



POA VALIDATION REPORT

“SOLAR ENERGY PROGRAMME FOR SOUTH AFRICA” IN SOUTH AFRICA

REPORT No. 2012-9466

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DET NORSKE VERITAS



POA VALIDATION REPORT

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Client: Sishen Ore Company (Pty) Ltd	Client ref.: Harmke Immink

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Summary:

Title of PoA: Solar Energy Programme for South Africa

Country: South Africa

Methodology: ACM0002

Version: 13.0.0

GHG reducing Measure/Technology: Grid connected CSP power generation facilities

ER estimate of PoA: 750 000 tCO₂e per year (average)

Size

☒ Large Scale

☐ Small Scale

Validation Phases:

☒ Desk Review

☒ Follow up interviews

☒ Resolution of outstanding issues

Validation Status

☐ Corrective Actions Requested

☐ Clarifications Requested

☒ Approval and submission for registration

☐ Rejected

In summary, it is DNV's opinion that the programme of activity "Solar Energy Programme for South Africa" in South Africa, as described in the PoA-DD, version 09 of 22 November 2012, meets all relevant UNFCCC requirements for the CDM and correctly applies the baseline and monitoring methodology ACM0002, version 13.0.0. Hence DNV requests the registration of the PoA as a CDM project activity.

Report No.: 2012-9466	Subject Group: Environment
Report title: "Solar Energy Programme for South Africa" in South Africa	
Work carried out by: Nicola Barbirato, Giovanni Tenderini	
Work verified by: Weidong Yang	
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<i>Table of Content</i>	<i>Page</i>
1 EXECUTIVE SUMMARY – VALIDATION OPINION	1
2 INTRODUCTION	3
2.1 Objective	3
2.2 Scope	3
3 METHODOLOGY	4
3.1 Document review	4
3.1.1 Documentation provided by the project participants	4
3.1.2 Letters of approval	5
3.1.3 Methodologies, tools and other guidance by the CDM Executive Board	5
3.2 Follow-up actions	6
3.3 Closing out of validation findings	8
3.4 Internal quality control	11
3.5 Validation team	11
4 VALIDATION FINDINGS	12
4.1 Comments by Parties, stakeholders and NGOs	12
4.2 Approval, authorization and contribution to sustainable development	12
4.3 Modalities of communications	12
4.4 PoA design and description of each generic CPA	12
4.5 Demonstration of additionality for PoA	13
4.6 Demonstration of additionality of each generic CPA	13
4.7 Eligibility criteria for including CPAs to the PoA	19
4.8 Application of methodologies	21
4.9 Management system of the PoA	22
4.10 Environmental impacts	23
4.11 Local stakeholder consultation	23
4.12 Application of selected baseline and monitoring methodology(ies) by each generic CPA	23
4.13 Project boundary of each generic CPA	27
4.14 Baseline scenario identification and description for each generic CPA	28
4.15 Algorithms and/or formulae used to determine emission reductions of each generic CPA	29
4.16 Monitoring plan	33
Appendix A PoA and generic CPA validation protocol	
Appendix B Protocol for assessing compliance of specific CPA with PoA requirements	
Appendix C Curricula vitae of the validation team members	



Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CPA-DD	CDM component project activity design document
CH ₄	Methane
CL	Clarification request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CPA	Component project activity
CSP	Concetrated Solar Power
DNA	Designated National Authority
DNV	Det Norske Veritas
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of approval
N ₂ O	Nitrous oxide
NGO	Non-governmental Organisation
MoC	Modalities of communication
ODA	Official Development Assistance
PLF	Plant Load Factor
PoA	Programme of activities
PoA-DD	CDM programme of activities design document
PS	Clean Development Mechanism Project Standard
tCO ₂ e	Tonnes of CO ₂ equivalents
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Clean Development Mechanism Validation and Verification Standard



1 EXECUTIVE SUMMARY – VALIDATION OPINION

DNV Climate Change Services AS (DNV) has performed a validation of the programme of activity (PoA) “Solar Energy Programme for South Africa” in South Africa including generic information relevant to all component project activities (CPAs) to be included in this PoA. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

The host Party is South Africa and no Annex I Party has yet been identified. The host Party fulfils the participation criteria and has approved the PoA and authorized the project participant Carbon Protocol of SA. The DNA from South Africa confirmed that the project assists in achieving sustainable development.

The PoA correctly applies the baseline and monitoring methodology ACM0002, version 13.0.0 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.

The goal of this PoA is to develop grid connected CSP power generation facilities in South Africa. The electricity will be sold to the organ of state designated by the Minister of Energy, which is likely to be Eskom, the national electricity utility in order to decrease power shortage, diversify the local grid and reduce greenhouse gas emissions. As a result, the PoA results in reductions of CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the PoA and typical component project activities (CPAs) are not a likely baseline scenario. Emission reductions attributable to the PoA are hence additional to any that would occur in the absence of the project activity.

The total emission reductions of all CPAs expected to be included to the PoA are estimated to be on the average 750 000 tCO_{2e} per year. This amount is based on an estimation that 6 CPAs, each of them with a 10 years crediting period and an average emission reduction of 350 000 tCO_{2e} per year, will be included under this PoA.

The monitoring plan provides for the monitoring of the PoA’s emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the PoA design and it is DNV’s opinion that the project participants are able to implement the monitoring plan.



PoA VALIDATION REPORT

In summary, it is DNV's opinion that the PoA "Solar Energy Programme for South Africa" in South Africa, as described in the PoA-DD, version 09 dated 22 November 2012 meets all relevant UNFCCC requirements for the CDM and correctly applies the baseline and monitoring methodology ACM0002, version 13.0.0. Hence, DNV requests the registration of the PoA as a CDM programme of activity.

Venice and Oslo, 1 February 2013

Giovanni Tenderini
Validator
DNV Venice, Italy

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Director of Services and Technologies
DNV Climate Change Services AS



2 INTRODUCTION

Sishen Ore Company (Pty) Ltd has commissioned DNV Climate Change Services AS (DNV) to perform a validation of the proposed CDM Programme of Activities (PoA) “Solar Energy Programme for South Africa” in South Africa (hereafter called “project”). Sishen Ore Company (Pty) Ltd signed with Carbon Protocol of South Africa Npc (the project participant) and Promethium Carbon Ltd an operational agreement which is authorizing Sishen Ore Company (Pty) Ltd to contract the DOE on behalf of the CME for the validation of the proposed PoA /10/.

This report summarises the findings of the validation of the PoA including generic information relevant to all component project activities (CPAs) to be included in this PoA, performed on the basis of UNFCCC criteria for CDM PoAs, 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 modalities and procedures and the subsequent decisions by the CDM Executive Board.

2.1 Objective

The purpose of a validation is to have an independent third party assess the PoA design document (PoA-DD) including the description of the generic component project activity (CPA) with generic information relevant to all CPAs to be included in this PoA. In particular, the eligibility criteria for inclusion and demonstration of additionality of CPAs, the programme's baseline determination, monitoring plan, and the programme's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the programme design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM PoAs and is seen as necessary to provide assurance to stakeholders of the quality of the programme and its intended generation of certified emission reductions (CERs).

2.2 Scope

The validation scope is defined as an independent and objective review of the PoA-DD including the description of the generic component project activity (CPA) with generic information relevant to all CPAs to be included in this PoA. The PoA-DD was reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities /21/ and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology ACM0002 (version 13.0.0).

The validation of the programme has also considered the completed CPA-DD for the CPA with the title “Solar Energy Programme for South Africa CPA 1” submitted together with the PoA-DD

The validation was carried out in accordance with the principles and the requirements for validation contained in the Validation and Verification Standard /18/.

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



3 METHODOLOGY

The validation consisted of the following three phases:

- I document review
- II follow-up actions (e.g. on-site visit and telephone or email interviews)
- III the closing out of validation findings and the issuance of the final validation report and opinion

The following sections outline each step in more detail.

3.1 Document review

The following tables list the documentation that was reviewed during the validation.

3.1.1 Documentation provided by the project participants

- /1/ Promethium Carbon Ltd: *CDM-PoA-DD for project activity "Solar Energy Programme for South Africa" in South Africa*, Version 01 dated 11 April 2012 and version 09 dated 22 November 2012
- /2/ Promethium Carbon Ltd: *CDM-CPA-DD for CPA titled "Solar Energy Programme for South Africa CPA 1"*, Version 01 dated 11 April 2012 and version 07 dated 30 November 2012
- /3/ Promethium Carbon Ltd: *ER calculation sheet*, dated 30 November 2012
- /4/ Promethium Carbon Ltd: *Grid emission factor calculation sheet*, dated 22 November 2012
- /5/ WSP: *Draft Scoping Report for the Kalahari Solar Power Project*, September 2010
- /6/ Department of Environmental Affairs of South Africa: *Acceptance of the final scoping report*, dated 22 February 2011
- /7/ Department of Environmental Affairs of South Africa: *Environmental Authorization*, dated 3 November 2011
- /8/ WSP: *Kalahari Solar Power Project - Environmental and Social Impact Assessment Report*, dated June 2012
- /9/ Siemens to Kathu Solar Park Ltd: *Technical proposal for Kathu CSP 1 – 100 MW_(net)*, dated 20 January 2012
- /10/ Sishen Ore Company (Pty) Ltd and Carbon Protocol of South Africa Npc and Promethium Carbon Ltd: *Operational Agreement*, dated 21 June 2012
- /11/ Yolanda Viviers (Notary Public) to Sishen Ore Company (Pty) Ltd: *Notarial deed of lease*, dated 28 September 2011
- /12/ Carbon Protocol of SA: *Undertaking by the Carbon Protocol of SA on the Solar Energy Programme for South Africa*, dated 16 August 2012
- /13/ Carbon Protocol of SA: *Coordinating/Managing Entity (CME) Manual for the Programme of Activities (PoA): Solar Energy Programme for South Africa*, dated 12 September 2012
- /14/ Carbon Protocol of SA: *Modalities of Communication Statement*, version 02.1, dated 7 August 2012
- /15/ Carbon Protocol of SA: *Email with the MoC*, dated 19 October 2012



/16/ Carbon Protocol of SA: *Resolution passed by the Directors on 18 September 2012 at 09h00 at 17 Marion Street, Sandown Ext24, Gauteng*

3.1.2 Letters of approval

/17/ Department of Energy (DNA of South Africa): *Letter of approval dated 20 September 2012*

3.1.3 Methodologies, tools and other guidance by the CDM Executive Board

/18/ CDM Executive Board: *Clean Development Mechanism Validation and Verification Standard*, version 02.0, dated 25 November 2011

/19/ CDM Executive Board: *Clean Development Mechanism Project Standard*, version 01.0, dated 25 November 2011

/20/ CDM Executive Board: *Clean Development Mechanism Project Cycle Procedure*, version 01.0, dated 2 March 2012

/21/ CDM Executive Board: *Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities*, version 01.1, dated 25 November 2011

/22/ CDM Executive Board: *Baseline and monitoring methodology ACM0002*, version 13.0.0, dated 11 May 2012

/23/ CDM Executive Board: *Tool for the demonstration and assessment of additionality*, version 6.1.0, dated 13 September 2012

/24/ CDM Executive Board: *Tool to calculate the emission factor for an electricity system*, version 2.2.1, dated 29 September 2011

/25/ CDM Executive Board: *Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion*, version 02, dated 2 August 2008

/26/ CDM Executive Board: *Guidelines for the reporting and validation of plant load factors*, version 01, dated 17 July 2009

/27/ CDM Executive Board: *Guidelines on common practice*, version 02, dated 13 September 2012

/28/ CDM Executive Board: *Guidelines on the assessment of investment analysis*, version 05, dated 15 July 2011

/29/ CDM Executive Board: *Guidelines for objective demonstration and assessment of barriers*, version 01, dated 16 October 2009

/30/ CDM Executive Board: *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*, version 4.1, 2 August 2010

/31/ CDM Executive Board: *Guidelines on additionality of first-of-its-kind project activities*, version 1.0, dated 29 September 2011

/32/ CDM Executive Board: *Glossary of CDM terms*, version 06, dated 2 March 2012

/33/ CDM Executive Board: *Prior Consideration of the CDM*, available at:
http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html



3.1.4 Documents used by DNV to validate / cross-check the information provided by the project participants

- /34/ Intergovernmental Panel on Climate Change: *2006 IPCC Guidelines for National Greenhouse Gases Inventories*, dated 2006
- /35/ Department of Environmental Affairs and Tourism (Republic of South Africa): *National Environmental Management Act*, dated 1998
- /36/ The South African Grid Code: *Metering Code*, version 7.0, dated March 2008
- /37/ Eskom Holdings SOC Limited: *Integrated Report 2011*, available at: http://financialresults.co.za/2011/eskom_ar2011/fact_sheets_11.php
- /38/ Eskom Holdings SOC Limited: *CEF calculator*, available at: http://www.eskom.co.za/live/click.php?u=%2Fcontent%2FCEF_CalculatorFINAL2010-2011%7E2.xls&o=Item%2B236&v=62a438
- /39/ CSP Today: *Projects tracker*, available at: http://map.csptoday.com/projects-tracker/map?field_country_tid%5B%5D=179&field_mw_range_tid%5B%5D=257&field_mw_range_tid%5B%5D=248&field_full_data_example_value=All&=Apply

3.2 Follow-up actions

On 18 and 19 July 2012 Nicola Barbirato from DNV visited the Promethium Carbon Ltd Offices and Kumba Iron Ore offices in South Africa and performed interviews with project stakeholders.

DNV deemed that it was not necessary to conduct an on-site inspection as the project is a Greenfield project, and construction works at site had not yet commenced at the time of the site visit. Furthermore, DNV had enough evidences in order to assess the pre-project scenario /9//8/. Hence, following the provisions of paragraph 67 of the VVS, DNV did not conduct an on-site inspection and validated the project description by reviewing available designs.

Moreover on 12 March 2012 DNV visited the DNA of South Africa to mainly discuss about the national regulatory requirements related to several projects under validation in the country, including the proposed project activity.

	Date / Type of interview	Name / Organization	Topic
/40/	12 March 2012 <input type="checkbox"/> On-site <input checked="" type="checkbox"/> Face-to-face at office <input type="checkbox"/> Telephone <input type="checkbox"/> E-mail	Ndiafhi Patrick Tuwani, Lufuno Mukwevho, Takalani Rambau, Sandra Motshwanedi / DNA of South Africa	<ul style="list-style-type: none"> • Letter of Approval • Prior notification • Laws and regulations • Sustainability development indicators • Environmental Impact Assessment • Local Stakeholder Consultation
/41/	18-19 July 2012 <input type="checkbox"/> On-site <input checked="" type="checkbox"/> Face-to-face at office	Lucky Zondi / Kumba Iron Ore	<ul style="list-style-type: none"> • Additionality of the CPA • Baseline and project scenario confirmation



PoA VALIDATION REPORT

	<input type="checkbox"/> Telephone <input type="checkbox"/> E-mail		<ul style="list-style-type: none"> • Estimation of GHG gas emission reductions • Monitoring plan
/42/	18 July 2012 <input type="checkbox"/> On-site <input checked="" type="checkbox"/> Face-to-face at office <input type="checkbox"/> Telephone <input type="checkbox"/> E-mail	Nerina Burger / Promethium Carbon	<ul style="list-style-type: none"> • Additionality of the PoA • Baseline and project scenario confirmation • Estimation of GHG gas emission reductions • Monitoring plan
/43/	18 July 2012 <input type="checkbox"/> On-site <input checked="" type="checkbox"/> Face-to-face at office <input type="checkbox"/> Telephone <input type="checkbox"/> E-mail	Christo Oliver / Kumba Iron Ore	<ul style="list-style-type: none"> • Additionality of the CPA • Baseline and project scenario confirmation • Estimation of GHG gas emission reductions • CPA tech design • CPA implementer structure
/44/	18-19 July 2012 <input type="checkbox"/> On-site <input checked="" type="checkbox"/> Face-to-face at office <input type="checkbox"/> Telephone <input type="checkbox"/> E-mail	AB van der Merwe / Promethium Carbon	<ul style="list-style-type: none"> • Additionality of the PoA and CPA • Baseline and project scenario confirmation • Estimation of GHG gas emission reductions • Monitoring plan
/45/	18-19 July 2012 <input type="checkbox"/> On-site <input checked="" type="checkbox"/> Face-to-face at office <input type="checkbox"/> Telephone <input type="checkbox"/> E-mail	Harmke Immink / Promethium Carbon and Carbon Protocol of South Africa (CME)	<ul style="list-style-type: none"> • Additionality of the PoA • Baseline and project scenario confirmation • Estimation of GHG gas emission reductions • CME structure and CME manual
/46/	19 July 2012 <input type="checkbox"/> On-site <input checked="" type="checkbox"/> Face-to-face at office <input type="checkbox"/> Telephone <input type="checkbox"/> E-mail	Markes Kritzingier / Kumba Iron Ore	<ul style="list-style-type: none"> • Additionality of the CPA • CPA implementer structure and organisation • Monitoring plan
/47/	19 July 2012 <input type="checkbox"/> On-site <input checked="" type="checkbox"/> Face-to-face at office <input type="checkbox"/> Telephone <input type="checkbox"/> E-mail	Lucia Chanke / Kumba Iron Ore	<ul style="list-style-type: none"> • Environmental impact of the CPA • EIA • Stakeholder consultation • Local regulation in term of Environment
/48/	19 July 2012	Rodgers Mundembe / Kumba	<ul style="list-style-type: none"> • Environmental impact of



PoA VALIDATION REPORT

	<input type="checkbox"/> On-site <input checked="" type="checkbox"/> Face-to-face at office <input type="checkbox"/> Telephone <input type="checkbox"/> E-mail	Iron Ore	the CPA <ul style="list-style-type: none"> • EIA • Stakeholder consultation • Local regulation in term of Environment
/49/	19 July 2012 <input type="checkbox"/> On-site <input type="checkbox"/> Face-to-face at office <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> E-mail	Chris Carnegie / Kumba Iron Ore	<ul style="list-style-type: none"> • Tech design of the CPA • Monitoring
/50/	19 July 2012 <input type="checkbox"/> On-site <input type="checkbox"/> Face-to-face at office <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> E-mail	Andreas Boes / Siemens	<ul style="list-style-type: none"> • Tech design of the CPA • Monitoring • Environmental impact • Emission reduction calculation

3.3 Closing out of validation findings

The objective of this phase of the validation was to resolve any issues which needed be clarified prior to DNV's conclusion on the PoA's compliance with applicable CDM requirements. In order to ensure transparency a validation protocol was customised for the project. The protocol shows in a transparent manner the criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a PoA 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 validation protocol consists of four tables. The different columns in these tables are described in the figure below. The completed validation protocol for the project activity "Solar Energy Programme for South Africa" in South Africa is enclosed in Appendix A to this report.

Table 2 of the validation protocol documents the findings of the desk review of the project design documentation and follow-up interviews with project stakeholders. Any findings raised in Table 2 are listed in Table 3 of the protocol, and changes to the description of the project design as a result of these findings are addressed in Table 3. Table 2 thus may not reflect all aspects of the project as described in the final PoA-DD submitted for registration.

A corrective action request (CAR) is raised if one of the following occurs:

- (a) The project participants have made mistakes that will influence the ability of the PoA to achieve real, measurable additional emission reductions;
- (b) Applicable CDM requirements have not been met;
- (c) There is a risk that emission reductions cannot be monitored or calculated.

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



A forward action request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of CPAs of the PoA. FARs shall not relate to the CDM requirements for registration.

The validation identified seven CARs, fourteen CLs and zero FARs. The CARs and CLs were satisfactorily addressed by the project participants by among other revising the PoA-DD (please refer to Table 3 in Appendix A for further details). In addition to the changes made to the PoA-DD as a result of the validation findings, the following changes to the PoA-DD (version 09 of 22 November 2012) were made compared to the version of the PoA-DD published for stakeholder comments (version 01 dated 11 April 2012):

- The PoA has been re-designed to develop only grid connected greenfield CSP power generation facilities. Initially CSP and PV power plant, both greenfield and capacity additions, were included in the PoA design;
- The CME introduced the possibility that other countries, in addition to South Africa, may be added to the PoA in terms of the provisions of EB 60 Annex 26 Paragraph 6;
- Appendix 4: Further background information on ex ante calculation of emission reductions was filled in with a thorough description of the calculation of the grid emission factor;

In order to address the minor issue raised during the Information and Reporting Check by the UNFCCC Secretariat, the PoA-DD was revised in order to include the information related to the total emission reductions of all CPAs expected to be included into the PoA. The validation report was updated accordingly.



