




**Validation report form for
CDM programme of activities
(Version 02.0)**

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION

Title of the programme of activities (PoA)	Senegal Rural Electrification Program
Version number of the validation report	06
Completion date of the validation report	28/02/2018
Version number of PoA-DD to which this validation report applies	10.0
Date when PoA-DD was uploaded for global stakeholder consultation	01/10/2016
Coordinating/managing entity (CME)	Agence Senegalaise d'Electrification Rurale (ASER)
Host Parties	Senegal
Applied methodologies and standardized baselines	AMS-III.BL Version 01.0 Integrated methodology for electrification of communities AMS-III.AR Version 05.0 Substituting Fossil Fuel Based Lighting with LED/CFL Lighting Systems
Mandatory sectoral scopes linked to the applied methodologies	Sectoral scope for AMS-III.BL: 1 – Energy Industries (renewable- / non-renewable sources) Sectoral scope for AMS III.AR: 1 – Energy Industries (renewable- / non-renewable sources)
Conditional sectoral scopes linked to the applied methodologies, if applicable	Not applicable
Name and UNFCCC reference number of the DOE	AENOR INTERNACIONAL SAU E-0021
Name, position and signature of the approver of the validation report	 Jose Magro Authorized person

SECTION A.Executive summary

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International Bank for Reconstruction and Development (IBRD) as trustee of the Carbon Partnership facility (CPF) has commissioned AENOR to assess the information in the CDM-POA-DD (hereinafter POA-DD) for the Programme of Activities titled “Senegal Rural Electrification Program” (hereafter called POA) against the requirements stated in the CDM Validation and Verification Standard for Programme of Activities version 01.0.

The proposed PoA is a voluntary initiative by ASER, Senegalese Rural Electrification Agency, to encourage investments in rural electrification projects in view of increasing electricity access in rural Senegal. One component of the Programme is to extend the geographical coverage of the rural medium voltage (MV) lines in areas where mini-grids have been installed, in order to displace diesel generators and connect the villages to the existing interconnected transmission and distribution network, as well as to increase the number of households and enterprises that have access to electricity. In parallel, an off-grid electrification component has also been launched to use solar home systems with energy efficient lamps, solar PV and hybrid solar PV-diesel mini-grids and to distribute solar charged lanterns. The POA has been designed using four generic CPA, one per technology:

- CPA Category 1: Mini-grids
- CPA Category 2: Grid extension
- CPA Category 3: Solar home systems
- CPA Category 4: Solar Lanterns

The majority of the activities will be implemented through an innovative concession programme that harnesses private sector finance, including international capital and expertise, to extend access to affordable energy services. For the main electrification effort, the country is divided into 10 concession areas, grouping a number of localities for which an international bidding process has been used to select the concessionaires. ASER and other entities may also be involved in the implementation of the activities at a national or sub-national scale to accelerate the scaling-up of the rural access to electricity services.

The validation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria given for the Programmes of Activities to provide for consistent operations, monitoring and reporting. The validation activities began in September 2016 and were concluded in November 2017. The validation was performed in the manner of an audit, where, a desk review of the POA was undertaken against the approved methodologies and CDM and other relevant criteria. The desk review was followed by a site visit to Senegal.

The review of the programme design documentation and additional documents related to baseline and monitoring methodologies, and the subsequent background investigation, follow-up interviews and review of comments by Parties and stakeholders have provided AENOR with sufficient evidence to validate the fulfilment of the stated criteria.

The conclusions are summarised in detail as follows:

- The PoA is in line with all relevant host country criteria, legislation and with all relevant UNFCCC requirements for Programme of Activities (paragraph 37 of the CDM M&Ps included).
- The operational and management plan established by the coordinating entity is suitable for the PoA validated.
- The baseline has been appropriately identified as per the applied methodologies.
- Eligibility criteria in the PoA-DD are sufficient to ensure that all CPAs would comply with the CDM requirements applicable to the PoA. These requirements include the means of demonstrating the additionality of the CPA and the applicability of the applied methodologies.

- The programme's additionality is sufficiently justified in the PoA-DD.
- The monitoring plan and the Operational and Management Plan are transparent and adequate.
- Information on the local stakeholders' consultation by the project participants prior to submitting the PoA for validation is sufficiently provided in the PoA-DD.

