or shareholders been provided to the effect as above?	EB 51	Ann 58	Not applicable.	-	-
ii. Has a thorough assessment of the financial statements of the project developer - including the proposed WACC - to assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects been conduted?	EB 51	Ann 58	Not Applicable.	-	-
jj. Does the risk premiums applied in the determination of required returns on equity reflect the risk profile of the project activity being assessed, established according to national/international accounting principles? (It is not considered reasonable to apply the rate general stock market returns as a risk premium for project activities that face a different risk profile than an investment in such indices.)	EB 51	Ann 58	Risk premium is sources from Guidelines on the assessment of investment analysis v05, EB62 Annex 5	~~CAR GJS 08~~	OK
kk. Has an investment comparison analysis and not	EB	Ann	Not applicable.	-	-

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a benchmark analysis used when the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services?	51	58			
ll. Have variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues been subjected to reasonable variation (positive and negative) and the results of this variation been presented in the PDD and be reproducible in the associated spreadsheets?	EB 51	Ann 58	**CAR BQA 02** – Provide the sensitivity analysis tab or spreadsheet containing the variations and the related results used in the CPA-DD. The DOE could not validate the correctness of the sensitivity analysis.	~~CAR BQA 02~~	OK
mm. Have a corrective action been raised for a variable to be included in the sensitivity analysis which constitute less than 20% and have a material impact on the analysis ?	EB 51	Ann 58	Not applicable.	-	-
nn. Is the range of variations selected is reasonable in the project context?	EB 51	Ann 58	Yes	~~CAR BQA 02~~	OK
oo. Does the variations in the sensitivity analysis at least cover a range of +10% and -10%, unless this is not deemed appropriate in the context of the specific project circumstances?	EB 51	Ann 58	Yes	~~CAR BQA 02~~	OK
pp. In cases where a scenario will result in the project	EB	Ann	Not applicable.	-	-

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activity passing the benchmark or becoming the most financially attractive alternative, is an assessment done of the probability of the occurrence of this scenario in comparison to the likelihood of the assumptions in the presented investment analysis, taking into consideration correlations between the variables as well as the specific socio-economic and policy context of the project activity?	51	58			
qq. Was the plant load factor defined ex-ante in the CDM-PDD according to one of the following options:	EB 48	Ann 11	See Below.	-	-
i. The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval?	EB 48	Ann 11	**CAR BQA 03** – Explain how was determined the plant load factor.	~~CAR BQA 03~~	OK
ii. The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)?	EB 48	Ann 11	Refer to CAR BQA 03.	~~CAR BQA 03~~	OK
rr. Was a thorough assessment of all parameters and assumptions used in calculating the relevant financial indicator, and determine the accuracy	VVM	111	All input parameters, assumption and calculations were reviewed. This has resulted in several corrective action requests	~~CAR GJS 09, CAR GJS 05,~~	OK

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and suitability of these parameters using the available evidence and expertise in relevant accounting practices conducted?				~~CAR BQA 04~~	
ss. Were the parameters cross-checked agains third-party or publicly available sources, such as invoices or price indices?	VVM	111	**CAR BQA 04 –** Present all evidences to support the followings input values. Make sure that all information and evidences are based on the relevant information available at the time of the investment decision and not information available at an earlier or later point. Provide the dates of each evidence: -Inflation Rate: 6.00%; -Inflation Rate (tariff): 3.00%; -Corporate Rate: 28.00%; -EUR/Rand: 9.5; -Pre-operative 2011: Rand 10,000,000; -Pre-operative 2012: Rand 6,000,000; -Land Purchase: Rand 4,000,000; -Development Premium: 10%; -DSRA (Zar) 23,853,536; -Comission Project Financing: Rand 7,126,156; -Hectares (Ha): 98; -Ha/MWp: 3.911;	~~CAR BQA 04~~	OK

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			-Equity: 20%; -Sub Senior Debt: 10%; -Senior Debt %: 70%; -Commission: 1.50%; -Tenor (years): 15 ; -Interest during construction: 5.5%; -Interest (from 1 to 5 yr): 5.5%; -Interest (from 6 to 10 yr): 5.5%; -Interest (from 11 to 15 yr): 5.5%; -Interest (margin): 4.0%; -Months interest during construction: 4; -Energy Price (Zar/Mwh): 0.00 -Refit I (Zar/Kwh): 0.65 -Refit II (Zar/Kwh): 0.52 -Refit I (Zar/Mwh): 650.00 -Refit II (Zar/Mwh): 520.00 -% Energy Price paid in same year: 100% -% Conto Energy paid in same year: 100% -% Opex paid in same year: 100% -Investment in Euro per MWp installed: 2,500,00 -Investment in Zar per MWp installed: 23,750,000 -Maint. Costs on Invest. in Zar for MWp: 0.90%; -Insurance Costs on Invest. in Zar FOR MWp:		

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			0.50%; -Land Letting with contingency (Zar/ha/year): 2.00%; -South Africa EPC Discount: 0%; -Refit II Discount: 20%; -Tenor:10; -Interest (from 1 to 5 yr: 5.5%; -Interest (from 6 to 10 yr): 5.5%; -Interest (from 11 to 15 yr): 5.5%; -Spread: 7%; -Maintenance Costs Refit I: Rand 5,343,750; - Administrative and Staff Costs: Rand 1,140,000 ; -Land Registry Tax: 0%; -Contingency: 10.0%; -B Unlevered: 1.00; -Interest free risk:1.50%; -Interest market risk: 4.00%; -Kd: 2,80%;		

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tt. Were feasibility reports, public announcements and annual financial reports related to the proposed CDM project activity and the project participants reviewed?	VVM	111	Refer to CAR BQA 04.	~~CAR BQA 04~~	OK
uu. Was the correctnes of computations carried out and documented by the project participants assessed?	VVM	111	Refer to CAR BQA 04.	~~CAR BQA 04~~	OK
vv. Was the sensitivity analysis by the project participants to determine under what conditions variations in the result would occur, and the likelihood of these conditions assessed?	VVM	111	Refer to CAR BQA 02.	~~CAR BQA 02~~	OK
ww. Is the type of benchmark applied is suitable for the type of financial indicator presented?	VVM	112	Yes.	OK	OK
xx. Do any risk premiums applied determining the benchmark reflect the risks associated with the project type or activity?	VVM	112	Yes.	OK	OK
yy. To determine this, was it assessed whether it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark by:	VVM	112	See Below.	-	-
i. assessing previous investment decisions by the project participants involved?	VVM	112	Not Applicable.	-	-