Validation Protocol Table 1: Mandatory Requirements for CDM programme of activities (PoA)				
Requirement	Reference	Conclusion		
The requirements the PoA must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (OK) or a corrective action request (CAR) if a requirement is not met.		

Validation Protocol Table 2: Requirement Checklist				
Checklist question	Reference	Means of verification (MoV)	Assessment by DNV	Draft and/or Final Conclusion
The various requirements in Table 1 are linked to checklist questions the PoA should meet. The checklist is organised in different sections, following the logic of the PoA-DD	Gives reference to documents where the answer to the checklist question or item is found.	Means of verification (MoV) are document review (DR) , interview (I) or any other follow-up actions (e.g., on site visit and telephone or email interviews) and cross-checking (CC) with available information relating to projects or technologies similar to the proposed CDM PoA under validation.	The discussion on how the conclusion is arrived at and the conclusion on the compliance with the checklist question so far.	OK is used if the information and evidence provided is adequate to demonstrate compliance with CDM requirements. A corrective action request (CAR) is raised when project participants have made mistakes, the CDM requirements have not been met or there is a risk that emission reductions cannot be monitored or calculated. A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. A forward action request (FAR) during validation is raised to highlight issues related to project implementation that require review during the first verification of the project activity.

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Corrective action and/or clarification requests	Ref. to checklist question in table 2	Response by project participants	Validation conclusion
The CARs and/ or CLs raised in Table 2 are repeated here.	Reference to the checklist question number in Table 2 where the CAR or CL is explained.	The responses given by the project participants to address the CARs and/or CLs.	The validation team's assessment and final conclusions of the CARs and/or CLs.

Validation Protocol Table 4: Forward Action Requests		
Forward action request	Ref. to checklist question in table 2	Response by project participants
The FARs raised in Table 2 are repeated here.	Reference to the checklist question number in Table 2 where the FAR is explained.	Response by project participants on how forward action request will be addressed prior to first verification.

Figure 1: Validation protocol tables



3.4 Internal quality control

The validation report underwent a technical review performed by a technical reviewer qualified in accordance with DNV's qualification scheme for CDM validation and verification.

3.5 Validation team

<i>Role</i>	<i>Last Name</i>	<i>First Name</i>	<i>Country</i>	<i>Type of involvement</i>						
				Desk review	Site visit / Interviews	Reporting	Supervision of work	Technical review	TA 1.1 competence	Financial expertise
Team leader (Validator)	Tenderini	Giovanni	Italy	✓		✓	✓		✓	✓
Validator	Barbirato	Nicola	Italy	✓	✓	✓			✓	
Technical reviewer	Yang	Weidong	USA					✓	✓	

The qualification of each individual validation team member is detailed in Appendix C to this report.



4 VALIDATION FINDINGS

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

The final validation findings relate to the PoA design as documented and described in the PoA-DD, version 09 dated 22 November 2012.

4.1 Comments by Parties, stakeholders and NGOs

The PoA-DD for project activity “Solar Energy Programme for South Africa”, version 01 dated 11 April 2012, and the CPA-DD for CPA titled “Solar Energy Programme for South Africa CPA 1”, Version 01 dated 11 April 2012 were made publicly available on the CDM website

<http://cdm.unfccc.int/ProgrammeOfActivities/Validation/DB/I62XFPVLU545X085PDI6L5ANE2ITSE/view.html>

and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 7 June 2012 to 6 July 2012.

No comments were received during the Global Stakeholder Consultation.

4.2 Approval, authorization and contribution to sustainable development

The coordinating/managing entity of the PoA is Carbon Protocol of SA, which is the entity that communicates with the Board.

The project participant is Carbon Protocol of SA. The host Party (South Africa) meets all relevant participation requirements. No Annex I Party has yet been identified.

A letter of approval (LoA) /17/ was issued by DNA of South Africa on 20 September 2012, authorizing Carbon Protocol of SA as project participant and confirming that the project assists in achieving sustainable development.

The coordinating/managing entity has obtained a letter of authorization /17/ of its coordination of the proposed CDM PoA from the host Party (South Africa).

The letter of approval was received from the project participant. DNV does not doubt the authenticity of the letter of approval. DNV considers the letter is in accordance with paragraphs 39-42 of the VVS /18/.

4.3 Modalities of communications

DNV has performed due diligence on the Modalities of Communications (MoC) statement submitted by the project participants in accordance with applicable requirements in the VVS as documented in section A.4 of Table 2 in the validation protocol in Appendix A to this report. DNV was able to confirm the information contained in the MoC and that the MoC complies with all relevant forms and requirements /14/.

4.4 PoA design and description of each generic CPA

Each CPA will fall within the boundaries of the Republic of South Africa, which has been set as the geographical boundary in the PoA.



As confirmed by the DNA /40/, no mandatory requirements to implement grid connected CSP electricity generation sites are present in the host country; moreover eligibility criteria have been set in order to ensure that the CPAs will be in accordance with local regulations in terms of Local Stakeholder consultation and EIA.

CPAs project activity under the PoA will be grid-connected renewable energy projects (CSP power plants). These projects activity will be greenfield plants.

CSP systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam and onto a collection tube filled with a heat transfer fluid. Electrical power is produced when the concentrated light is converted to heat, which drives a heat engine (usually a steam turbine) connected to an electrical power generator, which will be connected to the electricity grid.

A detailed description of the equipment and systems that will be installed within the project activity will be provided in the CPA-DD. The design of the first CPA was assessed by reviewing the technical proposal issued by the EPC contractor /9/ and the Environmental Impact Assessment /8/.

The PoA starting date is selected as the date of the commencement of the validation and the Global Stakeholder Consultation (GSC) on 7 June 2012. The starting date of the first CPA is 31 July 2013 /2/, therefore DNV confirms that the PoA starting date is earlier than the starting date of the first CPA. Moreover according to the eligibility criteria (d), the start date of each CPA must be after the date of the GSC.

The length of the PoA is 28 years, in accordance with paragraph 197 of the VVS /18/.

The project lifetime of the CPAs will be based on information from either feasibility study related work, third party opinion and/or equipment suppliers.

DNV considers the project description of the project contained in the PoA-DD to be complete and accurate. The PoA-DD complies with the relevant forms and guidance for completing the CDM-PoA-DD.

4.5 Demonstration of additionality for PoA

The demonstration of additionality of the PoA is based on the fact that in the absence of the CDM the proposed voluntary measure would not be implemented as there are no mandatory requirements for PoA development in South Africa. This was confirmed by the local DNA /40/.

4.6 Demonstration of additionality of each generic CPA

4.6.1 Identification of alternatives to each generic CPAs

According to the methodology ACM0002 version 13.0.0 /22/, if the project activity is the installation of a new grid-connected renewable power plant/unit, as in the case of the proposed generic CPAs, the baseline scenario is the following:

- 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”.

According to the Tool for the demonstration and assessment of additionality /23/, project activities that apply this tool in context of the approved consolidated methodology ACM0002,



only need to identify that there is at least one credible and feasible alternative that would be more attractive than the proposed project activity.

The project activity and its alternatives have been analysed as follows:

- Alternative 1: The proposed project activity undertaken without being registered as a CDM project activity;
- Alternative 2: Continuation of the business as usual (baseline scenario as defined above) situation.

As further described here below, the project participant demonstrated that the continuation of the business as usual (the power will be solely supplied by the operation of grid connected power plants and by the addition of new power plants) is a credible and feasible alternative that would be more attractive than the proposed project activity.

The project and its alternatives alternatives comply with all applicable legislation.

DNV considers the listed alternatives to be credible and complete.

4.6.2 Investment analysis

A generic CPA may decide to apply an investment analysis to comply with the eligibility criteria related to the additionality. A generic CPA has also the possibility to present a barrier analysis to comply with the eligibility criteria related to the additionality.

Choice of approach

The generic CPA generates revenues apart from CDM, indeed, as properly reflected in the PoA-DD, the electricity generated by the project activity will be sold to the organ of state designated by the Minister of Energy, which is likely to be Eskom.

The alternative to the project activity is the continuation of the business as usual (the power will be solely supplied by the operation of grid connected power plants and by the addition of new power plants).

According to Guidelines on the assessment of investment analysis /28/ if the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment and a benchmark approach is considered appropriate.

As properly reflected in the PoA-DD, the alternative to the project activity does not involve an investment and the generic CPA will apply a benchmark analysis, which is the appropriate choice. Simple cost analysis was not the appropriate choice because the project activity generates revenues apart from CDM; investment comparison analysis was not the appropriate choice because the alternative to the project activity does not involve an investment.

Benchmark selection

The benchmark to be used will be the after-tax expected return on equity for the host country for energy industries (Group 1), as defined in the Appendix to the Guidelines on the assessment of investment analysis /28/.

The type of benchmark applied is suitable for the type of financial indicator presented, which is an after-tax equity IRR.

Input parameters

The financial model used to carry out the investment analysis will use the following input parameters:



- Net Annual Electricity Generation (MWh/year). It will be calculated using a plant load factor (PLF) obtained following the provision of the Guidelines for the reporting and validation of plant load factors /26/, which are requiring the PLF to be determined ex-ante in accordance with the following options:
 - (a) 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;
 - (b) The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company);
- Electricity Tariff (Rand per MWh). It will be calculated using the latest available information on the average price of grid electricity using one of the following three sources of information, using the hierarchy (i) the energy regulator (ii) grid operator and/or utility, or (iii) government departments at the start date of the CPA.
- Revenue from Electricity Sales (Rands per year). It will be calculated as a result of combining information with regard to net annual electricity generation and electricity tariffs.
- Anticipated increase in electricity tariff over anticipated lifetime of the project (% per year). It will be based on information from the following three sources of information using the hierarchy (i) energy regulator (ii) grid operator or (iii) the utility. If no such information is available for part of the period, then the rate of inflation shall be used.
- Inflation Rate (% per year). It will be based on the latest available information on the mid-point of the inflation target, based on information from the South African Reserve Bank (SARB) and national treasury government sources at the start date of the CPA.
- Capital Cost (Rands). It will be based on information from the following three sources, using the hierarchy (i) feasibility related studies (ii) third party opinions or (iii) supplier quotes.
- Operation and Maintenance Cost (Rands). It will be based on information from the following three sources, using the hierarchy (i) feasibility related studies (ii) third party opinions or (iii) supplier quotes.
- Period of Investment Analysis (Years). It will be equal to the technical lifetime, which will be based on information from the following three sources, using the hierarchy (i) feasibility related studies (ii) third party opinions or (iii) equipment suppliers.
- Fair Value of Assets at end of Investment Analysis (Rand). It will be based on information from the following two sources, using the hierarchy (i) feasibility related studies or (ii) third party opinion.
- Depreciation (% per year). It will be based on information from the following three sources using the hierarchy (i) tax legislation (ii) South African Revenue Services or (iii) third party opinion.
- Corporate Tax Rate (%). It will be based on information from the following three sources using the hierarchy (i) tax legislation (ii) South African Revenue Services or (iii) third party opinion.
- Cost of Debt (Rands). It will be taken as the prime interest rate as published by a bank registered as a licensed financial services provider in South Africa.



POA VALIDATION REPORT

- Financing from Debt (%). It will be based on information from potential debt providers and the CPA implementer.
- Financing from Equity (%). It will be based on information from potential equity investors and CPA implementer.
- Investment Decision Date (Date). It will be based on the following four sources of information using the hierarchy (i) board decisions, (ii) submission of tender documents, (iii) PPA conclusion, or (iv) signing of debt agreements.
- Construction Start Date (Date). It will be based on information from the following three sources using the hierarchy (i) a project plan, (ii) feasibility studies, or (iii) contracts.
- Date Project Starts Producing (Date). It will be based on information from the following three sources using the hierarchy (i) a project plan, (ii) feasibility studies, or (iii) contracts.

The above mentioned parameters are deemed suitable to conduct an investment analysis as described in the Tool for the demonstration and assessment of additionality /23/.

Calculation and conclusion

It will be demonstrated that the calculated after-tax equity IRR is below the adopted after-tax equity benchmark, showing that the proposed CDM project activity is not financially/economically attractive. This conclusion is further supported by the sensitivity analysis described in the paragraph here below.

Sensitivity analysis

The sensitivity analysis will be conducted by altering parameters that are more than 20% of either total project costs or total project revenues. These parameters shall be altered by a range of +10% and -10%. Moreover the key parameters will be varied to make the calculated financial indicator reach the benchmark and the likelihood of this to happen will be justified to be small.

If in any scenario the benchmark is exceeded then the CPA-DD should provide evidence that as to the likelihood of this occurring. If evidence is provided that shows that the scenario(s) where the benchmark has been exceeded is unlikely to have occurred then the investment analysis can continue.

4.6.3 Barrier analysis

As indicated in the Tool for the demonstration and assessment of additionality /23/, the project participant may choose to demonstrate the additionality either applying the investment analysis or barrier analysis (the project participant may also select to complete both analysis).

Therefore a barrier analysis can be used to demonstrate additionality of a CPA. The following barriers are considered:

- An investment barrier; and,
- Barriers due to prevailing practise, as reflected by the project being “first-of-its kind”.

Investment barrier

CPAs that perform an investment barrier analysis will provide documented evidence to substantiate the barrier, and to demonstrate that the CPA is unable to secure either debt finance and/or an equity investment without the CDM, and that the CDM has enabled the



project to secure financing for it to be able to move into implementation. This documentary evidence could include, but is not limited to, loan agreements.

This is in accordance with paragraph 9 of the Guidelines for objective demonstration and assessment of barriers/29/, which states: *“In case the PPs make the claim for investment barriers, they should demonstrate in the PDD that the financing of the project was assured only due to the benefit of the CDM. Therefore, it should be demonstrated that the loan approval (or other significant financing decision(s)) by the lender takes explicitly the CDM registration into account.”*

For a CPA that uses the investment barrier analysis it will need to demonstrate that the investment barrier does not prevent the implementation of at least one of the alternatives. In this case the only other alternative is the baseline scenario.

Barrier due to prevailing practice

CPAs that perform a barrier analysis will provide documents to demonstrate that they comply with the definition of “first-of-its-kind”, as described in the Tool for the demonstration and assessment of additionality /23/ and in the Guidelines on additionality of first-of-its-kind project activities /31/:

- a) The project is the first in the applicable geographical area that applies a technology that is different from technologies that are implemented by any other project, which are able to deliver the same output and that have started commercial operation in the applicable geographical area before the start date of the proposed project activity, whichever is earlier;
- b) The project implements one or more of the measures; and
- c) Project participants selected a crediting period for the project activity that is “a maximum of 10 years with no option of renewal”.

In order to comply with this definition, the CPA must fulfil the conditions:

- *Applicable geographical area:* The CPA must be situated in the host country South Africa.
- *Measure:* The measure implemented must comply with *Option B. Switch of technology with change of energy source.*
- *Output:* The CPA must produce grid electricity, and provide the supporting documentation: contractual or regulatory documents, e.g. application for grid connection or draft PPA.
- *Different technologies:* The CPA must define differentiating aspects of the technology: energy source/fuel (solar energy) or size of installation (large or small scale).

To substantiate the point a) defined above, the CPA must provide the following evidence:

Written documentation of independent expert judgments from industry, educational institutions (e.g. universities, technical schools, training centres), industry associations and others.

4.6.4 Common practice analysis

According to the Tool for the demonstration and assessment of additionality /23/, the geographical scope of the common practice analysis has been defined as the entire host country (South Africa) as a default.



The project activity involves the installation and operation of a grid-connected greenfield CSP plant, i.e. involves the use of renewable energies.

According to the Tool for the demonstration and assessment of additionality /23/, for a switch of technology with or without change of energy source (including energy efficiency improvement as well as use of renewable energies), the common practice analysis has to be carried a stepwise procedure described here below.

Data will be obtained from either the Department of Energy or the National Energy Regulator of South Africa (NERSA).

Step 1: Calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity.

Step 2: In the applicable geographical area, identify all plants that deliver the same output or capacity, within the applicable output range calculated in Step 1, as the proposed project activity and have started commercial operation before the start date of the project. Note their number N_{all} . Registered CDM project activities and projects activities undergoing validation shall not be included in this step.

Step 3: Within plants identified in Step 2, identify those that apply technologies different that the technology applied in the proposed project activity. Note their number N_{diff} .

Step 4: Calculate factor $F = 1 - N_{diff}/N_{all}$ representing the share of plants using technology similar to the technology used in the proposed project activity in all plants that deliver the same output or capacity as the proposed project activity.

The proposed project activity is a “common practice” within a sector in the applicable geographical area if both the following conditions are fulfilled:

- (a) the factor F is greater than 0.2, and*
- (b) $N_{all} - N_{diff}$ is greater than 3.*

The common practice analysis has been correctly planned according to the provisions of the Tool for the demonstration and assessment of additionality (version 6.1.0) /23/.

4.6.5 Additionality - Conclusion

The demonstration of additionality of typical CPAs to be included to the PoA is in accordance with section A of the “Standard for demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities” /21/.

The following eligibility criteria (refer to section 4.7 for the complete list of eligibility criteria) ensure that a CPA meets the conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as described above.

ACM0002 (Version 13.0.0) directs that the additionality of the project activity (in this case a CPA) shall be demonstrated and assessed using the “Tool for the demonstration and assessment of additionality” (Version 06.1.0). Additionality will be demonstrated at the CPA level in the CPA-DD and checked by the CME. A demonstration of the additionality of a generic CPA is described in PART II Section B.5 of this PoA.



1. If the CPA is using an Investment Analysis approach to demonstrate additionality then it must be shown that:
 - (i) The CPA has a lower equity IRR than the benchmark for expected return on equity for Group 1 projects in South Africa; and,
 - (ii) The CPA is not common practice.
2. If the CPA is using an Investment Barrier Analysis to demonstrate additionality then it must be shown that:
 - (i) The CPA is unable to secure either debt finance and/or an equity investment without the CDM and that the CDM has enabled the project to secure financing for it to be able to move into implementation; and,
 - (ii) The CPA is not common practice.
3. If a “First of its Kind” Analysis is being used to demonstrate additionality then it must be shown that the CPA has been identified as a “First of its Kind” project activity.

4.7 Eligibility criteria for including CPAs to the PoA

The eligibility criteria for including CPAs are in accordance with section B of the “Standard for demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities” /21/.

CPAs requesting inclusion will need to demonstrate that they meet all criteria for inclusion as follows:

- a) The CPA must be grid connected to the South African national electricity grid and fall within the boundaries of the Republic of South Africa as they may exist at the time of CPA inclusion. This will be demonstrated with a power purchase agreement and GPS co-ordinates of the outline of the project.

This criterion is sufficient to ensure that the geographical boundary of the CPA is consistent with the geographical boundary of the PoA.

- b) Each CPA will follow the procedures established by the CME and described in Section C of the PoA to avoid double accounting and comply therewith.

Each CPA shall be uniquely identified and defined in an unambiguous manner, by amongst other aspects providing geographic information (GPS coordinates of the project outline), metering the installed capacity of the plant and the exact start date/ end date of the crediting period.

Unique identification code(s) for the site and the CPA meter(s) that record the amount of electricity exported to the South African national grid will also be provided.

This criterion is sufficient to ensure that double counting of emission reductions is avoided.

- c) The technology must be CSP plants that are grid connected. Various types and designs of CSP systems exist, and these are all valid under this programme.

Each CPA will demonstrate that the solar equipment complies with the relevant quality standards for grid connectivity to the national grid, by submitting relevant documentation



from the technology suppliers as proof to the CME, who will check this against the national grid quality standards. The CME will record and store the information for validation purposes.

This is considered adequate specification of the technology/measure to be used by CPAs, and it is verifiable.

- d) For the purpose of this PoA, the start date of the CPA will be the date on which a contract has been signed for equipment or construction/operation services required for the project activity. The CPA operator will provide documentary proof of this contract to the CME and the CME will record the start date of the CPA and confirm that a document check has been done.

The start date must be after the date of the commencement of the validation and the Global Stakeholder Consultation (GSC), i.e. 7 June 2012.

This criterion is considered adequate to ensure the starting date of the CPA can be checked through documentary evidence.

- e) The CPA will be a CSP grid-connected renewable power generation project that is an 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).

This criterion makes it possible to ensure compliance with applicability of methodology ACM0002 version 13.0.0 /22/.

- f) ACM0002 (Version 13.0.0) directs that the additionality of the project activity (in this case a CPA) shall be demonstrated and assessed using the “Tool for the demonstration and assessment of additionality” (Version 06.1.0). Additionality will be demonstrated at the CPA level in the CPA-DD and checked by the CME. A demonstration of the additionality of a generic CPA is described in PART II Section B.5 of this PoA.