In AENOR opinion, the Program correctly applies and meets the relevant UNFCCC requirements for the CDM Programme of Activities and the relevant host country criteria.

It is important to note that, AENOR is using CDM-PoA-VALFORM version 01.0, because a new version of that form, applying the requirements of the CDM Validation and Verification Standard for programmes of activities" version 01.0 (VVS) has not been published on the UNFCCC website at the time of submission of this validation report. AENOR is applying the requirements of the CDM Validation and Verification Standard for programmes of activities version 01.0 (VVS).

SECTION B.Validation team, technical reviewer and approver

B.1.Validation team members

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader 1 ¹ and validator	IR	Robles Olmos	Luis	AENOR	X	X	X	X
2.	Team Leader 2 and validator ²	IR	García Madero	Mercedes	AENOR	X			X
3.	Validator	IR	Llorente Pérez	Elena	AENOR	X			X

B.2.Technical reviewer and approver of the validation report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Medrano Gutierrez	Alfonso	AENOR
2.	Technical reviewer	IR	Arribas Alonso	Luis Javier	AENOR
3.	Approver	IR	Magro González	Jose	AENOR

SECTION C.Means of validation

C.1.Desk/document review

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¹ Up to February 2017

² From February 2017

The validation scope is defined as an independent and objective review of the POA-DD against the criteria stated in the PoA, Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, the simplified modalities and procedures for CDM project activities, and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodologies.

AENOR, based on the “Validation, verification and certification of clean development mechanism (CDM) project activities” (IE-DTC-039) /1/, and the CDM Validation and Verification Standard for Programme of Activities version 01.0/2/, has used a risk-based approach in the validation, focusing on the identification of significant risks for CPAs inclusion in a PoA and the generation of CERs.

The following documents were reviewed as part of the scope of the activity:

- “*Senegal Rural Electrification Program*”, CDM-PoA-DD /3/4/
- AMS-III.BL Integrated methodology for electrification of communities, version 01.0 /5/.
- AMS-III.AR Substituting Fossil Fuel Based Lighting with LED/CFL Lighting Systems, version 05.0 /6/.
- Decision 3/CMP.1 and relevant decisions and guidelines from the EB /7/
- CDM Project Standard for Programme of Activities, version 01.0 /8/
- CDM Project Cycle Procedure for Programme of Activities version 01.0 /9/.
- Demonstration of additionality of microscale activities, Version 8 /10/
- Associated documentation (environmental requirements, stakeholder consultation process etc)

All the documents and evidence assessed during the validation process are listed in Appendix 3 below.

The validation is not meant to provide any consultancy services to the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the PoA-DD.

C.2.On-site inspection

Duration of on-site inspection: 06/12/2016 to 09/12/2016				
No.	Activity performed on-site	Site location	Date	Team member
1.	Stakeholders Consultation <ul style="list-style-type: none"> •Opinion about the project. •Benefits for the local community. •Local permits. •Interviews and comments in the past , taxes, sale of electricity to communities, etc. 	RELEVANT STAKEHOLDERS (representatives of communities, Kafrine concessionarie)	6-7/12/2016	Luis Robles Olmos
2.	<ul style="list-style-type: none"> •Description of the PoA •CME Monitoring Manual. •PoA´s sustainable development contribution. •Management system. •PoA Eligibility criteria. •Baseline scenario. •ERs calculation. •Local Stakeholder consultation. 	ASER Headquarters	07/12/2016	Luis Robles Olmos
3.	<ul style="list-style-type: none"> •Monitoring plan (collection of data) •Confirmation of not registered as an individual CDM project activity. •Voluntary participation in the PoA. 	ASER Headquarters	08/12/2016	Luis Robles Olmos
4.	<ul style="list-style-type: none"> •PoA´s sustainable development contribution. •DNA's opinion. •Environmental Assessment. •Licenses for operation, local permits. •Stakeholder consultation •Letter of Approval. 	Direction de l'Environnement et des Etablissements Classés (DNA of Senegal)	09/12/2016	Luis Robles Olmos

