PoA Validation Report

Sustainability CFL Replacement Programme of Activities In South Africa

Report No. 2011-9635

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Det Norske Veritas

PoA VALIDATION REPORT

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Title of PoA: Sustainability CFL Replacement Programme of Activities in South Africa
Host country/ies: South Africa
Methodology: AMS-II.J
Version: 04
GHG reducing Measure/Technology: Replacement of ICL with CFL
ER estimate of PoA: 590 350 tCO_2e 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
☒ Full Approval and submission for registration
☐ Negative validation opinion

In summary, it is DNV's opinion that the Sustainability CFL Replacement Programme of Activities in South Africa, as described in the PoA-DD version 7 of 6 December 2012 meets all relevant UNFCCC requirements for the CDM, and correctly applies the baseline and monitoring methodology AMS-II.J, version 04. DNV thus requests the registration of the project as a CDM programme of activities.

Report No.: 2011-9635	Date of this revision: 17 December 2012	Rev. No. 02
Report title: Sustainability CFL Replacement Programme of Activities in South Africa in South Africa		
Work carried out by: Francesca Feller, Grant Little, Giovanni Tenderini		
Work verified by: Indrajit Rana		

Key words:
Programme of Activities (PoA)
Clean Development Mechanism (CDM)
Climate Change

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Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM-CPA-DD	CDM component project activity design document
CDM-POA-DD	CDM programme of activities design document
CER	Certified Emission Reduction(s)
CFL	Compact Fluorescent Lamp
CL	Clarification request
CME	Coordinating/Managing Entity
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CPA	CDM component project activity
DMS	Data Management System
DNA	Designated National Authority
DNV	Det Norske Veritas
ESCOs	Energy Services Companies
Eskom	Eskom Holdings SOC Limited
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
ICL	Incandescent Lamp
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of approval
LSC	Local Stakeholder Consultation
NGO	Non-governmental Organisation
ODA	Official Development Assistance
PDD	Project Design Document
PM	Project Manager
PoA	Programme of activities
QMS	Quality Management System
SDM	Sustainable Development Matrix
SSC	Small Scale
SV	Site Visit
tCO_2e	Tonnes of CO_2 equivalents
UNFCCC	United Nations Framework Convention on Climate Change

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PoA VALIDATION REPORT

1 EXECUTIVE SUMMARY – VALIDATION OPINION

DNV Climate Change Services AS (DNV) has performed a validation of the small-scale programme of activity (PoA) titled "Sustainability CFL Replacement Programme of Activities in South Africa" and the PoA specific CDM-SSC-CPA-DD with generic information relevant to all CDM component project activities (CPAs) to be included in this PoA.

The validation was performed on the basis of UNFCCC criteria for programme of activities under the Clean Development Mechanism (CDM) criteria, 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 the Annex I Party is France. Both Parties fulfil the participation criteria and have approved the project and authorized the project participants. The DNA from South Africa confirmed that the project assists in achieving sustainable development.

The project correctly applies AMS-II.J "Demand-side activities for efficient lighting technologies", version 04.

By replacing working ICLs with the more efficient self-ballasted CFLs in residential applications, the project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be on the average 590 350 tCO_2 per year over the selected 10 year crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

Adequate training and monitoring procedures have been described.

In summary, it is DNV's opinion that the PoA titled Sustainability CFL Replacement Programme of Activities in South Africa, as described in the CDM-SSC-PoA-DD of 6 December 2012, meets all relevant UNFCCC requirements for a PoA under the CDM and correctly applies the baseline and monitoring methodology AMS-II.J, version 04. DNV thus requests the registration of the PoA titled Sustainability CFL Replacement Programme of Activities in South Africa as a PoA under the CDM.

Milan and Oslo, 17 December 2012

Francesca Feller
Validator
DNV Venice, Italy

Michael Lehmann
Director of Services and Technologies
DNV Climate Change Services AS

2 INTRODUCTION

BNP Paribas has commissioned DNV Climate Change Services AS (DNV) to perform a validation of the small-scale CDM Programme of Activities (PoA) with the title "Sustainability CFL Replacement Programme of Activities in South Africa" (hereafter called "the PoA"). This report summarises the findings of the validation of the PoA and the PoA specific small-scale CDM component project activities Design Document (CDM-SSC-CPA-DD) with generic information relevant to all CDM component project activities (CPAs) to be included in this PoA. The validation was performed on the basis of UNFCCC criteria for the PoAs under the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, the simplified modalities and procedures for small-scale CDM project activities, the procedures for registration of a programme of activities 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 small-scale PoA design document (CDM-SSC-PoA-DD) and the PoA specific CDM-SSC-CPA-DD with generic information relevant to all CPAs to be included in this PoA. In particular, the eligibility criteria for inclusion of CPAs, the programme's baseline determination, monitoring plan, and the programme's compliance with relevant UNFCCC 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 CDM-SSC-PoA-DD and the PoA specific CDM-SSC-CPA-DD with generic information relevant to all CPAs to be included in this PoA. The CDM-SSC-PoA-DD and CDM-SSC-CPA-DD were reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, the simplified modalities and procedures for small-scale CDM project activities, the procedures for procedures for registration of a programme of activities as a single CDM project activity and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology AMS-II.J.

The validation of the programme has also considered the completed CDM-SSC-CPA-DD for the CPA with the title CLF Replacement Project Western Cape - CPA-01 submitted together with the CDM-SSC-CPA-DD.

The validation is not meant to provide any consulting towards the programme 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 a desk review of the CDM-SSC-PoA-DD and the PoA specific CDM-SSC-CPA-DD with generic information relevant to all CPAs to be included in this PoA

II follow-up interviews with programme stakeholders

III the resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

3.1 Desk review of the programme design documentation

The following table lists the documentation that was reviewed during the validation:

3.1.1 Documentation provided by the project participants

/1/ RAMP Carbon: *CDM-SSC-PoA-DD for PoA titled "Sustainability CFL Replacement Programme of Activities in South Africa"*, Version 1 dated 25 July 2011, and version 7 of 6 December 2012

/2/ RAMP Carbon: *Generic CDM-SSC-CPA-DD for PoA titled "CLF Replacement Project + Serial Number XXXX-XXXX-CPA-xxxx" version 7 of* 6 December 2012

/3/ RAMP Carbon: *CDM-SSC-CPA-DD for CPA titled "CLF Replacement Project Western Cape - CPA-01"*, version 1 dated 12 July 2010, and version 7 of 6 December 2012

/4/ RAMP Carbon: *CER Eskom Greenfield Projects*, 7 September 2011

/5/ RAMP Carbon: *Emission Factor - South Africa_ToolV2.2*, 18 July 2011

/6/ MCA4climate: *A practical framework for planning pro-development climate policies*, June 2011

/7/ North-West University: *QMS Eskom CDM CFL*, 1 September 2011

/8/ North-West University: *QMS Eskom Green field survey CFL*, 1 September 2011

Eskom Holdings SOC Limited : *The safest way to handle your household's biggest energy saver*, June 2010

/9/ Eskom Holdings SOC Limited : *CFL Recovery, Recycling & Disposal Implementation Guidelines*, 7 July 2011

/10/ Eskom Holdings SOC Limited : *Management of fluorescent tubes, compact florescent lamps (CFLs) and mercury-containing devices*, 3 november 2011

/11/ Institute of Waste Management of Southern Africa: *Certificate of membership*, 1 July 2010

/12/ The Skills Matrix: *Certificate of Competence – Skip Truck*, 22 August 2010

/13/ Gauteng Provincial Government: *Certificate of Registration to Gundo Engineering and Projects as hazardous waste transporter*, 30 September 2010

/14/ Gundo Engineering: *Audited incandescent lamps count sheet*, 22 February 2011

/15/ Gundo Engineering: *Audited incandescent lamps count sheet*, 10 May 2011

/16/ Enviroserv: *Safe disposal certificate*, 10 August 2011

/17/ Gundo Engineering: *Waste manifest document & safe disposal certificate*, 19 March

2011

/18/ Dantran: *Dangerous goods training & assessment*, 28 July 2011

/19/ Eskom Holdings SOC Limited : *Stakeholder consultation session report, 24 June 2011*

/20/ RAMP Carbon: *Gold Standard Local Stakeholder Consultation Report, 24 June 2011*

/21/ Markus Storm: *Eskom CDM CFL Project M&V Activities*, 3 November 2011

/22/ Eskom Holdings SOC Limited : *Eskom's climate change commitment – the 6 point plan*, 15 May 2008

/23/ Karebo Group: *ESCO requirements document*,27 November 2009

/24/ Karebo Group: *Data collection form*

/25/ Eskom Holdings SOC Limited : *Minutes of the Eskom board of directors (board) meeting (B3/2007-08) held at megawatt park, in the huvo nkulu meeting toom, on Thursday, 27 September 2007 from 09H30 – 15H30*, 27 September 2007

/26/ Eskom Holdings SOC Limited : *The measurement and verification guideline: CFL distribution projects*, version 3 rev.3, January 2007

/27/ Eskom Holdings SOC Limited : *Final CFL split for Greenfields*, 31 January 2012

/28/ Eskom Holdings SOC Limited : *Annex 2 – Background Information Document*, 31 January 2012

/29/ Eskom Holdings SOC Limited : *Invitation to tender No DX 446 for Supply and delivery of 5.95 Million CFLs*, 28 August 2010

/30/ Eskom Holdings SOC Limited : *Letter of acceptance of a programme activity within the sustainability CDM programme of activities - CPA-1, 3 January 2012*

/31/ Eskom Holdings SOC Limited : *Declaration of non-use of official development assistance by project owner*, 3 February 2012

/32/ Eskom Holdings SOC Limited : *Contract for the supply and delivery of 5 950 000 compact fluorescent lamps*, 27 November 2010

/33/ Annasa: *Database extract*, CFL records Number 223788 to 133213

/34/ Eskom Holdings SOC Limited : *History and Chronology of Eskom CFL CDM Project*, April 2011

3.1.2 Letters of approval

/35/ Republic of France: *Letter of Approval, 16 May 2012*

/36/ Republic of South Africa: *Letter of Approval, 24 April 2012*

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

/37/ CDM Executive Board: *Validation and Verification Manual*, version 1.2

/38/ CDM Executive Board: *Baseline and monitoring methodology* AMS-II.J, version 04

/39/ CDM Executive Board: *Tool to calculate the emission factor for an electricity system*, Version 2.2

/40/ CDM Executive Board: '*Guidance for determining of debundling under a Programme of Activities*, version3, EB 54

/41/ CDM Executive Board: *Procedures for registration of a Programme of Activities as a CDM project Activity and Issuance of Certified Emission Reductions for a Programme of Activities*, version 04.1, EB 55, 2 August 2010

/42/ CDM Executive Board: *Tool for the demonstration and assessment of additionality*, version 5.2 26 August 2008

/43/ CDM Executive Board: *Attachment A to Appendix B of the Simplified modalities and Procedures for Small-scale CDM Project Activities*, version 7 of 25 November 2005

/44/ CDM Executive Board*: Guidelines on the demonstration of additionality of small-scale project activities*, version 09.0, 20 July 2012

/45/ CDM Executive Board: *Non-binding best practice examples to demonstrate additionality for SSC project activities***,** version 01.0 EB35

/46/ CDM Executive Board: *Guidelines for Objective Demonstration and Assessment of Barrier, version 1 EB50, 16 October 2009*

/47/ CDM Executive Board: *Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities*, version 01.0 EB 65, 25 November 2011

/48/ CDM Executive Board: *Methodology Booklet*, November 2010

/49/ CDM Executive Board: *Standard for sampling and surveys for CDM project activities and programme of activities*, version 03.0, 13 September 2012

/50/ CDM Executive Board: *guidelines for sampling and surveys for CDM project activities and programme of activities*, version 02.0, 13 September 2012

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

/51/ ELI Quality Certification Institute: *ELI Voluntary Technical Specification for Self-Ballasted Compact Fluorescent Lamps (CFLs)*, 1 May 2006

/52/ UNFCCC: *UNFCCC official website*, available at: http://unfccc.int/ (last accessed: December 2011)

/53/ Eskom Holdings Ltd: *Integrated report 2011*, 31 March 2011

/54/ Republic of South Africa: Natio*nal Environmental Management: Waste Act, 2008 (Act No 59 of 2008)*, 3 July 2009

/55/ Efficient Lighting Initiative: *Learn about ELI*, available at: http://www.efficientlighting.net (last accessed: December 2011)

/56/ Eskom Holdings SOC Limited : *Energy saving project*, November 2009

/57/ Eskom Holdings SOC Limited : *Calculation table*, available at: http://www.eskom.co.za/content/calculationTable.htm (last accessed: December 2011)

/58/ Republic of South Africa, Department of Energy and Department of trade and Industry: *Phase-out of inefficient incandescent lamps and the instruction of compulsory standards for energy efficient incandescent lamps in South Africa*, May 2009

/59/ Accenture: *Understanding consumer preferences in Energy Efficiency*, February 2010

/60/ University of Cape Town: *A report on the factors that influence the demand and energy savings for compact fluorescent lamp door-to-door rollouts in South Africa*, 17 March 2009

/61/ Hinkle Charitable Foundation: *Compact fluorescent lights (CFLs) Primer – Enlightening facts*, available at: http://www.thehcf.org/cflprimer.html (last accessed: May 2011)

/62/ Department of Minerals and Energy: *Energy efficiency strategy of the Republic of South Africa*, March 2005

/63/ Australian Government: *The private cost effectiveness of improving energy efficiency*, 31 August 2005

/64/ California Climate Change Center: *Market failures, consumer preferences, and transaction costs in energy efficiency purchase decisions*, November 2004

/65/ International Energy Agency: *Money Matters - Mitigating risk to spark private investments in energy efficiency*, September 2010

/66/ International Energy Agency: *Energy technology perspectives*, 2008

/67/ Eskom Holdings SOC Limited: *Sale of electricity and revenues per category of customer*, 2010

/68/ Gillingham, Newell & Palmer: *Consumer Rationality and Energy Efficiency*, 1994

The main changes between the version of the CDM-SSC-PoA-DD published for the 30 days stakeholder commenting period and the final version submitted for registration are:

- The eligibility criteria for inclusion of CPAs have been substantially revised to reflect the publication of the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities;
- The demonstration of additionality has been substantially revised to reflect the publication of the Guidelines on the demonstration of additionality of small-scale project activities, version 09.0

3.2 Follow-up Interviews with Programme Stakeholders

On 2 and 3 November 2011 DNV visited the PP offices in Johannesburg (South Africa) and performed interviews with project stakeholders.

Moreover on 19 October 2011 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.

The below listed persons have been interviewed and/or provided additional information to the presented documentation.

	Date	Name	Organization	Topic
/69/	2011-10-19	Mukwejho Lufumu	DNA	Programme contribution to sustainable development, LoA issuance, applicable regulations, confirmation of baseline, confirmation of barriers, environmental licences.
/70/	2011-10-19	Patrick Tuwani	DNA	Project's contribution to sustainable development, LoA issuance, applicable regulations, confirmation of baseline, confirmation of barriers, environmental

				licences.
/71/	2011-10-19 2011-11-02/3	Enoch Liphoto	Eskom Holdings SOC Limited	Definition of relevant grid, grid emission factor, confirmation of baseline, confirmation of barriers, programme description, baseline, additionality, implementation, operations, data management, emission reduction, environmental impacts, stakeholder consultation;
/72/	2011-11-02/3	François Carré	BNP Paribas	Programme description, validation;
/73/	2011-11-02/3	Rodrigo Castellanos	RAMP Carbon	Programme description, baseline, additionality, implementation, operations, data management, emission reduction, environmental impacts, stakeholder consultation;
/74/	2011-11-02	Iris Claete	Eskom Holdings SOC Limited	Waste handling, operations, environmental impacts;
/75/	2011-11-02/3	Ingrid Nyathi	Eskom Holdings SOC Limited	Programme implementation, waste handling;
/76/	2011-11-03	Daniel Barnard	North West University	Monitoring and surveys;
/77/	2011-11-03	Markus Storm	North West University	Monitoring and surveys;
/78/	2011-11-03	Devan Kistnasami	Karebo	Programme implementation, CFL distribution, ICL collection, data recording and management;
/79/	2011-11-03	N. Nyumalo	Karebo	Programme implementation, CFL distribution, ICL collection, data recording and management;

3.3 Resolution of outstanding issues

The objective of this phase of the validation was to resolve any outstanding issues which needed be clarified prior to DNV's positive conclusion on the PoA. 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 CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of four tables. The different columns in these tables are described in the figure below. The completed validation protocol for the programme of activity "Sustainability CFL Replacement Programme of Activities 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 will be addressed in Table 3. Table 2 thus may not reflect all aspects of the project as described in the final PDD 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 project activity to achieve real, measurable additional emission reductions;

(b) The CDM requirements have not been met;

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

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 the project activity. FARs shall not relate to the CDM requirements for registration.