1. If the CPA is using an Investment Analysis approach to demonstrate additionality then it must be shown that:
 - (i) The CPA has a lower equity IRR than the benchmark for expected return on equity for Group 1 projects in South Africa; and,
 - (ii) The CPA is not common practice.
2. If the CPA is using an Investment Barrier Analysis to demonstrate additionality then it must be shown that:
 - (i) The CPA is unable to secure either debt finance and/or an equity investment without the CDM and that the CDM has enabled the project to secure financing for it to be able to move into implementation; and,
 - (ii) The CPA is not common practice.
3. If a “First of its Kind” Analysis is being used to demonstrate additionality then it must be shown that the CPA has been identified as a “First of its Kind” project activity.

This criterion is considered sufficient to ensure CPAs meet the requirements pertaining to the demonstration of additionality and it is verifiable. The requirements pertaining to the



demonstration of the additionality are further assessed in section 4.6 of this validation report.

- g) CPAs will have undertaken stakeholder consultations, which will have been formally recorded.

CPAs will have undertaken an analysis of their environmental impacts which will have been formally recorded.

This criterion clearly defines the conditions related to undertaking local stakeholder consultations and environmental impact analysis.

- h) CPAs will need choose one of the following two options:

- i. For CPAs that have not received any public funding from Annex I parties, the CPA will need to confirm this in writing; or,
- ii. For CPAs that have received public funding from Annex I Parties, the Annex I country funding source will confirm in writing that the public funding has not resulted in a diversion of official development assistance.

This criterion sufficiently ensures that eventual use of public funding will not result in a diversion of official development assistance.

- i) Technical parameter: the CPA should be grid-connected, as described and covered in eligibility criteria (a).

Economic parameter: The CPA should be of a scale that it can fund the following:

- Separate Meters;
- A formal environmental analysis; and,
- Formal public consultation.

Investment parameter: Each CPA should be in the process of negotiating or applying for a power purchase agreement (PPA) with an off-taker that includes content addressing:

- Tariff;
- Metering;
- Record keeping; and,
- Generation Forecasts.

This criterion sufficiently ensures that the provisions of the methodology /22/ regarding project activity under a programme of activities are adequately taken into account. As required by the methodology /22/, this criterion will be updated every two years in order to correctly reflect the technical and market circumstances of the CPA implementation.

The identified criteria for the CPA to be included under the PoA have been found to be adequate and appropriate to the intent of the PoA.

4.8 Application of methodologies

The proposed PoA is adopting the approved baseline and monitoring methodology ACM0002 titled “Consolidated baseline methodology for grid-connected electricity generation from



renewable sources” version 13.0.0 /22/, which is the latest version available on the UNFCCC website before the commencement of the validation process (i.e. start of the GSC).

4.9 Management system of the PoA

The management system of the proposed PoA contains the following points, in accordance with the Standard for demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities /21/:

- a) *A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies /21/;*

All the details regarding a management system are contained in the CME contract (Operational Agreement between the CME and the CPA implementer) that will be signed by each CPA /10/. The contract includes: “the development and implementation of a management system comprising, inter alia:

4.9.2.1.1. *A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies;”*

The authority and responsibility of overall programme management is clearly described in section B.7.2 of part II of the PoA-DD: The CPA facility manager is responsible for the effective implementation of the monitoring management plan elements with regard to metering. The CME Carbon Protocol of SA is responsible for managing and monitoring the data set that generates the grid emission factor.

- b) *Records of arrangements for training and capacity development for personnel /21/:*

With regards to how training needs will be addressed to assure appropriate operation and maintenance, part II of the PoA-DD indicates as part of the monitoring plan management that all elements of the monitoring plan will be supported by formal procedures and regular training of delegated personnel.

- c) *Procedures for technical review of inclusion of CPAs /21/:*

The CME contract includes /10/:

the development and implementation of a management system comprising, inter alia:

4.9.2.1.3. *procedures for technical review of inclusion of CPAs;*

- d) *A procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA) /21/:*

The CME has established clear procedures to avoid double counting of emission reductions.

The PoA-DD describes the following procedure, in section C Management System: Unique identification code(s) for the site and the CPA meter(s) that record the amount of electricity exported to the South African national grid will also be provided, as well as GPS co-ordinates as reference points for the delineation of the boundary of the CPA site. The meter(s) must be situated within the site boundary.

It is DNV opinion that this criterion ensures sufficient conditions that avoid double counting of emission reductions.



e) *Records and documentation control process for each CPA under the PoA /21/:*

The CME will operate a PoA monitoring database including all the CPAs for the PoA. Each CPA will be uniquely identified within the PoA monitoring database of all CPAs. The database will include the following information for each CPA:

- 1) The name of the CPA implementer(s);
- 2) The name of the site where the solar facility is implemented;
- 3) The CPA site details, including street address (if available), meter numbers, and GPS co-ordinates as reference points for the delineation of the boundary of the CPA site;
- 4) The start date of the project and the start date of the crediting period; and
- 5) The monitoring period for each CPA.

The signed contract between with the managing entity and the CPA implementers will be recorded and stored by the CME.

f) *Measures for continuous improvements of the PoA management system /21/:*

The CME contract includes /10/: the development and implementation of a management system comprising, inter alia:

4.9.2.1.6. *measures for continuous improvements of the PoA management system.*

The management system of the proposed PoA is in accordance with the “Standard for demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities” /21/.

4.10 Environmental impacts

The environmental impact assessment will be carried out at CPA level.

In terms of South African law with regard to Environmental Impact Assessments (the Environmental Impact Assessment Regulations in terms of the National Environmental Management Act, NEMA, No. 107 of 1998), CPAs that fall under this PoA will require formal environmental analysis to be done on them if the installed capacity is equal to, or larger than, 20 MW /35/.

4.11 Local stakeholder consultation

The local stakeholder consultation will be carried out at CPA level.

In terms of South African law with regard to Environmental Impact Assessments (the Environmental Impact Assessment Regulations in terms of the National Environmental Management Act, NEMA, No. 107 of 1998), CPAs that fall under this PoA will require formal environmental analysis to be done on them if the installed capacity is equal to, or larger than, 20 MW /35/. Part of the environmental assessment process involves formal consultation with stakeholders.

DNV considers the local stakeholder consultation carried out adequately.

4.12 Application of selected baseline and monitoring methodology(ies) by each generic CPA

The project correctly applies the approved baseline methodology ACM0002 (version 13.0.0) /22/ titled “Consolidated baseline methodology for grid-connected electricity generation from



renewable sources". The applied baseline methodology is justified as it has been demonstrated and confirmed by technical studies, that the project activity ensures that:

Applicability conditions of ACM0002 (version 13.0.0)	Rationale
<p>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 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).</p>	<p>Within the proposed PoA, grid-connected CSP power generation facilities will be developed in South Africa /41//45/. The Component Project Activities to be included in the proposed Program of Activities will be greenfield plant /9/.</p> <p>The proposed Greenfield CSP plant falls under option (a) of this applicability criterion and it will be demonstrated through technical studies.</p>
<p>The methodology is applicable under the following conditions:</p> <ul style="list-style-type: none"> • 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; • 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 emission section, and no capacity addition or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity; 	<ul style="list-style-type: none"> • The Component Project Activities to be included in the proposed Program of Activities will be greenfield plant. The proposed Greenfield CSP plant is the installation of a solar power plant/unit /9/. • The Component Project Activities to be included in the proposed Program of Activities will be greenfield plant /41//45/. The proposed Greenfield CSP plant is neither a capacity addition, neither a retrofit or a replacement of a power plant. Therefore this is not applicable.



Applicability conditions of ACM0002 (version 13.0.0)	Rationale
<p>In case of hydro power plants:</p> <ul style="list-style-type: none"> • At least one of the following conditions must apply: <ul style="list-style-type: none"> ○ The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or ○ The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of each reservoir, as per the definitions given in the Project Emissions section, is greater than 4 W/m^2 after the implementation of the project activity; or ○ The project activity results in new single or multiple reservoirs and the power density of each reservoir, as per the definitions given in the Project Emissions section, is greater than 4 W/m^2 after the implementation of the project activity. 	<p>Within the proposed PoA, CSP power generation facilities will be developed in South Africa, not hydro power plants. Therefore this is not applicable.</p>
<p>In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m^2 after the implementation of the project activity all of the following conditions must apply:</p> <ul style="list-style-type: none"> • The power density calculated for the entire project activity using equation 5 is greater than 4 W/m^2; • All reservoirs and hydro power plants are located at the same river and were designed together to function as an integrated project that collectively constitutes the generation capacity of the combined power plant; 	<p>Within the proposed PoA, CSP power generation facilities will be developed in South Africa, not hydro power plants. Therefore this is not applicable.</p>



Applicability conditions of ACM0002 (version 13.0.0)	Rationale
<ul style="list-style-type: none"> The water flow between the multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity; The total installed capacity of the power units, which are driven using water from the reservoirs with a power density lower than 4 W/m^2, is lower than 15 MW; The total installed capacity of the power units, which are driven using water from reservoirs with a power density lower than 4 W/m^2, is less than 10% of the total installed capacity of the project activity from multiple reservoirs. 	
<p>The methodology is not applicable to the following:</p> <ul style="list-style-type: none"> Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; Biomass fired power plants; A hydro power plant that results in the creation of a new single reservoir or in the increase in an existing single reservoir where the power density of the reservoir is less than 4 W/m^2. 	<ul style="list-style-type: none"> The proposed generic CPA consists in the installation of a greenfield CSP power plant /41//45/. Since the CSP power plant is a greenfield project, it does not involve switching from fossil fuels to renewable energy sources at the site of the project activity. Therefore this is not applicable. The proposed generic CPA consists in the installation of a greenfield CSP power plant, it is not a biomass fired power plant. Therefore this is N/A. The proposed generic CPA consists in the installation of a greenfield CSP power plant, it is not an hydro power plant. Therefore this is N/A.
<p>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”.</p>	<p>The proposed generic CPA consists in the installation of a greenfield CSP power plant /41//45/. Since the CSP power plant is a greenfield project, it does not involve capacity addition, retrofit or replacement. Therefore this is N/A.</p>
<p>In addition, the applicability conditions</p>	<ul style="list-style-type: none"> The proposed generic CPA is a greenfield



Applicability conditions of ACM0002 (version 13.0.0)	Rationale
<p>included in the tools referred to above apply.</p> <ul style="list-style-type: none"> The tool to calculate the emission factor for an electricity system /24/ may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity, i.e. where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects). 	<p>grid-connected renewable power generation plant /41//45/, therefore the applicability condition of the tool to calculate the emission factor for an electricity system /24/ is fulfilled.</p>

The assessment of the generic CPA's compliance with the applicability criteria of ACM0002 (version 13.0.0) are documented in detail in section B.2 of Table 2 in the validation protocol in Appendix A to this report.

The following eligibility criteria (refer to section 4.7 for the complete list of eligibility criteria) ensure that a CPA meets the conditions that ensure that CPAs are in compliance with applicability and other requirements of single or multiple methodologies applied by CPAs.

- The CPA will be a CSP grid-connected renewable power generation project that is an 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).

This criterion makes it possible to ensure compliance with applicability of methodology ACM0002 version 13.0.0 /22/.

4.13 Project boundary of each generic CPA

According to the methodology ACM0002, version 13.0.0 /22/ 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 spatial extent of the CPA boundary includes the CPA power plant and all power plants connected physically to the electricity system that the CPA power plant is connected to. The electricity system is defined by the Tool to calculate the emission factor for an electricity system /24/.

The project's system boundaries are clearly defined and in accordance with the methodology ACM0002, version 13.0.0 /22/.

The GHG sources identified for the baseline is the CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. CH₄ and N₂O emissions linked to the above electricity generation are conservatively excluded for simplification since these are negligible.

The GHG sources identified for the project activity are the CO₂ emissions from combustion of fossil fuels for electricity generation. According to the methodology ACM0002, version



13.0.0 /22/, the use of fossil fuels for the back up or emergency purposes (e.g. diesel generators) can be neglected in the calculation of the project emissions.

According to the methodology /22/ and DNV professional experience, the identified boundary cover all possible sources linked to the project activity.

The identified boundary and selected sources and gases are justified for the generic CPA. The validation of the generic CPA did not reveal other greenhouse gas emissions occurring within the proposed CPA boundary as a result of the implementation of the proposed project activity which are expected to contribute more than 1% of the overall expected average annual emission reduction, which are not addressed by ACM0002 (version 13.0.0).

	GHGs involved	Description
Baseline emissions	CO ₂	CO ₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity.
Project emissions	CO ₂	CO ₂ emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants.
Leakage	CO ₂	According to the methodology ACM0002, version 13.0.0 /22/, no leakage emissions are considered.

4.14 Baseline scenario identification and description for each generic CPA

According to the methodology ACM0002 version 13.0.0 /22/, if the project activity is the installation of a new grid-connected renewable power plant/unit, as in the case of CPAs Type 1, the baseline scenario is the following:

- 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”.

The approved baseline methodology has been correctly applied to identify a complete list of realistic and credible baseline scenarios, and the identified baseline scenario most reasonably represents what would occur in the absence of the proposed CDM project activity.

All the assumption and data used by the project participants are listed in the PoA-DD and/or supporting documents. All documentation relevant for establishing the baseline scenario and correctly quoted and interpreted in the PoA-DD. Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable. Relevant national and/or sectoral policies and circumstances are considered and listed in the PoA-DD.



4.15 Algorithms and/or formulae used to determine emission reductions of each generic CPA

4.15.1 Explanation of methodological choices

According to the methodology ACM0002, version 13.0.0 /22/ emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

ER_y : Emission reductions in year y (t CO₂e/y)

BE_y : Baseline emissions in year y (t CO₂/y)

PE_y : Project emissions in year y (t CO₂e/y)

Baseline emissions

According to the methodology ACM0002, version 13.0.0 /22/ baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

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

Where:

BE_y : Baseline emissions in year y (tCO₂/y)

$EG_{PJ,y}$: 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/y)

$EF_{grid,CM,y}$: Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the Tool to calculate the emission factor for an electricity system” (tCO₂/MWh)

The calculation for $EG_{PJ,y}$ for project activity consisting in the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield renewable energy power plants):

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

Where:

$EG_{facility,y}$: Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/y). This parameter will be monitored as described in paragraph 4.16.1 of this report.

Therefore the baseline emission are:



$$BE_y = EG_{\text{facility},y} \times EF_{\text{grid,CM},y}$$

Project emissions

According to ACM0002 /22/, emissions involved in the project are accounted as project emissions considering following equation:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

PE_y	=	Project emissions in year y (tCO ₂ /yr)
$PE_{FF,y}$	=	Project emissions from fossil fuel consumption in year y (tCO ₂ /yr)
$PE_{GP,y}$	=	Project emission from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO ₂ /yr)
$PE_{HP,y}$	=	Project emissions from water reservoirs of hydro power plants in year y (tCO ₂ /yr)

Project emissions from fossil fuel consumption ($PE_{FF,y}$)

Most CSP power plants will utilise fossil fuel as start-up fuel, and therefore there will be project emissions due to fossil fuel consumption. The amount of project emissions from fossil fuel consumption are calculated in accordance with the Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion /25/. The following formula will be applied:

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

Where:

$PE_{FC,j,y}$	=	Are the CO ₂ emissions from fossil fuel combustion process j during the year y (tCO ₂ /year)
$FC_{i,j,y}$	=	Is the quantity of fuel type I combusted in process j during the year y (mass or volume unit/yr)
$COEF_{i,j,y}$	=	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 CO₂ emission coefficient $COEF_{i,y}$ is calculated using Option B of the tool /25/, based on the net calorific value and CO₂ emission factor of the fuel type i , as follows:

$$COEF_{i,y} = NCV_{i,y} \times EF_{CO_2,i,y}$$

Where;

$COEF_{i,y}$	=	Is the CO ₂ emission coefficient of fuel type i in the year y (tCO ₂ /mass or volume unit)
$NCV_{i,y}$	=	Is the weighted average net calorific value of the fuel type i in year y (GJ/mass or volume unit)
$EF_{CO_2,i,y}$	=	Is the weighted average CO ₂ emission factor of fuel type i in the year y (tCO ₂ /GJ)
i	=	Are the fuel types combusted in process j during the year y.



Project emission from the operation of geothermal power plants due to the release of non-condensable gases ($PE_{GP,y}$)

There are no emissions due to the release of non-condensable gases since the project is not a geothermal power plant.

Project emissions from water reservoirs of hydro power plants

There are no emissions from water reservoirs since the project is not a hydro power plant.

Leakage emissions

According to the methodology ACM0002, version 13.0.0 /22/ no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). These emissions sources are neglected.

Emissions reductions

All assumptions and data used by the project participant are listed in the PoA-DD and/or supporting documents, including their references and sources. All documentation used by the project participant as the basis for assumptions and source of data is correctly quoted and interpreted in the PoA-DD. All values used in the PoA-DD are considered reasonable in the context of the proposed CDM project activity. The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. All estimates of the baseline, project and leakage emissions can be replicated using the data and parameter values provided in the PoA-DD.

4.15.2 Parameters determined ex-ante

The following parameters are determined ex-ante and verified by DNV.

- *Combined margin CO_2 emission factor for grid connected power generation in year y*

The baseline emission factor is determined *ex ante* according to the methodological tool “Tool to calculate emission factor for an electricity system” /24/ as the weighted average of OM and BM. The weights of OM and BM are selected for the crediting period as 0.75 and 0.25 respectively, as required by the methodological tool.

The OM was determined using the simple OM calculation approach. Its applicability as per the ‘Tool to calculate the emission factor for an electricity system’ (version 2.2.1) /24/ was confirmed as the power generation by low-cost/must-run power plants in the period 2008-2012 accounted for less than 50% of the total power generation (5 to 6% for hydro, wind and nuclear power generation) in South Africa /37/. The project participant has applied option A1 to calculate the simple OM.

The project participant chose to calculate the build margin emission factor following the method: Option 1 (*For the first crediting period, calculate the build margin emission factor ex ante based on the most recent information available on units already built for sample group m at the time of CDM-PDD submission to the DOE for validation*).

The project participant correctly followed the step-wise procedure for the calculation of the build margin provided in the tool /24/. As a result of the first 3 steps (a), (b), (c) listed in the tool /24/, SET_{sample} is identified to be the set of five power units, excluding power units



registered as CDM project activities, that started to supply electricity to the grid most recently. SET_{sample} is including the following plants (fuel type and commissioning year is also provided) /38/:

1. Gourikwa (Kerosene, 2007)
2. Ankerlig (Kerosene, 2007)
3. Majuba (Coal, 1996)
4. Kendal (Coal, 1988)
5. Matimba (Coal 1987)

However some of the above listed plants (Majuba, Kendal and Matimba) started to supply electricity to the grid more than 10 years ago. Therefore as a result of the application of the last 3 steps (d) (e) (f) listed in the tool /24/, the power plants considered in the BM sample set are the following: Gourikwa (Kerosene, 2007), Ankerlig (Kerosene, 2007), Majuba (Coal, 1996) and Kendal (Coal, 1988). No registered CDM plants were included, as required by step (d), since no relevant data on annual electricity generation are available in the public domain.

The project participant has applied option A2, as required by the tool /24/, to calculate BM.

For the determination of the OM the project participant has used the latest available 3 years of data (Eskom CDM Grid information, providing data for years 2008-2009, 2009/2010 and 2010/2011 /38/).

The following parameters have been used to calculate the *Combined margin CO₂ emission factor*, and they have been verified by DNV:

- *Amount of fossil fuel type i consumed by power plant/unit m in year y:*

The fuel consumption was verified against the Eskom Grid information, from years 2008/2009, 2009/2010 and 2010/2011 /38/.

- *Net calorific value (energy content) of fossil fuel type i in year y:*

The net calorific values of kerosene and diesel oil were verified against the 2006 IPCC guidelines on National GHG Inventories (Chapter 1, Vol. 2) as the lower value of the 95% confidence interval for jet kerosene and diesel oil /34/.

The net calorific value of coal was verified against the Eskom Integrated Report 2011 /37/. The report is providing national average values which are more accurate and conservative than the default values provided in the 2006 IPCC guidelines /34/.

- *CO₂ emission factor of fossil fuel type i used in power unit m in year y:*

The CO₂ emission factor of kerosene was verified against the 2006 IPCC guidelines on National GHG Inventories (provided in Table 1.4 of Chapter 1, Vol. 2) as the lower value of the 95% confidence interval for jet kerosene /34/.