C.3.Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	DIARA	Mariline	Direction de l'Environnement et des Etablissements Classés	09/12/2016	PoA´s sustainable development contribution. DNA's opinion. Environmental Assessment. Licenses for operation, local permits. Stakeholder consultation. Letter of	Luis Robles Olmos

					Approval.	
2.	FALL SARR	Ousmane	ASER	08/12/2016	Description of the PoA. CME Monitoring Manual. PoA's sustainable development contribution. Management system. Local Stakeholder consultation.	Luis Robles Olmos

C.4.Sampling approach

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For the proposed PoA the submission of the monitoring plan is delayed and submitted either at any time prior to the submission of request for issuance for the first monitoring period, or together with the request for issuance for the first monitoring period. This option is stated in accordance with paragraph 128 of the CDM project standard for Programme of Activities (version 01.0). Therefore, this section is not applicable since no sampling is used.

C.5.Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation of compliance	No. of CL	No. of CAR	No. of FAR
Programme of activities			
Identification of the programme type			
General description of the PoA	CL 1	CAR 1 CAR 8	
Management system	CL 2 CL 3		
Demonstration of additionality of the PoA			
Start date and duration of the PoA			
Environmental impacts	CL 4		
Socio-economic impacts			
Local stakeholder consultation	CL 5		
Sustainable development co-benefits			
Approval		CAR 3	
Authorization			
Modalities of communication		CAR 4	
Global stakeholder consultation			
Generic component project activities – Category 1			
General description of generic CPA			
Application and selection of methodologies and standardized baselines		CAR 5	
•Application of methodologies and standardized baselines			
• Deviation from methodologies and/or methodological tools			
•Clarification on applicability of methodology, tool and/or standardized baseline			
•Project boundary, sources and GHGs			

•Baseline scenario			
•Estimation of emission reductions or net anthropogenic removals		CAR 6 CAR 7	
•Monitoring plan			
Crediting period type and duration			
Eligibility criteria for inclusion of CPAs		CAR 2	
Others (please specify)			
Generic component project activities – Category 2			
General description of generic CPA			
Application and selection of methodologies and standardized baselines		CAR 5	
•Application of methodologies and standardized baselines			
• Deviation from methodologies and/or methodological tools			
•Clarification on applicability of methodology, tool and/or standardized baseline			
•Project boundary, sources and GHGs			
•Baseline scenario			
•Estimation of emission reductions or net anthropogenic removals		CAR 6 CAR 7	
•Monitoring plan			
Crediting period type and duration			
Eligibility criteria for inclusion of CPAs		CAR 2	
Others (please specify)			
Generic component project activities – Category 3			
General description of generic CPA			
Application and selection of methodologies and standardized baselines		CAR 5	
•Application of methodologies and standardized baselines			
• Deviation from methodologies and/or methodological tools			
•Clarification on applicability of methodology, tool and/or standardized baseline			
•Project boundary, sources and GHGs			
•Baseline scenario			
•Estimation of emission reductions or net anthropogenic removals		CAR 6 CAR 7	
•Monitoring plan			
Crediting period type and duration			
Eligibility criteria for inclusion of CPAs		CAR 2	
Others (please specify)			
Generic component project activities – Category 4			
General description of generic CPA			
Application and selection of methodologies and standardized baselines		CAR 5	
•Application of methodologies and standardized baselines			
• Deviation from methodologies and/or methodological tools			
•Clarification on applicability of methodology, tool and/or standardized baseline			
•Project boundary, sources and GHGs			
•Baseline scenario			

•Estimation of emission reductions or net anthropogenic removals		CAR 6 CAR 7	
•Monitoring plan			
Crediting period type and duration			
Eligibility criteria for inclusion of CPAs		CAR 2	
Others (please specify)			
Total			