Validation Protocol Table 1: Mandatory Requirements for CDM Programme of Activities		
Requirement	***Reference***	***Conclusion***
The requirements the project must meet.	*Gives reference to the legislation or agreement where the requirement is found.*	*This is either acceptable based on evidence provided (**OK**), a Corrective Action Request (**CAR**) due to non-compliance with stated requirements or a request for Clarification (**CL**) where further clarifications are needed.*

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 project should meet. The checklist is organised in different sections, following the logic of the CDM-PDD	*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 project activity 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

				Type of involvement					
Role	***Last Name***	***First Name***	***Country***	Desk review	Site visit / Interviews	Reporting	Supervision of work	Technical review	TA 3.2 competence
Team leader (Validator)	Feller	Francesca	Italy	✓	✓	✓	✓		✓
Assessor under training	Little	Grant	South Africa	✓	✓	✓			
Assessor under training	Tenderini	Giovanni	Italy	✓	✓	✓			
Technical reviewer	Rana	Indrajit	India					✓	✓

The qualification of each individual validation team member is detailed in Appendix B 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 programme design as documented and described in the PoA design documentation dated 6 December 2012.

4.1 Participation requirements

The project participants are Eskom Holdings SOC Limited of South Africa and BNP Paribas of France. The host Party (South Africa) and the Annex I Party (France) meet all relevant participation requirements.

The coordinating / managing entity of the PoA is Eskom Holdings SOC Limited (South Africa), which also acts as programme participant. The CME of the first CPA coincides with the CME of the PoA, and is clearly identified in the CPA-DD /2/ in accordance with the requirements of the "*Procedures for registration of a Programme of Activities as a CDM project Activity and Issuance of Certified Emission Reductions for a Programme of Activities*, version 04.1" /41/.

A letter of approval (LoA) /36/ was issued by the DNA of South Africa on 24 April 2012, authorizing Eskom Holdings SOC Limited of host Party South Africa as project participant and confirming that the project assists in achieving sustainable development. The DNA of France issued the LoA /35/ on 16 May 2012 and authorized BNP Paribas of France as project participant.

The letters of approval were received from the project participants, and the LoA from the host country was verified through a telephone conversation with the DNA of South Africa /69//70/. DNV does not doubt the authenticity of the letters of approval. DNV considers the letters are in accordance with paragraphs 45- 48 of the VVM /37/.

With regards to the use of public funding, the Project Participant has submitted a declaration of non-use of official development assistance for the proposed programme of activities /31/. Moreover, the use of official development aid is addressed through the letter of acceptance of CPAs by the PoA /30/.

4.2 Programme design

The PoA will provide energy efficient light bulbs, in the form of compact fluorescent lamps (CFLs), to replace incandescent lamps (ICLs) in residential properties that will be concurrently collected and destroyed. Replacing ICLs with CFLs results in significant reductions in electricity use for lighting, thereby reducing energy demand, cutting greenhouse gas emissions associated with the production of electricity, and saving households money on their electricity bills.

The programme's spatial boundaries are clearly defined in the PoA-DD /1/, and consist of the boundaries of the Republic of South Africa. The programme's system boundaries will be defined by the specific location of the installed lamps, and extend to include the electricity grid to which the homes are connected.

Each SSC-CPA included in the PoA will be identified by the geographical location of the household in which the CFL units are installed. The definition of the boundary of CPAs is therefore in accordance with the applicable methodology /38/.

The boundaries defined for both PoA and individual CPAs are in accordance with the "*Procedures for registration of a Programme of Activities as a CDM project Activity and Issuance of Certified Emission Reductions for a Programme of Activities*, version 04.1" /41/.

According to the '*Guidance for determining of debundling under a Programme of Activities*' (version 3 adopted at EB 54), if each of the independent subsystems/measures included in the CPA of a PoA is no larger than 1% of the small-scale thresholds defined by the methodology applied, then that SSC-CPA of PoA is exempted from performing de-bundling check i.e., it is considered as not being a de-bundled component of a large scale activity.

A typical CPA under this programme is not a debundled component of a large scale CPA or CDM project in that individual lighting units clearly do not exceed the 1% threshold amount of 600,000 kWh per annum. The PoA-DD demonstrates that even with the maximum savings achievable by an individual CFL (20W CFL replacing a 100W ICL), the annual electricity savings are 102.2 kWh, which is clearly below 600,000 kWh per year.

The total emission reductions from the programme are estimated to be on the average 590 350 tCO_2 per year over the selected 10 year crediting period. The estimation has been based on the ER calculated for a typical CPA consisting of the distribution of 1 million CFLs /4/, and considered an overall distribution of 20 million CFLs.

The PoA starting date has been set as 10 October 2011, and the programme is expected to last 10 years. The length of the PoA does not exceed the maximum length set for PoAs of 28 year.

4.3 Criteria for inclusion of CDM Programme Activities

The PoA-DD includes a list of eligibility criteria for the inclusion on CPAs. The eligibility criteria selected meet the minimum requirements set by the *Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities* sections A – Demonstration of additionality – as well as section B – Development and update of eligibility criteria /47/.

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

1) The SSC-CPA involves the distribution of CFLs to households within the geographical boundary of South Africa. This criterion is sufficient to ensure that the geographical boundary of the CPA is consistent with the geographical boundary of the PoA;
2) The SSC-CPA complies with the established procedures for avoiding double counting set out in the PoA-DD and CPA-DD (generic):
    - check of CDM database to confirm project is not registered as an individual CDM activity or part of another registered PoA;

- unambiguous identification of households participating in the CPA within the database management system; and
- data collection and signing of forms from participating households as to sign the rights to claim CERs for the project activity;
- unambiguous identification of CFLs participating in the CPA marked with the Eskom logo (or equivalent) and meeting the technical characteristics captured in the data management system (type, model, wattage);

This criterion is sufficient to avoid double counting of emission reductions by CPAs. In fact, the CME of the PoA has carried out additional distribution of CFLs in South Africa as part of two SSC projects currently requesting registration under the CDM, and some earlier distribution requesting registration under voluntary carbon offset schemes. In order to distinguish between different distribution campaigns, the CME relies on the unique combination of the household's exact address, the resident's name, and the type, model and wattage of the CFL as means of cross-checking the information observed on site against the separate databases they are keeping for each project. The site visit performed jointly for the proposed PoA and for the two SSC projects run by the CME confirmed that the recording system being implemented allows the unique identification of CFLs, and that no double counting occurs;

3) For each CFL participating in the SSC-CPA the total lumen output should be equal to or more than that of the ICL being replaced; lumen output of ICL and CFL shall be determined in accordance with relevant national or international standards. This is considered adequate specification of the technology/measure to be used by CPAs;
4) The start date of the SSC-CPA has been confirmed through the provision of a document with regards to the date on which distribution of compact fluorescent light bulbs commences as wells as entries into the Data Management System. This criterion is considered adequate to ensure the starting date of the CPA can be checked through documentary evidence;
5) The SSC-CPA will implement the baseline and monitoring methodology AMS-II.J. *'Demand-side activities for efficient lighting technologies' v.04*. The applicability of the methodology is demonstrated at PoA level, and it is considered extended to individual CPAs as long as the CPA confirms and documents the elements required in section E.2 of the PoA-DD. This criterion makes it possible to ensure the applicability of a methodology by CPAs;
6) The SSC-CPA is additional because it confirms the additionality criteria set it section E.5.2 of the PoA-DD, i.e. that CFLs will be distributed to households, communities and/or SMEs. According to the *Guidelines on the demonstration of additionality of small-scale project activities* /44/ CFL distribution to households, communities and/or SMEs are considered automatically additional. Hence, this criterion is considered sufficient to ensure CPAs meet the requirements pertaining to the demonstration of additionality;
7) The SSC-CPA involves the distribution of compact fluorescent light bulbs to residential households using either door-to-door, gate-to-gate or exchange points. This criterion sufficiently defines both target group and distribution mechanism;
8) The contact details of the households participating into the SSC-CPA are recorded in a data management system for future selection to participate in ex post monitoring surveys in a random and representative manner. This criterion adequately sets the

conditions to make it possible to meet the sampling requirements for the PoA in accordance with the approved guidelines/standard from the Board;

9) The aggregate energy savings by the SSC-CPA will not exceed the equivalent of 60 GWh per year. This criterion is considered sufficient to ensure every CPA in aggregate meets the small-scale threshold and remains below the threshold throughout the crediting period;
10) The SSC-CPA satisfies de-bundling rules for PoA, and is not a de-bundled component of a large-scale CPA or CDM project. This criterion is considered adequate to ensure that the requirements for the debundling check are met by CPAs;
11) In the case that funding for the project comes from an Annex 1 party, the CME has received confirmation from the Annex 1 party that any funding involved in the implementation of the SSC-CPA does not result in a diversion of official development assistance for the purchase of CERs, and is separate from and is not counted towards the financial obligations of those Parties. This criterion is sufficient to confirm no diversion of ODA takes place as a result of the implementation of CPAs;

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*" /47/.

4.4 Operational, management and verification plan

Record keeping procedures planned by the CME make provisions to record the following data:

- Geographical location of each CPA
- Name of household (name and surname)
- The address (street number, name and suburb) of household
- Meter number of household
- Date of distribution or direct installation of CFLs
- Specifications of ICLs replaced, including: number replaced, power rating or wattage
- Specifications of CFLs installed, including: number installed, CFL purchase/dispatch records, power rating or wattage, type and/or model
- Date of return and destruction of ICLs replaced
- A household signature accepting to transfer all the carbon credits to Eskom.

This is clearly described in the PoA-DD /1/, and was confirmed by the CME in the course of the interviews held on site /73//71//72/.

The information that will be collected by each CPA fulfils and exceeds the requirements of the methodology AMS-II.J. A copy of a data collection form has been provided to DNV /24/, and includes all the information listed in the PoA-DD. Such form allows univocal identification of the household also in case some of the information is not available; for instance, in cases where no official address is available, the household will be identified through the meter number /78//79/.

In order to avoid including CPAs that have already been registered either as CDM project activity or as a CPA of another PoA, the PoA managing entity has put the following system in

place to avoid double-counting /1/: Prior to registering a new SSC-CPA within the proposed PoA, the coordinating entity will check the CDM project database to establish whether a CDM project activity or CPA of another PoA involving CFLs has already been registered in the same geographic area targeted by a specific CPA. This search will cover registered project activities, project activities requesting registration, project activities under review and project activities for which either a review or corrections have been requested. The process of checking will be duplicated by the DOE responsible for registering new SSC-CPAs under the proposed PoA. DNV considers these provisions sufficient to avoid double inclusion of CPAs under different PoAs. Should any other similar activity be identified in the host country, double-counting is still easily prevented due to that fact that each CPA included in the PoA is identified by the unique location of households where CFLs are installed, and installed CFL have the following information recorded in the database:

a) Eskom logo (or equivalent)
b) type, model, wattage

By cross-checking the unique combination of household location, resident's name as per acceptance letter, presence of the project logo, and the type, model and wattage of the CFL against the information contained in the database, operators will be able to track distribution and avoid any double-counting.

In addition to these provisions, in the case that either households and/or CFLs cannot be clearly and unambiguously identified, in order to avoid double counting, the CME will consider any CFL in those circumstances as "not found". This will be reflected in the results of the ex post monitoring surveys (e.g. if the data management system shows 2 CFLs delivered to a house, but these cannot be unambiguously identified, then the survey result for that house will be 0 / 2 = 0). Furthermore, these events will trigger the quality control process for project delivery and data management system in accordance with the provisions defined in Section A.4.4 (i) SSC-CPA Record Keeping.

DNV was provided a copy of the acceptance letter, and could observe that provisions to avoid double accounting of emissions reductions are in place /30/.

Provisions to avoid the inclusion of de-bundled components of large-scale CPAs are included in the eligibility criteria for inclusion /1//3/.

Moreover, arrangements are in place to ensure that CPAs are aware and have agreed to have their project activity included in the PoA. In fact, the CME is responsible for identifying, developing, registering and managing all SSC-CPAs to be included in the proposed PoA. Legal agreements have been put in place with PoA distribution partners and lighting suppliers clearly stipulating that their activities are subscribed to the PoA. The letter of acceptance of the first CPA, which explicitly refers to eligibility criteria for inclusion, has been submitted to DNV /30/. The absence of a legal agreement within the same organisation is considered acceptable.

With regards to CPA verification, the monitoring plan does not include a description of a proposed statistically sound sampling method and procedure to be used by designated

operational entities for verification of GHG emission reductions by CPAs under the programme. Instead, verification of each SSC-CPA will occur at the end of each monitoring period. This is clearly indicated in the PoA-DD /1/.

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*" /47/. Further information on how the management system of the PoA complies with each requirements stated in the Standard can be found in section A.7 of the validation protocol.

4.5 Application of selected baseline and monitoring methodology

The program of activities applies the approved small scale methodology of AMS-II.J /38/ , version 04. The applicability criteria of the methodology are fulfilled by a typical CPA as follow:

1. *This category comprises activities that lead to efficient use of electricity through the adoption of self-ballasted compact fluorescent lamps (CFLs) to replace incandescent lamps (ICLs) in residential applications. Eligible self-ballasted CFLs have integrated ballasts as a non-removable part. The CFLs adopted to replace existing equipment must be new equipment and not transferred from another activity.*

Fulfilment of this criterion is mandated by the CPA inclusion criteria, which means that CPAs not consisting of the replacement of ICLs with CFLs in residential applications will not be included in the PoA. Likewise, with regard to the CFL eligibility, although the PoA–DD does not indicate the model of CFL that will be rolled out, only CFLs with integrated ballasts as a non-removable part will be eligible for distribution. Finally, CFL purchase/dispatch records will make it possible to verify that only new CFLs are employed in the PoA, and that CFLs have not been transferred from another activity.

2. *The total lumen output of the CFL should be equal to or more than that of the ICL being replaced; lumen output of ICL & CFL shall be determined in accordance with relevant national or international standard/s. Values in Table 1 may be used as an alternative option to such standards. If a lamp wattage is not in Table 1, linearly interpreted value shall be used to determine the minimum light output requirements e.g., 493 Lumens for a 45 W lamp.*

The lumen output of ICLs and CFLs of CPA-01 is determined in accordance with the ELI standard /51/. The table reported in the PoA–DD is consistent with the information provided as reference /51/. The monitoring plan of each SSC-CPA under the PoA includes a procedure that clearly identifies both the ICL replaced and the CFL distributed, so that the project technology can be readily compared to the baseline technology. The QA procedures in place to ensure compliance with the methodology applicability criteria 2, as described by the CME, are: The CME reviews the Eligibility Criteria for each potential CPA and signs a Letter of Acceptance ensuring that all the criteria have been considered and approved by the new CPA (criteria number 3 specifically addresses lumen output considerations). Specifically, the CME

receives evidence of ELI compliance by the supplier as well as a third party analysis to ensure lumens meet the specifications mentioned in the PDDs.