The CO₂ emission factor of diesel oil was verified against the 2006 IPCC guidelines on National GHG Inventories (provided in Table 1.4 of Chapter 1, Vol. 2) as the lower value of the 95% confidence interval for diesel oil /34/.

The CO₂ emission factor of coal was verified against the 2006 IPCC guidelines on National GHG Inventories (provided in Table 1.4 of Chapter 1, Vol. 2) as the lower value of the 95% confidence interval for Other Bituminous Coal /34/.

- *Average net energy conversion efficiency of power unit m in year y:*



The average net energy conversion efficiency value was verified against the Tool to calculate the emission factor for an electricity system (annex 1) /24/. The project participant has correctly applied the efficiency provided in annex 1 of the mentioned tool for old units (before 2000) for a subcritical generation technology which is consistent with the information of the Eskom Integrated Report 2011 /37/.

Using the above references the OM for the vintage 2008/2009 – 2010/2011 equals 0.92 tCO₂e/MWh while the BM for the power generated in 2010/2011 equals to 0.87 tCO₂e/MWh. Therefore, the CM would be equal to 0.91 tCO₂e/MWh.

DNV confirms that the data used are acceptable and the combined margin grid emission factor of the South African grid has been calculated in an accurate manner.

4.16 Monitoring plan

The monitoring plan is in compliance with the monitoring methodology ACM0002 (version 13.0.0).

It is DNV's opinion, that the project participants are able to implement the monitoring plan.

4.16.1 Parameters monitored ex-post by each generic CPA

The following parameters will be monitored as per the methodology ACM0002 (version 13.0.0) /22/:

- Quantity of net electricity generation supplied by the project plant/unit to the grid in year y ($EG_{\text{facility},y}$). It will be measured through electricity meters located at the boundary between the CPA and the South African electricity grid. The equipment (and its associated accuracy) will be in line with the Metering Code of the South African Grid Code /36/. $EG_{\text{facility},y}$ will be continuously monitored and monthly recorded. Calibration will be done according to manufacturer specifications. The measurements will be cross-checked with records for sold electricity. The ex-ante estimation is equal to 100 000 MWh/yr.
- Quantity of fuel type i combusted in process j during the year y ($FC_{i,j,y}$). It will be measured through fuel meters calibrated and maintained in-line with manufacturer's specifications. The accuracy of the fuel meters will be according to the meter manufacturer's specifications. If at the time of installation there are National or Industry standards on the accuracy of the specific type of flow meter, this must be met and documented in the CPA. $FC_{i,j,y}$ will be monitored continuously and aggregate monthly. The measurements will be cross-checked with records for purchased fuel figures. The ex-ante estimation is equal to 10 000 tonne/yr.
- Weighted average net calorific value of fuel type i in year y ($NCV_{i,y}$). It will be measured following the provisions of the Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion /25/. The ex-ante estimation is equal to 42.8 GJ/tonne.
- Weighted average CO₂ emission factor of fuel type i in year y ($EF_{\text{CO}_2,i,y}$). It will be measured following the provisions of the Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion /25/. The ex-ante estimation is equal to 0.0748 tCO₂/GJ and it has been sourced from the 2006 IPCC Guidelines for National Greenhouse Gases Inventories as the upper value of the 95% confidence interval for Gas/Diesel Oil /34/.



4.16.2 Management system and quality assurance

The CPA facility manager is responsible for the effective implementation of the monitoring management plan elements with regard to metering. All elements of the monitoring plan will be supported by formal procedures and regular training of delegated personnel, as appropriate. The CME is responsible for managing and monitoring the data set that generates the grid emission factor.

All parameters monitored parameters will be monitored by the implementing entity of the CPA and recorded electronically. The CPA owners will provide data on monitored parameters included in the above tables to the CME. The CME will document and store all data related to parameters provided by CPA implementing entities in an electronic database, while primary data will be stored by each CPA implementing entity.

All data collected will be archived electronically in two places for security purposes. Data will be consolidated and submitted to the CME database on a monthly basis. All data will be kept by the CPA and the CME for at least two years after the end of the crediting period.

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APPENDIX A

POA AND GENERIC CPA VALIDATION PROTOCOL

Table 1 Mandatory requirements for CDM programme of activities (PoA)

Requirement	Reference	Conclusion
About Parties		
1. The programme shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.	Kyoto Protocol Art.12.2	OK
2. The programme shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	OK
3. The programme shall have the written approval of voluntary participation from the designated national authority of each Party involved.	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	CAR-1 OK
4. The programme shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	CAR-1 OK
5. In case public funding from Parties included in Annex I is used for the programme, these Parties 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 these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	CL-3 OK
6. Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	OK
7. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	OK
8. The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	N/A
9. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.	CDM Modalities and Procedures §31b	N/A
About Design of Programme		

Requirement	Reference	Conclusion
10. The CDM-POA-DD sets a framework for the implementation of the PoA and defines unambiguously a CPA under the PoA.	PoA Procedures § 6	OK
11. The coordinating/managing entity shall be identified.	PoA Procedures § 6 (a)	OK
12. The boundary for the PoA in terms of a geographical area (e.g., municipality, region within a country, country or several countries) within which all CPAs included in the PoA will be implemented is defined.	PoA Procedures § 6 (b)	OK
13. Eligibility criteria are defined for inclusion of a project activity as a CPA under the PoA, which shall include criteria for demonstration of additionality, and the type and/or extent of information (e.g. criteria, indicators, variables, parameters or measurements) that shall be provided by each CPA in order to ensure its eligibility.	PoA Procedures § 6 (g)	OK
14. The length of the PoA is not exceeding 28 years.	PoA Procedures § 6 (h)	OK
15. The operational and management arrangements established by the coordinating/managing entity for the implementation of the PoA is described, including a description of a record keeping system for each CPA under the PoA, a system/procedure to avoid double accounting e.g. to avoid the case of including a new CPA that has been already registered either as CDM project activity or as a CPA of another PoA, the provisions to ensure that those operating the CPA are aware and have agreed that their activity is being subscribed to the PoA.	PoA Procedures § 6 (i)	OK
16. The proposed statistically sound sampling method/procedure to be used by DOEs for verification of the amount of emission reductions achieved by CPAs under the PoA is described. In case the coordinating/managing entity opts for a verification method that does not use sampling but verifies each CPA there is a transparent system defined and described that ensures that no double accounting occurs and that the status of verification can be determined anytime for each CPA.	PoA Procedures § 6 (k)	CAR-3 OK
For large-scale projects only		
17. Documentation on the analysis of the environmental impacts of the project	CDM Modalities and Procedures §37c	OK

Requirement	Reference	Conclusion
activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.		
About additionality		
18. Additionality of the programme as a whole is demonstrated because in the absence of the CDM (i) the proposed voluntary measure would not be implemented, or (ii) the mandatory policy/regulation would be systematically not enforced and that non-compliance with those requirements is widespread in the country/region, or (iii) that the PoA will lead to a greater level of enforcement of the existing mandatory policy /regulation.	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43 PoA Procedures § 6 (e)	OK
19. It is demonstrated for the PoA and generic CPA that in the absence of CDM, none of the implemented CPAs would occur	PoA Standard § 7	OK
20. Additionality of a typical CPA is demonstrated through eligibility criteria for inclusion in the PoA.	PoA Procedures § 7 (g)	OK
About application of baseline and monitoring methodology		
21. The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK
22. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	CDM Modalities and Procedures §45c,d	OK
23. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure.	CDM Modalities and Procedures §47	OK
24. The monitoring plan for a typical CPA is developed in accordance with the approved monitoring methodology, and identification of the monitoring provisions and data parameters a CPA has is to apply/monitor	PoA Procedures § 6 (j)	OK

Requirement	Reference	Conclusion
25. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.	CDM Modalities and Procedures §37f	OK
About forecast emission reductions		
26. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art. 12.5b	OK
About environmental impacts		
27. Documentation on the analysis of the environmental impacts of the programme activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the programme participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	<input type="checkbox"/> Analysis at PoA level <input checked="" type="checkbox"/> Analysis at CPA level
About stakeholder comments		
28. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.	CDM Modalities and Procedures §37b	<input type="checkbox"/> Analysis at PoA level <input checked="" type="checkbox"/> Analysis at CPA level
29. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available.	CDM Modalities and Procedures §40	OK
Other		
30. The project design document shall be in conformance with the CDM-PoA-DD format.	CDM Modalities and Procedures Appendix B, EB Decision	OK

Table 2 Requirements checklist

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
<i>PART I. Programme of activities (PoA)</i>					
A General description of project activity					
A.1 Title of the PoA (PS § 31, VVS § 62-63)					
A.1.1 Does section A.1 of the PoA-DD include a clearly identifiable project title, version number of the PoA-DD and date of the PoA-DD?	/1/	DR	<input checked="" type="checkbox"/> Clearly identifiable title of the project activity <input checked="" type="checkbox"/> Version number of the PoA-DD is included <input checked="" type="checkbox"/> Date of the PoA-DD is included.		OK
A.1.2 Is the PoA-DD is in accordance with the applicable requirements for completing PoA-DD?	/1/	DR	<input checked="" type="checkbox"/> Yes		OK
A.2 Description of the PoA (VVS § 64-69, (PS § 138, VVS § 189 and VVS § 150-157 for small-scale project activities, as applicable)					
A.2.1 How was the design of the PoA assessed?	/1/ /5/ /8/ /9/ /18/	DR	<i>What type is the project?</i> <input type="checkbox"/> Project in existing facility or utilizing existing equipment(s) <input type="checkbox"/> Project is either a large scale project or a small scale project with emission reductions exceeding 15 000 tCO ₂ e per year. In this case, a site visit must be performed. <input type="checkbox"/> Project is a bundled small scale project, with each project in the bundle with emission reductions not exceeding		OK

MoV = Means of Verification, DR= Document Review, I= Interview, CC= Cross-Checking

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			<p>15,000 tCO₂e per year. In such case the number of physical site visits may be based on sampling, if the sampling size is appropriately justified through statistical analysis.</p> <p><input type="checkbox"/> The project is an individual small scale project activity with emission reductions not exceeding 15 000 tCO₂e per year. In this case, DOE may not conduct a physical site visit as appropriate.</p> <p><input checked="" type="checkbox"/> Greenfield project</p> <p><i>How was the design of the project assessed?</i></p> <p><input type="checkbox"/> Physical site inspection</p> <p><input checked="" type="checkbox"/> Reviewing available designs and feasibility studies</p> <p><i>If a physical site inspection is not undertaken, justify why no site visit was undertaken:</i></p> <p>In accordance with paragraph 65-67 of the VVS /18/, no physical site inspection was deemed necessary, since CPA 1 is a Greenfield project and, as confirmed by the EIA /8/, it does not involve neither resettlement of people nor use of farm land.</p>		
A.2.2 If a greenfield project, describe the physical implementation of the project when the validation was	/1/ /41/	DR I	As confirmed by relevant stakeholder during the site visit, the project has not been		OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
commenced.		/43/ /46/ /47/ /48/ /49/ /42/ /44/ /45/ /50/		implemented yet.		
A.2.3	If physical site visits were performed based on sampling (only applicable for bundled small scale projects, each with emission reductions not exceeding 15 000 tCO ₂ e per year), justify the sampling through a statistical analysis:	/1/	DR	Physical site visit was not undertaken. Moreover the project is not a bundled small scale project, therefore this is not applicable.		OK
A.2.4	Does the PoA-DD and generic CPA-DD describe the framework for the implementation of the proposed CDM PoA and inclusion of CPAs under the PoA?	/1/	DR	<i>CL 1: The project participant is requested to clarify the sentence “the technology is in accordance with section A.4.2.1 of this PoA”, since section A.4.2.1 does not exist in the mentioned document.</i>	CL	OK
A.2.5	Does the PoA involve alteration of existing installations? If so, have the differences between pre-project and post-project activity been clearly described in the PoA-DD?	/1/	DR	CPAs project activity under the PoA will be grid-connected renewable energy projects (PV plants). These projects activity will be either greenfield plants or involve capacity addition.		OK
A.2.6	Does the PoA design engineering reflect current good practices?	/1/ /37/	DR	Yes, as the proposed technologies are the typical configurations available in the market. Moreover the technology described in the PoA-DD would result in a reduction of dependence on coal for electricity generation		OK

MoV = Means of Verification, DR= Document Review, I= Interview, CC= Cross-Checking

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				in South Africa /37/.		
A.2.7	Would the technology result in a significantly better performance than any commonly used technologies in the host country? Is any transfer of technology from any Annex-I Party involved?	/1/ /37/ /39/	DR	Yes, as in South Africa electricity is mainly produced by fossil fuel based thermal power plants /37/; only the construction of 2 x 100 MW CSP plants is foreseen in the country /39/.		OK
A.3 Programme Boundaries (VVS § 191-192) <i>Programme Boundaries are the limits and borders defining the GHG emission reduction project.</i>						
A.3.1	Are the programme's spatial boundaries (geographical) clearly defined?	/1/	DR	Yes, the programme's spatial boundaries (geographical) is the Republic of South Africa.		OK
A.3.2	Are the programme's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	/1/	DR	The proposed PoA is specifically for CSP and PV solar power plants that are grid connected.		OK
A.3.3	Do the programme boundaries take into consideration all applicable national and/or sectoral policies and regulations within the chosen boundary?	/1/	DR	Yes, as no mandatory requirements to implement grid connected CSP and PV electricity generation sites are present in the Country and the PoA ask for the respect of local regulations in terms of Local Stakeholder consultation and EIA.		OK
A.3.4	Can each CPA under the PoA be clearly identified individually including spatial boundaries (geographical) clearly defined?	/1/	DR	<i>CL 2: The project participant is requested to clarify the inconsistency between the procedure written in Section C and the eligibility criteria b) defined in section B.2.</i>	CL 2	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
A.4 Participation and authorization (VVS § 38-52) <i>Referring to Part A.3 and A.4, Appendix 1 and 2 of the PoA-DD as well as the CDM glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.</i>					
A.4.1 Do all participating Parties fulfil the participation requirements as follows: a) Party has ratified the Kyoto Protocol b) Party has designated a Designated National Authority c) The assigned amount has been determined	/1/	DR	South Africa (host) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		OK
A.4.2 Do the letters of approval meet the following requirements?	/1/ /17/	DR	<i>CAR 1: According to the CDM Modalities and Procedures §40a, the programme shall have the written approval of voluntary participation from the Designated National Authority of each Party involved. Moreover, according to the 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, the coordinating/managing entity shall obtain letters of authorization of its coordination of the PoA from each host Party. Neither LoA nor letter of authorization has been provided by the project participant.</i>	CAR-1	OK
		South Africa			