SECTION D.Validation findings

D.1.Programme of activities

D.1.1.Identification of the programme type

Means of validation	The CME has correctly identified and defined the Programme of Activities and the types of CPAs to be included. This is a small-scale Programme of Activities, of sectoral scope 1, which will include four categories of CPA as it is described in the following table:		
	Title, identification/reference number and/or version number	Sectoral scope(s)	Selected methodology(ies) and/or standardized baseline(s)
	Senegal Rural Electrification - Mini-Grids. CPA Category 1	1 – Energy Industries (renewable- / non-renewable sources)	AMS III.BL – Version 01.0
	Senegal Rural Electrification – Grid Extension CPA Category 2	1 – Energy Industries (renewable- / non-renewable sources)	AMS III.BL – Version 01.0
	Senegal Rural Electrification – Solar Home Systems CPA Category 3	1 – Energy Industries (renewable- / non-renewable sources)	AMS III.BL – Version 01.0
	Senegal Rural Electrification – Solar Lanterns CPA Category 4	1 – Energy Industries (renewable- / non-renewable sources)	AMS III.AR – Version 05.0
On the other hand, combinations of technologies/measures and methodologies vary across CPAs within a PoA and/or multiple and disparate methodologies are used in CPAs to realize the policy or the goal of the PoA.			
In accordance with <i>Guidelines for the consideration of interactive effects for the application of multiple CDM methodologies for a programme of activities version 01 /24/</i> and Appendix 1 of the CDM Project Standard for Programme of Activities: “ <i>Instructions for the consideration of cross effects for the application of multiple methodologies for programmes of activities</i> ” following situation is occurred under the POA: <i>Combinations of technologies/measures and methodologies vary across CPAs of a PoA</i> . The PoA proposes to use two different methodologies each under separate CPAs of the PoA. CPAs will either employ AMS-III.BL or AMS-III.AR covering different technologies: solar home systems, mini-grids, grid connections and distribution of solar lanterns.			
The situation described in above may potentially lead to overestimation of emission reductions in the case of application of methodologies that may potentially involve several technologies/measures interacting with each other. In accordance with the analysis, there are no interactive effects among the CPAs applying AMS-III.BL Version 01.0 (i.e. Category 1, 2 and 3) because end-users cannot be covered by more than one of these CPA types. Regarding the effects between the CPAs applying AMS-III.BL Version 01.0 (i.e. Category 1, 2 and 3) and the CPAs applying AMS-III.AR Version 05.0 (i.e. Category 4), there won't be			

	<p>exchange of energy since the baseline scenario is lighting supplied through kerosene or other fossil fuels. Both methodologies use entirely different baseline default values and emission factors. Furthermore, the lamps in category 4 of the POA will all be only solar charged supplied to households in areas where there is no access to electricity. This is assured since it is one of the applicability conditions detailed in the POA-DD for these CPAs of category 4 (Table 32 Applicability conditions for solar lanterns and AMS-III.AR). Nor type I neither type II effects (paragraph 13 of the Guidelines for the consideration of interactive effects for the application of multiple CDM methodologies for a programme of activities) are produced in the CPAs. Therefore, no interactive effects are detected and the justification is consistent with the design of the POA and the <i>Guidelines for the consideration of interactive effects for the application of multiple CDM methodologies for a programme of activities</i>.</p> <p>POA design document has been assessed against the forms published by the UNFCCC and Instructions for filling out the CDM-POA-DD /11/. The title in the POA-DD is “<i>Senegal Rural Electrification Program</i>”, and clearly enables to identify the unique CDM Programme Activity. The title is consistent in all sections of the PoA-DD, and version number and the date of the version are correctly detailed.</p> <p>The POA-DD (version 01, dated on 21/09/2016) was made public for stakeholder consultation according to the CDM project Standard for Programme of Activities on 01/10/2016, and during the GSC process no comments were received.</p> <p>Date and version have been accordingly modified during the process of validation, and the final version is 10.0, dated on 15/02/2018.</p> <p>The form of the PoA-DD used (CDM-PoA-DD-FORM version 08.1) is in accordance with form in force published in the UNFCCC Website, and all sections have been correctly completed, using same format without modifying its font, headings or logo, and without any other alteration to the form.</p> <p>Schedule and support documentation have been provided to the audit team. Dates are consistent with the documentation provided.</p> <p>Due to the clarifications and corrective actions requested during the validation process, the project participants made a final version the PoA-DD which includes corrections or clarifications to all issues raised.</p>
Findings	CAR 8 - The version of the form of the POA-DD used (version 05.0) is not the most recent version published in the UNFCCC webpage.
Conclusion	<p>The Programme of activities has been correctly defined and identified in the POA-DD, categories of CPAs to be included in the POA are clearly defined and combination of technologies and cross effects are clearly addressed in accordance with <i>Guidelines for the consideration of interactive effects for the application of multiple CDM methodologies for a programme of activities</i></p> <p>On the hand, the POA-DD is in compliance with relevant form and guidance as provided by UNFCCC. AENOR considers that the instructions or the completion of the PoA documents have been followed. Relevant information was provided by the Managing entity and/ or project participants in the applicable POA sections.</p>