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ii. determining whether the same benchmark has been applied?	VVM	112	Not Applicable.	-	-
iii. determining if there are verifiable circumstances that have led to a change in the benchmark?	VVM	112	Not Applicable.	-	-
zz. Did the project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed CDM project activities?	VVM	113	**CL BQA 03** - Did the project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed CDM project activities?	~~CL BQA 03~~	OK
xx. If yes:	VVM	113	See Below.	-	-
i. has the FSR been the basis of the decision to proceed with the investment in the project, i.e. that the period of time between the finalization of the FSR and the investment decision is sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed?	VVM	113	Refer to CL BQA 03.	~~CL BQA 03~~	OK
ii. Are the values used in the PDD and associated annexes fully consistent with the FSR?	VVM	113	Refer to CL BQA 03.	~~CL BQA 03~~	OK
iii. If not, was the appropriateness of the	VVM	113	Refer to CL BQA 03.	~~CL BQA~~	OK

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values validated?				~~03~~	
iv. On the basis of its specific local and sectoral expertise, is confirmation provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision?	VVM	113	Refer to CL BQA 03.	~~CL BQA 03~~	OK
6.4. Barrier analysis					
a. Has barrier analysis been used to demonstrated the additionality of the proposed CDM project activity?	VVM	115	No	ok	OK
b. If yes, does the PDD demonstrate that the proposed CDM project activity faces barriers that:	VVM	115	N/A	-	-
i. prevent the implementation of this type of proposed CMD project activity?	VVM	115	N/A	-	-
ii. do not prevent the implementation of at least one of the alternatives?	VVM	115	N/A	-	-
c. Are there any issues that have a clear direct impact on the financial returns of the project activity, other than: risk related barriers, for example risk of technical failure, that could have negative effects on the financial performance; or barriers related to the unavailability of sources of	VVM	116	N/A	-	-

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finance for the project activity? {If yes, these issues cannot be considered barriers and shall be assessed by investment analysis. [Refer to (6.c) above]}					
d. Were the barriers determined as real by:	VVM	117	N/A	-	-
i. asssing the available evidence and/or undertaking interviews with relevant individuals (including members of industry associations, government officials or local experts if necessary) to determine whether the barriers listed in the PDD exist?	VVM	117	N/A	-	-
ii. ensuring that existence of barriers is substantiated by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics?	VVM	117	N/A	-	-
iii. Is existence of a barrier substantiated only by the opinions of the project participants? (If yes, this barrier cannot be considered as adequately substantiated)	VVM	117	N/A	-	-
e. Were the barriers determined as preventing the implementation of the project activity but not the implementation of at least one of the possible	VVM	117	N/A	-	-

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alternatives by applying local and sectoral expertise to judge whether a barrier or set of barriers would prevent the implementation of the proposed CDM project activity and would not equally prevent implementation of *at least one of* the possible alternatives, in particular the identified baseline scenario?					
6.5. Common practice analysis					
a. Is this a proposed large-scale, or first-of-its kind small-scale project activity?	VVM	119	Yes, This is a proposed large scale project activity	Ok	
b. If yes, was common practice analysis carried out as a credibility check of the other available evidence used by the project participants to demonstrate additionality?	VVM	119	Common practice analysis was used as a credibility check to demonstrate additionality.	Ok	
c. Was it assessed whether the geograpphical scope (e.g. defined region) of the common practice analysis is appropriate for the assessment of common practice related to the project activity's technology or industry type? (For certain technologis the relevatn region for assessment will be local and for others it may be transnational/global.	VVM	120	No	~~CL 30.~~	OK
d. Was a region other than the entire host country	VVM	120	A region/location within South Africa has been	~~CL 31.~~	OK

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chosen?			chosen for the first CPA, as GPS coordinates : 28º 23' 14" S 21º 22' 26" E The name, physical and geographical location not provided in the CPA-DD		
e. If yes, was the explanation why this region is more appropriate assessed?	VVM	120	The choice of the region/location above has not been explained in the PDD	~~CAR 12.~~	OK
f. Using official sources and local and industry expertise, was it determined to what extent similar and operational projects (e.g., using similar technology or practice), other than CDM project activities, have been undertaken in the defined region?	VVM	120	Yes	Ok	Ok
g. Are similar and operational projects, other than CDM project activities, already "widely observed and commonly carried out" in the defined region?	VVM	120	No. Although other projects using similar technology was observed, the magnitude is small compared to the proposed projects since the operational projects are not connected to the grid		OK
h. If yes, was it assessed whether there are essential distinctions between the proposed CDM project activity and the other similar activities?	VVM	120	No essential distinctions have been made between the proposed CDM project activity and the other similar activities.	~~CAR 13.~~	OK

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7. Monotoring plan					
a. Does the PDD include a monitoring plan?	VVM	122	Yes. The monitoring plan has been included in section A.4.4.1 of the PDD and section B.6.1 of the CPA DD.	OK	OK
b. Is this monitoring plan based on the approved monitoring methodology applied to the proposed CDM project activity?	VVM	122	Yes. The monitoring plan based on the approved monitoring methodology	OK	OK
c. Were the list of parameters required by the the selected methodology identified?	VVM	123	Yes. The parameters were identified in section B.6.1 of the CPA DD	OK	OK
d. Does the monitoring plan contains all necessary parameters?	VVM	123	All parameters were identified	OK	OK
e. Are the parameters clearly described?	VVM	123	Yes		OK
f. Does the means of monitoring described in the plan comply with the requirements of the methodology?	VVM	123	Yes		OK
g. Are all data and parameters monitored as per monitoring methodology?	ACM	0002 v.11	Yes	OK	OK
h. Are all data collected as part of monitoring archived electronically and kept at least for 2 years after the end of the last crediting period?	ACM	0002 v.11	It is not clear how the monitoring data will be archived.	~~CL 32.~~	OK
i. Are 100% of the data monitored, if not indicated otherwise?	ACM	0002 v.11	Yes.	OK	OK
j. Are measurements conducted with calibrated	ACM	0002	No. Reference to manufacturer calibration circle	~~CAR 14.~~	OK