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
		(host)				
a) LoA confirms that Party has ratified the Kyoto Protocol		<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No		
b) LoA confirms that participation is voluntary		<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No		
c) The LoA confirms that the project contributes to the sustainable development of the host country?		<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No		
d) The LoA refers to the precise project activity title		<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No		
e) The LoA is unconditional with respect to (a) to (d) above		<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No		
f) The LoA is issued by the respective Party's DNA		<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No		
g) The LoA was received directly by the DNA or the PP		<input type="checkbox"/> DNA		<input checked="" type="checkbox"/> PP		
h) In case of doubt regarding the authenticity of the letter of approval, describe how it was verified that the letter of approval is authentic						
A.4.3	Have all private/public project participants been authorized by an involved Party?	/1/	DR	LoA not available, see CAR 1 above.	CAR-1	OK
A.4.4	Has the coordinating/managing entity of the programme been identified?	/1/	DR	Yes, the CME is Carbon Protocol of SA.		OK
A.4.5	Has the coordinating/managing entity provided letters of authorization of its coordination of the PoA from each host Party?	/1/	DR	Letter of authorization not available, see CAR 1 above.	CAR-1	OK
A.5 Modalities of communications (VVS § 53-61)						
A.5.1	How has the corporate identity of all project participants and focal points included in the MoC, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories, been validated?	/1/	DR	<input type="checkbox"/> Directly checking evidence for corporate, personal identity and other relevant documentation; <input type="checkbox"/> Notarized documentation; <input checked="" type="checkbox"/> Written confirmation from the project	CAR-2	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			<p>participant or the coordinating/managing entity that submits to it the MoC statement that all corporate and personal details, including specimen signatures, are valid and accurate. If this case was selected, DNV has confirmed that:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> the MoC statement was received from a project participant with whom DNV has a contractual relationship. <input checked="" type="checkbox"/> the official who submits the MoC statement to the DOE and the official who signed the written confirmation (if a different person) is/are duly authorized to do so on behalf of the respective project participant <p><i>CAR 2: Paragraph 54 of the VVS requires the Modalities of Communication to be clearly identified, including the specimen signatures, authorised signatories etc. The project participant has not provided the Modalities of Communication.</i></p>		
A.5.2 Has the MoC statement been correctly completed and duly authorized? Check that all three requirements listed in the next column are complied with.	/1/	DR	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> The latest version of the form F-CDM-MOC has been used; <input checked="" type="checkbox"/> The information required as per the F-CDM-MOC, including its annex 1, is correctly completed; 	CAR 2	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			<input checked="" type="checkbox"/> The project participant's authorized signatories signing the F-CDM-MOC correspond to the project participant's authorized signatories included in F-CDM-MOC, annex 1. MoC not available, see CAR 2 above.		
A.6 Public funding of the project activity (CDM Modalities and Procedures Appendix B § 2)					
A.6.1 In case public funding from Parties included in Annex I is used for the project activity, have these Parties provided 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 these Parties?	/1/	DR	<i>CL 3: The project participant is requested to submit evidence that no official development assistance has been diverted from an Annex-1 Party.</i>	CL 3	OK
A.7 Verification of CPAs (PoA procedure § 6 k)					
A.7.1 If case the coordinating /managing entity does not wish to have all CPAs verified, is there a description of the proposed statistically sound sampling method/procedure to be used by DOEs for verification of the amount of reductions of anthropogenic emissions by sources or removals by sinks of greenhouse gases achieved by CPAs under the PoA?	/1/	DR	<i>CAR 3: According to the 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: "If the coordinating /managing entity does not wish to have all CPAs verified, a description of the proposed statistically sound sampling method/procedure to be used by DOEs for verification of the amount of reductions of anthropogenic emissions by sources or removals by sinks of greenhouse gases achieved by CPAs under the PoA".</i>	CAR 3	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			<i>The project participant stated that: “A sample of CPAs will be taken for verification purposes”, however the description of a statistically sound method for sampling has not been provided.</i>		
B Demonstration of additionality and development of eligibility criteria					
B.1 Additionality of the Programme of Activities (VVS § 195) <i>Assessment of the additionality of the PoA as a whole in accordance with the PoA standard</i>					
B.1.1 Has it been demonstrated that the programme is a voluntary coordinated action that would not be implemented in the absence of CDM?	/1/	DR	<i>CAR 4: The project participant did not demonstrate the additionality of the PoA in compliance with the Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities. The project participant only indicated the approach for the demonstration of the additionality of CPAs: “ACM0002 (Version 13.0.0) directs that the additionality of the project activity (in this case a CPA) shall be demonstrated and assessed using the Tool for the demonstration and assessment of additionality (Version 06.0.0). Additionality will be demonstrated at the CPA level”.</i>	CAR-4	OK
B.1.2 If the programme is implementing a mandatory policy/regulation, has it been demonstrated whether the	/1/ /40/	DR I	As confirmed by the DNA /40/, the programme is not implementing madatory		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
policy/regulation is being enforced? If it is enforced, has it been demonstrated that the programme will lead to a higher level of enforcement?			policy/regulation		
B.2 Additionality determination of each generic CPA (VVS § 101-129 and VVS § 158-161 for small-scale project activities, as applicable)					
B.2.1 What approach/tool does the PoA use to demonstrate additionality of each generic CPA? Is this in line with the methodology?	/1/ /22/	DR	As per the section B.1 of the PoA-DD, “ACM0002 (Version 13.0.0) directs that the additionality of the project activity (in this case a CPA) shall be demonstrated and assessed using the “Tool for the demonstration and assessment of additionality” (Version 06.0.0)”, that is in compliance with the methodology ACM0002 (version 13.0.0) /22/: “The additionality of the project activity shall be demonstrated and assessed using the latest version of the Tool for the demonstration and assessment of additionality.”		OK
B.2.2 Have the regulatory requirements correctly been taken into account to evaluate the project activity and the alternatives?	/1/ /23/ /22/ /40/	DR I	CL 4: The project participant is requested provide evidence showing the approval of the EIA. According to Tool for the demonstration and assessment of additionality /23/, project activities that apply this tool in context of approved consolidated methodology ACM0002, only need to identify that there is at least one credible and feasible alternative that would be more attractive than the	CL 4	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			<p>proposed project activity.</p> <p>The project participant identified as only alternative to the project activity the baseline scenario indicated by the methodology /22/ when the project activity is the installation of a new grid-connected renewable power plant/unit, as in the case of CPA 1: 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.</p> <p>The alternative is in line with regulatory requirements of South Africa /40/.</p>		
B.2.3 Is sufficient evidence provided to support the relevance of the arguments made?	/1/	DR	The project participant did not demonstrate the additionality of a generic CPA in accordance with the the Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities. See CAR 4 above.	CAR 4	OK
B.2.4 What is the additionality of each generic CPA mainly based on (Investment analysis or barrier analysis)?	/1/	DR	See CAR 4 above.	CAR 4	OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
Investment analysis (VVS § 117-123) <i>The list of questions below must be adjusted to the parameters in the investment analysis relevant to the project under validation. <u>All</u> input parameters need to be assessed.</i>						
B.2.5	Does each generic CPA or any of the remaining alternatives generate revenues apart from CDM? Is this reflected in the PoA-DD?	/1/	DR	The project participant did not demonstrate the additionality of a generic CPA in accordance with the the Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities. See CAR 4 above.	CAR-4	OK
B.2.6	Do any of the alternatives to each generic CPA involve investment? Is this reflected in the PoA-DD?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.7	Is the choice of benchmark analysis, investment comparison or simple cost analysis correct?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.8	Is the benchmark/discount rate the latest available at the time of decision?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.9	What is the financial indicator? Is it on equity/project basis? Before/after tax? Is the financial indicator in correspondence with the benchmark?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.10	Are the underlying assumptions appropriate, e.g. what is considered as waste in the baseline is considered to have zero value?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.11	Does the income tax calculation take depreciation into account? Is the depreciation year in accordance with normal accounting practice in the host country?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.12	Is the time period of the investment analysis and operating time of each generic CPA realistic? Has	/1/	DR	See CAR 4 above.	CAR-4	OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
salvage value been taken into account? Is working capital returned in the last year of operation?						
B.2.13	When a feasibility study report or similar approved by the government is used as the basis for the investment analysis: Can it be confirmed that the values used in the PoA-DD are fully consistent with the FSR and is the period of time between finalization of the FSR and the investment decision adequate?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.14	How was the amount of output (e.g. sales of electricity) assessed?	/1/	DR	<input type="checkbox"/> 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 <input type="checkbox"/> The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company) <input type="checkbox"/> Other approach. <i>Provide details on how the load factor was validated::</i> See CAR 4 above.	CAR-4	OK
B.2.15	How was the output price (e.g. electricity price) assessed?	/1/	DR	<input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices) <input type="checkbox"/> Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants <i>Provide details on how the output price was</i>	CAR-4	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			<i>validated:</i> See CAR 4 above.		
B.2.16 How were the investment costs assessed? Were the data available and valid at the time of decision?	/1/	DR	<input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices) <input type="checkbox"/> Review of feasibility reports, public announcements, contracts and annual financial reports related to the project and the project participants <i>Provide details on how the investment costs were validated:</i> See CAR 4 above.	CAR-4	OK
B.2.17 How were the O&M costs assessed? Were the data available and valid at the time of decision?	/1/	DR	<input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices) <input type="checkbox"/> Review of feasibility reports, public announcements and annual financial reports related to the project and the project participants <i>Provide details on how the O&M costs were validated:</i> See CAR 4 above.	CAR-4	OK
B.2.18 Describe the assessment of the other input parameters. Were the data available and valid at the time of decision?	/1/	DR	<input type="checkbox"/> Cross-check against third-party or publicly available sources (e.g. invoices or price indices) <input type="checkbox"/> Review of feasibility reports, public announcements and annual financial reports	CAR-4	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			related to the project and the project participants <i>Provide details on how other input parameters were validated:</i> See CAR 4 above.		
B.2.19 Was the financial calculation spreadsheet verified and found to be correct?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.20 Sensitivity analysis: Have the key parameters contributing to more than 20% of the revenue/costs during operating or implementation been identified? Has possible correlation between the parameters been considered?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.21 Sensitivity analysis: Is the range of variations is reasonable in the project context?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.22 Have the key parameters been varied to reach the benchmark and the likelihood of this to happen been justified to be small?	/1/	DR	See CAR 4 above.		OK
Barrier analysis (VVS § 124-127)					
B.2.23 Are the barriers identified complimentary to a potential investment analysis? Does the barrier have a clear impact on the financial returns so that it can be assessed in an investment analysis? Each barrier is discussed separately.	/1/	DR	The project participant did not demonstrate the additionality of a generic CPA in accordance with the the Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities. See CAR 4 above.	CAR-4	OK
B.2.24 How were the <u>investment barriers</u> assessed to be real? Are the investment barriers substantiated by a source independent of the project participants?	/1/	DR	See CAR 4 above.	CAR-4	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.2.25 How does CDM alleviate the investment barriers?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.26 Is each generic CPA prevented by the investment barriers and at least one of the possible alternatives to the project activity is feasible under the same circumstances?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.27 How were the <u>technological barriers</u> assessed to be real? Are the technological barriers substantiated by a source independent of the project participants?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.28 How does CDM alleviate the technological barriers?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.29 Is each generic CPA prevented by the technological barriers and at least one of the possible alternatives to the project activity is feasible under the same circumstances?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.30 How were the <u>barriers due to prevailing practise</u> assessed to be real? Are the barriers due to prevailing practise substantiated by a source independent of the project participants?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.31 How does CDM alleviate the barriers due to prevailing practise?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.32 Is each generic CPA prevented by the barriers due to prevailing practise and at least one of the possible alternatives to the project activity is feasible under the same circumstances?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.33 How were the <u>other barriers</u> assessed to be real? Are the other barriers substantiated by a source independent of the project participants?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.34 How does CDM alleviate the other barriers?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.35 Is each generic CPA prevented by the other barriers and	/1/	DR	See CAR 4 above.	CAR-4	OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
at least one of the possible alternatives to the project activity is feasible under the same circumstances?					
Common practice analysis (VVS § 128-130)					
B.2.36 What is the geographical scope of the common practice analysis? Is this justified?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.37 What is the scope of technology and size (e.g. capacity of power plant) for the common practice analysis and how has this been justified?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.38 What is the data source(s) used for the common practice analysis?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.39 How many similar non-CDM-projects exist in the region within the scope?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.40 How were possible essential distinctions between the project activity and similar activities assessed?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.2.41 What is the conclusion of the common practice analysis?	/1/	DR	See CAR 4 above.	CAR-4	OK
Conclusion					
B.2.42 What is the conclusion with regard to the additionality of the project activity?	/1/	DR	See CAR 4 above.	CAR-4	OK
B.3 Eligibility Criteria (VVS § 196) <i>Eligibility criteria to assess eligibility of CPAs to be included to PoA.</i>					
B.3.1 Are the geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA?	/1/	DR	Yes, each CPA must fall within the boundaries of the Republic of South Africa, which has been set as the geographical boundary in the PoA.		OK
B.3.2 Are there conditions that avoid double counting of emission reductions like unique identifications of	/1/	DR	Clarification of an inconsistency is requested, see CL 2 above.	CL-2	OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
product and end-user locations (e.g. programme logo)?						
B.3.3	Are there specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications?	/1/	DR	<p>Yes, the programme is specifically for CSP and PV solar power plants that are grid connected. All types and designs of CSP systems all valid under the programme.</p> <p><i>CL 5: The project participant is requested to clarify how this eligibility criteria (c) (d) and (l) will be verifiable, as requested by paragraph 15 of the Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities.</i></p>	CL-5	OK
B.3.4	Are there conditions to check the start date of the CPA through documentary evidence?	/1/	DR	<p><i>CL 6: The project participant is requested to clarify how the starting date of each CPA, as defined in the eligibility criteria (d), is fulfilling the definitions provided in the Glossary of CDM terms.</i></p>	CL-5 CL-6	OK
B.3.5	Are there conditions that ensure compliance with applicability and other requirements of single or multiple methodology/ies applied by CPAs?	/1/ /22/	DR	<p>As per the PoA-DD, “Each CPA must meet the applicability criteria for methodology ACM0002 version 13.0.0. (as elaborated in the CPA-DD). No other methodologies will be used”.</p> <p>This is a sufficient condition to ensure compliance with the applicability of methodology ACM0002 (version 13.0.0) /22/.</p>		OK
B.3.6	Are there conditions that ensure that CPAs meet the requirements pertaining to the demonstration of	/1/	DR	As per Section B.1 of the PoA-DD, “Additionality will be demonstrated at the		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
<p>additionality, and are these in accordance with the requirements of the PoA Standard?</p>	<p>/23/ /21/</p>		<p><i>CPA level</i>"; the <i>"Tool for the demonstration and assessment of additionality"</i> (Version 06.0.0) will be used for the assessment of additionality.</p> <p>This is a sufficient condition that ensure that CPAs meet the requirements pertaining to the demonstration of additionality /23/.</p> <p>The use of the Tool for the demonstration and assessment of additionality is in accordance with the requirements of the Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities /21/.</p>		
<p>B.3.7 Are there PoA-specific requirements stipulated by the CMEs including any conditions related to undertaking local stakeholder consultations and environmental impact analysis?</p>	<p>/1/</p>	<p>DR</p>	<p>Local stakeholder participation will be conducted on a CPA level.</p> <p>The following specific requirements are defined by the CME:</p> <ul style="list-style-type: none"> - All CPAs with an installed capacity of 20 MW or larger will be expected to carry out a full environmental impact assessment ("EIA") as envisioned by the National Environment Management Act ("NEMA") and to follow the public participation requirements set therein; - Projects smaller than 20 MW installed capacity will need to conduct a environmental analysis and the local 	<p>CL7</p>	<p>OK</p>

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			<p>stakeholder participation process independently. The minimum requirements are to invite comments from the local stakeholders by publishing newspaper articles in the local papers in both English and the native language, describing the project and informing stakeholders of the registration of the project under the CDM.</p> <p>The above PoA specific requirements provides conditions related to undertaking local stakeholder consultations and environmental impact analysis.</p> <p><i>CL 7: The project participant is requested to clarify how the “Additional requirements from the CME will be stipulated in the contract that must be signed by the CPA implementer” will be usable, verifiable and sufficiently objective, as required by the Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities.</i></p>		
B.3.8 Where applicable, are the target group (e.g. domestic/commercial/industrial, rural/urban, grid-connected/off-grid) and distribution mechanisms (e.g. direct installation) specified?	/1/	DR	<p><i>CL 8: The project participant is requested to clarify how the “prospective grid connected PV and CSP project developers in South Africa” can be considered a target group of this PoA.</i></p>	CL-8	OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.3.9	Where applicable, are there conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling and surveys?	/1/	DR	The CME stated that “ <i>No sampling will be done within any specific CPA. A sample of CPAs will be taken for verification purposes</i> ” but did not defined any statistically sound method for sampling. See CAR-3 above.	CAR-3	OK
B.3.10	Where applicable, are there conditions that ensure that CPA in aggregate meets the small-scale or micro-scale threshold criteria and remain within those thresholds throughout the crediting period of the CPA?	/1/	DR	Not applicable.		OK
B.3.11	Where applicable, are there requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories?	/1/	DR	Not applicable.		OK
B.3.12	Are there conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance?	/1/	DR	The project participant has been requested to clarify how this eligibility criteria will be verifiable. See CL 5 above.	CL-5	OK
B.3.13	Are all eligibility criteria verifiable, and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA?	/1/	DR	The project participant has been requested to clarify how eligibility criteria (c), (d), (g) and (l) will be verifiable. See CL 5 above. <i>CAR 5: Methodology ACM0002 version 13.0.0 states specific requirements for project activities under a programme of activities, for instance regarding eligibility criteria. The project participant did not address the above requirements of the methodology.</i>	CL-5 CL-7 CAR-5	OK
B.4 Application of methodologies by the PoA (VVS §190)						
B.4.1	Does the PoA apply approved methodologies and the correct and valid version thereof?	/1/ /22/	DR	The PoA correctly applies the latest approved version of the methodology ACM0002 (version 13.0.0) /22/.		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.4.2	If the programme applies multiple methodologies, is their application in accordance with the PoA Standard?	/1/ /22/	DR	The programme applies only methodology ACM0002 (version 13.0.0) /22/, therefore this is not applicable.		OK
B.4.3	If the PoA applies small-scale methodologies, does the PoA also comply with the general guidelines to SSC CDM methodologies, which provides guidelines on equipment capacity, equipment performance/lifetime, baseline identification for type-II/III Greenfield project activities, sampling and other monitoring-related issues?	/1/ /22/	DR	The programme applies methodology ACM0002 (version 13.0.0) /22/, which is a large scale methodology. Therefore this is not applicable.		OK
B.5 Management system of the PoA (VVS § 186) <i>Assessment of the PoA management systems in accordance with the PoA standard</i>						
B.5.1	Is there a clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies?	/1/	DR	<i>CAR 6: According to paragraph 17 of the Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities, the CME shall develop and implement a management system that includes the following made available to the DOE at the time of validation of the PoA:</i> <i>(a) A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies;</i> <i>(b) Records of arrangements for training and capacity development for personnel;</i> <i>(c) Procedures for technical review of</i>	CAR-6	OK

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
				<i>inclusion of CPAs;</i> <i>(d) A procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA);</i> <i>(e) Records and documentation control process for each CPA under the PoA;</i> <i>(f) Measures for continuous improvements of the PoA management system;</i> <i>(g) Any other relevant elements.</i> <i>The management system described in the PoA does not fully comply with requirements (a), (b), (c), (e) and (f).</i>		
B.5.2	Are there records of arrangements for training and capacity development for personnel?	/1/	DR	See CAR-6 above.	CAR-6	OK
B.5.3	Are there procedures for technical review of inclusion of CPAs?	/1/	DR	See CAR-6 above.	CAR-6	OK
B.5.4	Is there a procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA)?	/1/	DR	Clarification of an inconsistency is requested, see CL 2 above.	CL-2	OK
B.5.5	Is there a records and documentation control process for each CPA under the PoA?	/1/	DR	See CAR-6 above.	CAR-6	OK
B.5.6	Are there measures for continuous improvements of the PoA management system?	/1/	DR	See CAR-6 above.	CAR-6	OK
B.5.7	Do the operational and management arrangements established by the coordinating entity include provisions to ensure that CPA implementers are aware	/1/	DR	Yes, as each CPSA implementer will be asked to sign a contract with the CME, as per section C of the PoA-DD.		OK

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Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
and have agreed that their activity is being subscribed to the PoA?					
C Duration of the PoA, Crediting Period (VVS § 197)					
C.1.1 Is the PoA starting date and length of the PoA clearly defined and evidenced?	/1/	DR	The PoA stating date is the date of the Global Stakeholder Consultation, i.e. 7 June 2012. The length of the PoA is 28 years.		OK
C.1.2 D.2. Does the PoA design documentation confirm that the length of the PoA does not exceed 28 years (60 years for A/R)?	/1/	DR	Yes, the length of the PoA is 28 years.		OK
D Environmental Impacts (VVS § 134-137, VVS § 199-200)			<input type="checkbox"/> Analysis at PoA level <input checked="" type="checkbox"/> Analysis at CPA level This section must only be completed if the analysis of environmental impacts is at PoA level.		
D.1.1 Are there any host country requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved? Does the approval contain any conditions that need monitoring? For small-scale project activities, is an assessment of the environmental impacts of the proposed CDM project activity is required by the host Party?	/1/	DR	Not applicable.		OK
D.1.2 Does the PoA comply with environmental legislation in the host country?	/1/	DR	Not applicable.		OK
D.1.3 Will the PoA create any adverse environmental effects?	/1/	DR	Not applicable.		OK
D.1.4 Have identified environmental impacts been addressed in the PoA design?	/1/	DR	Not applicable.		OK

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Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
D.1.5	Has an analysis of the environmental impacts of the PoA and each generic CPA been sufficiently described?	/1/	DR	Not applicable.		OK
D.1.6	Are transboundary environmental impacts considered in the analysis?			Not applicable.		OK
E Local stakeholder consultation (VVS § 138-140, VVS § 201-202)				<input type="checkbox"/> Consultation at PoA level <input checked="" type="checkbox"/> Consultation at CPA level This section must only be completed if the analysis of environmental impacts is at PoA level.		
E.1.1	Have relevant stakeholders been consulted?	/1/	DR	Not applicable.		OK
E.1.2	Have appropriate media been used to invite comments by local stakeholders?	/1/	DR	Not applicable.		OK
E.1.3	If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/	DR	Not applicable.		OK
E.1.4	Is a summary of the stakeholder comments received provided?	/1/	DR	Not applicable.		OK
E.1.5	Has due account been taken of any stakeholder comments received?	/1/	DR	Not applicable.		OK

PART II. Generic component project activity (CPA)					
A Description of each generic CPA (VVS § 189)					
A.1.1	Does the description of each generic CPA sufficiently cover all relevant elements, is accurate and does it provides the reader with a clear understanding of the nature of the proposed CPAs?	/1/	DR	<i>CAR 7: According to paragraph 177 of the Clean Development Mechanism Project Standard, a generic CPA-DD, which specifies the generic information relevant to all CPAs that may be included in the PoA. The project participant included two generic CPA-DDs in the PoA.</i>	CAR 7 OK
A.1.2	If applicable, are all different types of generic CPAs clearly described?	/1/	DR	See CAR 7 above.	CAR 7 OK
B Application of a baseline and monitoring methodology(ies)					
B.1 Title and reference of the approved baseline and monitoring methodology(ies) selected					
B.1.1	Are the exact reference and title of approved methodology(ies) and tools listed?	/1/	DR	Yes, exact refrence and title of the methodology and tools are listed under section B.1 of the generic CPA.	OK
B.1.2	Are valid version of approved methodology(ies) and tools applied?	/1/ /22/ /23/ /24/ /25/	DR	The generic CPA will apply: - Methodology ACM0002 (version 13.0.0) /22/; - Tool for the demonstration and assessment of additionality /23/; - Tool to calculate the emission factor for an electricity system /24/; - Tool to calculate project or leakage CO ₂	OK

			emissions from fossil fuel combustion /25/.		
			Valid version of the approved methodology and tools are applied.		
B.2 Applicability of methodology (and tools) (VVS § 73-77) <i>Insert a row for each applicability criteria of the applied methodology (and tools)</i>					
B.2.1	How was it validated that each specific CPA complies with the following applicability criteria: <i>This methodology is applicable to grid-connected renewable power generation project activities that</i> <i>(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);</i> <i>(b) involve a capacity addition;</i> <i>(c) involve a retrofit of (an) existing plant(s);</i> <i>(d) involve a replacement of (an) existing plant(s)</i>	/1/ /22/	DR	Each CPA project activity will be a grid-connected renewable energy project (either CSP or PV solar plant). The sites would be either a greenfield plant or a capacity addition. The CPA is either the construction of a solar facility at a site where no renewable power plant was operated prior to the implementation of the project activity, or the subsequent tranches (capacity additions) if being implemented in stages. The criteria can be considered applicable to the CPA and the CPA comply with the criteria	OK
B.2.2	How was it validated that each specific CPA complies with the following applicability criteria: <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.</i>	/1/ /22/	DR	The CPA project activity is the installation or capacity addition of a CSP or PV power plant/unit, so the criteria is applicable to the CPA and the CPA comply with the criteria	OK
B.2.3	How was it validated that each specific CPA complies	/1/	DR	The CPA project activity is a greenfield or	OK

	with the following applicability criteria: <i>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 EGPJ,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 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.</i>	/22/		capacity addition (additional tranche) to a CSP or PV power plant/unit, so the criteria is not applicable to the project.		
B.2.4	How was it validated that each specific CPA complies with the following applicability criteria: <i>In case of hydro power plants, one of the following conditions must apply:</i> <ul style="list-style-type: none"> • <i>The project activity is implemented in an existing reservoir, with no change in the volume of reservoir; or</i> • <i>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</i> • <i>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</i> 	/1/ /22/	DR	The CPA project activity is a greenfield or capacity addition (additional tranche) to a CSP or PV power plant/unit, so the criteria is not applicable to the project.		OK
B.2.5	How was it validated that each specific CPA complies with the following applicability criteria: <i>The methodology is not applicable to the following:</i> <ul style="list-style-type: none"> • <i>Project activities that involve switching from fossil fuels to renewable energy sources at the site of the</i> 	/1/ /22/	DR	The CPA project activity is a greenfield or capacity addition (additional tranche) to a CSP or PV power plant/unit, so the criteria is not applicable to the project.		OK