3. *The aggregate electricity savings by a single project activity may not exceed the equivalent of 60 GWh per year.*

The project participant submitted *Ex ante* ER estimations for a generic CPA showing the maximum number of CFLs that can be distributed in order for the project activity to remain below the small scale threshold /4/. Calculations were performed based on the average wattage of ICLs (normal scenario), as well as on the maximum wattage contemplated by the programme (conservative scenario). For the purpose of emission reduction calculations, the average wattage of ICLs has been estimated based on the ratio of 100W, 60W and 40W incandescent lights collected as part of an earlier pilot distribution performed by the project's monitoring team /26/. The values selected are conservative because more weight is given to lower wattage categories. The average wattage of CFLs has been estimated based on the CFL purchased for two similar SSC projects involving CFL distribution /27/, and gives more weight to higher wattage categories for conservativeness. Based on these calculations, under the normal scenario, 1 000 000 of light bulbs can be distributed, while under the conservative scenario, distribution will stop at 600 000. The actual number of CFL distributed in each CPA will be closely monitored to ensure that the threshold for SSC projects is not exceeded. In fact, the PoA-DD clearly states that in order to ensure that each CPA remains below the annual small-scale threshold of 60 GWh, the project developer will adjust the final number of CFLs accordingly in order to respect the small-scale threshold of energy savings.

The average life or the rated average life of the CFLs shall be known ex ante. IEC 60969 (Self Ballasted Lamps For General Lighting Services - Performance Requirements) or an equivalent national standard shall be used to determine the average life. The project design document shall cite the standard used. If the average life value is not available ex ante, it shall be made available for verification before or at the same time that the results of the second ex post monitoring survey, as required per paragraph 18 (b), are available for verification. The laboratory conducting and certifying the tests to determine CFL average life shall comply with the requirements of a relevant national or international standard, e.g., ISO/IEC 17025.

The rated average life of the CFLs used in each CPA will be provided to the CME *ex ante*, as this is a precondition for inclusion. CFLs are tested by an independent organization against IEC 60969 (Self Ballasted Lamps For General Lighting Services - Performance Requirements) or an equivalent national standard to determine the average life. This is clearly indicated in the generic PoA-DD.

4. *CFLs utilized under the project activity shall, in addition to the standard lamp specifications, be marked for clear unique identification for the project.*

CFLs will be labelled with Eskom's logo and the wording "not for sale". This, in addition to their location being recorded, will allow clear and unique identification for the programme.

5. *The project design document shall explain the proposed method of distribution of efficient lighting equipment and how ICL collection (e.g., exchanged for project CFLs) and*

destruction will be conducted and documented. The Project design document shall also explain how the proposed procedures eliminate double counting of Emission Reductions, for example due to CFL manufacturers, wholesale providers or others possibly claiming credit for Emission Reductions for the project CFLs.

The PoA-DD explains the proposed method of distribution of efficient lighting equipment and how ICL collection is be conducted and documented.

Moreover, the PoA-DD also details the proposed procedures to eliminate double counting of Emission Reductions.

DNV considers the provisions in place to avoid double accounting of emission reductions to be adequate, and in line with the requirements of the *Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities* /47/.

6. *The project activity shall be designed to limit undesired secondary market effects (e.g., leakage) and free riders by ensuring that replaced lamps are exchanged and destroyed. Further project participants are required to undertake at least one of the following actions:*

   (i) Directly installing the CFLs;

   (ii) Charging at least a minimal price for efficient lighting equipment;

   (iii) Restricting the number of lamps per household distributed through the project activity to six.

The programme has been designed to include actions (i) and (iii) to avoid the occurrence of free-riders.

7. *Whether the CFLs are directly installed or not directly installed, the project design document shall define actions to be taken to encourage CFLs being installed in locations within the residences where the utilization hours are relatively high, for example common areas. For CFLs not directly installed these actions can include educating the CFL recipients of the best uses for CFLs.*

CFL use in high-usage areas is encouraged through a communication campaign supported by the distribution of educational brochures and leaflets, as well as targeted media. DNV was provided copies of the brochures and leaflets distributed /56/, and spoke to the persons responsible for the initiative within Eskom /71//75//74/, and observed that the campaign encourages the use in high use areas.

Thus DNV considers that the small scale methodology AMS-II.J /38/, version 04 is applicable for the PoA.

4.6 Baseline identification

4.6.1 Determination of baseline:

Four baseline scenarios were considered:

- Business as usual: Continued use of ICLs by South African households;
- Autonomous replacement: this scenario consists of the proposed activity undertaken without being registered as a CDM project activity. Under this scenario householders chose to replace their existing lighting systems with new CFLs on a scale comparable to that envisaged by the proposed PoA;
- Mandatory replacement: laws stipulating the replacement of inefficient lamps with more efficient technologies such as CFLs;
- Alternative incentives: the introduction of alternative energy saving regulations or policies, such as a demand side management scheme, that create an incentive in the absence of the CDM to improve the energy efficiency of residential lighting systems. Such incentives would need to cause the uptake of energy efficient lighting technologies on a scale comparable to that envisaged by the proposed PoA.

The last three alternatives were excluded since no regulatory requirements or alternative incentives are currently in place in the host country. This was confirmed by representatives of the local DNA /69//70/.

As a result, only the business as usual scenario is identified as the most likely scenario in the absence of the project activity. This coincides with the scenario indicated by the applicable methodology, AMS-II.J. This is a simplified baseline and monitoring methodology /38/.

The baseline scenario sufficiently takes into account relevant national and/or sectoral policies, macro-economic trends and political aspirations. This was confirmed by representatives of the Host Party DNA /69//70/.

4.6.2 Project boundary

The boundary of the PoA is defined as the geographical area within which all the implemented small scale CDM programme activities (SSC-CPAs) included in the PoA will occur. CFL equipment in the CPAs included in the PoA will be installed in households within the borders of the Republic of South Africa. Therefore, the boundary of the PoA is defined as Republic of South Africa.

For each SSC-CPA, the project boundary will be defined by the specific location of the installed lamps. The project boundary also includes the electricity grid to which the homes are connected.

The definition of the boundary of CPAs is therefore in accordance with the applicable methodology /38/.

The system boundaries can be presented in tabular format:

	GHGs involved	*Description*
Baseline emissions	CO_2	The electricity consumed by the ICL is generated by power plants servicing the electricity grid
Project emissions	CO_2	The electricity consumed by the CFL is

		generated by power plants servicing the electricity grid
Leakage	Not applicable	As the equipment used is new

4.7 Additionality

4.7.1 Serious consideration of CDM

The CDM-EB 60 Annex 26 states that "*The Board agreed that the Guidelines for the demonstration and assessment of prior consideration of the CDM do not apply to PoAs, as at present it is expected that no component of the programme will commence prior to the start date of validation.*

The PoA starting date has been set as 10 October 2011, which coincides with the starting date of the first CPA. An extract from the data management system showing records for CFL distributions for CPA-01 dated 10 October 2011 /33/ has been used to validate the start date of both PoA and first CPA.

4.7.2 Additionality of the programme

The CME confirmed that the programme is a voluntary coordinated action /71//72//, and representatives of the DNA confirmed there are no laws mandating the use of energy efficient lighting technologies in South Africa /69//70/. With regard to whether the proposed PoA would not be implemented in the absence of CDM /47/, the project participant has submitted evidence showing that, although Eskom has undertaken significant, large-scale distributions of CFLs in the past, all of these activities are currently in the process of being registered as CDM projects or voluntary carbon market initiatives, and carbon revenues were considered as early as 2007 /25//34/.

The PoA is considered automatically additional in accordance with the *Guidelines on the demonstration of additionality of small-scale project activities* /44/, in that it consists of the distribution of isolated units, where the users are households, and where the size of each unit is no larger than 5% of the small-scale threshold for SSC project activities.

4.7.3 Additionality of typical CPA

A typical CPA will not exceed the energy saving threshold for SSC projects, and therefore the demonstration of additionality for a typical CPA is demonstrated in accordance with *Guidelines on the demonstration of additionality of small-scale project activities* /44/.

A typical CPA considered automatically additional in accordance with the *Guidelines on the demonstration of additionality of small-scale project activities* /44/, in that it consists of the distribution of isolated units, where the users are households, and where the size of each unit is no larger than 5% of the small-scale threshold for SSC project activities. The PP has submitted calculations showing that the maximum energy savings for each individual units are 133.74 kWh, which is well below 5% of the small-scale threshold (i.e. 3,000 MWh per annum).

4.7.4 Approach for demonstrating additionality of CPAs

Since the additionality of CFL distribution in South Africa has been demonstrated for the programme as a whole, as well as for a typical CPA, individual CPAs requesting inclusion will demonstrate additionality through inclusion criteria, by demonstrating that they meet the criteria to be included in the positive list published in the *Guidelines on the demonstration of additionality of small-scale project activities* /44/, and therefore they can be defined automatically additional.

CPAs will therefore be considered additional if they can prove that:

- CFLs will be distributed to households, communities and/or SMEs;
- The size of each unit is no larger than the 5% of the small-scale threshold (i.e. 3,000 MWh of annual energy savings).

The selected approach allows sufficient and adequate demonstration of additionality of the CPA, in accordance with the clarification provided in EB 68, Annex 27 paragraph 2.

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*"/47/, and it is demonstrated that in the absence of CDM, none of the CPAs would occur.

The following eligibility criteria (refer to section 4.3 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.

- The SSC-CPA is additional because it confirms the additionality criteria set it section E.5.2 of the PoA-DD.

4.7.5 Methodological choices and equations to be used for calculation of emission reductions of a CPA

The monitoring plan is documented according to the approved methodology AMS-II.J and in a complete and transparent manner, since:

(i) During project activity implementation, the following data are be recorded:

- Number of pieces of equipment distributed under the project activity, identified by the type of equipment and the date of supply;
- The number and power of the replaced devices;
- Data to unambiguously identify the recipient of the equipment distributed under the project activity;

(ii) The Emission Reductions are calculated *ex ante* and adjusted *ex post* following the monitoring surveys.

The Coordinating/Managing Entity (CME) will be responsible for the management of records and data associated with each SSC-CPA. Data will be stored in secure project databases for two years after the end of each SSC-CPA crediting period.

The PoA-DD provides a clear and correct way of calculating the emission reductions from each CPA. SSC baseline and monitoring methodology AMS-II.J v.04 will be applied by each of the SSC-CPAs to be developed under this PoA for the calculation of emission reductions.

For the purpose of emission reduction calculations, parameters $P_{i,BL}$ have been estimated based on the ratio of 100W, 60W and 40W incandescent lights collected as part of an earlier pilot distribution performed by the project's monitoring team /26/. The values selected are conservative because more weight is given to lower wattage categories. However, such weighting will not increase the risk that the SSC threshold is exceeded since distribution will be closely monitored over time, to ensure the CPA remains under the SCC limits for type II projects, as confirmed by the staff responsible for managing the data management system /77//76/.

$P_{i,PJ}$ is estimated based on the CFL purchased for two similar SSC projects involving CFL distribution /27/, and gives more weight to higher wattage categories for conservativeness.

The grid emission factor has been calculated in accordance with the steps indicated in the Tool to calculate the emission factor for an electricity system version 2.2.1 as follow:

The relevant grid has been identified as South Africa's national grid. Although the national grid is connected to the grids of neighbouring countries, South Africa is a net electricity exporter, and therefore, in accordance with the requirements of the tool, electricity imports are not taken into account. The information presented in support of the selection of the national grid as the relevant electric power system is confirmed by Eskom's 2011 Integrated report /53/.

The project selects to consider only grid-connected power plants.

The PP has selected the simple operating margin method, as Low-cost-must-run resources constitute less than 50% of the overall generation (0.3% of the of average electricity production for the past 5 years). The data used to determine this were cross-checked with publicly available information made available by Eskom on their website and found to be correct /57/. Moreover, the Project Participant has selected to calculate the grid emission factor *ex ante* for the duration of the first crediting period.

Option A1 has been selected, where the emission factor of each power unit is calculated based on the net electricity generation and a CO_2 emission factor of each power unit. The emission factor of each power unit is calculated based on the amount of fuel consumed, fuel NCV, fuel emission factor, and electricity generation.

The built margin emission factor has been calculated ex ante as the emission factor for the 5 most recent units plus CDM project activities. This option was correctly selected as it comprises the largest annual electricity generation compared to considering the set of power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently and that comprise 20% of the annual electricity generation (118 981 845 MWh/year compared to 45 647 112 MWh/year) /5/.

The combined margin has been calculated based on the weighted average approach. The weighting selected to calculate the combined margin is W_{OM} = 0.5 and W_{BM} = 0.5. This is in accordance with the tool since the project does not involve wind or solar power generation.

The combined grid emission factor has been calculated to be 0.9506 tCO_2/MWh.

Since replaced ICLs are scrapped and destroyed, the methodology does not require special provisions for the calculations of leakage.

4.7.6 Parameters determined ex-ante

The following parameters are available ex ante for CPAs:

- **$EF_{CO2,ELEC,y}$** - CO_2 emissions factor for electricity displaced from the grid serving the households that participate in the SSC-CPA during the monitoring interval y. The value of 0.9506 has been calculated according to the "Tool to calculate the emission factor for an electricity system" version 2.2.1 and is fixed *ex ante* for the CPA crediting period;
- Xi - Number of operating hours per year for equipment type i . The CPA-DD currently indicates a value of 1 277.5 hours/year, based on the default value of 3.5 hours per 24 hours period provided by the methodology. However, this value will be replaced by the *ex post* measured operating hours once the results of the 90 day study become available;
- **NTG -** Net-to-gross adjustment factor. The value applied is the 0.95 default value provided by the methodology;
- **L_i -** Rated average operating hours for CFL type *i*. The applied value of 10 000 hours has been determined independently by third-parties through tests /29/;

The list of parameters available ex ante is in accordance with the parameters that are to be reported by CPA, according to the PoA-DD section E.6.3.

4.7.7 Parameters monitored ex-post

The following parameters will be monitored by each CPA:

- **$LFR_{i,y}$ -** Lamp Failure Rate for CFL type *i* in year y. This will be determined by independent statisticians from a South African university in accordance with the requirements of the methodology: as soon as the average life values are available, they will be used for calculation of subsequent $LFR_{i,y}$ values. Either the $LFR_{i,y}$ value calculated according to equation 3 of the methodology or the actual ex post $LFR_{i,y,}$ will be used, whichever is greater. The survey performed to determine the lamp failure rate will take place either once every three years or once for every 30% of the elapsed rated average life or average life of the lamps, and consist of identifying CFLs, with unique Project Activity

markings that are installed and operating. Under the survey, only CFLs with an original marking can be counted as installed. While CFLs replaced as part of a regular maintenance or warranty program can be counted as operating, CFLs cannot be replaced as part of the survey process and counted as operating. The sample size and sampling method are as follows:

- **N -** Sample size of ex-post Monitoring Survey. Households will be surveyed to determine the proportion of installed and distributed CFLs installed and still in operation. The sample size is calculated to meet the 95/10 confidence/precision required by the *Standard for sampling and surveys for CDM project activities and programme of activities* as we as by the *Guidelines for sampling and surveys for CDM project activities and programme of activities* /49//50/, as the sampling will be done at PoA level and will therefore cover all CPAs for which distribution has taken place. The calculations are detailed in the PoA-DD Annex 4. The selected sampling method is a stratified multistage random sampling. The stratified approach has been chosen because when sub-populations vary considerably, it is advantageous to group elements into relatively homogeneous subpopulations and sample each subpopulation independently. Based on the target confidence/precision the sample size has been calculated to be 96 lights. However, since the methodology AMS-II.J requires the sample to consist of no less than 100 project lights, the selected sample will consist of 100 to 300 lights for every vintage year. This figure is well above the UNFCCC requirements for PoA sampling /50/, and it is therefore considered acceptable by DNV;
- $\mathbf{Q_{PJ,I}}$ **-** Number of CFLs of the group of i CFLs (e.g. 20W CFL) in operation during the first 12 months of distribution. The SSC-CPA will determine $Q_{PJ,I}$ using the first ex-post survey and the data will be entered into the SSC-CPA Data Management System;
- **Lamp distribution data -** The start and completion date of CFL Distribution will be clearly described. Household information will be available in the Data Management System as described in the Operational Manual;
- $\mathbf{N_{Destroyed}}$ **-** Number of ICLs collected and destroyed. The total number of ICLs will be available through the data management system and will be verified with the scrapping reports provided to Eskom by the independent waste management contractor;
- $\mathbf{P_{i,BL}}$ **-** Rated power of the baseline ICLs in group *i:* The project proponents will monitor Pi, BL during the ICL replacement. The data will be entered into the Data Management System (as per Operational Manual procedures) and fixed for crediting period duration;
- $\mathbf{P_{i,PJ}}$ **-** Rated power of the project CFLs in group *i:* The project proponents will monitor Pi,PJ during the CFL distribution. The data will be entered into the Data Management System (as per Operational Manual procedures) and fixed for crediting period duration;
- $\mathbf{O_i}$ **-** Average daily operating hours of the baseline ICLs of the group *i.* This parameter will be monitored through the 90 days survey. The CPA-DD currently indicates the default value of 3.5 hours per 24 hours period provided by the methodology, which has been used to the estimation of emission reductions, but this value may be replaced by the *ex post* measured operating hours once the results of the 90 day study become available. This survey is performed by independent professional statisticians, and is based on databases for previous Eskom CFL rollouts all over South-Africa. Household were selected through Clustered Random Sampling: this was preferred to Simple random sampling since the latter would have resulted in a topographically representative distribution over SA, but not in a sample that is representative of a community (area/municipality). It was calculated that the sample necessary to achieve the required 90/10 confidence/precision level

required by the methodology is 130 meters. However, the survey considers 600 meters for extra buffering and replacement for malfunctioning/stolen meters. Given the distances involved, the data collection utilized GSM based hour meters, which sends the recorded data via SMS to the professional statisticians responsible for the survey. DNV considers the proposed sampling adequate for establishing average operating hours of the baseline ICLs;

- **TD_y -** Average annual technical grid losses. This will be monitored based on the values published either by a national utility or an official governmental body. The value applied for the estimation of emission reductions of 8.3% has been sourced from Eskom's Annual report 2011 /53/.