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measurement equipment according to relevant industry standards?		v.11	has been made by the PP and not the industry standards		
k. Are the monitoring provisions in the tools referred to in the methodology correctly applied?	ACM	0002 v.11	Yes	Ok	OK
l. Are the monitoring arrangements described in the monitoring plan feasible within the project design?	VVM	123	Yes	OK	OK
m. Are the following means of implementation of the monitoring plan sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified:	VVM	123			
i. data management procedures?	VVM	123	The data management arrangements are adequate	Ok	OK
ii. quality assurance procedures?	VVM	123	It is not clear if an independent audit of project monitoring data will be done.	~~CL 33.~~	OK
iii. quality control procedures?	VVM	123	It is not clear if the calibration frequency of the measuring equipments will be limited to manufacturer requirements	CL 39	OK
8. Sustainable development					
a. Does the CDM project activity assists Parties not included in Annex I to the Convention in	VVM	125	Yes. This was confirmed by LoA issued by the DNA of parties involved	~~Pending CAR 1~~	Ok

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achieving sustainable development?					
b. Does the letter of approval by the DNA of the host Party confirm the contribution of the proposed CDM project activity to the sustainable development of the host Party?	VVM	126	Yes	~~Pending CAR 1~~	Ok
9. Local stakeholder consultation					
a. Were local stakeholders (public, including individuals, groups or communities affected, of likely to be affected, by the proposed CDM project activity or actions leading to the implementation of such an activity) invited by the PPs to comment on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC website?	VVM	128	The Local stakeholder consultation is done on a CPA level to ensure that the stakeholders within the region that are actually affected by the project activity are adequately informed and consulted It's mentioned in the CPA-DD that the stakeholder comments and queries had been invited through direct contact; an advert was placed in the Business Daily on 22nd July 2011 and Engineering Weekly on 30th July 2011 alongside the Ecometrix website. However these have not been provided	~~CL 34.~~	OK
b. Have comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity been invited?	VVM	129	One comment has been summarized in the CPA-DD		OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
c. Is the summary of the comments received as provided in the PDD complete?	VVM	129	The summary of the comment and response has been provided in the PDD	Ok	Ok
d. Have the project participants taken due account of any comments received and described this process in the PDD?	VVM	129	Yes		OK
10. Environmental impacts					
a. Have the project participants submitted documentation on the analysis of the environmental impacts of the project activity?	VVM	131	No, it has been mentioned in the PDD that a full scoping phase and report has been carried out by Savannah Environmental (Pty) Ltd. The EIA phase of the project is currently underway. The EIA report not provided	~~CL 35.~~	OK
b. Have the project participants undertaken an analysis of environmental impacts?	VVM	132	An analysis of the environmental impacts have been provided in the CPA-DD, however the EIR not provided	~~CL 36.~~	OK
c. Does the host Party require an environmental impact assessment?	VVM	132	As per the PoA-DD, The environmental impacts analysis or environmental analysis as required by the host country will be done at a CPA level	Ok	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			Yes (For the first CPA in South Africa,) The South Africa's National Environmental Management Act, 1998 (Act 107 of 1998) ("NEMA") Environmental Impact Assessment (EIA) Regulations 2010 in terms of the Government Notice No. R 545		
d. If yes, have the project participants undertaken an environmental impact assessment?	VVM	132	Yes		OK

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
Letter of approval has not been provided for all countries participating in the PoA	CAR 1	LoAs have been provided for the following countries: Botswana Lesotho Mozambique Namibia South Africa Swaziland	CAR 1 closed out after submission of LoAs. OK

Project participants are not listed in tabular form in section A.3 of the PDD as per guidelines for completing CDM-SSC-PDD version 5, The presentation of PPs in the tabular form is ok however; the table needs to be moved to section A.3 of the PoA DD. In section A.3 of the CPA DD, state who is responsible for the CPA (CPA implementer) and state whether the implementer is a project participant of the PoA. In addition, indicate in this section the CME.	CAR 2	In section A.3 of the CPA-DD the entity/individual responsible for the CPA is listed in tabular form. Section A.3 of the PoA-DD as well as section A.3 of the CPA-DD has been updated in terms of entities responsible for the PoA (CME), the CPA (CPA implementer), and project participants. The name of the CME has been changed to 'K2011/117952/07 (Pty) Ltd (South Africa) trading as African Sustainability Initiative' (please see certificate document K2011_117952_07 Pty Ltd).	Closed out.
Incorrect versions of tools referred to by the methodology have been used	CAR 3	Both the PoA-DD and CPA-DD have been updated with reference to the versions of tools referred to.	The project documents were checked and the correct versions of the tools and guidelines had been used, CAR 3 is closed out.
Flow diagram of the project boundary physically delineating the project activity are not provided	CAR 4	A flow diagram of the project boundary has been included in section B.4 of the CPA-DD.	The flow diagram was reviewed and found sufficient. CAR is closed out
The flow diagram with all equipments, systems and flows of mass and energy are not provided	CAR 5	A flow diagram of the project boundary has been included in section B.4 of the CPA-DD.	The flow diagram was reviewed and found sufficient. CAR 5 is closed out.