	<p><i>project activity, since in this case the baseline may be the continued use of fossil fuels at the site;</i></p> <ul style="list-style-type: none"> • <i>Biomass fired power plants;</i> • <i>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.</i> 				
B.2.6	<p>How was it validated that each specific CPA complies with the following applicability criteria:</p> <p><i>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”</i></p>	/1/ /22/	DR	<p>To participate to the PoA, CPAs that involve retrofits, replacements, or capacity additions will need to show that 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. The applicability criteria is applicable to the CPA and the CPAs to be included in the PoA shall comply with the criteria.</p>	OK
B.2.7	<p>How was it validated that each specific CPA complies with the following applicability criteria:</p> <p><i>the applicability conditions included in the tools referred to above apply</i></p>	/1/ /22/	DR	<p><i>CL 9: The project participant is requested to further describe how each specific CPA complies with the following applicability criteria of the methodology ACM0002: the applicability conditions included in the tools referred to above apply.</i></p>	CL-9 OK
B.2.8	<p>Is the selected baseline on of the baseline(s) described in the methodology and this hence confirms the applicability of the methodology?</p>	/1/ /22/	DR	<p>If the project activity is the installation of a new grid-connected renewable power plant/unit, the selected baseline scenario is: 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</p>	OK

			<p>sources, as reflected in the combined margin (CM) calculations described in the Tool to calculate the emission factor for an electricity system.</p> <p>If the project activity is a capacity addition to existing grid-connected renewable power plant/unit, the baseline scenario is: In the absence of the CDM project activity, the existing facility 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 (DATE_{BaselineRetrofit}). 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.</p> <p>The selected baseline is the baseline described in the methodology /22/, confirming the applicability of the methodology.</p>		
B.3 Project boundary of each generic CPA (VVS § 82-87)					
B.3.1	What are each generic CPA's system boundaries (components and facilities used to mitigate GHGs)? Are they clearly defined and in accordance with the methodology?	/1/ /22/	DR	<p>The spatial extent of the CPA boundary includes the CPA power plant and all power plants connected physically to the electricity system that the CPA power plant is connected to.</p> <p>CPA's system boundaries are in accordance with the methodology /22/.</p>	OK
B.3.2	Which GHG sources are identified for the project? Does	/1/	DR	CO ₂ as main, CH ₄ and N ₂ O as minor. Yes,	OK

	the identified boundary cover all possible sources linked to the project activity? Give reference to documents considered to arrive at this conclusion.	/8/ /9/		checked with technical information available at validation /8//9/.		
B.3.3	Does the project involve other emissions sources not foreseen by the methodologies that may question the applicability of the methodology? Do these sources contribute with more than 1% of the estimated emission reductions of the project?	/1/ /22/	DR	The validation of the generic CPA did not reveal other greenhouse gas emissions occurring within the proposed CPA boundary as a result of the implementation of the proposed project activity which are expected to contribute more than 1% of the overall expected average annual emission reduction, which are not addressed by ACM0002 (version 13.0.0) /22/.		OK
B.4 Baseline scenario determination and description (VVS § 88-95 / Identification of alternatives to the project activity (VVS § 113-116) <i>Ensure that the evaluation of all alternatives provided and required by the methodology and also possible alternatives/offshoots of alternatives are discussed. If baseline alternatives required to be considered by the methodology are considered not applicable, please assess the justification for this.</i>						
B.4.1	Which baseline scenarios have been identified? Is the list of baseline scenarios complete? Does the list include as one of the options that the project activity is undertaken without being registered as a proposed project activity? Does the list contains all plausible alternatives which are viable means of supplying the comparable outputs or services that are to be supplied by the proposed project activity?	/1/ /22/	DR	The project participant correctly adopted the baseline scenario foreseen by the methodology /22/ for greenfield and capacity additions project activities, as in the case of the proposed PoA.		OK
B.4.2	How have the other baseline scenarios been eliminated in order to determine the baseline?	/1/	DR	Not applicable.		OK
B.4.3	What is the baseline scenario?	/1/	DR	If the project activity is the installation of a		OK

			<p>new grid-connected renewable power plant/unit, the selected baseline scenario is: 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.</p> <p>If the project activity is a capacity addition to existing grid-connected renewable power plant/unit, the baseline scenario is: In the absence of the CDM project activity, the existing facility 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 (DATE_{BaselineRetrofit}). 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.</p>		
B.4.4	Is the determination of the baseline scenario in accordance with the guidance in the methodology?	/1/ /22/	DR	Yes, the determination of the baseline scenario is in accordance with the methodology /22/.	OK
B.4.5	Has the baseline scenario been determined using conservative assumptions where possible?	/1/ /22/	DR	The project participant correctly adopted the baseline scenario foreseen by the methodology /22/ for greenfield and capacity additions project activities, as in the case of the proposed PoA. Therefore this is not applicable.	OK

B.4.6	Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies? Does the baseline scenario comply with all applicable and enforced legislation?	/1/ /40/	DR I	As confirmed by the DNA /40/, the baseline scenario sufficiently takes into account relevant national and/or sectoral policies. Moreover it complies with all applicable and enforced legislation.		OK
B.4.7	Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/1/ /22/	DR	The project participant correctly adopted the baseline scenario foreseen by the methodology /22/ for greenfield and capacity additions project activities, as in the case of the proposed PoA. Therefore this is not applicable.		OK
B.4.8	Is the baseline determination adequately documented in the PoA-DD? <ul style="list-style-type: none"> All assumptions and data used by the project participants are listed in the PoA-DD and related document to be submitted for registration. The data are properly referenced. All documentation is relevant as well as correctly quoted and interpreted. Assumptions and data can be deemed reasonable Relevant national and/or sectoral policies and circumstances are considered and listed in the PoA-DD. The methodology has been correctly applied to identify what would occurred in the absence of the proposed CDM project activity 	/1/	DR	<ul style="list-style-type: none"> All assumptions and data used by the project participants are listed in the PoA-DD and related document to be submitted for registration. The data are properly referenced. All documentation is relevant as well as correctly quoted and interpreted. Assumptions and data can be deemed reasonable Relevant national and/or sectoral policies and circumstances are considered and listed in the PoA-DD. The methodology has been correctly applied to identify what would occurred in the absence of the proposed CDM project activity 		OK
B.5 Demonstration of eligibility for each generic CPA						
B.5.1	Has it been sufficiently justified that each generic CPA complies with the following eligibility criteria? <i>The geographical boundary of the CPA including any time-induced boundary consistent with the</i>	/1/	DR	The CPA must be grid connected to the South African national electricity grid and fall within the boundaries of the Republic of South Africa as they may exist at the time of		OK

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	<i>geographical boundary set in the PoA;</i>			CPA inclusion, so it is demonstrate that the the generic CPA comply with the criteria.		
B.5.2	Has it been sufficiently justified that each generic CPA complies with the following eligibility criteria? <i>Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);</i>	/1/	DR	<i>Each CPA has to follow the procedures established by the CME and described in Section C of the PoA to avoid double accounting and comply therewith.</i> In light of the previous sentence, it is demonstrate that the the generic CPA comply with the criteria.		OK
B.5.3	Has it been sufficiently justified that each generic CPA complies with the following eligibility criteria? <i>The specifications of technology/ measure including the level and type of service, performance specifications including compliance with testing/ certifications;</i>	/1/	DR	The first generic CPA is for CSP parabolic trough, grid-connected solar power plant installation. The equipment must conform to international and local quality standards, and the documentation must be provided to the CME, so it is demonstrate that the the generic CPA comply with the criteria The second generic CPA is for PV, grid-connected solar power plant installation. The equipment must conform to international and local quality standards, and this documentation must be provided to the CME, so it is demonstrate that the the generic CPA comply with the criteria		OK
B.5.4	Has it been sufficiently justified that each generic CPA complies with the following eligibility criteria? <i>Conditions to check the start date of the CPA through documentary evidence;</i>	/1/	DR	See CL 6 above.	CL-6	OK
B.5.5	Has it been sufficiently justified that each generic CPA complies with the following eligibility criteria? <i>Conditions that ensure compliance with applicability and other requirements of single or multiple methodology/ies applied by CPAs;</i>	/1/	DR	See CL 9 above	CL-9	OK

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B.5.6	Has it been sufficiently justified that each generic CPA complies with the following eligibility criteria? <i>The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality</i>	/1/	DR	Additionality must be assessed by the CME and relevant supporting documents provided by the CPA to the CME.		OK
B.5.7	Has it been sufficiently justified that each generic CPA complies with the following eligibility criteria? <i>The PoA-specific requirements stipulated by the CMEs including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;</i>	/1/	DR	Supporting documentation for the EIA, approved by local authorities, and local stakeholder participation has to be provided to the CME if the project has an installed capacity larger than, or equal to, 20 MW. Local stakeholder participation comment has to be documented in the CPA, and proof of newspaper articles and comments received has to be provided to the CME. Finally, the CPA must sign an agreement with the CME that indicates that they intend to comply with the code of conduct of the CME. In this way it is demonstrated that each generic CPA comply with the criteria.		OK
B.5.8	Has it been sufficiently justified that each generic CPA complies with the following eligibility criteria? <i>Conditions to provide an affirmation that funding from Annex I Parties, if any, does not result in a diversion of official development assistance.</i>	/1/	DR	A written declaration has to be submitted to the CME, which states that no ODA is used to implement the CPA; this declaration will be stored in the CME database. In this way it is demonstrated that each generic CPA comply with the criteria.		OK
B.5.9	Has it been sufficiently justified that each generic CPA complies with the following eligibility criteria? <i>Eligibility criteria defined by the methodology</i>	/1/	DR	Eligibility criteria defined by the methodology have not been considered in the PoA and in the generic CPA. See CAR 5 above.	CAR-5	OK

B.6 Algorithms and/or formulae used to determine emission reductions of each CPA (VVS § 96-100)					
Data and parameters that are available at validation and that are not monitored					
B.6.1	How was the $EF_{\text{grid, CM, y}}$ available at validation verified?	/1/	DR	<i>CL 10: The project participant is requested to apply the latest public available data for the calculation of the grid emission factor.</i>	CL 10 OK
B.6.2	In case any of the parameters above were determined based on sampling, was the sample adequate and did it comply with the specific guidance in the applicable methodology or, if no such guidance is available in methodology, did it achieve a 90/10 confidence/precision as the criteria for reliability of sampling efforts for small-scale project activities and 95/10 for large scale project activities?	/1/	DR	Not applicable	OK
Baseline emissions					
B.6.3	Are the calculations documented according to the approved methodology and tool and in a complete and transparent manner?	/1/ /22/ /24/	DR	<p>According to the methodology ACM0002 (version 13.0.0) /22/, baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:</p> $BE_y = EG_{PJ,y} \times EF_{\text{grid,CM,y}}$	OK

			<p>Where:</p> <ul style="list-style-type: none"> - BE_y: Baseline emissions in year y (tCO_2/y) - $EG_{PJ,y}$: 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/y) - $EF_{grid,CM,y}$: Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the Tool to calculate the emission factor for an electricity system (tCO_2/MWh) <p>The calculation documented in the Generic CPA-DD is in accordance with the methodology /22/ and the Tool to calculate the emission factor for an electricity system /24/.</p>		
B.6.4	Have conservative assumptions been used when calculating the baseline emissions?	/1/	DR	<p><i>CL 11: The project participant is requested to clarify why the Quantity of net electricity generation supplied by the project plant/unit to the grid in year y ($EG_{PJ,y}$) and the Amount of fossil fuel type i consumed in the project electricity system in year y ($FC_{i,y}$) are listed among the parameters available at validation and that are not monitored.</i></p>	CL 11 OK
B.6.5	Are uncertainties in the baseline emission estimates properly addressed?	/1/ /22/	DR	The baseline emissions have been calculated in accordance with the methodology /22/.	OK
B.6.6	If the calculations of baseline emissions are based on sampling, does this comply with the Standard for	/1/	DR	Calculation is not based on sampling,	OK

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sampling and surveys?			therefore this is not applicable.		
Project emissions					
B.6.7	Are the calculations documented according to the approved methodology and tool and in a complete and transparent manner?	/1/ /22/	DR	<p>According to the methodology ACM0002 (version 13.0.0) /22/, the project emissions shall be accounted for by using the following equation:</p> $PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$ <p>Where:</p> <p>PE_y: Project emissions in year y (tCO₂e/y)</p> <p>$PE_{FF,y}$: Project emissions from fossil fuel consumption in year y (tCO₂/y)</p> <p>$PE_{GP,y}$: Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO₂e/y)</p> <p>$PE_{HP,y}$: Project emissions from water reservoirs of hydro power plants in year y (tCO₂e/y)</p> <p><u>Project emissions from fossil fuel consumption ($PE_{FF,y}$)</u></p> <p>Most CSP power plants will utilise fossil fuel as start-up fuel, and therefore there will be project emissions due to fossil fuel consumption. The amount of project emissions from fossil fuel consumption are calculated in accordance with the Tool to</p>	OK

		<p>calculate project or leakage CO₂ emissions from fossil fuel combustion /25/. The following formula will be applied:</p> $PE_{FC,j,y} = \sum_i FC_{i,j,y} \times COEF_{i,y}$ <p>Where:</p> <p>PE_{FC,j,y}: Are the CO₂ emissions from fossil fuel combustion process j during the year y (tCO₂/year)</p> <p>FC_{i,j,y}: Is the quantity of fuel type I combusted in process j during the year y (mass or volume unit/yr)</p> <p>COEF_{i,j,y}: Is the CO₂ emission coefficient of fuel type I in year y (tCO₂/mass or volume unit)</p> <p>i: Are the fuel types combusted in process j during the year y</p> <p>The CO₂ emission coefficient COEF_{i,y} is calculated using Option B of the tool /25/, based on the net calorific value and CO₂ emission factor of the fuel type i, as follows:</p> $COEF_{i,y} = NCV_{i,y} \times EF_{CO2,i,y}$ <p>Where;</p> <p>COEF_{i,y}: Is the CO₂ emission coefficient of fuel type i in the year y (tCO₂/mass or volume unit)</p> <p>NCV_{i,y}: Is the weighted average net calorific value of the fuel type i in year y (GJ/mass or volume unit)</p>		
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			<p>$EF_{CO_2,i,y}$: Is the weighted average CO₂ emission factor of fuel type i in the year y (tCO₂/GJ)</p> <p>i: Are the fuel types combusted in process j during the year y.</p> <p>According to the methodology ACM0002, version 13.0.0 /22/, there are no project emissions for photovoltaic power plant.</p> <p><u>Project emission from the operation of geothermal power plants due to the release of non-condensable gases ($PE_{GP,y}$)</u></p> <p>There are no emissions due to the release of non-condensable gases since the project is not a geothermal power plant.</p> <p><u>Project emissions from water reservoirs of hydro power plants</u></p> <p>There are no emissions from water reservoirs since the project is not a hydro power plant.</p>		
B.6.8	Have conservative assumptions been used when calculating the project emissions?	/1/	DR	Conservative assumptions have been used when calculating the project emissions.	OK
B.6.9	Are uncertainties in the project emission estimates properly addressed?	/1/ /22/	DR	The baseline emissions have been calculated in accordance with the methodology /22/.	OK
B.6.10	If the calculations of project emissions are based on sampling, does this comply with the Standard for sampling and surveys?	/1/	DR	Calculation is not based on sampling, therefore this is not applicable.	OK
Leakage					
B.6.11	Are the leakage calculations documented according to the approved methodology and in a complete and	/1/ /22/	DR	According to the methodology ACM0002 (version 13.0.0) /22/, no leakage emissions	OK

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transparent manner?			are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). These emissions sources are neglected.		
B.6.12 Have conservative assumptions been used when calculating the leakage emissions?	/1/	DR	Not applicable.		OK
B.6.13 Are uncertainties in the leakage emission estimates properly addressed?	/1/	DR	Not applicable.		OK
B.6.14 If the calculations of leakage emissions are based on sampling, does this comply with the Standard for sampling and surveys	/1/	DR	Not applicable.		OK
Emission Reductions					
B.6.15 Algorithms and/or formulae used to determine emission reductions: <ul style="list-style-type: none"> • All assumptions and data used by the project participants are listed in the PoA-DD and related document submitted for registration. The data are properly referenced • All documentation is correctly quoted and interpreted. • All values used can be deemed reasonable in the context of the project activity • The methodology has been correctly applied to calculate the emission reductions and this can be replicated by the data provided in the PoA-DD and supporting files to be submitted for registration. 	/1/ /22/	DR	According to the methodology ACM0002 (version 13.0.0) /22/, emission reductions are calculated as follows: $ER_y = BE_y - PE_y$ Where: ER_y : Emission reductions in year y (t CO ₂ e/y) BE_y : Baseline emissions in year y (t CO ₂ /y) PE_y : Project emissions in year y (t CO ₂ e/y) - All assumptions and data used by the project participants are listed in the PoA-		OK

			<p>DD and related document submitted for registration. The data are properly referenced</p> <ul style="list-style-type: none"> - All documentation is correctly quoted and interpreted. - All values used can be deemed reasonable in the context of the project activity - The methodology has been correctly applied to calculate the emission reductions and this can be replicated by the data provided in the PoA-DD and supporting files to be submitted for registration. 		
B.7 Monitoring plan (VVS § 131-133)					
Data and parameters monitored					
B.7.1	Do the means of monitoring described in the plan comply with the requirements of the methodology?	/1/	DR	The means of monitoring described in the plan comply with the requirements of the methodology.	OK
B.7.2	Does the monitoring plan contains all necessary parameters, and are they clearly described?	/1/	DR	The monitoring plan contains all necessary parameters and they are clearly described.	OK
B.7.3	In case parameters are measured, is the measurement equipment described? Describe each relevant parameter.	/1/	DR	<ul style="list-style-type: none"> - Quantity of net electricity generation supplied by the project plant/unit to the grid in year y ($EG_{\text{facility},y}$). It will be measured through electricity meters located at the boundary between the CPA and the South African electricity grid. - Weighted average net calorific value of fuel type i in year y ($NCV_{i,y}$). It will be measured following the provisions of the 	OK

			<p>Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion /25/.</p> <p>- Weighted average CO₂ emission factor of fuel type i in year y (EF_{CO₂,i,y}). It will be measured following the provisions of the Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion /25/.</p> <p><i>CL 12: The project participant is requested to further describe the measuring equipment for the parameter Amount of fossil fuel type i consumed in the project electricity system in year y (FC_{i,y}).</i></p>		
B.7.4	In case parameters are measured, is the measurement accuracy addressed and deemed appropriate? Describe each relevant parameter.	/1/	DR	<p><i>CL 13: The project participant is requested to further describe the measurement accuracy of the measuring equipments. Moreover the project participant is requested to submit the Metering Code of the South African Grid Code.</i></p>	CL-13 OK
B.7.5	In case parameters are measured, are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate? Describe each relevant parameter.	/1/	DR	Calibration will be done according to manufacturer specifications.	OK
B.7.6	Is the monitoring frequency adequate for all monitoring parameters? Describe each parameter.	/1/	DR	The parameter will be monitored continuously.	OK
B.7.7	Is the recording frequency adequate for all monitoring parameters? Describe each parameter.	/1/	DR	Data will be aggregated monthly for reporting purposes.	OK
B.7.8	In case any of the parameters will be determined based	/1/	DR	The CME stated that “No sampling will be	CAR-3 OK

	on sampling, is the sample plan adequate and does it comply with the specific guidance in the applicable methodology or, if no such guidance is available in methodology, does it achieve a 90/10 confidence/precision as the criteria for reliability of sampling efforts for small-scale project activities and 95/10 for large scale project activities?			<i>done within any specific CPA. A sample of CPAs will be taken for verification purposes” but did not defined any statistically sound method for sampling. See CAR 3 above.</i>		
	Ability of project participants to implement monitoring plan					
B.7.9	How has it been assessed that the monitoring arrangements described in the monitoring plan are feasible within the project design?	/1/	DR	Some CLs have been raised at this regard.	CL-12 CL-13 CL-14	OK
B.7.10	Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	/1/	DR	<i>CL 14: The project participant is requested to further detail the procedures identified for day-to-day records handling and the QA/QC procedures to be implemented within the project monitorin plan.</i>	CL-14	OK
B.7.11	Are the data management and quality assurance and quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?	/1/	DR	See CL 14 above.	CL-14	OK
B.7.12	Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/1/	DR	All data collected will be archived electronically in two places for security purposes. Data will be consolidated and submitted to the CME database on a monthly basis. All data will be kept by the CPA and the CME for at least two years after the end of the crediting period.		OK
	Monitoring of sustainable development indicators/ environmental impacts					
B.7.13	Is the monitoring of sustainable development indicators/	/1/	DR	As confirmed by the DNA /40/, the		OK