D.1.2.General description of the PoA

Means of validation	<p>The information presented in the POA documents on the technical design is consistent with the actual planning and implementation of the Programme of Activities confirmed in the following ways:</p> <ul style="list-style-type: none"> •A review of data, information and support documentation. •An on-site visit to the country where the PoA is being implemented and interview with relevant stakeholder and personnel with knowledge of the project in attendance. •A review of information related to similar projects or technologies which have
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	<p>been used to validate the accuracy and completeness of the programme description.</p> <p>The description of the PoA, as it is included in the POA-DD was verified during the desk review. This PoA is part of an overall rural electrification program undertaken by the Senegalese Government in order to scale up access to electricity in rural areas and contribute to poverty alleviation in these areas. The PoA includes the following technologies for providing electricity services:</p> <ul style="list-style-type: none"> -solar PV and hybrid solar PV-diesel mini-grids, -grid extension -solar home systems and -solar lanterns. <p>Each CPA will have only one of these technologies, meaning that there will be four types of CPAs. The CPAs will displace fossil fuel-based electricity generation and lighting (e.g. kerosene) in households, as well as in other consumers' premises such as schools, or health centers. The installation and the operation of equipment will be done mainly by private rural electrification concessionaires selected; nevertheless, ASER and other entities may also implement projects.</p> <p>This program is in line with the two last National Strategies for Economic and Social Development (NSED, 2012 and 2013-17) /12/, and also where the Government is committed to develop access to electricity in rural areas in an affordable and equitable way. It is also aligned with the sub-regional (ECOWAS) White Paper on Energy Access (2006) /13/. This information has been crosschecked also with "The energy access situation", reported by UNDP /14/ and "Energy Security in West Africa", reported by ENDA (Energy, Environment, Development) /15/. On the other hand, Senegalese Government has also committed to the UN Sustainable Energy For All (SE4ALL) initiative and considers rural electrification as one of the most important components of the global program.</p> <p>Two Parties are involved in the POA, Senegal as Host Country, and Sweden through the International Bank for Reconstruction and Development (IBRD) as trustee of the Carbon Initiative for Development (Ci-Dev) Information regarding CME and programme participants is confirmed as consistent in section A.4 and Appendix 1 of the POA-DD. Their participation is confirmed through their Letters of Approval provided to the audit team.</p> <p>In accordance with the POA-DD and the Letter of Approval from Sweden /16/ and from Senegal /17/, public funding available for the financing of the rural electrification plan and concessionaires will not purchase any GHG emission reductions generated by the proposed PoA. Both documents confirm that any public funding for the Senegal Rural Electrification Program will result in a diversion of Sweden's official development assistance and is separate from and is not counted towards Sweden's financial obligations as a Party.</p> <p>The Coordinating/Managing Entity (CME) of the PoA is Agence Senegalaise d'Electrification Rurale (ASER). ASER acts as an implementing agency for the government in rural electrification by managing the Rural Electrification Fund and working with key partners and collaborators from the project developers, banks, NGOs, CBOs, and Government agencies to mobilise resources in order to promote and facilitate improved access to electricity in rural Senegal.</p> <p>The location of the project activity is provided in Section A.5 of the PoA-DD and the boundary for the POA is established in terms of a geographical area of Senegal, as it was crosschecked during on site visit.</p> <p>Through reviewing the Stakeholder Consultation report /18/, Environmental Impact Assessment report /19/ and the GEF project document on a proposed grant from the Global Environment Facility Trust Fund /26/ the audit team has crosschecked the description included in the PoA-DD.</p>
Findings	<p>CAR 1 - Information on Parties providing public funding is not included in the POA-DD. The affirmation obtained from such Parties in accordance with applicable provisions related to official development assistance in the</p>