4.7.8 Management system and quality assurance for monitoring and reporting

As per AMS-II.J, point 17 (a), *Ex post* monitoring surveys are required within the first year after installation to adjust the Net Electricity Savings (NES_y) considering the actual Lamp Failure Rate ($LFR_{i,y}$) data, the actual average daily operating hour of the light bulbs replaced (O_i) (if a default value is not selected), the CFL Average Life (if a CFL Rate Average Life was used initially), and using the actual quantity of CFLs for each wattage group i ($Q_{PJ,i}$).

The sampling plan will be done at PoA level, that is, the populations of all CPAs under the PoA that have already started distribution are combined together, and a single survey is undertaken to collect data. The households included in the ex post monitoring survey will be randomly selected from the database of participating households for the whole PoA during each "vintage year" (i.e. South African financial year, for Example April 2011 to March 2012) as recorded in the data management system. As explained in the PoA-DD, the "vintage years" are mutually exclusive and they are also collectively exhaustive, in that no population element is excluded. Each vintage year comprises all CFLs and associated households across all the CPAs formally included and active in the PoA.
The result of this sampling will determine the proportion of the total number of devices still operating at the end of each monitoring period, which will be applied to the calculation of emissions reductions for that period. CFLs distributed under the PoA will be marked with an Eskom logo (or equivalent) to ensure that they can be unambiguously differentiated from other light bulbs installed in the selected households.

It is the intention of the CME to undertake ex-post monitoring surveys with a number of representative sample groups determined by the geographic location and timing of SSC-CPA implementation. These results will then be applied across all SSC-CPAs from the same region, for SSC-CPAs implemented at a similar time. It is not the intention of the CME to undertake ex-post monitoring surveys for each SSC-CPA implemented under the PoA. Because of the high degree of similarity of households participating in the PoA (particularly those from the same or adjacent municipalities or provinces), the CME will establish a number of sample groups, representative of certain regions and implementation timing (eg. all SSC-CPAs implemented in 2011, 2012 etc) from which results will be applied to the relevant SSC-CPAs. This will avoid the situation whereby multiple surveys are conducted of households from the same region for SSC-CPAs implemented at the same time, which would create significant statistical redundancy. The CME has worked with a suitably qualified

university in South African to determine the sampling regime for the ex-post monitoring surveys

The selected sampling method is a stratified multistage random sampling. The stratified approach has been chosen because when sub-populations vary considerably, it is advantageous to group elements into relatively homogeneous subpopulations and sample each subpopulation independently. Based on the target confidence/error, the sample size has been calculated to be 96 lights. However, since the methodology AMS-II.J requires the sample to consist of no less than 100 project lights, the selected sample will consist of 100 to 300 lights for every vintage year. This figure is well above the UNFCCC requirements for PoA sampling, and it is therefore considered acceptable by DNV.

Ex-post monitoring will be carried out by independent professional statisticians from North West University to ensure the quality of both the data collection and data analysis. QA procedures developed by the University have been submitted to DNV. These consist of a clear allocation of responsibilities, procedures to handle all required documentation, project planning and project execution, how the database is managed, and reporting requirements (daily, weekly and monthly).

The monitoring plan provides for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the programme boundary during the crediting period, and the QA procedures put in place are considered adequate to ensure accurate data collection, storage and reporting. These include and exceed the parameters required by the methodology.

The choices of programme GHG indicators are reasonable and conservative, and allow for an accurate monitoring of emission reductions. The measurement method is clearly stated for each GHG value to be monitored and deemed appropriate.

The frequency at which the monitoring surveys will be performed is in accordance with the requirements of the Methodology. The registration, monitoring, measurement and reporting procedure are defined and described in the PoA-DD.

Procedures have been identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation).

4.8 Environmental impacts

The PP has elected to assess environmental impacts at PoA level, an option in accordance with 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 /41/.

According to the PoA – DD, The South African Government does not require that environmental impact assessments should be undertaken for the PoA. This was confirmed to DNV by the representatives of the local DNA interviewed /69//70/.

According to the PoA – DD: “The primary environmental impact of the PoA is the physical waste created by the replaced lighting equipment.” The programme design identifies and addresses the need for collection and destruction of the replaced baseline technology.

The programme managing entity will work with local businesses to implement a recycling strategy for the base materials of the baseline technology (e.g. glass and metals from ICLs). Moreover, the mercury from the CFLs collected will be treated as hazardous waste and stored and processed accordingly /74//75/.

The project participant has submitted a copy of their policy document on regarding the Management of Fluorescent Tubes, Compact Fluorescent Lamps (CFLs) and Mercury-Containing Devices /9/, as well as the guidance for the safe disposal of CFL, which has been made publicly available on their website /10/. Moreover, this information is made available to recipients through brochures providing safe disposal tips and advice on how to handle broken CFLs /56/.

With regard to the destruction of ICLs, DNV visited one of the disposal centres that will be involved in the destruction of ICLs as part of the programme, and which currently handles the destruction of ICLs from other Eskom distribution projects. Here DNV was able to observe how the destruction is monitored through counting of the number of metal part of the destroyed ICLs, which is then compared to the recorded number of CFL/ICL exchanged. Crushing companies are paid by Eskom based on the correspondence between the number of CFL distributed and the ICL crushed, so Eskom is further assured that destruction takes place.

The quality management system of the destruction centre is ensured by a number of standards: DNV was provided copies of a valid certificate of membership to the Institute of Waste Management of Southern Africa /11/,a certificate of registration as hazardous waste transporter /13/ and a certificate of competence for the operation of skip trucks /12/, certification of training in safety standards /36/, safe disposal certificates /16//80/, and copies of audited incandescent lamps count sheets for two selected dates – 22 February and 10 may 2011 /14//15/.

It is DNV opinion that the system in place to ensure that the baseline ICLs are destroyed is adequately implemented and allows for verification.

Representatives of the DNA of South Africa confirmed that the programme as described in the submitted PIN complies with national environmental legislation /69//70/. Moreover, during the site visit, DNV held an interview specifically on this topic with Eskom's waste policy officer /74/, regarding the compliance of the proposed PoA with South Africa regulation regarding waste handling in general, and e-waste in particular. Based on Eskom's experience with past distribution campaigns, Eskom was able to confirm that compliance with national regulation was taken into consideration in all aspects of the programme's design and will be monitored throughout the PoA implementation

4.9 Comments by local stakeholders

The PP has selected to conduct the stakeholder consultation at PoA level.

The local stakeholder consultation was conducted for three projects at the same time, of which this PoA is one: the historical CFL roll-out implemented by Eskom between 2004 and 2010, two small-scale projects consisting of the distribution of CFLs in areas not previously

covered by the historical roll-out (called "Greenfield"), as well as the proposed "Sustainability" PoA. The LSC consisted of three sessions: one in Cape Town on 20 June 2011, one in Durban on 22 June 2011, and one in Pretoria on 24 June 2011. All sessions were conducted in English, but translation services were made available to participants. Minutes of the meetings and stakeholders comments have been included in the report /20/.

According to the LSC report submitted /20/, invitations were sent by email as well as published on two regional newspapers and two national newspapers. A scanned copy of the text published is shown in the LSC report.

A summary of comments received by stakeholders during the 3 sessions is included in the PoA – DD. According to the comments listed in the GS LSC report /20/ and Eskom's own Stakeholder Consultation report submitted /19/, no comment required a change in the programme design. All comments have been responded to by Eskom, and the responses have been recorded in both reports for transparency.

4.10 Comments by Parties, stakeholders and NGOs

The CDM-SSC-PoA-DD dated 25 July 2011, the PoA specific CDM-SSC-CPA-DD with generic information relevant to all CPAs to be included in this PoA and the CDM-SSC-CPA-DD for the CPA with the title CFL Replacement Project Western Cape was made publicly available on the UNFCCC's website http://cdm.unfccc.int/ProgrammeOfActivities/Validation/DB/4JC41AXZ5ILYZPGNBRU4MLPLR7KEDP/view.html) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period 6 August 2011 to 4 September 2011.

No comments have been received.

APPENDIX A

CDM VALIDATION PROTOCOL

Table 1 Mandatory Requirements for Clean Development Mechanism (CDM) Programmes of Activities

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	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	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	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	OK
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	OK
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 § 2	OK
11. The coordinating/managing entity shall be identified.	PoA Procedures § 2 (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 § 2 (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 § 2 (g)	OK
14. The length of the PoA is not exceeding 28 years.	PoA Procedures § 2 (h)	OK
15. The operational and management arrangements established by the coordinating/managing entity for the implementation of the PoA is decribed, 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 § 2 (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 § 2 (k)	OK
About small-scale programmes of activities		

Requirement	Reference	Conclusion
17. The CPAs shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakech Accords.	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	OK
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 § 2 (e)	OK
19. Additionality of a typical CPA is demonstrated by using the procedure provided in the baseline and monitoring methodology applied.	PoA Procedures § 2 (f)	OK
About application of baseline and monitoring methodology		
20. The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK
21. 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
22. 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
23. 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 § 2 (j)	OK
24. 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

Requirement	Reference	Conclusion
About forecast emission reductions		
25. 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		
26. 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	☒ Analysis at PoA level ☐ Analysis at CPA level
About stakeholder comments		
27. 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	☒ Analysis at PoA level ☐ Analysis at CPA level
28. 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		
29. The project design document shall be in conformance with the CDM-PoA-DD format.	CDM Modalities and Procedures Appendix B, EB Decision	OK