MoV = Means of Verification, DR= Document Review, I= Interview, CC= Cross-Checking

	environmental impacts warranted by legislation in the host country?	/40/	I	monitoring of sustainable development indicators/ environmental impacts is not warranted by legislation in south Africa.		
B.7.14	Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/	DR	The monitoring plan does not provide for the collection and archiving of relevant data concerning environmental, social and economic impacts.		OK
B.7.15	Are the sustainable development indicators in line with stated national priorities in the host country?	/1/ /40/	DR I	As confirmed by the DNA /40/, the sustainable development indicators are in line with stated national priorities in South Africa.		OK

Table 3 Resolution of corrective action requests and clarification requests

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
<p>CAR 1: According to the CDM Modalities and Procedures §40a, the programme shall have the written approval of voluntary participation from the Designated National Authority of each Party involved.</p> <p>Moreover, according to the 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, the coordinating/managing entity shall obtain letters of authorization of its coordination of the PoA from each host Party. Neither LoA nor letter of authorization has been provided by the project participant.</p>	<p>A.4.2 A.4.3 A.4.5</p>	<p>Host Country Approval has been provided to the validators.</p>	<p>A letter of approval (LoA) /17/ was issued by DNA of South Africa on 20 September 2012, authorizing Carbon Protocol of SA as the project proponent and Coordinating/Managing Entity (CNE) and confirming that the project assists in achieving sustainable development.</p> <p><u>Therefore this CAR is closed.</u></p>
<p>CAR 2: Paragraph 54 of the VVS requires the Modalities of Communication to be clearly identified, including the specimen signatures, authorised signatories etc. The project participant has not provided the Modalities of Communication.</p>	<p>A.5.1 A.5.2</p>	<p>The signed MoC is provided as supporting documentation. (supporting documentation: “2012-09-04 Signed Kumba MoC statement”)</p>	<p>DNV received written confirmation from the coordinating/managing entity that submits to it the MoC statement that all corporate and personal details, including specimen signatures, are valid and accurate.</p> <p>DNV confirms that the MoC statement was received from a project participant with whom DNV has a contractual relationship /15/.</p> <p>DNV confirms that the official who submits the MoC statement to the DOE and the official who signed the written confirmation is duly authorized to do so</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			on behalf of the respective project participant /16/. <u>Therefore this CAR is closed.</u>
<p>CAR 3: According to the 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: “If the coordinating /managing entity does not wish to have all CPAs verified, a description of the proposed statistically sound sampling method/procedure to be used by DOEs for verification of the amount of reductions of anthropogenic emissions by sources or removals by sinks of greenhouse gases achieved by CPAs under the PoA”.</p> <p>The project participant stated that: “A sample of CPAs will be taken for verification purposes”, however the description of a statistically sound method for sampling has not been provided.</p>	<p>A.7.1 B.3.9 B.7.8</p>	<p>This clause has been removed. No sampling will be done and all the CPAs will be verified.</p>	<p>The project participant clarified that no sampling will be done within any specific CPA. Therefore all CPAs included in the proposed PoA will be verified by DOEs.</p> <p><u>Therefore this CAR is closed.</u></p>
<p>CAR 4: The project participant did not demonstrate the additionality of the PoA in compliance with the Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities. The project participant only indicated the approach for the demonstration</p>	<p>B.1 B.2</p>	<p>Section B.1. of the PoA-DD has been amended to include the “Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities”.</p> <p>A demonstration of the application for the “Tool for the demonstration and</p>	<p>In the revised PoA-DD, the demonstration of additionality of the PoA is based on the fact that in the absence of the CDM the proposed voluntary measure would not be implemented as there are no mandatory requirements for PoA development in South Africa. This was confirmed by</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
<p>of the additionality of CPAs: “ACM0002 (Version 13.0.0) directs that the additionality of the project activity (in this case a CPA) shall be demonstrated and assessed using the Tool for the demonstration and assessment of additionality (Version 06.0.0). Additionality will be demonstrated at the CPA level”.</p>		<p>assessment of additionality” was also included in the PoA-DD.</p>	<p>the local DNA /40/. The above demonstration is in compliance with the Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities /21/.</p> <p>Moreover the project participant provided a demonstration of the addionality of a generic CPA to be included in the proposed PoA. A detailed assessment of it is provided in para 4.6 of this validation report.</p> <p><u>Therefore this CAR is closed.</u></p>
<p>CAR 5: Methodology ACM0002 version 13.0.0 states specific requirements for project activities under a programme of activities, for instance regarding eligibility criteria. The project participant did not address the above requirements of the methodology.</p>	<p>B.3.13 B.5.9</p>	<p>In section B.2. of the PoA-DD it is stated that “In accordance with <i>ACM0002: Consolidated baseline methodology for grid-connected electricity generation from renewable sources</i> (Version 13.0.0), relevant technical and economic parameters were considered when defining eligibility criteria for CPA inclusion for a distinct type of CPAs. The parameters deemed relevant were included in the tables for the specific types of CPAs.”</p> <p>Emission reduction and monitoring provisions are also specified for the</p>	<p>The project participant considered the requirements of the methodology in the formulation of the eligibility criteria: ACM0002 (Version 13.0.0) directs that the additionality of the project activity (in this case a CPA) shall be demonstrated and assessed using the “Tool for the demonstration and assessment of additionality” (Version 06.1.0). Additionality will be demonstrated at the CPA level in the CPA-DD and checked by the CME. A demonstration of the additionality of a generic CPA is described in Part II</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		CPA in Part II of the PoA-DD.	<p>Section B.5 of this PoA.</p> <ol style="list-style-type: none"> 1. If the CPA is using an Investment Analysis approach to demonstrate additionality then it must be shown that: <ol style="list-style-type: none"> (i) The CPA has a lower equity IRR than the benchmark for expected return on equity for Group 1 projects in South Africa; and, (ii) The CPA is not common practice. 2. If the CPA is using an Investment Barrier Analysis to demonstrate additionality then it must be shown that: <ol style="list-style-type: none"> (i) The CPA is unable to secure either debt finance and/or an equity investment without the CDM and that the CDM has enabled the project to secure financing for it to be able to move into implementation; and, (ii) The CPA is not common practice. 3. If a “First of its Kind” Analysis is being used to demonstrate

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			<p>additionality then it must be shown that the CPA has been identified as a “First of its Kind” project activity. This criterion is considered sufficient to ensure CPAs meet the requirements pertaining to the demonstration of additionality. The requirements pertaining to the demonstration of the additionality are further assessed in section 4.6 of this validation report.</p> <p><u>Therefore this CAR is closed.</u></p>
<p>CAR 6: According to paragraph 17 of the Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities, the CME shall develop and implement a management system that includes the following made available to the DOE at the time of validation of the PoA:</p> <p>(a) A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies;</p> <p>(b) Records of arrangements for training and capacity development for personnel;</p> <p>(c) Procedures for technical review of inclusion of CPAs;</p> <p>(d) A procedure to avoid double counting</p>	B.5	<p>All the aspects are addressed in the latest CME Manual which is provided to the validators. (supporting documentation: “2012-09-17 CPSA & Kumba CME Manual”)</p>	<p>The management system of the proposed PoA contains the following points, in accordance with the Standard for demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities /21/:</p> <p>a) <i>A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies /21/;</i></p> <p>All the details regarding a management system are contained in the CME contract (Operational Agreement between the CME and the CPA</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
<p>(e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA);</p> <p>(e) Records and documentation control process for each CPA under the PoA;</p> <p>(f) Measures for continuous improvements of the PoA management system;</p> <p>(g) Any other relevant elements.</p> <p>The management system described in the PoA does not fully comply with requirements (a), (b), (c), (e) and (f).</p>			<p>implementer) that will be signed by each CPA /10/. The contract includes: “the development and implementation of a management system comprising, inter alia:</p> <p><i>4.9.2.1.1. A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies;”</i></p> <p>The authority and responsibility of overall programme management is clearly described in section B.7.2 of part II of the PoA-DD: The CPA facility manager is responsible for the effective implementation of the monitoring management plan elements with regard to metering. The CME Carbon Protocol of SA is responsible for managing and monitoring the data set that generates the grid emission factor.</p> <p><i>b) Records of arrangements for training and capacity development for personnel /21/:</i></p> <p>With regards to how training needs will be addressed to assure appropriate operation and maintenance, part II of the PoA-DD indicates as part of the</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			<p>monitoring plan management that all elements of the monitoring plan will be supported by formal procedures and regular training of delegated personnel.</p> <p>c) <i>Procedures for technical review of inclusion of CPAs /21/:</i> The CME contract includes /10/ the development and implementation of a management system comprising, inter alia: 4.9.2.1.3. <i>procedures for technical review of inclusion of CPAs;</i></p> <p>d) <i>A procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA) /21/:</i> The CME has established clear procedures to avoid double counting of emission reductions. The PoA-DD describes the following procedure, in section C Management System: Unique identification code(s) for the site and the CPA meter(s) that record the amount of electricity exported to the South African national</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			<p>grid will also be provided, as well as GPS co-ordinates as reference points for the delineation of the boundary of the CPA site. The meter(s) must be situated within the site boundary.</p> <p>It is DNV opinion that this criterion ensures sufficient conditions that avoid double counting of emission reductions.</p> <p>e) <i>Records and documentation control process for each CPA under the PoA /21/:</i></p> <p>The CME will operate a PoA monitoring database including all the CPAs for the PoA. Each CPA will be uniquely identified within the PoA monitoring database of all CPAs. The database will include the following information for each CPA:</p> <ol style="list-style-type: none"> 1) The name of the CPA implementer(s); 2) The name of the site where the solar facility is implemented; 3) The CPA site details, including street address (if available), meter numbers, and GPS co-ordinates as reference points for the delineation of the boundary of the CPA site; 4) The start date of the project and the

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			<p>start date of the crediting period; and</p> <p>5) The monitoring period for each CPA. The signed contract between with the managing entity and the CPA implementers will be recorded and stored by the CME.</p> <p>f) <i>Measures for continuous improvements of the PoA management system</i> /21/:</p> <p>The CME contract includes /10/: the development and implementation of a management system comprising, inter alia:</p> <p>4.9.2.1.6. <i>measures for continuous improvements of the PoA management system.</i></p> <p>The management system of the proposed PoA is in accordance with the “Standard for demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities” /21/.</p> <p><u>Therefore this CAR is closed.</u></p>
CAR 7: According to paragraph 177 of the Clean Development Mechanism Project	A.1.1 A.1.2	The PoA has been re-designed to develop only grid connected greenfield	During the validation, the PoA has be re-designed to develop only grid

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
Standard, a generic CPA-DD, which specifies the generic information relevant to all CPAs that may be included in the PoA. The project participant included two generic CPA-DDs in the PoA.		CSP power generation facilities. Initially CSP and PV power plant, both greenfield and capacity additions, were included in the PoA design. CAR 7 is no longer applicable.	connected greenfield CSP power generation facilities. Initially CSP and PV power plant, both greenfield and capacity additions, were included in the PoA design. CAR 7 is no longer applicable. <u>Therefore this CAR is closed.</u>
CL 1: The project participant is requested to clarify the sentence “the technology is in accordance with section A.4.2.1 of this PoA”, since section A.4.2.1 does not exist in the mentioned document.	A.2.4	This statement was corrected in section A.2 of the PoA-DD to state: “...the technology is in accordance with the eligibility criteria of the PoA”	The project participant clarified the erroneous sentence and removed it from the PoA-DD. <u>Therefore this CL is closed.</u>
CL 2: The project participant is requested to clarify the inconsistency between the procedure written in Section C and the eligibility criteria b) defined in section B.2.	A.3.4 B.3.2 B.5.4	The eligibility criteria in Section B.2 (b) does not contain all the detail contained in Section C of the PoA-DD and therefore refers to Section C. Both these sections have been amended to conform to one another.	The project participant clarified the inconsistency found the PoA-DD published for GSC. <u>Therefore this CL is closed.</u>
CL 3: The project participant is requested to submit evidence that no official development assistance has been diverted from an Annex-1 Party.	A.6.1	The letter from the CME stating this was submitted to the validators as supporting documentation. (supporting documentation: “2012-08-16 Kathu Solar PoA ODA letter”)	The project participant provided a declaration signed by the General Manager of the CME stating that the Solar Energy Programme for South Africa has not received Official Development Assistance (ODA). <u>Therefore this CL is closed.</u>
CL 4: The project participant is requested	B.2.2	This was provided to the validators.	The project participant provided

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
provide evidence showing the approval of the EIA.		(supporting document “Environmental Authorisation for the KSP Project”).	evidence that the EIA has been approved by Department of Environmental Affairs of South Africa on 3 November 2011 /7/. <u>Therefore this CL is closed.</u>
CL 5: The project participant is requested to clarify how this eligibility criteria (c) (d) and (l) will be verifiable, as requested by paragraph 15 of the Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities.	B.3.3 B.3.4 B.3.12 B.3.13	The eligibility criteria (c) (d) and (l) was amended to include the requirement for verifiable documentation that must be provided by the CPA implementer to the CME. The CME will be responsible for checking this documentation and storing the supporting documentation.	In order to verify the eligibility criteria (c) (d) and (l) the CME be responsible for checking the verifiable documentation that must be provided by the CPA implementer. <u>Therefore this CL is closed.</u>
CL 6: The project participant is requested to clarify how the starting date of each CPA, as defined in the eligibility criteria (d), is fulfilling the definitions provided in the Glossary of CDM terms.	B.3.4 B.5.4	The starting date of each CPA was changed to state: “For the purpose of this PoA, the start date of the CPA will be the date on which a contract has been signed for equipment or construction/operation services required for the project activity.” The signing of the contract for the supply of equipment or construction services is seen as the earliest date for which real action towards this project activity begins. This definition is in accordance with EB41 Rep, para67.	In the revised version of the PoA-DD, the start date has been defined to be the date on which a contract has been signed for equipment or construction/operation services required for the project activity. The CPA operator will provide documentary proof of this contract to the CME and the CME will record the start date of the CPA and confirm that a document check has been done. The above definition is fulfilling the definitions provided in the Glossary of CDM terms /32/. <u>Therefore this CL is closed.</u>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
CL 7: The project participant is requested to clarify how the “Additional requirements from the CME will be stipulated in the contract that must be signed by the CPA implementer” will be usable, verifiable and sufficiently objective, as required by the Standard for the demonstration of additionality, development of eligibility criteria, and application of multiple methodologies for programme of activities.	B.3.7 B.3.13	This sentence was removed from the PoA.	<p>The sentence subject to this clarification request was removed from the revised version of the PoA-DD, hence this CL is not applicable anymore.</p> <p><u>Therefore this CL is closed.</u></p>
CL 8: The project participant is requested to clarify how the “prospective grid connected PV and CSP project developers in South Africa” can be considered a target group of this PoA.	B.3.8	This PoA is specifically aimed at greenfields grid connected CSP power plants to enable them to obtain CDM finance via carbon credits, which in turn will help commercial entities overcome common barriers (as discussed in the PoA-DD) relating to projects of this kind.	<p>In the revised PoA-DD, the eligibility criteria have been revised and no target group has been identified, since it is not applicable to the proposed PoA.</p> <p>Moreover during the validation, the PoA has be re-designed to develop only grid connected greenfield CSP power generation facilities. Initially CSP and PV power plant, both greenfield and capacity additions, were included in the PoA design.</p> <p><u>Therefore this CL is closed.</u></p>
CL 9: The project participant is requested to further describe how each specific CPA complies with the following applicability criteria of the methodology ACM0002: the applicability conditions included in the tools referred to above apply.	B.2.7 B.5.5	All the applicability criteria for all the tools used in the PoA-DD, and how this PoA-DD complies, were included in the applicability criteria table in section B.3 of the PoA-DD.	The project participant included in the revised version of the PoA-DD a description on how the applicability criteria “the applicability conditions included in the tools referred to above apply.” is fulfilled by the each generic CPAs. A detailed assessment is provided in para 4.12 of this validation

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			report. <u>Therefore this CL is closed.</u>
CL 10: The project participant is requested to apply the latest public available data for the calculation of the grid emission factor.	B.6.1	This was done and supporting documentation provided to the DoE. (supporting documentation: GEF folder)	The project participant applied the latest public available data – at the time of the submission of the PoA-DD to DNV for validation – for the calculation of the grid emission factor of South Africa. A detailed assessment of the calculation is provided in para 4.15 of this validation report. <u>Therefore this CL is closed.</u>
CL 11: The project participant is requested to clarify why the Quantity of net electricity generation supplied by the project plant/unit to the grid in year y ($EG_{PJ,y}$) and the Amount of fossil fuel type i consumed in the project electricity system in year y ($FC_{i,y}$) are listed among the parameters available at validation and that are not monitored.	B.6.4	These parameters were moved to the correct section in the PoA to be monitored parameters.	In the revised PoA-DD, the parameters Quantity of net electricity generation supplied by the project plant/unit to the grid in year y ($EG_{PJ,y}$) and Amount of fossil fuel type i consumed in the project electricity system in year y ($FC_{i,y}$) are correctly listed among the parameters to be monitored since they are not available at validation. <u>Therefore this CL is closed.</u>
CL 12: The project participant is requested to further describe the measuring equipment for the parameter Amount of fossil fuel type i consumed in the project electricity system in year y ($FC_{i,j,y}$).	B.7.3 B.7.9	The description of the measuring equipment for amount of fossil fuel was amended in the PoA.	In the revised PoA-DD, the project participant revised the description of the monitoring plan with regards to the parameter $FC_{i,j,y}$ as follows:

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			<p>- Quantity of fuel type i combusted in process j during the year y ($FC_{i,j,y}$). It will be measured through fuel meters calibrated and maintained in-line with manufacturer's specifications. The accuracy of the fuel meters will be according to the meter manufacturer's specifications. If at the time of installation there are National or Industry standards on the accuracy of the specific type of flow meter, this must be met and documented in the CPA. $FC_{i,j,y}$ will be monitored continuously and aggregate monthly. The measurements will be cross-checked with records for purchased fuel figures. The ex-ante estimation is equal to 10 000 tonne/yr.</p> <p><u>Therefore this CL is closed.</u></p>
CL 13: The project participant is requested to further describe the measurement accuracy of the measuring equipments. Moreover the project participant is requested to submit the Metering Code of the South African Grid Code.	B.7.4 B.7.9	The measurement accuracy of the electricity meters are specified in the Metering Code of South Africa which refers to the NRS 057 document (now SANS 474). Both these documents are provided as supporting documentation. (supporting documentation: "Metering Code of SA" and "SANS474")	<p>In the revised PoA-DD, the project participant revised the description of the monitoring plan with regards to the parameter $EG_{facility,y}$ as follows:</p> <p>- Quantity of net electricity generation supplied by the project plant/unit to the grid in year y ($EG_{facility,y}$). It will be measured</p>

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		<p>The measurement accuracy of the fuel consumption is specified to be according to manufacturer's specification.</p>	<p>through electricity meters located at the boundary between the CPA and the South African electricity grid. The equipment (and its associated accuracy) will be in line with the Metering Code of the South African Grid Code. $EG_{\text{facility},y}$ will be continuously monitored and monthly recorded. Calibration will be done according to manufacturer specifications. The measurements will be cross-checked with records for sold electricity. The ex-ante estimation is equal to 100 000 MWh/yr.</p> <p>An assessment of the parameter $FC_{i,j,y}$ is provided in the validation conclusion of CL 12 of this validation report.</p> <p>Moreover the project participant submitted the Metering Code of the South African Grid Code as required.</p> <p><u>Therefore this CL is closed.</u></p>
CL 14: The project participant is requested to further detail the procedures identified for day-to-day records handling and the QA/QC procedures to be implemented within the project monitorin plan.	B.7.9 B.7.10 B.7.11	This is described in more detail in the CME Manual which is provided to the validators. (supporting documentation: "2012-09-17 CPSA & Kumba CME Manual")	According to CME) Manual for the Programme of Activities /13/,d ocuments are controlled by making sure they are clearly identified, that they are complete and up to date, that they are

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			<p>properly approved, and that they are available where they need to be used.</p> <p>Records are the evidence of what was done to operate the PoA in accordance with the requirements of the registered project design and the CDM requirements. If essential records are missing or if their accuracy cannot be assured then CERs cannot be verified, certified and then issued.</p> <p>Records will be paper and computer based.</p> <p>Records are controlled by making sure that all essential records are regularly collected, and that it can be demonstrated they are complete, accurate and authorized. Record control also includes protecting them from deletion or unauthorized changes to them.</p> <p>The Carbon Protocol of SA's CME Coordinator will be responsible for maintaining the records. Records are to be held in a way that protects them from damage, loss or unauthorized access.</p> <p><u>Therefore this CL is closed.</u></p>

Table 4 Forward action requests

Forward action request	Reference to Table 2	Response by project participants
No FAR has been identified during the validation.		