No clear assumptions and justifications have been provided. In the statement "FCI,J,y (L) is estimated to be 54.6L per year. This is based on the fact that a 3kW diesel generator will be used as a backup power source – for this reason it is assumed that the generator will run for 1 hour per week per year (156kWh at 0.35L/kWh) for maintenance purposes[37]" in section B.5.2 of CPA DD, the basis of using 1 hr/week/year is not clear	CAR 6	The CPA-DD and PoA-DD have been updated to include all assumptions and justifications thereof. Section B.5.2 of the CPA-DD has been updated to include a reason as to why the generator will be run 1 hr/week/year for maintenance purposes.	Revised section are adequate, CAR 6 is closed out.
Additional background information and or data in Annex 3, including relevant electronic files (i.e. spreadsheets) are not provided. Annex 3 of the PoA DD refers to section B.4 which does not exist. However, additional background information has been provided in annex 3 of the CPA DD.	CAR 7	Additional background information including relevant electronic files has been provided to the DOE during the site visit. Annex 3 of the PoA-DD has been updated to refer to section E.4 in the PoA-DD.	Revised section are adequate, CAR 7 is closed out.
In CDM-PDD section C.2. the dates are not in the following format: (DD/MM/YYYY)	CAR 8	Both the PoA-DD and CPA-DD have been updated with regards to date format.	The corrections on the dates were found adequate. OK
In CDM-PDD Annex 3 the background information used in the application of the baseline methodology are not provided	CAR 9	Additional background information including relevant electronic files has been provided to the DOE during the site visit.	Background information was provided in annex 3 of the CPA DD. CAR 9 is closed out.

No, The PDD has stated the tool as *Tool for the demonstration and assessment of additionality* (version 5.2) which is not the latest version provided by the CDM EB	CAR 10	The CPA-DD has been updated with reference to the demonstration of additionality of the project activity using the latest version of the *Tool for the demonstration and assessment of additionality.* During the wait for CARs and CLs, a new version of the *Tool for the demonstration and assessment of additionality (*v06.0.0) was released (EB 65). The PoA-DD, CPA-DD and generic CPA-DD have been updated to reflect changes in the tool. Specifically – changes to the common practice analysis. Further, a new version of ACM0002 *Consolidated baseline methodology for grid-connected electricity generation from renewable sources* (v12.3.0) was released (EB66). The PoA-DD, CPA-DD and generic CPA-DD have been updated to reflect changes in the methodology. Further, a new version of the *Combined tool to identify the baseline scenario and demonstrate additionality* (v.04.0.0) was released (EB66). The documents have been updated where necessary. Continued on next page…	The updated PDDs reflect the latest version of tool for the demonstration and assessment of additionality.

		At EB67 a further revised version of ACM0002 was released (v13.0.0). Specific changes include: • Updates to the PoA-DD and CPA-DD based on the new section in ACM0002 v13.0.0 entitled 'Project activity under a programme of activities' which contains details of specifically describing eligibility criteria, emission reduction calculations, and monitoring provisions for each type of CPA that may potentially be included in the PoA. • An update to the PoA-DD and CPA-DD under 'project emissions' due to the added detail of fossil fuel used for back up power not needing to be calculated under the parameter "Fossil Fuel Combustion (PEFF,y)". Therefore project emissions now equal zero and the emission reduction calculations have been updated in the CPA-DD and in the spreadsheet: '3005 - Confidential–ARE-PV CPA financial model and ER calc', on the 'CER calc' tab. Continued on next page…	

		The PoA-DD and CPA-DD have also been updated to include reference to the Standard for additionality, eligibility criteria and application of multiple methodologies for PoAs v1 EB65 (see document reference: “4004- Standard for additionality eligibility criteria etc for PoA v1 EB65”. And also been updated to include reference to a CME Procedures Document.	
The chronology of events and timelines have not been captured in the PDD	CAR 11	The CPA-DD has been updated with reference to prior consideration (chronology of events including timelines) of the CDM.	The updated reference has been reviewed.
The choice of the region/location above has not been explained in the PDD	CAR 12	The common practice analysis in section B.3 of the CPA-DD has been updated with reference to the appropriateness of the geographical scope chosen for analysis. Section B.4 has also been updated with reference to the geographical boundary.	The appropriateness of the location for the current CPA has been appropriately explained.
No essential distinctions have been made between the proposed CDM project activity and the other similar activities.	CAR 13	Section B.3 of the CPA-DD has been updated to include details and distinctions between the proposed project activity and other similar activities.	Distinctions between the proposed CDM project activity and the other similar activities have been appropriately provided in section B.3 of the CPA DD.

Reference to manufacturer calibration circle has been made by the PP and not the industry standards	CAR 14	Section B.6.1 of the CPA-DD has been updated to include details on measurement methods related to metering of net electricity generation supplied by the project including details of how the calibration cycle stipulated by the manufacturer will be observed and made sure to be in line with the South African Grid Code – Metering Code, as described.	The reviewed calibration requirements in section B.6.1 of the CPA DD was found adequate. CAR 14 is closed out.
Clarify contact information for African Rainbow Energy (Pty) Limited.	CL 1	Section A.3 and Annex 1 of the CPA-DD has been updated to include latest contact information for African Rainbow Energy (Pty) Ltd.	The contacts have been reviewed. OK
It is not clear how the project will contribute to sustainable development according to the PP. The information provided on how the project will contribute to sustainable development is generic and needs to be expounded.	CL 3	Section A.2 of the CPA-DD has been updated to include reasons how the project will contribute to sustainable development. Section A.2 of the CPA-DD has been updated to show further how the project will contribute to sustainable development.	The updated sections were reviewed and are adequate. CL 3 is closed out.
The scenario existing prior to the start or project, present scenario and baseline scenario have not been clearly stated in the section A.2 of the CDM PDD	CL 2	Section A.2 of the CPA-DD has been updated to clearly state the current scenario existing prior to the project activity and the baseline scenario.	The updated sections of the CPA DD reflecting the before and after scenario including the baseline scenario was reviewed and found adequate.