Table 2.1 CDM Requirements Checklist

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
A. General Description of the Programme of Activities *The project design is assessed.*					
A.1. Title of the PoA					
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	☒ Clearly identifiable title of the project activity ☒ Version number of the PDD is included ☒ Date of the PDD is included.		OK
A.1.2. Is the PoA-DD is in accordance with the applicable requirements for completing PoA-DDs?	/1/	DR	☒ Yes		OK
A.2. Programme Boundaries *Programme Boundaries are the limits and borders defining the GHG emission reduction project.*					
A.2.1. Are the programme's spatial boundaries (geographical) clearly defined?	/1/	DR SV	The programme's spatial boundaries are clearly defined in the PoA-DD, and consist of the boundaries of the Republic of South Africa.		OK
A.2.2. Are the programme's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	/1/ /38/	DR SV	The programme's system boundaries will be defined by the specific location of the installed lamps, and extend to include the electricity grid to which the homes are connected. This is in accordance with the applicable methodology.		OK
A.2.3. Can each CPA under the PoA be clearly identified individually including spatial boundaries	/1/	DR SV	Each SSC-CPA included in the PoA will be identified by the geographical location of the		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
(geographical) clearly defined?			household in which the CFL units are installed. The definition of the boundary of CPAs is therefore in accordance with the applicable methodology.		
A.2.4. Does the programme establish eligibility criteria for inclusion of a project as a CPA under the PoA?	/1/ /41/	DR SV	The PoA DD includes the following eligibility criteria for the inclusion of CPAs: **1.** The SSC-CPA involves the distribution of CFLs to households within the geographical boundary of South Africa; ***2.*** The SSC-CPA will implement the baseline and monitoring methodology AMS-II.J. *'Demand-side activities for efficient lighting technologies' v.04;* **3.** The SSC-CPA has been approved by the CME for participation in the PoA; **4.** The SSC-CPA is neither registered as an individual CDM project activity nor included in another registered PoA; **5.** The SSC-CPA is uniquely identified and defined in an unambiguous manner by providing geographic information, and the start date and end date of the crediting period; **6.** The SSC-CPA satisfies de-bundling rules for PoA, and is not a debundled component of a large scale CPA or CDM project;	~~CAR1~~	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			7. The aggregate energy savings by the SSC-CPA will not exceed the equivalent of 60 GWh per year. *The project participant is requested to update the PoA inclusion criteria in accordance with the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities.*		
A.3. Eligibility Criteria *Eligibility criteria to assess eligibility of CPAs to be included to PoA.*					
A.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	The geographical boundary of the CPA is consistent with the geographical boundary set in the PoA. See CAR1	~~CAR1~~	OK
A.3.2. Are there conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo)?	/1/	DR	Conditions are in place to avoid double counting of emission reductions. See CAR1	~~CAR1~~	OK
A.3.3. Are there specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications?	/1/	DR	Specifications of technology/measures are provided. See CAR1	~~CAR1~~	OK
A.3.4. Are there conditions to check the start date of the CPA through documentary evidence?	/1/	DR	Conditions are in place to check the start date of the CPA through documentary ecidence. See CAR1	~~CAR1~~	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
A.3.5. Are there conditions that ensure compliance with applicability and other requirements of single or multiple methodology/ies applied by CPAs?	/1/	DR	Conditions are in place to ensure compliance with applicability and other requirements of a single methodology. See CAR1	~~CAR1~~	OK
A.3.6. Are there conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality of the PoA and typical CPA?	/1/	DR	Conditions are in place to ensure that CPAs meet the requirements pertaining to the demonstration of additionality of the PoA and typical CPA. See CAR1	~~CAR1~~	OK
A.3.7. Are there PoA-specific requirements stipulated by the CMEs including any conditions related to undertaking local stakeholder consultations and environmental impact analysis?	/1/	DR	Requirements are stipulated by the CME in relation to undertaking local stakeholder consultation and environmental impact analysis. See CAR1	~~CAR1~~	OK
A.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	Target groups are specified. See CAR1	~~CAR1~~	OK
A.3.1. 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	Conditions related to sampling requirements are in place. See CAR1	~~CAR1~~	OK
A.3.2. 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	Conditions are in place to ensure that CPA in aggregate meet the small-scale or micro-scale threshold. See CAR1	~~CAR1~~	OK
A.3.3. Where applicable, are there requirements for the	/1/	DR	Requirements for debundling check are in	~~CAR1~~	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories?	/40/		place. See CAR1		
A.3.4. 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	Conditions are in place to exclude a diversion of official development assistance. See CAR1	~~CAR1~~	OK
A.3.5. Are all eligibility criteria verifiable, and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA?	/1/	DR	See CAR1	~~CAR1~~	OK
A.4. Participation Requirements *Referring to Part A, Annex 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.*					
A.5.1. Which Parties and programme participants are participating in the programme?	/1/	DR	Programme participants for this PoA are Eskom Holdings Limited (Republic of South Africa), and BNP Paribas (France).		OK
A.5.2. Has the coordinating/managing entity of the programme been identified?	/1/ /41/	DR	The coordinating / managing entity of the PoA is Eskom Holdings Limited (Republic of South Africa), which also acts as programme participant. This is clearly indicated in the PoA-DD. The CME of the first CPA coincides with the CME of the PoA, and is clearly identified in the CPA-DD in accordance with the requirements of the "*Procedures for*		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			registration of a Programme of Activities as a CDM project Activity and Issuance of Certified Emission Reductions for a Programme of Activities, version 04.1".		
Have all involved Parties provided a valid and complete letter of approval and have all private/public programme participants been authorized by an involved Party?	/1/ /41/	DR	According to paragraphs 9 and 10 of the *Procedures for registration of a Programme of Activities as a CDM project Activity and Issuance of Certified Emission Reductions for a Programme of Activities*, version 04.1, the CME shall obtain letters of approval from each host Party and Annex I Party, and letters of authorization of its coordination of the PoA from each host Party" *The project participant is requested to submit a valid letter of approval from the DNA of both Annex 1 and host Party;* *The project participants requested to submit a valid letter of authorization of its coordination of the PoA from each host Party* *The project participant is requested to submit evidence that, in case public funding from Parties included in Annex I is used for the programme, 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.*	~~CL1~~	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
A.5.3. Do all participating Parties fulfil the participation requirements as follows: - Ratification of the Kyoto Protocol - Voluntary participation - Designated a National Authority?	/1/ /52/	DR	Both France and the Republic of South Africa have ratified the Kyoto Protocol. With regard to voluntary participation see *CL1*. Both Host and Annex-1 parties have established a DNA.	~~CL1~~	OK
A.5.4. Do all participating Parties fulfil the participation requirements as follows:	/1/	DR			OK
	South Africa (host)		France		
a) Party has ratified the Kyoto Protocol	☒ Yes ☐ No		☒ Yes ☐ No		
b) Party has designated a Designated National Authority	☒ Yes ☐ No		☒ Yes ☐ No		
c) The assigned amount has been determined	☐ Yes ☒ No		☒ Yes ☐ No		
A.5.5. Do the letters of approval meet the following requirements?	/1/ /52/	DR	*Refer to A.5.3*	~~CL1~~	OK
	South Africa (host)		France		
a) LoA confirms that Party has ratified the Kyoto Protocol	☐ Yes ☐ No		☐ Yes ☐ No		
b) LoA confirms that participation is voluntary	☐ Yes ☐ No		☐ Yes ☐ No		
c) The LoA confirms that the project contributes to the sustainable development of the host country?	☐ Yes ☐ No		NA		
d) The LoA refers to the precise project activity title in the PDD	☐ Yes ☐ No		☐ Yes ☐ No		
e) The LoA is unconditional with respect to (a) to (d) above	☐ Yes ☐ No		☐ Yes ☐ No		
f) The LoA is issued by the respective Party's DNA	☐ Yes ☐ No		☐ Yes ☐ No		
g) The LoA was received directly by the DNA or the PP	☐ DNA ☐ PP		☐ DNA ☐ PP		
h) In case of doubt regarding the authenticity of the letter of					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
approval, describe how it was verified that the letter of approval is authentic					
A.5.6. Does the programme make provisions for meeting training and maintenance needs?	/1/ /23/ /71/ /75/ /78/ /79/	DR	According to interviews conducted on site, each employee involved in the project will be adequately trained. Moreover, the project participant submitted a copy of the ESCO Requirements document clearly describing the transfer of skills from PM to ESCOs carrying out the monitoring on the ground.		OK
A.5.7. Has the coordinating/managing entity provided letters of authorization of its coordination of the PoA from each host Party?	/1/ /36/	DR CC	The CME has submitted letters of authorisation of its coordination from the host Party		OK
A.5. Contribution to Sustainable Development *The project/programme's contribution to sustainable development is assessed.*	/1/	DR			
Has the host Party confirmed that the programme assists it in achieving sustainable development?	/1/ /69/ /70/	DR SV	The DNA of South Africa was interviewed by DNV and confirmed that the programme assists it in achieving sustainable development. Confirmation that the programme meets al sustainability criteria identified by the DNA of South Africa will be confirmed once the letter of approval is issued. *Refer to A.5.3*	~~CL1~~	OK
A.5.1. Will the programme create other environmental or social benefits than GHG emission reductions?	/1/ /81/	DR SV	For what concerns environmental benefits, the introduction of energy efficient lighting		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
	/82/ /83/ /69/ /70/		in households will reduce the consumption, and hence generation of electricity. In addition to reducing GHGs, the PoA will therefore reduce the emission of harmful gases and particulate matter produced during the burning of fossil fuels to produce electricity. In terms of social benefits, it is expected that the proposed PoA will create jobs within the South African economy. As well as the direct financial benefit to households in terms of savings on their electricity bills each year, the PoA will also generate a range of less tangible social outcomes in education and awareness. Such additional benefits were discussed with and confirmed by representatives of the South African DNA.		
A.6. Small scale programme activity *It is assessed whether the project qualifies as small-scale CDM project activity*					
A.6.1. Do CPAs under the programme qualify as small scale CDM project activities as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	/1/ /4/	DR	The PoA includes two eligibility criteria concerning the scale of CPAs: • "The SSC-CPA satisfies de-bundling rules for PoA, and is not a debundled component of a large scale CPA or CDM project";		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			• The aggregate energy savings by the SSC-CPA will not exceed the equivalent of 60 GWh per year. This is in accordance with the threshold for small-scale project activities Type II set by the General Guidelines to SSC CDM methodologies: This means that CPAs not qualifying as small scale CDM project activities will not be eligible for inclusion in the CPA. The PP has submitted calculations of the aggregate energy savings to demonstrate that it does not exceed 60GWh per year.		
A.7. Operational, management and monitoring plan for the programme					
A.7.1. Do the operational and management arrangements established by the coordinating entity include a record keeping system for each CPA under the programme?	/1/ /24/ /78/ /79/	DR SV	Record keeping procedures planned by the CME make provisions to record the following data: • Geographical location of each CPA • Name of household (name and surname) • The address (street number, name and suburb) of household • Meter number of household • Date of distribution or direct installation of CFLs • Specifications of ICLs replaced,		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			including: number replaced, power rating or wattage • Specifications of failed Eskom CFLs replaced, including: number replaced, power rating or wattage • Specifications of CFLs installed, including: number installed, CFL purchase/dispatch records, power rating or wattage • Date of return and destruction of ICLs replaced • Date of return and disposal of failed Eskom CFLs replaced • A household signature accepting to transfer all the carbon credits to Eskom. The information that will be collected by each CPA fulfills and exceeds the requirements of the methodology AMS-II.J. A copy of a data collection form has been provided to DNV, and includes all the information listed in the PoA-DD. Such form allows univocal identification of the household also in case some of the information is not available: for instance, in cases where no official address is available, the household will be identified through the meter number. DNV was not able to validate the DMS since		

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			the implementation of the first CPA had only started a few days before the site visit. .		
A.7.2. Do the operational and management arrangements established by the coordinating entity include a system/procedure to avoid including CPAs that have already been registered either as CDM project activity or as a CPA of another PoA?	/1/	DR SV	To avoid including CPAs that have already been registered either as CDM project activity or as a CPA of another PoA, the PoA managing entity has put the following system in place to avoid double-counting: Prior to registering a new SSC-CPA within the proposed PoA, the coordinating entity will check the CDM project database to establish whether a CDM project activity or CPA of another PoA involving CFLs has already been registered in the same geographic area. This search will cover registered project activities, project activities requesting registration, project activities under review and project activities for which either a review or corrections have been requested. The process of checking will be duplicated by the DOE responsible for registering new SSC-CPAs under the proposed PoA. DNV considers these provisions sufficient to avoid double inclusion of CPAs under different PoAs.		OK
A.7.3. Do the operational and management arrangements established by the coordinating entity include provisions to ensure that CPA	/1/	DR SV	According to the PoA-DD, the CME is responsible for identifying, developing, registering and managing all SSC-CPAs to be	~~CL2~~	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
implementers are aware and have agreed that their activity is being subscribed to the PoA?			included in the proposed PoA. Moreover, legal agreements have been put in place with PoA distribution partners and lighting suppliers clearly stipulating that their activities are subscribed to the PoA. Finally, one of the eligibility criteria for CPA inclusion states: "*The SSC-CPA has been approved by the CME for participation in the PoA*". *The project participant is requested to submit copies of the legal agreements that will be used to ensure that CPA implementers are aware and have agreed that their activity is being subscribed to the PoA.*		
A.7.4. Does the monitoring plan include a description of a proposed statistically sound sampling method and procedure to be used by designated operational entities for verification of GHG emission reductions by CPAs under the programme? OR If the programme does not use verification method that applies a statistical method for sampling, has a system been defined to avoid double counting of CERs, and is the system transparent?	/1/ /84/	DR SV	The monitoring plan does not include a description of a proposed statistically sound sampling method and procedure to be used by designated operational entities for verification of GHG emission reductions by CPAs under the programme. Therefore, the coordinating/managing entity opts for a verification method where the DOE verifies each CPA. A transparent system has been defined and described that ensures that no double counting occurs, and that the status of verification can be determined anytime for each CPA: given that each SSC-CPA		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			included in the PoA will be identified by geographical location, it is possible to unambiguously identify CPAs or CDM project activities potentially operating in the same area. The geographical boundary of each SSC-CPA is determined by the location of households where CFLs are installed. The collection of household addresses information (detailed in Annex 4 of the PoA-DD) will ensure that the project boundary can be unambiguously defined. The DMS managed by the CME includes the following data-set that can be directly attributed to each SSC-CPA within the PoA, thereby allowing unambiguous determination of the emission reductions generated by each SSC-CPA: (i) A list of households participating in each SSC-CPA including name, address, number and wattage of light bulbs exchanged, (ii) Date and location of the exchange transaction; (iii) Data obtained from periodic ex-post monitoring surveys of a sample of households indicating the proportion of project CFLs operating during each monitoring period; and		

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			(iv) Destruction records of ICLs for leakage. The CME will produce a monitoring report for the DOE to verify corresponding to the preceding monitoring period of each SSC-CPA. This report will unambiguously set out the data relating to the emission reductions generated by that SSC-CPA during the monitoring period.		
A.7.5. 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/ /85/ /7/ /8/ /71/ /75/ /74/ /78/ /79/ /77/ /76/	DR SV	The authority and responsibility of overall programme management clearly described both in the PoA-DD and in the CPA-DD. Moreover, clear allocation of responsibilities was apparent to DNV during the interviews conducted in site visit. The project participant submitted a copy of the monitoring team's Q&A procedures. Where responsibilities and authorities are clearly identified and detailed.		OK
A.7.6. Are there records of arrangements for training and capacity development for personnel?	/1/ /23/ /71/ /75/ /78/ /79/	DR	According to interviews conducted on site, each employee involved in the project will be adequately trained. Moreover, the project participant submitted a copy of the ESCO Requirements document clearly describing the transfer of skills from PM to ESCOs carrying out the monitoring on		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			the ground.		
A.7.7. Are there procedures for technical review of inclusion of CPAs?	/1/	DR	Provisions have been put in place for the technical review of inclusion of CPAs: in fact, the PoA-DD indicates that checks to avoid the inclusion of activities that have already been registered as CDM project activities will be replicated by a DoE		
A.7.8. 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	To avoid including CPAs that have already been registered either as CDM project activity or as a CPA of another PoA, the PoA managing entity has put the following system in place to avoid double-counting: Prior to registering a new SSC-CPA within the proposed PoA, the coordinating entity will check the CDM project database to establish whether a CDM project activity or CPA of another PoA involving CFLs has already been registered in the same geographic area. This search will cover registered project activities, project activities requesting registration, project activities under review and project activities for which either a review or corrections have been requested. The process of checking will be duplicated by the DOE responsible for registering new SSC-CPAs under the proposed PoA.		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			DNV considers these provisions sufficient to avoid double inclusion of CPAs under different PoAs.		
A.7.9. Is there a records and documentation control process for each CPA under the PoA?	/1/	DR	Data quality checks have been included in the management system, and are described in the PoA-DD. Data purity will be checked during site visits and Phone Audits. "Sanity Checks" will also be done from time to time to ensure the quality of data. Should issues occur, a report will be drafted and submitted to the relevant ESCO		OK
A.7.10. Are there measures for continuous improvements of the PoA management system?	/1/	DR	Data quality checks are included in the quality control process, to support the improvement of the PoA management system		OK
B. Duration of the Programme of Activities, Crediting Period					
B.1.1. Are the programme starting date and length of the programme clearly defined and evidenced?	/1/	DR	The PoA starting date has been set on 31 August 2011, and the programme is expected to last 10 years. *The PP is requested to submit evidence for the selected staring date of the PoA* *The PP is requested to confirm that they intend the PoA to have the same duration as a CPA.*	~~CL3~~	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
B.1.2. Does the PoA design documentation confirm that the length of the PoA does not exceed 28 years?	/1/	DR	The length of the PoA does not exceed the maximum length set for PoAs at 28 year.		OK
C. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*			☒ Analysis at PoA level ☐ Analysis at CPA level This section must only be completed if the analysis of environmental impacts is at PoA level.		
C.1.1. Has an analysis of the environmental impacts of the programme been sufficiently described?	/1/ /41/	DR SV	The PP has elected to assess environmental impacts at PoA level, an option in accordance with 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*. This is clearly indicated in the PoA – DD. The PoA – DD template requires under section C. to justify the choice of level at which the environmental analysis is undertaken. *The PP is requested to justify in the PoA-DD the choice of level at which the environmental analysis is undertaken.*	~~CAR2~~	OK
C.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)?	/1/ /69/ /70/	DR SV	According to the PoA – DD, The South African Government does not require environmental impact assessments to be carried out for the PoA.	~~CL4~~	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			This was confirmed to DNV by the representatives of the local DNA interviewed. *The PP is requested to provide evidence in support of the programme not requiring an Environmental Impact Assessment.*		
C.1.3. Will the programme create any adverse environmental effects?	/1/ /69/ /70/	DR SV	According to the PoA – DD: "The primary environmental impact of the PoA is the physical waste created by the replaced lighting equipment." This was confirmed by representatives of the DNA.		OK
C.1.4. Are transboundary environmental impacts considered in the analysis?	/1/ /69/ /70/	DR SV	Transboundary environmental impacts are not considered in the analysis. The DNA of South Africa confirmed that transboundary environmental impacts are not foreseen for this type of programme.		OK
C.1.5. Have identified environmental impacts been addressed in the programme design?	/1/ /9/ /10/ /11/ /12/ /13/ /15/ /16/	DR SV	The programme design identifies and addresses the need for collection and destruction of the replaced baseline technology. In order to mitigate such negative impacts, The programme managing entity will work with local businesses to implement a recycling strategy for the base materials of the baseline technology (e.g. glass and metals		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
	/86/ /36/		from ICLs). Moreover, the mercury from the CFLs collected will be treated as hazardous waste and stored and processed accordingly. The project participant has submitted a copy of their policy document on regarding the Management of Fluorescent Tubes, Compact Fluorescent Lamps (CFLs) and Mercury-Containing Devices, as well as the guidance for the safe disposal of CFL, which has been made publicly available on their website /10/. Moreover, this information is made available to recipients through brochures providing safe disposal tips and advice on how to handle broken CFLs. With regard to the destruction of ICLS, DNV visited one of the disposal centres that will be involved in the destruction of ICLs as part of the programme, and which currently handles the destruction of ICLs from other Eskom distribution projects. Here DNV was able to observe how the destruction is monitored through counting of the number of metal part of the destroyed ICLs, which is then compared to the recorded number of CFL/ICL exchanged. Crushing companies are paid by Eskom based on the correspondence between the number of CFL distributed and the ICL crushed, so Eskom is		