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APPENDIX B

PROTOCOL FOR ASSESSING COMPLIANCE OF SPECIFIC CPA WITH POA REQUIREMENTS

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
A Description of CPA (PS § 31, VVS § 62-63, § 189)						
A.1. Title, Technical description of CPA and Parties involved						
A.1.1	Does section A.1 of the CPA-DD include a clearly identifiable project title, version number of the CPA-DD and date of the CPA-DD?			<input type="checkbox"/> Clearly identifiable title of the project activity <input type="checkbox"/> Version number of the PoA-DD is included <input type="checkbox"/> Date of the PoA-DD is included.		
A.1.2	Is the CPA-DD in accordance with the applicable requirements for completing CPA-DDs?					
A.1.3	Does the description of the CPA sufficiently cover all relevant elements, is accurate and does it provides the reader with a clear understanding of the nature of the proposed CPA?					
A.1.4	Does the CPA-DD provide information on the CPA implementer(s)? CPA implementers can be project participants of the PoA, under which the CPA is submitted, provided the name is included in the registered PoA.					
A.1.5	Does the CPA-DD describe all the technologies and/or measures to be employed and/or implemented by the CPA including a list of the facilities, systems and equipment that will be installed and/or modified by the CPA					
A.1.6	Does the CPA-DD adequately list all Party(ies) and CPA implementer(s) involved in the CPA and provide contact information in Appendix 1? Are all listed					

Checklist Question		Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
Party(ies) and CPA implementer(s) included in the PoA?						
A.1.7	Does the CPA-DD provide geographic reference or other means of identification that allows for the unique identification of the CPA?					
A.2. Duration of the CPA and crediting period						
A.2.1	Is the CPA starting date and operational lifetime clearly defined and evidenced?					
A.2.2	Has the crediting period been clearly defined and is the start of the crediting period deemed to be reasonable?					
A.2.3	Has it been confirmed that the length of the CPA crediting period does not exceed the end of PoA?					
A.3. Estimated amount of emission reductions from the CPA						
A.3.1	Has the emission reduction forecast been checked and is it deemed likely that the stated amount is achieved given that the underlying assumptions do not change?					
A.4. Public funding						
A.4.1	In case public funding from Parties included in Annex I is used for the project activity, have these Parties provided 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 these Parties?					
A.5. Confirmation for CPA						
A.5.1	Has a confirmation been provided that the CPA is neither registered as an individual CDM project activity nor is part of another registered PoA?					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B Environmental impacts (PS § 63-64, VVS § 134-135) <i>It is assessed whether environmental impacts of the CPA have been properly addressed.</i>			<input type="checkbox"/> Analysis at PoA level <input type="checkbox"/> Analysis at CPA level This section must only be completed if the analysis of environmental impacts must be at CPA level.		
D.1.2. Has an analysis of the environmental impacts of the CPA been sufficiently described?					
D.1.3. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)?					
D.1.4. Will the programme create any adverse environmental effects?					
D.1.5. Are transboundary environmental impacts considered in the analysis?					
D.1.6. Have identified environmental impacts been addressed in the programme design?					
D.1.7. Does the programme comply with environmental legislation in the host country?					
C Stakeholders' comments (PS § 65-69, VVS § 138-140) <i>It is assessed whether stakeholders have been properly consulted in the development of the CPA.</i>			<input type="checkbox"/> Consultation at PoA level <input type="checkbox"/> Consultation at CPA level This section must only be completed if the analysis of environmental impacts is at PoA level.		
C.1.1. Have relevant stakeholders been consulted?					
C.1.2. Have appropriate media been used to invite comments by local stakeholders?					
C.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
with such regulations/laws?					
C.1.4. Is a summary of the stakeholder comments received provided?					
C.1.5. Has due account been taken of any stakeholder comments received?					
D Application of a baseline and monitoring methodology(ies)					
D.1. Title and reference of the approved baseline and monitoring methodology(ies) selected					
D.2.2. Are the exact reference and title of approved methodology(ies) and tools listed?					
D.2.3. Are valid version of approved methodology(ies) and tools applied?					
D.2. Applicability of methodology (and tools) (VVS § 73-77) <i>The applicability of the methodology is checked through the eligibility criteria specifying the the conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs</i>					
D.3.2. Do the eligibility criteria in D.5 below, in particular the eligibility criteria specifying the conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by the CPA, sufficiently demonstrate that the CPA complies with the applicability criteria of the applied methodology (and tools)? If not, provide below and assessment of the CPAs compliance with the applicability criteria.					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
D.3.3. If not already sufficiently demonstrated through relevant eligibility criteria, how was it validated the CPA complies with the following applicability criteria: 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 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).					
D.3.4. If not already sufficiently demonstrated through relevant eligibility criteria, how was it validated the CPA complies with the following applicability criteria: 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.					
D.3.5. If not already sufficiently demonstrated through relevant eligibility criteria, how was it validated the CPA complies with the following applicability criteria: 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					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
years, used for the calculation of baseline emissions and defined in the baseline 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.					
<p>D.3.6. If not already sufficiently demonstrated through relevant eligibility criteria, how was it validated the CPA complies with the following applicability criteria: In case of hydro power plants one of the following conditions must apply:</p> <ul style="list-style-type: none"> - The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of reservoirs; or - The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of each reservoir, as per the definitions given in the Project Emissions section, is greater than 4 W/m²; or - The project activity results in new single or multiple reservoirs and the power density of each reservoir, as per the definitions given in the Project Emissions section, is greater than 4 W/m². 					
<p>D.3.7. If not already sufficiently demonstrated through relevant eligibility criteria, how was it validated the CPA complies with the following applicability criteria: In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m² all the following conditions must</p>					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
<p>apply:</p> <ul style="list-style-type: none"> - The power density calculated for the entire project activity using equation 5 is greater than 4 W/m^2; - Multiple reservoirs and hydro power plants located at the same river and where are designed together to function as an integrated project that collectively constitute the generation capacity of the combined power plant; - Water flow between multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity; - Total installed capacity of the power units, which are driven using water from the reservoirs with power density lower than 4 W/m^2, is lower than 15 MW; - Total installed capacity of the power units, which are driven using water from reservoirs with power density lower than 4 W/m^2, is less than 10% of the total installed capacity of the project activity from multiple reservoirs. 					
<p>D.3.8. If not already sufficiently demonstrated through relevant eligibility criteria, how was it validated the CPA complies with the following applicability criteria:</p> <ul style="list-style-type: none"> - Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; - Biomass fired power plants; - A hydro power plant that results in the creation of a new single reservoir or in the increase in an existing 					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
single reservoir where the power density of the power plant is less than 4 W/m ² .					
D.3.9. If not already sufficiently demonstrated through relevant eligibility criteria, how was it validated the CPA complies with the following applicability criteria: 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.					
D.3.10. If not already sufficiently demonstrated through relevant eligibility criteria, how was it validated the CPA complies with the following applicability criteria: The tool to calculate the emission factor for an electricity system /24/ may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity, i.e. where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).					
D.3. Project boundary of CPA (VVS § 82-87)					
D.3.1. What is the CPA's system boundaries (components and facilities used to mitigate GHGs)? Are they clearly defined and in accordance with the methodology?					
D.3.2. Is the CPA located within the geographical boundary of					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
the proposed or registered PoA?					
D.3.3. Which GHG sources are identified for the project? Does the identified boundary cover all possible sources linked to the project activity? Give reference to documents considered to arrive at this conclusion.					
D.3.4. Does the project involve other emissions sources not foreseen by the methodologies that may question the applicability of the methodology? Do these sources contribute with more than 1% of the estimated emission reductions of the project?					
D.4. Baseline scenario determination and description (VVS § 88-95 / Identification of alternatives to the project activity (VVS § 113-116)) <i>Ensure that the evaluation of all alternatives provided and required by the methodology and also possible alternatives/offshoots of alternatives are discussed. If baseline alternatives required to be considered by the methodology are considered not applicable, please assess the justification for this</i>					
D.5.2. Which baseline scenarios have been identified? Is the list of baseline scenarios complete? Does the list include as one of the options that the project activity is undertaken without being registered as a proposed project activity? Does the list contains all plausible alternatives which are viable means of supplying the comparable outputs or services that are to be supplied by the proposed project activity?					
D.5.3. How have the other baseline scenarios been eliminated in order to determine the baseline?					
D.5.4. What is the baseline scenario?					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
D.5.5. Is the determination of the baseline scenario in accordance with the guidance in the methodology?					
D.5.6. Has the baseline scenario been determined using conservative assumptions where possible?					
D.5.7. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies? Does the baseline scenario comply with all applicable and enforced legislation?					
D.5.8. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?					
D.5.9. Is the baseline determination adequately documented in the PoA-DD? <ul style="list-style-type: none"> • All assumptions and data used by the project participants are listed in the PoA-DD and related document to be submitted for registration. The data are properly referenced. • All documentation is relevant as well as correctly quoted and interpreted. • Assumptions and data can be deemed reasonable • Relevant national and/or sectoral policies and circumstances are considered and listed in the CPA-DD. • The methodology has been correctly applied to identify what would occurred in the absence of the proposed CDM project activity 					
D.5. Demonstration of eligibility for the CPA					
D.6.2. Has it been sufficiently justified that the CPA complies					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
<p>with the following eligibility criteria? The CPA must be grid connected to the South African national electricity grid and fall within the boundaries of the Republic of South Africa as they may exist at the time of CPA inclusion. This will be demonstrated with a power purchase agreement and GPS co-ordinates of the outline of the project.</p>					
<p>D.6.3. Has it been sufficiently justified that the CPA complies with the following eligibility criteria? Each CPA will follow the procedures established by the CME and described in Section C of the PoA to avoid double accounting and comply therewith. Each CPA shall be uniquely identified and defined in an unambiguous manner, by amongst other aspects providing geographic information (GPS coordinates of the project outline), metering the installed capacity of the plant and the exact start date/ end date of the crediting period. Unique identification code(s) for the site and the CPA meter(s) that record the amount of electricity exported to the South African national grid will also be provided.</p>					
<p>D.6.4. Has it been sufficiently justified that the CPA complies with the following eligibility criteria? The technology must be CSP plants that are grid connected. Various types and designs of CSP systems exist, and these are all valid under this programme. Each CPA will demonstrate that the solar equipment complies with the relevant quality standards for grid connectivity to the national grid, by submitting relevant</p>					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
documentation from the technology suppliers as proof to the CME, who will check this against the national grid quality standards. The CME will record and store the information for validation purposes.					
<p>D.6.5. Has it been sufficiently justified that the CPA complies with the following eligibility criteria?</p> <p>For the purpose of this PoA, the start date of the CPA will be the date on which a contract has been signed for equipment or construction/operation services required for the project activity. The CPA operator will provide documentary proof of this contract to the CME and the CME will record the start date of the CPA and confirm that a document check has been done.</p> <p>The start date must be after the date of the commencement of the validation and the Global Stakeholder Consultation (GSC), i.e. 7 June 2012.</p>					
<p>D.6.6. Has it been sufficiently justified that the CPA complies with the following eligibility criteria?</p> <p>The CPA will be a CSP grid-connected renewable power generation project that is an 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).</p>					
<p>D.6.7. Has it been sufficiently justified that the CPA complies with the following eligibility criteria?</p> <p>ACM0002 (Version 13.0.0) directs that the additionality of the project activity (in this case a CPA) shall be demonstrated and assessed using the “Tool for the demonstration and assessment of additionality”</p>					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
<p>(Version 06.1.0). Additionality will be demonstrated at the CPA level in the CPA-DD and checked by the CME. A demonstration of the additionality of a generic CPA is described in PART II Section B.5 of this PoA.</p> <ol style="list-style-type: none"> 1. If the CPA is using an Investment Analysis approach to demonstrate additionality then it must be shown that: <ol style="list-style-type: none"> (i) The CPA has a lower equity IRR than the benchmark for expected return on equity for Group 1 projects in South Africa; and, (ii) The CPA is not common practice. 2. If the CPA is using an Investment Barrier Analysis to demonstrate additionality then it must be shown that: <ol style="list-style-type: none"> (i) The CPA is unable to secure either debt finance and/or an equity investment without the CDM and that the CDM has enabled the project to secure financing for it to be able to move into implementation; and, (ii) The CPA is not common practice. 3. If a “First of its Kind” Analysis is being used to demonstrate additionality then it must be shown that the CPA has been identified as a “First of its Kind” project activity. 					
<p>D.6.8. Has it been sufficiently justified that the CPA complies with the following eligibility criteria? CPAs will have undertaken stakeholder consultations, which will have been formally recorded.</p>					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
CPA s will have undertaken an analysis of their environmental impacts which will have been formally recorded.					
<p>D.6.2. Has it been sufficiently justified that the CPA complies with the following eligibility criteria? CPAs will need choose one of the following two options:</p> <p>i. For CPAs that have not received any public funding from Annex I parties, the CPA will need to confirm this in writing; or,</p> <p>ii. For CPAs that have received public funding from Annex 1 parties, the Annex 1 country funding source will confirm in writing that it has not resulted in a diversion of official development assistance.</p>					
<p>D.6.2. Has it been sufficiently justified that the CPA complies with the following eligibility criteria?</p> <p>Technical parameter: the CPA should be grid-connected, as described and covered in eligibility criteria (a).</p> <p>Economic parameter: The CPA should be of a scale that it can fund the following:</p> <ul style="list-style-type: none"> - Separate Meters; - A formal environmental analysis; and, - Formal public consultation. <p>Investment parameter: Each CPA should be in the process of negotiating or applying for a power purchase agreement (PPA) with an off-taker that includes content addressing:</p> <ul style="list-style-type: none"> - Tariff; 					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
<ul style="list-style-type: none"> - Metering; - Record keeping; and, - Generation Forecasts. 					
D.6. Algorithms and/or formulae used to determine emission reductions of the CPA (VVS § 96-100)					
Data and parameters that are available at validation and that are not monitored					
D.7.2. How was the $EF_{grid,CM,y}$ available at validation verified?					
D.7.3. In case any of the parameters above were determined based on sampling, was the sample adequate and did it comply with the specific guidance in the applicable methodology or, if no such guidance is available in methodology, did it achieve a 90/10 confidence/precision as the criteria for reliability of sampling efforts for small-scale project activities and 95/10 for large scale project activities?					
Baseline emissions					
D.7.4. Are the calculations documented according to the approved methodology and tool and in a complete and transparent manner?					
D.7.5. Have conservative assumptions been used when calculating the baseline emissions?					
D.7.6. Are uncertainties in the baseline emission estimates properly addressed?					
D.7.7. If the calculations of baseline emissions are based on sampling, does this comply with the Standard for sampling and surveys?					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
Project emissions					
D.7.8. Are the calculations documented according to the approved methodology and tool and in a complete and transparent manner?					
D.7.9. Have conservative assumptions been used when calculating the project emissions?					
D.7.10. Are uncertainties in the project emission estimates properly addressed?					
D.7.11. If the calculations of project emissions are based on sampling, does this comply with the Standard for sampling and surveys?					
Leakage					
D.7.12. Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?					
D.7.13. Have conservative assumptions been used when calculating the leakage emissions?					
D.7.14. Are uncertainties in the leakage emission estimates properly addressed?					
D.7.15. If the calculations of leakage emissions are based on sampling, does this comply with the Standard for sampling and surveys					
Emission Reductions					
D.7.16. Algorithms and/or formulae used to determine emission reductions: <ul style="list-style-type: none"> All assumptions and data used by the project participants are listed in the CPA-DD and related document submitted for registration. The data are 					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
<p>properly referenced</p> <ul style="list-style-type: none"> • All documentation is correctly quoted and interpreted. • All values used can be deemed reasonable in the context of the project activity • The methodology has been correctly applied to calculate the emission reductions and this can be replicated by the data provided in the PoA-DD and supporting files to be submitted for registration. 					
D.7. Monitoring plan (VVS § 131-133)					
Data and parameters monitored					
D.7.1. Do the means of monitoring described in the plan comply with the requirements of the methodology?					
D.7.2. Does the monitoring plan contains all necessary parameters, and are they clearly described?					
D.7.3. In case parameters are measured, is the measurement equipment described? Describe each relevant parameter.					
D.7.4. In case parameters are measured, is the measurement accuracy addressed and deemed appropriate? Describe each relevant parameter.					
D.7.5. In case parameters are measured, are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate? Describe each relevant parameter.					
D.7.6. Is the monitoring frequency adequate for all monitoring parameters? Describe each parameter.					
D.7.7. Is the recording frequency adequate for all monitoring parameters? Describe each parameter.					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
D.7.8. In case any of the parameters will be determined based on sampling, is the sample plan adequate and does it comply with the specific guidance in the applicable methodology or, if no such guidance is available in methodology, does it achieve a 90/10 confidence/precision as the criteria for reliability of sampling efforts for small-scale project activities and 95/10 for large scale project activities?					
Ability of project participants to implement monitoring plan					
D.7.9. How has it been assessed that the monitoring arrangements described in the monitoring plan are feasible within the project design?					
D.7.10. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?					
D.7.11. Are the data management and quality assurance and quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?					
D.7.12. Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?					
Monitoring of sustainable development indicators/ environmental impacts					
D.7.13. Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
host country?					
D.7.14. Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?					
D.7.15. Are the sustainable development indicators in line with stated national priorities in the host country?					

APPENDIX C

CURRICULA VITAE OF THE VALIDATION TEAM MEMBERS

Barbirato Nicola

Carrer started in an Engineering company from 2006 to 2011, at the start he was a trainee charged of the site managing of Flue Gas treatment plants in France, from the erection management to the start-up and the set-up. In 2006 he became Project Manager and in 2007 process Engineer, charged of Process and Basic Design of the new plants. In 2008 he became the Technical Director Assistant, dealing with most of the everyday's technical issues and future development. From the really beginning of his career Nicola developed and implemented Selective Catalytic Reduction plants at the edge of technology. Before 2006, various years of collaborations as Building surveyor with an Italian surveyors office.

Giovanni Tenderini

Holds a master degree in Energy Engineering focused on energy generation and conversion. He gained his three years professional experience in the power sector where he became familiar with International Financing Institutions project implementation methodologies (ADB, WB, IBRD, EBRD and other international banks) for organization and management of tender procedures for the award of engineering services and construction in the field of hydro and thermal power plants.

Moreover, as Power Engineer he has been in charge of the electro-mechanical design review, construction supervision, preparation of due diligences, feasibility studies, technical specifications and cost estimate of power generation projects mainly located in the Middle East area.

The current Project Manager position involves executing and managing CDM/JI validation and verification assignments, executing and managing verification under voluntary schemes, and providing global support and training in the relevant specialized technical areas within the DNV KEMA global Climate Change Services team.

His qualification, industrial experience and experience in CDM demonstrate his sufficient financial expertise and sectoral competence in thermal energy generation from fossil fuels and biomass including thermal electricity from solar, energy generation from renewable energy sources, electricity distribution and energy demand.

Yang Weidong

Holds a Master's Degree in Chemical Engineering and has studied MBA in general management, with an overall experience of around 20 years. Prior to joining DNV he had around 4 years experience in chemical process industry covering technology, production, and quality control. He worked in research institute of pharmaceutical industry for about 8 years. His experience also covers the fields of quality management, environmental management and health & safety management. He has also been an IRCA registered lead auditor of management systems such as ISO 9001, ISO 140001 and OHSAS 18001 standards for various industrial sectors, including chemical process industry for 6 years.

He has experience of around 4 years in validation and verification of numerous GHG emission projects and inventory in DNV, both in China and other countries. The GHG emission projects and inventory include various types, such as, CDM, VCS, CAR and CCAR. His qualification, industrial experience and experience in CDM demonstrate his sufficient sectoral competence in renewable projects.