Only the host parties are provided in the PoA-DD in section A.4.1. of the PDD Contact details of the entity/individual responsible for the CPA has not been provided	CL 4	Section A.4.1.2 of the CPA-DD has been updated to include details of the host party as well as details of the physical location of the CPA as required. Section A.4.1.2 of the CPA-DD has been updated to include the contact details of the CPA implementing entity.	The updated sections were reviewed and are adequate. CL 4 is closed out.
The physical location for the CPA(Name) not identified in the CPA-DD	CL 5	Section A.4.1.2 of the CPA-DD has been updated to include details of the host party as well as details of the physical location of the CPA as required.	The updated section of the CPA DD was reviewed and found adequate. CL 5 is closed out.
Description of how environmentally safe and sound technology, and know-how, is transferred to the Host Party(ies) is not provided In section A.2 of the CPA DD, it is not clear who is (are) to be trained. In addition, the statement "which the lack of commercial projects in place suggests has not taken place" is not clear.	CL 6	Section A.4.3 of the PoA-DD has been updated to include details of how technology and know-how will be transferred to the Host Party(ies) during the program. Section A.2 has been updated to describe specifically for the CPA how technology and know-how will be transferred to the Host Party. Section A.2 of the CPA-DD has been updated to provide clear details on who is/are to be trained as well as remove the lack of clarity related to the mentioned statement.	OK

Explanation of purpose of project activity with scenario existing prior to the start of project, scope or present activities and the baseline scenario has not been exclusively stated	CL 7	Section A.4.3 of the PoA-DD has been updated to include details of the current scenario, the most likely baseline scenario (to be specifically determined within each CPA) and the purpose of the PoA. The CPA-DD has also been updated to clearly state the current scenario existing prior to the project activity and the baseline scenario.	The updated section of the CPA DD was reviewed and found adequate.
It is not clear how the applicability conditions for the tools referred were addressed	CL 8	Section B.2 of the CPA-DD has been updated to include how applicability conditions for the tools have been addressed.	The PP has demonstrated in section B.2 of the CPA DD how each applicability condition of each too used has been met.
Assumptions and rationales and their justification have not been clearly stated	CL 9	The CPA-DD has been updated to clearly state all assumptions, rationales and their justification. Section B.5.2 of the CPA-DD has been updated with reference to CAR6 hence stating all assumptions, rationales and their justification.	Closed out after assumptions and rationales and their justification were provided

Where values have been measured, a description of the measurement methods and procedures (e.g. which standards have been used), indicated the responsible person/entity having undertaken the measurement, the date of measurement(s) and the measurement results are not provided	CL 10	Section B.6.1 of the CPA-DD has been updated to include details on measurement methods related to metering of net electricity generation supplied by the project including details of how the calibration cycle stipulated by the manufacturer will be observed and made sure to be in line with the South African Grid Code – Metering Code, as described.	The updated information was reviewed and found adequate
The data sources were identified. However, it is not clear which data should be preferred if multiple sources may be used.	CL 11	The PoA-DD provides data preferences if multiple sources are potentially to be used.	The indicated data sources preference was reviewed and found adequate.
It is not clear from the PPs view if the monitoring plan reflect good monitoring practice appropriate for the projects activity type	CL 12	The CPA-DD monitoring plan has been updated to reflect best practice in line with all regulations and the methodology.	The updated information was reviewed and found adequate

The start date is 1st March 2012 but it's not clear why this date was chosen	CL 13	Section A.4.2.1 has been updated to include reasons on why the start date was chosen. The start date has been changed to 20/08/2012. The start date is still the date of submission of a bid response to the Renewable Energy Independent Power Producer (REIPP) Procurement Programme in South Africa but this project will be applying for the 3rd round and the closing date for this round is 20/08/2012 (www.ipp-renewables.co.za). The start date has been updated to 12/07/2013 in line with an update to the timelines of the Renewable Energy Independent Power Producer (REIPP) Procurement Programme in South Africa for the 3rd round submissions. See ref document "IPP Renewables Update to Project Timetable" and also www.ipp-renewables.co.za.	Justification for the chosen start date has been provided in section A.4.2.1 of the CPA DD.
It is not clear how the applicability conditions of the tools referred to by the methodology have been made.	CL 14-18	Section B.2 of the CPA-DD has been updated to include how applicability conditions for the tools have been addressed.	The PP has demonstrated how applicability conditions for the tools referred have been.

It is however not clear where the CPA will be located within the Republic of South Africa	CL 19	Section A.4.1.2 of the CPA-DD has been updated to clearly show the location of the project activity within South Africa.	The location of the CPA in the Republic of south Africa has been clearly indicated in section A.4.1.2 of the CPA-DD.
Project processes and equipment including secondary equipment and associated processes such as logistics have not been identified	CL 20	Section B.4 has been updated to include a flow diagram including project processes and equipment included in the project boundary.	The flowchart was reviewed and it identifies project processes and equipments as required.
It is not clear if there are any assumptions considered to support the baseline scenario	CL 21-22	The CPA-DD has been updated to clearly state all assumptions, rationales and their justification.	The methodology used gives the baseline scenario and the explanation provided is adequate.
Justification for choice of Option B over the preferred option A for the calculation of has not been provided. Kindly support your argument that “the necessary data required for option A (the weighted average mass fraction of carbon in fuel type i in year y (tC/mass unit of fuel) and the weighted average density of fuel type i in year y (mass unit/volume unit of fuel) is not readily available”.	CL 23	Section B.5.2 of the CPA-DD has been updated to include justification for choice of option B over option A for the calculation of $COEF_{i,y}$. Section B.5.2 and all CER calculations have been updated to make use of option A.	Closed out after review of corrections made.

The PDD has stated the tool as *Tool for the demonstration and assessment of additionality* (version 5.2) which is not the latest version provided by the CDM EB.	CL 24	The CPA-DD has been updated with reference to the demonstration of additionality of the project activity using the latest version of the *Tool for the demonstration and assessment of additionality.*	The updated PDDs reflects the latest version of tool for the demonstration and assessment of additionality.
The outcome of step 1a on the identified realistic and credible alternatives has not been defined	CL 26	Section B.3 of the CPA-DD has been updated to include the outcome of step 1 on the identified and realistic and credible alternatives.	The outcome of step 1a are either the CPA is undertaken without being registered as a CDM project activity (i.e. a CPA within a PoA) or Continuation of the current situation – the proposed CPA is not developed and power continues to be supplied solely from the existing grid.
Compliance of the alternatives to the South African mandatory Laws and regulations	CL25	During site visit DOE concluded that no clarification necessary.	All alternatives were in compliance with the existing South Africa's laws and regulation.
The start date has been defined but the basis has not been defined in the PDD	CL 28	Section A.4.2.1 has been updated to include reasons on why the start date was chosen.	Justification for the chosen start date has been provided in section A.4.2.1 of the CPA DD