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			further assured that destruction takes place. The quality management system of the destruction centre is ensured by a number of standards: DNV was provided copies of a valid certificate of membership to the Institute of Waste Management of Southern Africa, a certificate of registration as hazardous waste transporter and a certificate of competence for the operation of skip trucks, certification of training in safety standards, safe disposal certificates , and copies of audited incandescent lamps count sheets for two selected dates – 22 February and 10 may 2011. It is DNV opinion that the system in place to ensure that the baseline ICLs are destroyed is adequately implemented and allows for verification.		
C.1.6. Does the programme comply with environmental legislation in the host country?	/1/ /69/ /70/	DR SV	Representatives of the DNA of South Africa confirmed that the programme as described in the submitted PIN complies with national environmental legislation. Moreover, during the site visit, DNV held an interview specifically on this topic with Eskom's waste policy officer, regarding the compliance of the proposed PoA with South Africa regulation regarding waste handling in general, and e-waste in particular. Based on Eskom's experience with past distribution		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			campaigns, Eskom was able to confirm that compliance with national regulation was taken into consideration in all aspects of the programme's design and will be monitored throughout the PoA implementation.		
D. Stakeholder Comments *The validator should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.*			☒ Consultation at PoA level ☐ Consultation at CPA level This section must only be completed if the analysis of environmental impacts is at PoA level.		
D.1.1. Have relevant stakeholders been consulted?	/1/ /20/	DR	The PP has selected to conduct the stakeholder consultation at PoA level. The local stakeholder consultation was conducted for three projects at the same time, of which this PoA is one: the historical CFL roll-out implemented by Eskom between 2004 and 2010, two small-scale projects consisting of the distribution of CFLs in areas not previously covered by the historical roll-out (called "Greenfield"), as well as the proposed "Sustainability" PoA. The LSC consisted of three sessions: one in Cape Town on 20 June 2011, one in Durban on 22 June 2011, and one in Pretoria on 24 June 2011. All sessions were conducted in English, but translation services were made available to participants. Minutes of the		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			meetings and stakeholders comments have been included in the report.		
D.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/ /20/	DR	According to the LSC report submitted, invitations were sent by email as well as published on two regional newspapers and two national newspapers. A scanned copy of the text published is shown in the LSC report.		OK
D.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/ /69/ /70/	DR	Representatives of the South Africa DNA indicated that the only regulations mandating the consultation of local stakeholders are those related to the Environmental Impact Assessment. Since this PoA has been exempted from performing an EIA, no relevant regulation applies.		OK
D.1.4. Is a summary of the stakeholder comments received provided?	/1/	DR	A summary of comments received by stakeholders during the 3 sessions is included in the PoA – DD.		OK
D.1.5. Has due account been taken of any stakeholder comments received?	/1/ /19/	DR	According to the comments listed in the GS LSC report and Eskom's own Stakeholder Consultation report submitted, no comment required a change in the programme design. All comments have been responded to by Eskom, and the responses have been recorded in both reports for transparency.		OK
E. Programme Baseline *The validation of the programme baseline establishes whether the selected baseline methodology is appropriate*					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
and whether the selected baseline represents a likely baseline scenario.					
E.1. Baseline Methodology *It is assessed whether the programme applies an appropriate baseline methodology.*					
E.1.1. Does the programme apply an approved methodology and the correct version thereof?	/1/ /38/	DR SV	The PoA applies *AMS-II.J. Demand-side activities for efficient lighting technologies – Version 04.* This the most recent available version at the time of validation.		OK
E.1.2. Are the applicability criteria in the baseline methodology all fulfilled?	/1/ /2/ /87/ /51/	DR SV	Compliance with each applicability criterion has been assessed as follows: 8. *This category comprises activities that lead to efficient use of electricity through the adoption of self-ballasted compact fluorescent lamps (CFLs) to replace incandescent lamps (ICLs) in residential applications. Eligible self-ballasted CFLs have integrated ballasts as a non-removable part. The CFLs adopted to replace existing equipment must be new equipment and not transferred from another activity.* Fulfillment of this criterion is mandated by the CPA inclusion criteria, which means that CPAs not consisting of the replacement of	~~CL5~~	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			ICLs with CFLs in residential applications will not be included in the PoA. Likewise, with regard to the CFL eligibility, although the PoA – DD does not indicate the model of CFL that will be rolled out, only CFLs with integrated ballasts as a non-removable part will be eligible for distribution. Finally, CFL purchase/dispatch records will make it possible to verify that only new CFLs are employed in the PoA, and that CFLs have not been transferred from another activity. This criterion has therefore been fulfilled. *The PP is requested to submit information on the QA procedures in place to check purchase/dispatch records to ensure compliance with applicability criterion 1.* 9. *The total lumen output of the CFL should be equal to or more than that of the ICL being replaced; lumen output of ICL & CFL shall be determined in accordance with relevant national or international standard/s. Values in Table 1 may be used as an alternative option to such standards. If a lamp wattage is not in Table 1, linearly interpreted value shall be used to determine the minimum light*		

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			output requirements e.g., 493 Lumens for a 45 W lamp. The lumen output of ICLs and CFLs has been determined in accordance with the ELI standard. The table reported in the PoA – DD is consistent with the information provided as reference. The monitoring plan of each SSC-CPA under the PoA includes a procedure that clearly identifies both the ICL replaced and the CFL distributed, so that the project technology can be readily compared to the baseline technology. *The PP is requested to submit information on the QA procedures in place to check monitoring data and ensure compliance with applicability criterion 2.* *10. The aggregate electricity savings by a single project activity may not exceed the equivalent of 60 GWh per year.* Ex ante estimation for the first CPA shows that the threshold will be respected. However, the PP will only be able to prove compliance with this criterion once distribution for each CPA is completed.		

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			11. The average life or the rated average life of the CFLs shall be known ex ante. IEC 60969 (Self Ballasted Lamps For General Lighting Services - Performance Requirements) or an equivalent national standard shall be used to determine the average life. The project design document shall cite the standard used. If the average life value is not available ex ante, it shall be made available for verification before or at the same time that the results of the second ex post monitoring survey, as required per paragraph 18 (b), are available for verification. The laboratory conducting and certifying the tests to determine CFL average life shall comply with the requirements of a relevant national or international standard, e.g., ISO/IEC 17025. The rated average life of the CFLs used in the first CPA is known ex ante (10 000 hours). Both the PoA-DD and the CPA-DD /88/ clearly indicate the standard used, which is IEC 60969. CFLs will be tested by an independent organization – KEMA Quality, against this standard. *The PP is requested to submit evidence for*		

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			the CFLs average life measurement being in compliance with IEC 60969 or equivalent national standard, and having been tested by a laboratory complying with the requirements of relevant national or international standards, e.g. ISO/IEC 17025. *12. CFLs utilized under the project activity shall, in addition to the standard lamp specifications, be marked for clear unique identification for the project.* CFLs will be labeled with Eskom's logo. This, in addition to their location being recorded, will allow clear and unique identification for the programme. *13. The project design document shall explain the proposed method of distribution of efficient lighting equipment and how ICL collection (e.g., exchanged for project CFLs) and destruction will be conducted and documented. The Project design document shall also explain how the proposed procedures eliminate double counting of Emission Reductions, for example due to CFL manufacturers, wholesale providers or others possibly claiming credit for Emission Reductions for the project CFLs.*		

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			The project design document explains the proposed method of distribution of efficient lighting equipment and how ICL collection is be conducted and documented. Moreover, the Project design document also details the proposed procedures eliminate double counting of Emission Reductions. *14. The project activity shall be designed to limit undesired secondary market effects (e.g., leakage) and free riders by ensuring that replaced lamps are exchanged and destroyed. Further project participants are required to undertake at least one of the following actions:* *(i) Directly installing the CFLs;* *(ii) Charging at least a minimal price for efficient lighting equipment;* *(iii) Restricting the number of lamps per household distributed through the project activity to six.* The programme has been designed to include actions (i) and (iii) to avoid the occurrence of free-riders.		

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			15. Whether the CFLs are directly installed or not directly installed, the project design document shall define actions to be taken to encourage CFLs being installed in locations within the residences where the utilization hours are relatively high, for example common areas. For CFLs not directly installed these actions can include educating the CFL recipients of the best uses for CFLs. Brochures on the benefits and best handling of CFLs are distributed to recipients. *The project participant is requested to submit copies of the brochures encouraging recipients to install CFLs in areas of high usage.*		
E.2. Baseline Scenario Determination *The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.*					
E.2.1. What is the baseline scenario?	/1/	DR SV	The baseline identified is the continuation of the use of ICLs.		OK
E.2.2. What other alternative scenarios have been considered and why is the selected scenario the most likely one?	/1/	DR SV	N/A: the selected methodology only contemplates one baseline scenario, i.e. the		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			continuation of the use of ICLs.		
E.2.3. Has the baseline scenario been determined according to the methodology?	/1/	DR SV	The baseline scenario coincides with the only scenario contemplated by the applicable methodology.		OK
E.2.4. Has the baseline scenario been determined using conservative assumptions where possible?	/1/ /69/ /70/	DR SV	The identification of the baseline assumes that autonomous replacement of the ICLs with CFLs would not take place due to the barriers identified (i.e. investment barriers, access-to-finance barriers and prevailing practice barrier). These barriers were confirmed by representatives of the DNA.		OK
E.2.5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/	DR SV	The baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations, This was confirmed by representatives of the DNA.		OK
E.2.6. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/1/	DR SV	Continuation of the business as usual scenario is compatible with available information.		OK
E.2.7. Have the major risks to the baseline been identified?	/1/	DR SV	One significant risk associated with the selected baseline is the future introduction of regulation on energy efficiency for lighting. However, should this happen, the baseline		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			can be revised at the renewal of the crediting period.		
E.3. Additionality of the Programme of Activities					
E.3.1. Has it been demonstrated that the programme is a voluntary coordinated action that would not be implemented in the absence of CDM?	/1/ /89/ /90/ /91/ /71/ /47/ /92/ /93/ /94/ /69/ /70/ /42/	DR SV	The CME confirmed that the programme is a voluntary coordinated action, and representatives of the DNA confirmed there are no laws mandating the use of energy efficient lighting technologies in South Africa. With regard to whether the proposed PoA would not be implemented in the absence of CDM, the project participant states that, although Eskom has undertaken significant, large-scale distributions of CFLs since 2006, all of these activities are currently in the process of being registered as CDM projects or voluntary carbon market initiatives. Since the PoA uses a small-scale methodology, it will assess additionality against one or more of the barriers listed in Attachment A to Appendix B to Annex II of 4/CMP.1. To ensure a well-developed discussion of additionality, the 'Tool for the demonstration and assessment of additionality' (Version 5.2) is also used. *The project participant is requested to submit*	~~CAR3~~ ~~CL6~~	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			evidence for CFL distribution taking place since 2006 being in the process of registration as CDM projects or voluntary carbon market initiatives.		
E.3.2. If the programme is implementing a mandatory policy/regulation, has it been demonstrated whether the policy/regulation is being enforced? If it is enforced, has it been demonstrated that the programme will lead to a higher level of enforcement?	/1/ /69/ /70/	DR SV	No policy/regulations apply to the sectoral scope of the programme of activities. This was confirmed by representatives of the DNA.		OK
E.3.3. Are all assumptions stated in a transparent and conservative manner?	/1/	DR	An opinion on the assumptions made in the demonstration of additionality will be expressed once CAR3 is closed.	~~CAR3~~	OK
Is sufficient evidence provided to support the relevance of the arguments made?	/1/	DR	*The PP is requested to submit evidence for all claimed costs as well as revenues.*	~~CL6~~	OK
E.4. Additionality of CPAs					
E.4.1. Is the approach described for demonstrating additionality of a CPA in accordance with the using the procedure provided in the baseline and monitoring methodology applied?	/1/ /95/ /96/ /47/ /97/	DR SV	The "*Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities*", indicates that PoAs that will include one or more small-scale projects as CPAs shall include eligibility criteria derived from all the relevant requirements of Attachment A of Appendix B of the Simplified modalities and procedures for small-scale CDM project activities.	~~CAR3~~	OK
E.4.2. Are specific criteria for demonstrating the	/1/	DR	The PoA eligibility criteria do not include	~~CAR3~~	OK

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additionality of a specific CPA included to the PoA?		SV	specific criteria for the demonstration of additionality of CPAs.		
E.4.3. Is the additionality of a typical CPA demonstrated?	/1/ /98/	DR SV	Additionality of a typical CPA is demonstrated using the Non-binding best practice examples to demonstrate additionality for SSC project activities.	~~CAR3~~	OK
E.5. Calculation of GHG Emission Reductions – Project emissions *It is assessed whether the procedure for calculating project emissions is according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
E.5.1. Has the procedure to calculate project emissions of an individual CPA been documented according to the approved methodology and in a complete and transparent manner?	/1/ /99/ /39/	DR SV	According to the Tool to calculate the emission factor for an electricity system, Version 2.2, project participant shall apply six steps, however titles and number of the steps described in Annex 3 of the PDD are not consistent with those listed in the tool. *The project participant is requested to follow the steps indicated in the Tool to calculate the emission factor for an electricity system Version 2.* *The project participant is requested to update*	~~CAR4~~ ~~CL7~~	OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			ER calculations using the most recent information regarding grid emission factor and TD figure. *Equation (1) in Annex 4 of the PoA-DD does not match with the equation developed by Cochran. The project proponent is requested to correct the equation in the PoA-DD.* *Evidence to support the value applied for $Pi_{,BL}$ has to be provided.* *Evidence to support the value applied for $Pi_{,PJ}$ has to be provided.*		
E.5.2. Have conservative assumptions been used when determining the procedure to be used to calculate the project emissions?	/1/ /49/	DR SV	Conservative assumption have been used. In fact, according to the Methodology, if cumulative failure of CFLs exceeds 50% of total number of CFLs installed by the project, then the project ceases to account for CERs.		OK
E.5.3. Are uncertainties in the project emission calculation procedure properly addressed?	/1/ /100/	DR SV	Uncertainties in the project emission calculation are properly addressed. In fact, the methodology requires that all assumptions made in the estimation of emission reductions be adjusted following the results of *ex post* monitoring surveys.		OK
E.6. Calculation of GHG Emission Reductions – Baseline emissions *It is assessed whether the procedure for calculating*					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
baseline emissions is according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.					
E.6.1. Has the procedure to calculate baseline emissions of an individual CPA been documented according to the approved methodology and in a complete and transparent manner?	/1/	DR SV	The procedure to calculate baseline emissions of an individual CPA been documented according to the approved methodology and in a complete and transparent manner	~~CAR4 CL7~~	OK
E.6.2. Have conservative assumptions been used when determining the procedure to be used to calculate the baseline emissions?	/1/ /49/	DR SV	Conservative assumptions have been used. In fact, according to the Methodology Booklet, if cumulative failure of CFLs exceeds 50% of total number of CFLs installed by the project, then the project ceases to account for CERs.		OK
E.6.3. Are uncertainties in the baseline emission estimates properly addressed?	/1/	DR SV	Uncertainties in the project emission calculation are properly addressed. In fact, the methodology requires that all assumptions made in the estimation of emission reductions be adjusted following the results of *ex post* monitoring surveys.		OK
E.7. Calculation of GHG Emission Reductions – Leakage *It is assessed whether the procedure for calculating leakage is according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
E.7.1. Has the procedure to calculate leakage emissions of an individual CPA been documented according to the approved methodology and in a complete and transparent manner?	/1/	DR	Since replaced ICLs are scrapped and destroyed, the methodology does not require special provisions for the calculations of leakage.		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
E.7.2. Have conservative assumptions been used when determining the procedure to be used to calculate the leakage emissions?	/1/	DR	Since replaced ICLs are scrapped and destroyed, the methodology does not require special provisions for the calculations of leakage.		OK
E.7.3. Are uncertainties in the leakage emission estimates properly addressed?	/1/	DR	Since replaced ICLs are scrapped and destroyed, the methodology does not require special provisions for the calculations of leakage.		OK
E.8. Emission Reductions *The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.*					
E.8.1. Does the PoA-DD provide a clear and correct way of calculating the emission reductions from each CPA?	/1/	DR	The PoA-DD provides a clear and correct way of calculating the emission reductions from each CPA.		OK
E.8.2. 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	See CAR1 (Conditions related to sampling requirements)	~~CAR1~~	OK
E.9. Monitoring Methodology *It is assessed whether the project applies an appropriate monitoring methodology.*					
E.9.1. Is the monitoring plan documented according to the approved methodology and in a complete and	/1/	DR SV	The monitoring plan is documented according to the approved methodology and		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
transparent manner?			in a complete and transparent manner, since: (iii) During project activity implementation, the following data are be recorded: • Number of pieces of equipment distributed under the project activity, identified by the type of equipment and the date of supply; • The number and power of the replaced devices; • Data to unambiguously identify the recipient of the equipment distributed under the project activity; (iv) The Emission Reductions are calculated *ex ante* and adjusted *ex post* following the monitoring surveys.		
E.9.2. 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 programme, whichever occurs later?	/1/	DR SV	According to the PoA-DD, the Coordinating/Managing Entity (CME) will be responsible for the management of records and data associated with each SSC-CPA. Data will be stored in secure project databases for the duration of each SSC-CPA crediting period, plus two years.		OK
E.10. Monitoring Plan *It is established whether the monitoring plan*					