The outcome of step 1b has not been defined	CL 27	Section B.3 of the CPA-DD has been updated to include the outcome of step 1 on the identified and realistic and credible alternatives.	The outcome of Sub-step 1b is the identified realistic and credible alternative scenarios to the project activity that are in compliance with mandatory legislation and regulations
It is not clear how the PP has ensured that the date of commissioning cannot be considered as the project activity start date	CL 29	Section A.4.2.1 has been updated to include reasons on why the start date was chosen.	Justification for the chosen start date has been provided in section A.4.2.1 of the CPA DD
It is not clear if it was assessed whether the geographical scope (e.g. defined region) of the common practice analysis is appropriate for the assessment of common practice related to the project activity's technology or industry type	CL 30	Section B.3 has been updated with reference to the geographical scope of the common practice analysis. And assessed by the DOE site visit.	The scope was assessed and found appropriate
The name, physical and geographical location not provided in the CPA-DD	CL 31	Section A.4.1.2 of the CPA-DD has been updated to clearly show the location of the project activity within South Africa.	The updated section of the CPA DD was reviewed and found adequate.
It is not clear how the monitoring data will be archived.	CL 32	Section B.6.1 of the CPA-DD has been updated to include details on how the archiving of data will occur.	The updated section was reviewed and found adequate.

It is not clear if an independent audit of project monitoring data will be done.	CL 33	Section B.6.1 of the CPA-DD has been updated to include detail on the data quality control within the monitoring plan.	The information provided on data management and quality control was reviewed and found adequate
It's mentioned in the CPA-DD that the stakeholder comments and queries had been invited through direct contact; an advert was placed in the Business Daily on 22nd July 2011 and Engineering Weekly on 30th July 2011 alongside the Ecometrix website. However these have not been provided	CL 34	Adverts and website justification have been provided during the site visit.	The adverts in both the newspapers were reviewed during the site visit held on 18th and 19th October 2011

It has been mentioned in the PDD that a full scoping phase and report has been carried out by Savannah Environmental (Pty) Ltd. The EIA phase of the project is currently underway. The EIA report not provided Kindly provided reference to give assurance that Savannah Environmental (Pty) Ltd is recognised by environmental authority (eg NEMA) to perform EIA within the republic of South Africa.	CL 35	Section C of the CPA-DD has been updated to include details of the environmental impacts as provided in the final EIA report (PV Facility near Upington FEIR (Main Report) Nov11), which has also been provided. The Record of Decision (RoD) (African Rainbow Energy PV Env Authorisation Mar12) has also been provided. Savannah Environmental (Pty) Ltd is a South African registered private company. It is a specialist environmental consulting company providing environmental management services to public and private sector clients. Companies do not require licenses to provide EIA services in South Africa. The Department of Environmental Affairs has issued a Record of Decision (RoD) to African Rainbow Energy (reference: 2006-African Rainbow Energy PV Env Authorisation Mar12). This RoD states that the department has accepted the EIA report. This then provides assurance that Savannah Environmental (Pty) Ltd is recognized by the environmental authority (Department of Environmental Affairs) to perform EIAs in South Africa.	The final EIA report was reviewed and found OK.

An analysis of the environmental impacts have been provided in the CPA-DD, however the EIA not provided	CL 36	Section C of the CPA-DD has been updated to include details of the environmental impacts as provided in the final EIA report, (*PV Facility near Upington FEIR (Main Report) Nov11*) which has also been provided. The Record of Decision (RoD) (*African Rainbow Energy PV Env Authorisation Mar12*) has also been provided.	The reviewed section was found adequate, CL 36 is closed out.

In section A. 1 of the generic CPA-DD , the following are not provided:CPA No.XX “Name of CPA implementer or partner organization” The table provided in section A.3 of the CPA DD to be moved to section A.3 of PoA DD. In its place provide the party responsible for the CPA. Give a provision for name/contact details of the CPA implementer in section A.4.1.2 of the generic CPA DD and update the same info on the current CPA DD. For all dates (indicated as “date”) in the generic CPA DD, revise as XX/XX/20XX. Indicate the number of times the crediting period is renewable in section A.4.3.2 of the generic and current CPA DD. The date and version of the registered PoA in section B.1 of generic CPA DD is missing. Provide this info and update the same in the current CPA DD. The name of the CPA in section A.4.6 of CPA DD is not the same one given in section A.1. Please revised all sections affected by the disparity with the correct name.	CL 37	The CPA-DD Generic and the CPA-DD have been updated to take into account each of these points described in CL37.	Corrections were reviewed and are adequate, CL 37 is cosed out.

Its not clear how relevant policies and circumstances have been identified and correctly considered in the PDD	CL 38	Section A.2 has been updated in order to provide details on the consideration of relevant policies and circumstances.	Revised section is adequate, CL 38 is closed out
It is not clear if the calibration frequency of the measuring equipments will be limited to manufacturer requirements	CL 39	The 'description of measurement methods and procedures to be applied' of parameter $\mathbf{EG_{facility,y}}$ has been updated to provide the fact that the calibration cycle of the manufacturer will be observed and made sure to be in line with the described metering code i.e. that which is more frequent will be observed.	Revised section is adequate, CL 39 is closed out
It is not clear at what point the electricity meters be installed	CL 40	Section B.6.1 of the CPA-DD has been updated to state that the metering equipment will be installed as part of the project commissioning process. The installing of metering equipment for the CPA is vital as this is a project in which electricity will be sold back to the grid and payment will be based on amounts measured by this metering equipment. The billing meter will be used to monitor electricity produced and supplied to the grid. This will be installed at the connection point to the grid.	Revised section is adequate, CL 40 is closed out

The PDDs do not indicate the frequency of monitoring for all the parameters identified for monitoring as per methodology	CAR 15	Section B.6.1 of the CPA-DD contains details of all parameters to be monitored. Each parameter is within a separate table and the frequency of monitoring for each parameter is described within each table (see 'Description of measurement methods and procedures to be applied'). Section E.7 in the PoA-DD provides an entire list of all parameters for all types of renewable energy projects that may have to be monitored potentially within this PoA. It is only in the CPA-DD that CPA-specific parameters are described and monitoring frequencies provided.	Revised section is adequate, CAR 15 is closed out

The name of the CME in the revised PDDs is K2011/117952/07 (Pty) Ltd compared to Ecometrix Africa in the previous PDDs. It is not clear why the changes were made. Similarly, there is a missing link between ASI and the registration certificate provided for K2011/117952/07 (Pty) Ltd as CME In addition, the certificate of registration for the new CME indicates the name as K2011/117952/07 (Pty) Ltd (South Africa) which is different as that provided in the PDDs. Indicate exact name. The first CPA implementer is African Rainbow Energy (Pty) Ltd. It is not clear whether this is same as Africa Rainbow Solar (proprietary) Limited as per certificate provided. Kindly provide relevant pages for agreements between the first CPA implementer and the CME	CL 41	The name of the CME has been changed to 'K2011/117952/07 (Pty) Ltd (South Africa) trading as African Sustainability Initiative' (please see certificate document "2001 - K2011_117952_07 Pty Ltd"). K2011/117952/07 (Pty) Ltd (South Africa) trading as African Sustainability Initiative is a subsidiary of EcoMetrix Africa and is a registered South African company and has been set up specifically to be the CME and thus separate itself from EcoMetrix Africa and the day to day activities and business of EcoMetrix Africa. MedEnergy is the owner of 3 SPV's and the documents pertaining to African Rainbow Solar (Pty) Ltd are the incorrect documents. The registration certificate African Rainbow Energy (Pty) Ltd has been provided (see document "3003 - CM 27A-2009"). African Rainbow Energy has contracted EcoMetrix Africa as a carbon consultant to register its 25MW solar project as a CPA within the SARE programme. African Rainbow Energy and K2011/117952/07 (Pty) Ltd (South Africa) trading as African Sustainability Initiative do not have a contract currently but are in the process of drafting a contract but this requires that the participation criteria have been approved by the DOE.	OK

In reference 47 and 48 provided, clarify whether you refer to calculation tool for direct emissions from stationary combustions ver 3.0 of July 2005 (the value of diesel fuel specific gravity is 0.89 Kg/L(not 0.84 as provided)	CL 42	At EB67 a further revised version of ACM0002 was released (v13.0.0). Specific changes include an update to the PoA-DD and CPA-DD under 'project emissions' due to the added detail of fossil fuel used for back up power not needing to be calculated under the parameter "Fossil Fuel Combustion (PEFF,y)". This means that project emissions are now equal to zero and the CPA-DD has been updated with the updated emission reduction calculations. Therefore, references previously provided as numbers 47 and 48 in the CPA-DD are no longer relevant. Previously, references 47 and 48 referred to the GHG Protocol compilation of emission factors from cross sector tools (see reference document: "1047 - Emission Factors from Cross-Sector Tools". Within the stationary combustion tab of that document, cell G15, fuel density is stated at 0.84kg/L.	Revised section is adequate, CL 42 is closed out

Reference for values “Notes 18, 19 &20” on spread sheet provided could not be verified. Please provide more info (eg page numbers). The figure used for note 20 is however conservative using other sources. The basis of panel efficiency of 99% is not clear.	CL 43	In the spreadsheet ‘Confidential–ARE-PV CPA financial model and ER calc’: Note 18 refers to the increase factor for T0 technology. The value of 27% has been used in assumptions made for the mono-axis trackers from ERCAM (Spanish manufactures) that are used in the 25MW plant La Sugarella in Italy - the same that will be used by in this CPA. The panels installed on the tracker are able to “follow” the sun, increasing their daily performance by approximately 27% (see reference document: ‘3007 - 1 Axis HI 3_5 meter gain’. The column entitled “1 Axis HI 3.5 Gain” provides an average T0 factor of 1,27 i.e. 127% i.e. 27% above the “Horizontal Gh (Wh/m2/day)”. This is calculated on the difference between the horizontal irradiation received by normal panels (“Horizontal - Gh (Wh/m2/day)”) and the column entitled “1 Axis HI 3.5 Gain - Gi (Wh/m2/day)” which provides the irradiation received by the tracking panels. Continued on next page….	Revised section is adequate, CL 43 is closed out

		The numbers in column “1 Axis Hl 3.5 Gain - Gi (Wh/m2/day)” provide the irradiation received by the tracking panels. They come from the document ‘3008 - 27%Gain - Ergain by ERCAM’. Ergain is a program developed by ERCAM to calculate irradiation of different PV panels. The numbers in column “Horizontal - Gh (Wh/m2/day)”also come from reference document ‘3008 - 27%Gain - Ergain by ERCAM’. These numbers in column “Horizontal - Gh (Wh/m2/day)” are almost identical to those in reference document; ‘1061 – PV GIS Upington’ (note 20 in ‘3005 - Confidential-ARE-PV CPA financial model and ER calc’ - this shows that Ergain is very accurate. Please see reference: ‘3009 - I I produccion 1 axis us fix 30º’ for assumptions used in Ergain model. Two of the assumptions made: • 245 Wp panels of size: 0.992 X 1.650. See ref: ‘2008 - RECSOLAR PANELS.pdf’ • Hypothetical Pr of 0.769. See ‘1061 – PV GIS Upington’: combined PV system losses: 23.1% (i.e.100-23.1 = 76.9%) Continued on next page…	

		Note 19: refers to the document 'Rec solar.pdf' as a reference to panel loss of efficiency per year. On page 2 of the document under the heading 'Warranty' it states details of a 10 year product warranty, a 25 year linear power output warranty and maximum degression in performance of 0.7% p.a. To be conservative in the financial model, 0.8% has been used. Note 20 refers to the document 'PV-GIS Upington.pdf' in terms of the irradiation used in the financial model. In this PDF document (which is a screen shot of the output from PV-GIS) you will see a table providing monthly values for E_d, E_m, H_d, and H_m. At the bottom of the table you will see a 'Yearly Average' for each of these parameters and you will see a 'Total for the Year'. The number 2210 is the irradiation per square meter. If you go to "http://re.jrc.ec.europa.eu/pvgis/apps3/pvest.php?map=africa" you can explore the PV-GIS website tool. Continued on next page…	