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
provides for reliable and complete emission data over time.					
E.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the programme boundary during the crediting period?	/1/	DR SV	The monitoring plan provides for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the programme boundary during the crediting period. These include and exceed the parameters required by the Methodology.		OK
E.10.2. Are the choices of programme GHG indicators reasonable and conservative?	/1/	DR SV	The choices of programme GHG indicators are reasonable and conservative, and allow for an accurate monitoring of emission reductions. *In section E.6.3. of the PoA-DD, the PP is requested to correct the description of parameter $Pi,_{PJ}$ - Rated power of the project CFLs in group i.*	~~CAR5~~	OK
E.10.3. Is the measurement method clearly stated for each GHG value to be monitored and deemed appropriate?	/1/	DR SV	The measurement method is clearly stated for each GHG value to be monitored and deemed appropriate.		OK
E.10.4. Is the measurement equipment described and deemed appropriate?	/1/	DR SV	The measurement of the selected monitoring parameter does not require monitoring equipment, but relies on surveys.		OK
E.10.5. Is the measurement accuracy addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/	DR SV	The measurement of the selected monitoring parameter does not require monitoring equipment, but relies on surveys.		OK
E.10.6. Is the measurement interval identified and deemed appropriate?	/1/	DR SV	The frequency at which the monitoring surveys will be performed is in accordance		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			with the requirements of the Methodology.		
E.10.7. Is the registration, monitoring, measurement and reporting procedure defined?	/1/	DR SV	The registration, monitoring, measurement and reporting procedure are defined and described in the PoA-DD.		OK
E.10.8. Are procedures identified for maintenance of monitoring equipment and installations? Are the calibration intervals being observed?	/1/	DR SV	The measurement of the selected monitoring parameter does not require monitoring equipment, but relies on surveys.		OK
E.10.9. 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 SV	Procedures have been identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation).		OK
E.10.10. 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?	/1/	DR	See CAR1 (Conditions related to sampling requirements).	~~CAR1~~	OK
E.11. Monitoring of Sustainable Development Indicators/ Environmental Impacts *It is assessed whether choices of indicators are reasonable and complete to monitor sustainable performance over time.*					
E.11.1. Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country	/1/ /69/ /70/	DR SV	There is no regulation mandating the monitoring of sustainable Development indicators. However, SD indicators are		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
			monitored according to the more stringent Gold Standard requirements.		
E.11.2. Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/	DR SV	Environmental, social and economic impacts are monitored according to the more stringent Gold Standard requirements.		OK
E.11.3. Are the sustainable development indicators in line with stated national priorities in the Host Country?	/1/	DR SV	Compliance of the proposed programme with stated national priorities in the host country will be confirmed by the issuance of the LoA by the DNA of South Africa.	~~CL1~~	OK
E.12. Management System and Quality Assurance for Monitoring and Reporting *It is checked that programme implementation is properly prepared for and that critical arrangements are addressed.*					
E.13.1. Is the authority and responsibility of overall programme management clearly described?	/1/ /101/ /7/ /71/ /75/ /74/ /78/ /79/ /77/ /76/	DR SV	The authority and responsibility of overall programme management clearly described both in the PoA-DD and in the CPA-DD. Moreover, clear allocation of responsibilities was apparent to DNV during the interviews conducted in site visit. The project participant submitted a copy of the monitoring team's Q&A procedures. Where responsibilities and authorities are clearly identified and detailed.		OK
E.13.2. Are procedures identified for training of monitoring personnel?	/1/	DR	According to interviews conducted on site, each employee involved in the project will be		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
	/23/ /71/ /75/ /78/ /79/	SV	adequately trained. Moreover, the project participant submitted a copy of the ESCO Requirements document clearly describing the transfer of skills from PM to ESCOs carrying out the monitoring on the ground.		
E.13.3. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR SV	N/A. The project technology allows for energy saving, and therefore does not involve the risk of unintended emissions.		OK
E.13.4. Are procedures identified for review of reported results/data?	/1/	DR SV	The CME will produce a monitoring report for the DOE to verify corresponding to the preceding monitoring period of each SSC-CPA. This report will unambiguously set out the data relating to the emission reductions generated by that SSC-CPA during the monitoring period.		OK
E.13.5. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/	DR SV	Monitoring and reporting makes use of a Data and Information Gathering System able to run QMS data integrity checks, making in easier to spot inconsistencies and intervene on the data entry.		OK
E.13.6. 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/ /7/ /8/ /71/ /75/ /74/ /78/	DR SV	The authority and responsibility of overall programme management clearly described both in the PoA-DD and in the CPA-DD. Moreover, clear allocation of responsibilities was apparent to DNV during the interviews conducted in site visit. The project participant submitted a copy of the monitoring team's Q&A procedures.		OK

Checklist Question	Ref	MoV	Assessment by DNV	Draft Concl.	Final Concl.
	/79/ /77/ /76/		Where responsibilities and authorities are clearly identified and detailed.		

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
CAR1:The project participant is requested to update the PoA inclusion criteria in accordance with the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities.	A.1	PoA-DD has been updated in section A.4.2.2. Eligibility Criteria has been updated to reflect the requirements of the *Standard for demonstration of additionality, development o eligibility criteria for programme of activities* and the barriers described in *Attachment A of Appendix B.* A further description of how the PoA addresses those barriers is provided in section E.4 and E.5 of the PoA-DD	The PoA-DD includes a list of eligibility criteria for the inclusion on CPAs. The eligibility criteria selected meet the minimum requirements set by the Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities sections A – Demonstration of additionality – as well as section B – Development and update of eligibility criteria. CAR1 is closed.
CAR2: The PP is requested to justify in the PoA-DD the choice of level at which the environmental analysis is undertaken.	A.2 E.11	Section C of the PoA-DD has been updated. Since the PoA will use the same type of technology applied in the same context across all CPAs (i.e. compact fluorescent lightbulbs distributed to households in exchange of incandescent lightbulbs), the PP argues that it is not required that each CPA conducts its own environmental analysis and this is sufficient at the PoA level.	The choice of undertaking the environmental impact assessment is justified in the PDD based on the use of the same technology throughout the PoA. CAR2 is closed
CAR3: The project participant is requested to	D.1	The PP has chosen to not use the Tool	Following the publication of version 9.0

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
clarify how additionality will be assessed /102/, and follow relevant guidance in their application.		for the demonstration and assessment of additionality following the publication of version 9.0 of the Guidelines on the demonstration of additionality of small-scale project activities during EB68.	of the Guidelines on the demonstration of additionality of small-scale project activities during EB68, the project activity can be considered automatically additional, in that it consists of the distribution of isolated units, where the users are households, and where the size of each unit is no larger than 5% of the small-scale threshold for SSC project activities. CAR3 is closed.
CAR4 a): the project participant is requested to follow the steps indicated in the Tool to calculate the emission factor for an electricity system Version 2.2 *CAR4 b): the PP is requested to update ER calculations using the most recent information regarding grid emission factor and TD figure.* *CAR4 c): Equation (1) in Annex 4 of the PoA-DD does not match with the equation developed by Cochran. The project proponent is requested to correct the equation in the PoA-DD. .*	E.3	Annex 3 - Emission Factor has been updated particularly the Step 1: Identify the relevant electric power system. Also, parameter E.6.3 has been updated. Parameter TD in Section E.7.1 and section E.6.1 of the PoA-DD have been updated using the TD for 2011 as provided in the Eskom Annual Report. Entire Section 6 of Annex 4 has been updated to reflect the recent development and recommendations from EB with regards to PoA sampling rules.	The grid emission factor has been calculated in accordance with the steps indicated in the Tool to calculate the emission factor for an electricity system version 2.2.1 as follow: Step 1. Identify the relevant electric power system The relevant grid has been identified in South Africa's national grid. Although the national grid is connected to the grids of neighboring countries, South Africa is a net electricity exporter, and therefore, in accordance with the requirements of the tool, electricity imports are not taken into account. The information presented in support of the selection of the national grid as the relevant electric power system is

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			confirmed by Eskom's 2011 Integrated report /53/. Step 2. Select an operating margin method The project selects to consider only grid-connected power plants. Step 3. Select an operating margin method: The PP has selected the simple operating margin method, as Low-cost-must-run resources constitute less than 50% of the overall generation (0.3% of the of average electricity production for the past 5 years). The data used to determine this were cross-checked with publicly available information made available by Eskom on their website and found to be correct /57/. Moreover, the Project Participant has selected to calculate the grid emission factor *ex ante* for the duration of the first crediting period. Step 4. Calculation of the operating margin emission factor: Option A1 has been selected, where the emission factor of each power unit is calculated based on the net electricity

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			generation and a CO_2 emission factor of each power unit. The emission factor of each power unit is calculated based on the amount of fuel consumed, fuel NCV, fuel emission factor, and electricity generation. Step 5. Calculate the built margin emission factor: The built margin emission factor has been calculated ex ante as the emission factor for the 5 most recent units plus CDM project activities. This option was correctly selected as it comprises the largest annual electricity generation compared to considering the set of power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently and that comprise 20% of the annual electricity generation (118 981 845 MWh/year compared to 45 647 112 MWh/year). Step 6. Calculate the combined margin emission factor The combined margin has been calculated based on the weighted average approach. The weighting selected to calculate the combined

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
			margin is W_{OM} = 0.5 and W_{BM} = 0.5. This is in accordance with the tool since the project does not involve wind or solar power generation. The combined grid emission factor has been calculated to be 0.9506 tCO_2/MWh. CAR4 c) is no longer relevant since the section relative to the monitoring plan has been modified. CAR4 is closed.
CAR5: In section E.6.3. of the PoA-DD, the PP is requested to correct the description of parameter $Pi_{,PJ}$ - Rated power of the project CFLs in group i.	E.6	Section E.6.3 has been updated as requested by DOE. Word "baseline" was replaced by word "project"	The information relative to monitored parameters is consistent with the applicable methodology and tools /1//38//39/. CAR5 is closed.
CL1 a): The project participant is requested to submit a valid letter of approval from the DNA of both Annex 1 and host Party; *CL1b): The Project participants requested to submit a valid letter of authorization of its coordination of the PoA from each host Party* *CL1 c): The project participant is requested to submit evidence that, in case public*	E.10	The PP has requested Letter of Approval to SA DNA after receiving Draft Validation Reports. The PP has requested Letter of Authorization to SA DNA after receiving Draft Validation Reports. No Public funding from parties in Annex I is used for the programme. The PP provides a ODA Letter as part of the GS requirements	CL1 a) A valid LoA from South Africa dated 24 April 2012 was submitted to DNV, as well as a valid letter of Approval from France dated 16 May 2012. CL1 b) A valid letter of authorisation of the CME by the DNA of South Africa was submitted to DNV. CL1 c) The Project Participant has submitted a declaration of non-use of

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
funding from Parties included in Annex I is used for the programme, 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.			official development assistance for the proposed programme of activities /31/. CL1 is closed.
CL2: the project participant is requested to submit copies of the legal agreements that will be used to ensure that CPA implementers are aware and have agreed that their activity is being subscribed to the PoA.	A.6	For all projects implemented in South Africa, Eskom will be both, the CPA implementer and the CME. The PP considers that it is not necessary to provide legal agreement between the CPA implementer and the CME since it is the same organisation. The CME has developed a Letter of Acceptance to confirm that all CPAs fulfil the Eligibility Requirements set in the PoA-DD. Please find attached.	The letter of acceptance of the first CPA, which explicitly refers to eligibility criteria for inclusion, has been submitted to DNV /30/. The absence of a legal agreement within the same organisation is considered acceptable. CL2 is closed.
CL3 a): The PP is requested to submit evidence for the selected staring date of the PoA *CL3 b): The PP is requested to confirm that they intend the PoA to have the same duration as a CPA.*	B.1	a) A copy from the Data management system showing the commencement of distribution of CFLs is attached. b) Section B.2 in the PoA-DD has been modified. The PoA will have duration of 28 years.	CL3 a) the selected starting date is 31 August 2011. CL3 b) The duration of the PoA has been set at 28 years. This complies with PoA procedures /41/. CL3 is closed.
CL4: The PP is requested to provide evidence in support of the programme not requiring an Environmental Impact Assessment.	C.1	Section C.2 of the PoA-DD has been updated. Distribution of CFLs, such as Eskom projects, are not listed in the *Waste management activities in respect*	In support to the claim that the programme of activities do not require to perform an environmental impact assessment, the project participant

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		of which a waste management licence is required in accordance with Section 20(b) of the National Environmental Management Act, 2008 and therefore do not trigger an environmental impact assessment. Document attached.	submitted a copy of the National Environmental Management: Waste Act, which lists waste management activities that have or are likely to have a detrimental effect on the environment /54/. CFLs are not included in the list provided by the regulation, and therefore do not require an EIA. This was confirmed also through interviews held on site /75//74/. CL4 is closed.
CL5 a): the PP is requested to submit information on the QA procedures in place to check purchase/dispatch records to ensure compliance with applicability criterion 1. *CL5 b): the PP is requested to submit information on the QA procedures in place to check monitoring data and ensure compliance with applicability criterion 2.* *CL5 c): the PP is requested to submit evidence for the CFLs average life measurement being in compliance with IEC 60969 or equivalent national standard, and having been tested by a laboratory complying with the requirements of relevant national or international standards, e.g. ISO/IEC 17025.*	E.1	a) As per the Letter of Acceptance signed by the CME it is the role of the Eskom Climate Change & Sustainability Department to confirm that all eligibility criteria has been met for each CPA and collect the evidence required. b) Pending. c) The PP has attached the "Invitation to Tender for Supply and Delivery of 5.95 million CFLs" (first phase of Sustainability PoA). Page 10 of this document sets the minimum technical specifications and requirements, including the requirement that all CFLs must	CL5 a) As proof that the CFLs adopted to replace existing equipment are new equipment and not transferred from another activity, the PP submitted the final supplier agreement between Eskom and the CFL supplier dated November 2010 /32/. The supplier's obligations clearly state: *"[The supplier] warrants that the goods and Material are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless stated otherwise in the Goods Information*". CL5 b) the QA procedures in place to ensure compliance with the methodology applicability criteria 2, as

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
CL5 d): the project participant is requested to submit copies of the brochures encouraging recipients to install CFLs in areas of in .		comply with Efficient Lightning Initiative Voluntary Technical Specification (ELI). IEC 60969 is in turn a key component of ELI. The PP understands that by complying with ELI requirements, the CFLs meet the relevant national and international criteria. d) Copies of brochures that explain the importance of energy efficiency, save energy and proper CFL disposal are attached. A) The PP has provided the final supplier agreement between Eskom and the CFL supplier as a proof of purchase. B) The CME reviews the Eligibility Criteria for each potential CPA and signs a Letter of Acceptance ensuring that all the criteria have been considered and approved by the new CPA (criteria number 3 specifically addresses lumen output considerations) Specifically, the CME receives evidence of ELI compliance by the supplier (page 4 of the PDF	described by the CME, are: The CME reviews the Eligibility Criteria for each potential CPA and signs a Letter of Acceptance ensuring that all the criteria have been considered and approved by the new CPA (criteria number 3 specifically addresses lumen output considerations) Specifically, the CME receives evidence of ELI compliance by the supplier (page 4 of the PDF documents addresses specifically lumen output) as well as a third party analysis (Kema report pages 12-13) to ensure lumens meet the specifications mentioned in the PDDs. CL5 c) the Invitation to tender issued for the procurement of the CFL to be distributed clearly include in the technical requirements "Legislative requirement (ELI Certificate and RoHS Compliance)" /29/. This is considered sufficient evidence that the CFL comply with equivalent national standard. Since compliance with the ELI specifications is "*determined by the ELI Quality Certification Institute through a review and assessment of all supporting documentation submitted by the*