		Panel efficiency (found on the Production tab in the financial spreadsheet) begins at 99% and decreases annually. The reference document '2018-RECsolar_warranty_material_WEB_060911.pdf ' provides detail of each module delivering 97% effective output in year 1 of operation. The use of 99% from year 1 is a conservative assumption for the efficiency of the PV panels - if a lower efficiency value is used, it would generate less energy per Rand of capital expenditure and therefore the financial model would indicate a lower return. This conservative assumption has also previously been used in the 25MW plant La Sugarella in Italy. **Updated 04/09/2012:**Cell H 38 on the assumptions tab of the reference document: "Confidential-ARE-PV CPA financial model and ER calc" refers to "Interest (margin)". The original comment to this cell contained a typo. It stated "note 34" instead of the correct comment which is "note 41". Note 41 contains the name of the correct reference document to the "Interest (margin)". CAR BQA 04 has been updated in the document "FINAL SARE Investment analysis validation" to reflect this change. Further typos have been found in the CPA-DD. In section B.3 of the CPA-DD, in footnote 30, the inflation rate is incorrectly referred to as 5.3% instead of 6% as per the reference. Based on this typing error, the benchmark (nominal rate) from the "Guidelines on the assessment of investment analysis" was on certain occasions incorrectly referred to as 16.2% instead of 16.9%. Also due to this original typing error, the nominal NERSA stipulated rate was on occasions written as 22.3% instead of the correct 23%. latest dataset (and the gas turbine data), have been made available, the grid emission factor should be recalculated. The grid emission factor essentially still looks	
		exactly as previously completed, except for the fact that the dataset now comprises 2010, 2011, 2012 data, and the data for the	

Provide spread sheet for SA GEF calculations	CL 44	The spreadsheet (see document reference: 1048 - South African GEF Tool - Upington PV – 20120202) containing details of the grid emission factor calculations has been provided. Eskom, the state utility company, has recently released previously unavailable data relating to fuel consumption and electricity generation at the gas turbine power plants in South Africa that form part of Eskom's fleet of power stations. Furthermore, Eskom have released data for their 2011/2012 financial year and thus, this most recent dataset for 2012 should be included in calculating the grid emission factor. Using this latest dataset, it can be seen that the gas turbines generate less than one percent of total electricity generation, but due to the fact that this latest dataset (and the gas turbine data), have been made available, the grid emission factor should be recalculated. The grid emission factor essentially still looks exactly as previously completed, except for the fact that the dataset now comprises 2010, 2011, 2012 data, and the data for the following gas turbine power stations is now included: Ankerlig, Gourikwa, Acacia, Port Rex. As part of this recalculation we have also made sure that the latest data available (IPCC 2006 guidelines) has been used for calorific values and emissions factors for the input fuels at all power stations.The resulting changes in the grid emission factor mean that the CER calculations have had to be updated. The document "Confidential-ARE-PV CPA financial model and ER calc") is provided.	SA GEF calculations provided, CL 44 is closed out

The POA explains that 'The Project Activity/CPAs will fall under one of the following Project Types: A grid-connected renewable power generation CPA may be one technology of either a: • hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), • wind power plant/unit, • geothermal power plant/unit, • solar power plant/unit (either photovoltaic or concentrated solar thermal), • wave power plant/unit; or • tidal power plant/unit. Since all the projects will only utilise ACM 0002 and no other methodology, it is not clear if the capacity of all projects will be above 15MWe.If the capacities are below this threshold, will the CPA still apply the same methodology ? Please clarify.	CL 45	ACM0002 "*Consolidated baseline methodology for grid-connected electricity generation from renewable sources*" version 13.0.0 is the only methodology included in this PoA and applied by a CPA, no matter what the capacity of the CPA.	Closed out based on the explanation provided

The measurement and verification of all the required parameters have been explained in detail both in the POA VR as well as the CPA VR. However, the POA DD mentions about *Other Tools to be used:* *Parameters from the "Tool to calculate project or leakage CO_2emissions from fossil fuel combustion"* *1 It is not clear why these parameters need monitoring. Is it for captive consumption?* *2 Besides, it not clear which parameters will be measured/monitored for each type of project ?* *3 For eg: in the case of hydro plants Emissions from water reservoirs of hydro power plants:* What is the need to measure TEG_y which is the gross electricity generated by the plant, while only net electricity should be considered for emission reductions? 4 In the CPA1, will there be no need for captive generation, say the use of small capacity DG SET?	CL 46	1.In section E.6.2, for project emissions the PoA-DD states (in line with the methodology) that for most of the renewable power generation CPA project activities, PE_y = 0. However, some CPA project activities may involve project emissions that could be significant. For any CPA that makes use of fossil fuels (e.g. as part of the electricity generation process particularly in geothermal and in solar concentrated solar thermal technologies), these shall be accounted for using equation 1. In equation 1, one of the parameters is project emissions from fossil fuel consumption in year *y* ($PE_{ff,y}$). The methodology states that this parameter shall be calculated as per the "Tool to calculate project or leakage CO_2emissions from fossil fuel combustion". The parameters required to calculated $PE_{ff,y}$ must be monitored as preferred sources of the data as per the tool are values provided by the fuel supplier in the invoice. Seeing as these values may change during the course of the project they are required to be monitored. 2.Section E.6.3 and section E.7 have been updated to make it clear which parameters must be reported/monitored for each type of project. 3.As per the methodology, for hydro power CPA project activities that result in new reservoirs and hydro power CPA project activities that result in the increase of existing reservoirs, project developers shall account for CH_4 and CO_2 emissions from the reservoir. TEG_y is calculated as part of equation 3 when/if the power density of the CPA project activity (PD) is greater than 4 W/m^2 and less than or equal to 10 W/m^2: 4.There may be use for a diesel generator in the CPA1 but only for back up or emergency use. The methodology (v13) states specifically that the use of fossil fuels for back up or emergency purposes (e.g. diesel generators) can be neglected.	Closed out on the basis of the explanations provided.