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		documents addresses specifically lumen output) as well as a third party analysis (Kema report pages 12-13) to ensure lumens meet the specifications mentioned in the PDDs.	*applicant as well as product performance data from accredited lighting laboratories"* /55/, this is also considered evidence for the suitable accreditation of the testing laboratories. CL5 d) CFL use is encouraged through the distribution of educational brochures /56/. CL5 is closed.
CL6 a): the project participant is requested to submit evidence for CFL distribution taking place since 2006 being in the process of registration as CDM projects or voluntary carbon market initiatives. *CL6 b): the PP is requested to submit evidence for all claimed costs as well as revenues.*	E.3	a) PP provides a chronogram of the carbon related activities that have taken place since March 2007. Several media releases informing stakeholders about Eskom needs and ERPA signing with BNPP are also provided. More over, the PP provides (in a confidential manner) the ***Guidelines for submissions to EXCO Investment & Capital Assurance Subcommittee Meeting/Board Investment & Finance Committee***. These guidelines reflect that all Investment submissions must include *Annex E – Sustainability Requirements*. These requirements include the	CL6 a) is no longer relevant since the PP has submitted evidence for the starting date of the CFL distribution being after the starting date of validation of the PoA-DD for global stakeholder consultation (Ref). The resulting timeline of the programme of activities is therefore the following: - 6 August 2011: starting date of validation of the PoA; - 24 October 2011: starting date of the implementation of the first CPA. The timeline of the PoA is in line with the requirements of the *Procedures for registration of a Programme of Activities as a CDM project Activity and*

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		application of carbon shadow prices (Annex E point 3 in all investment decisions) BNPP has provided examples of evidence of CDM related costs paid since beginning of project development. More evidence can be provided in case DNV considers it necessary (i.e. all RAMP consulting invoices since the start of project)	*Issuance of Certified Emission Reductions for a Programme of Activities*, version 04.1. CL6 b) is no longer relevant as the PoA does not perform a simple cost analysis to demonstrate additionality, but this is demonstrated through barrier analysis as per Attachment A to appendix B /45/. CL6 is closed.
CL7a): Evidence to support the value applied for $Pi,_{BL}$ has to be provided. *CL7b) Evidence to support the value applied for $Pi,_{PJ}$ has to be provided.*	E.5	a) *The Measurement and Verification Guideline: CFL Distribution Projects* document prepared by North West University in 2007 contains typical breakdowns of ICLs for low and middle-income households. The PP decided, for conservative reasons to use the breakdown of middle-income households since this breakdown has less percentage of ICLs in the 100 W categories. See page 6 of the document. By using this breakdown, the PP arrived to the 63 Watts used as P_iBL By using as an example the breakdown of CFLS purchased for Greenfield projects (attached), the PP estimated the average for P_iPJ. The average (17.98) is	For the purpose of emission reduction calculations, parameters $P_{i,BL}$ have been estimated based on the ratio of 100W, 60W and 40W incandescent lights collected as part of an earlier pilot distribution performed by the project's monitoring team /26/. The values selected are conservative because more weight is given to lower wattage categories. $P_{i,PJ}$ is estimated based on the CFL purchased for two similar CCS projects involving CFL distribution /27/, and gives more weight to higher wattage categories for conservativeness. CL7 is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation conclusion
		considered conservative since it considers a bigger proportion of CFLs at a higher wattage (i.e. 20W) therefore reducing the estimated ER	

Table 4 Forward action requests

Forward action request	Reference to Table 2	Response by project participants
No forward action identified		

APPENDIX B

PROTOCOL FOR ASSESSING COMPLIANCE OF SPECIFIC CDM PROGRAMME ACTIVITIES WITH THE PROGRAMME OF ACTIVITIES

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. General description of CPA					
A.1. Project boundaries					
A.1.1 Are the CPA's spatial boundaries (geographical) clearly defined, allowing the unique identification of the CPA?					
A.1.2 Are the CPA's system boundaries (components and facilities used to mitigate GHGs) clearly defined?					
A.1.3 Has it been demonstrated that the CPA is within the geographical borders of the PoA?					
A.1.4 Has it been confirmed that no part of the CPA is registered as a CDM project or included in a registered POA?					
A.2. Participation requirements					
A.2.1 Which Parties and CPA implementer are participating in the CPA? Are they included in the PoA?					
A.3. Duration of the CDM programme activity, Crediting Period					
A.3.1 Are the CPA's starting date and operational lifetime clearly defined and evidenced?					
A.3.2 Has the crediting period been clearly defined and is the start of the crediting period deemed to be reasonable?					
A.3.3 Has it been confirmed that the length of the CPA crediting period does not exceed the end of PoA?					
B. Eligibility of CPA and Estimation of Emission Reductions					
B.1. Eligibility criteria for CDM Programme Activities *It is assessed whether the CPA complies with the criteria for*					

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
inclusion in the registered programme of activities.					
B.1.1 Has it been sufficiently justified that the CPA complies with Eligibility criteria 1 of PoA: The SSC-CPA involves the distribution of CFLs to households within the geographical boundary of South Africa.					
B.1.2 Has it been sufficiently justified that the CPA complies with Eligibility criteria 2 of PoA: The SSC-CPA complies with the established procedures for avoiding double counting set out in the PoA-DD and CPA-DD (generic): – check of CDM database to confirm project is not registered as an individual CDM activity or part of another registered PoA; – unambiguous identification of households participating in the CPA within the database management system; and – data collection and signing of forms from participating households as to assign the rights to claim CERs for the project activity; – unambiguous identification of CFL participating in the CPA marked with the Eskom logo (or equivalent) and meeting the technical characteristics captured in the data management system (type, model, wattage).					
B.1.3 Has it been sufficiently justified that the CPA complies with Eligibility criteria 3 of PoA: For each CFL participating in the SSC-CPA the total lumen output should be equal to or more than that of the ICL being replaced; lumen output of ICL					

CHECKLIST QUESTION		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	and CLF shall be determined in accordance with relevant national or international standards.					
B.1.4	Has it been sufficiently justified that the CPA complies with Eligibility criteria 4 of PoA: The start date of the SSC-CPA has been confirmed through the provision of a document with regards to the date on which distribution of compact fluorescent light bulbs commences as wells as entries into the Data Management System.					
B.1.5	Has it been sufficiently justified that the CPA complies with Eligibility criteria 5 of PoA: The SSC-CPA will implement the baseline and monitoring methodology AMS-II.J. '*Demand-side activities for efficient lighting technologies*' v.04 by confirming the criteria documented in Section E.2 of the PoA-DD.					
B.1.6	Has it been sufficiently justified that the CPA complies with Eligibility criteria 6 of PoA: The SSC-CPA is additional because, it confirms the additionality criteria set it section E.5.2 of the PoA-DD					
B.1.7	Has it been sufficiently justified that the CPA complies with Eligibility criteria 7 of PoA: The SSC-CPA involves the distribution of compact fluorescent lightbulbs to residential households using either door-to-door, gate-to-gate or exchange points					
B.1.8	Has it been sufficiently justified that the CPA complies with Eligibility criteria 8 of PoA: The contact details of the households					

CHECKLIST QUESTION		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	participating into the SSC-CPA are recorded in a data management system for future selection to participate in Ex Post Monitoring surveys in a random and representative manner.					
B.1.9	Has it been sufficiently justified that the CPA complies with Eligibility criteria 9 of PoA: The aggregate energy savings by the SSC-CPA will not exceed the equivalent of 60 GWh per year as described in Section E.6.2 of the PoA-DD					
B.1.10	Has it been sufficiently justified that the CPA complies with Eligibility criteria 10 of PoA: The SSC-CPA satisfies de-bundling rules for PoA, and is not a de-bundled component of a large-scale CPA or CDM project					
B.1.11	Has it been sufficiently justified that the CPA complies with Eligibility criteria 11 of PoA: In the case that funding for the project comes from an Annex 1 party, the CME has received confirmation from the Annex 1 party that any funding involved in the implementation of the SSC-CPA does not result in a diversion of official development assistance for the purchase of CERs, and is separate from and is not counted towards the financial obligations of those Parties					
A.1. Calculation of GHG Emission Reductions – Project emissions *It is assessed whether the project emissions are stated according to the methodology and the PoA-DD and whether the argumentation for the choice of default factors and values - where applicable – is justified.*						

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.1.1 Is the calculation of project emissions of the CPA in accordance with the procedure described in the PoA-DD?					
A.1.2 Are CPA-specific conservative assumptions used when calculating the project emissions?					
A.1.3 Are CPA-specific uncertainties in the project emission estimates properly addressed?					
A.2. Calculation of GHG Emission Reductions – Baseline emissions *It is assessed whether the baseline emissions are stated according to the methodology and the PoA-DD and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
A.2.1 Is the calculation of baseline emissions of the CPA in accordance with the procedure described in the PoA-DD?					
A.2.2 Are CPA-specific conservative assumptions used when calculating the baseline emissions?					
A.2.3 Are CPA-specific uncertainties in the baseline emission estimates properly addressed?					
A.3. Calculation of GHG Emission Reductions – Leakage A.3.1 *It is assessed whether leakage emissions are stated according to the methodology and the PoA-DD and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
A.3.2 Is the calculation of leakage emissions of the CPA in accordance with the procedure described in the PoA-DD?					

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.3.3 Are CPA-specific conservative assumptions used when calculating the leakage emissions?					
A.3.4 Are CPA-specific uncertainties in the leakage emission estimates properly addressed?					
A.4. Emission Reductions *The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.*					
A.4.1 Has it been demonstrated that the total emission reductions of the CPA of activities will be real, measurable and give long-term benefits related to the mitigation of climate change?					
A.5. Monitoring Methodology *It is assessed whether the CPA applies an appropriate monitoring methodology.*					
A.5.1 Is the monitoring plan for the CPA documented according to the approved methodology, in accordance with the programme of activities and in a complete and transparent manner?					
A.5.2 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 programme, whichever occurs later?					
A.6. Data and Parameters Available at Validation *It is established whether appropriate values were selected for parameters determined ex-ante.*					
A.6.1 Does the applied methodology allow determining the selected values ex-ante?					
A.6.2 Have adequate assumptions been used for determining the values and are underlying					

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
calculations correct?					
A.6.3 Has sufficient documentary evidence been presented to verify the selected values or to verify the input data used in the calculation of the values of the parameters determined ex-ante.					
A.7. Ex-Post Monitoring *It is established whether the monitoring plan provides for reliable and complete emission data over time.*					
A.7.1 Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the CPA boundary during the crediting period?					
A.7.2 Are the choices of CPA GHG indicators reasonable and conservative?					
A.7.3 Is the measurement method clearly stated for each GHG value to be monitored and deemed appropriate?					
A.7.4 Is the measurement equipment described and deemed appropriate?					
A.7.5 Is the measurement accuracy addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?					
A.7.6 Is the measurement *interval* identified and deemed appropriate?					
A.7.7 Is the *registration, monitoring, measurement* and *reporting* procedure defined?					
A.7.8 Are procedures identified for *maintenance* of monitoring equipment and installations? Are the calibration intervals being observed?					

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.7.9 Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)					
A.8. CPA Management Planning *It is checked that programme implementation is properly prepared for and that critical arrangements are addressed.*					
A.8.1 Is the authority and responsibility of overall CPA management clearly described?					
A.8.2 Are procedures identified for training of monitoring personnel?					
A.8.3 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?					
A.8.4 Are procedures identified for review of reported results/data?					
A.8.5 Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?					
B. Environmental impacts B.1.1 *It is assessed whether environmental impacts of the CPA have been properly addressed.*			☐ Analysis at PoA level ☐ Analysis at CPA level This section must only be completed if the analysis of environmental impacts must be at CPA level.		
C.1.1. Has an analysis of the environmental impacts of the CPA been sufficiently described?					

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
C.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)?					
C.1.3. Will the programme create any adverse environmental effects?					
C.1.4. Are transboundary environmental impacts considered in the analysis?					
C.1.5. Have identified environmental impacts been addressed in the programme design?					
C.1.6. Does the programme comply with environmental legislation in the host country?					
C. Stakeholders' comments C.1.7. *It is assessed whether stakeholders have been properly consulted in the development of the CPA.*			☐ Consultation at PoA level ☐ Consultation at CPA level This section must only be completed if the analysis of environmental impacts is at PoA level.		
D.1.1. Have relevant stakeholders been consulted?					
D.1.2. Have appropriate media been used to invite comments by local stakeholders?					
D.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?					
D.1.4. Is a summary of the stakeholder comments received provided?					
D.1.5. Has due account been taken of any stakeholder comments received?					

APPENDIX C

CURRICULA VITAE OF THE VALIDATION TEAM MEMBERS

Francesca Feller started working in 2004 on research and training on sustainable development and CSR for businesses in Italy. From 2007 she worked as Climate Change Officer in London, in a large urban regeneration project. The role involved achieving carbon reductions in all new developments (residential, schools, hospitals, commercial), by embedding energy efficiency, renewable energy technologies, and improved energy distribution in planning conditions. The role also included ensuring compatibility with a large district heating scheme under construction, and incorporating climate change adaptation measures in new developments. In 2009 Francesca moved to a company specialised in taking part to tenders financed by the United Nations, the World Bank, the European Union and the Italian Ministry of Foreign Affairs for development programmes. Her role as Project Manager focused on the supply of off-grid renewable energy technologies for rural electrification. 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 global Climate Change Services team.

Grant Little holds a Bachelor Degree in Pure and Applied Chemistry; with a Secondary Degree in Forest Products Manufacture and a Masters Degree in Business Administration. He has over 20 years of industrial experience. Prior to joining DNV having 16 years' experience in the forest products industry covering Process Engineering, energy projects, Sustainable Development, Forest eco-labelling and Environmental Management Systems. He also has over 5 years' experience in the carbon project development and carbon markets in Africa and the Middle East where he worked for a carbon aggregator and a government owned carbon management and environmental company. He is passionate about Africa and sees his work as a contribution to the development of the continent.

Giovanni Tenderini has 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 global Climate Change Services team.

Mr. Indrajit Rana holds double Bachelor Degree, in Chemical engineering and in Chemistry and is a certified energy auditor from Bureau of Energy Efficiency (BEE) of Government of India. Having an overall experience of around nine years. Prior to joining DNV having around six years of experience in Chemical process industry namely Petrochemical industry covering production, day to day production planning, energy efficiency improvement, safety, and

capacity expansion of existing unit. His experience also covers the fields of environmental management and resource conservation including optimisation of steam consumption. Being shift in charge of HDPE unit he has acquired the knowledge of utility services like, nitrogen, hydrogen, plant air and water, steam, power and flare system. He is adequately experienced in handling many types of energy intensive rotating equipment like brine refrigerator (screw compressor), centrifugal and reciprocating compressor, blower, vertical mounted centrifugal pump, extruder, etc. and also experienced in handling DCS and advanced process control systems. He has knowledge in material balance and energy balance of HDPE plant. He has also experience in intrigated offsite plant (IOP) mainly waste water treatment plant, cooling tower operation and flare operation.

He has experience of around 4 years in validation and verification of numerous CDM projects in DNV, both in India & abroad.

His qualification, industrial experience and experience in CDM demonstrate his sufficient sectoral competence in TA 1.1, TA 1.2, TA 3.1, TA 3.2 and TA5.1, TA 11.1, TA12.1.