	<p>Project standard is not detailed in attachment 2 of the POA-DD.</p> <p>CL 1 – Documented evidence to justify the description of the POA is required.</p>
Conclusion	<p>Technical description included in the POA-DD has been supported with documented evidence. This documentation provided is considered proof enough to demonstrate that the CME is able to develop the Programme of Activities.</p> <p>The POA-DD includes a description of the framework developed in Senegal for the implementation of the proposed CDM PoA, the goal of rural electrification in the country pursued by the POA, and the voluntary actions promoted by the coordinating entity under the POA. Therefore, AENOR confirms that POA description, as included in the POA-DD, is consistent, supported by documentation, sufficiently accurate and complete.</p>

D.1.3. Management system

Means of validation	<p>Management structure of the monitoring plan is defined in Section B of the POA-DD. Operational management and verification plan in the final PoA-DD is assessed to be appropriate for the purpose of the programme monitoring. The overall responsibility for the monitoring will be held by Agence Senegalaise d'Electrification Rurale (ASER), the Managing Entity. The CME will also act as the CPA Implementer for some CPAs, but not necessarily all of them.</p> <p>CPA Manager will be responsible for all activities under the CPA: management, overall standard setting and supervision, and will report CPA data and monitoring information to ASER (Quarterly reports). On the other hand, there will be also an operational team responsible for collecting data on installations, system operation and other field data records, including field visits where necessary.</p> <p>The CME will ensure that all Parties involved in the operation of the CPA (e.g. concessionaires, distributors, equipment suppliers) are aware of and have agreed that their activity is being included in the CDM PoA. Awareness and agreement will be secured through informational material, community trainings and in contractual agreements between ASER and key actors.</p> <p>The Management System detailed in the POA-DD includes a clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, arrangements for training and capacity development for personnel, a procedure for technical review of inclusion of CPAs, a procedure to avoid double counting, records and documentation control process and measures for continuous improvements of the PoA management system.</p>
Findings	<p>CL 2 –Figure 2 detailing roles of the different actors is not correctly included in the document.</p> <p>CL 3 - All the documents related to the PoA management system shall be provided to the DOE team (records of arrangements for training and capacity development of the personnel, procedures for technical review of inclusion of CPAs, records of control of documents, measures for continuous improvement., etc).</p>
Conclusion	<p>In AENOR's opinion, the management plan included in section B of the POA-DD clearly details the roles and responsibilities of each of the activities involved in the monitoring, the arrangements for training and capacity development for personnel are detailed as well, a procedure for technical review of inclusion of CPAs and to avoid double counting is prepared and measures for control documentation and continuous improvement are prepared, it is considered that the management plan is developed in accordance with paragraph 36 of the "CDM project standard for programmes of activities", version 01.0.</p>

D.1.4.Demonstration of additionality of the PoA

Means of validation	The POA has been designed including only microscale CPAs. Therefore, the approach for the four categories is the same:			
	Category	Methodology	Criteria	Thereshold
	CPA Category 1	AMS III.BL	CDM Unit < 20 ktCO ₂ /year reductions and in an LDC	20 ktCO ₂ e/year/CDM Unit
	CPA Category 2	AMS III.BL	CDM Unit < 20 ktCO ₂ /year reductions and in an LDC	20 ktCO ₂ /year/CDM unit
	CPA Category 3	AMS III.BL	CDM Unit < 20 ktCO ₂ /year reductions and in an LDC	20 ktCO ₂ /year/CDM unit
	CPA Category 4	AMS III.AR	CDM Unit < 20 ktCO ₂ /year reductions and in an LDC	20 ktCO ₂ /year/CDM unit
<p>The four categories of CPA use the Methodological Tool <i>Demonstration of additionality of microscale activities, Version 8</i>. In accordance with the tool, project activities that aim to achieve emission reductions at a scale of no more than 20 ktCO₂e per year, are additional if one of two conditions are satisfied. The first one is that the project shall be located in an LDC/SIDS or SUZ, and Senegal is an LDC. Therefore, taking into account that the threshold of 20 ktCO₂e is met at the CDM unit level, and the POA is located in Senegal, the CPAs are additional. One of the eligibility criterion to be included into the POA is to ensure that the microscale rules apply to the CPA, therefore, it is considered appropriate.</p> <p>Furthermore, in accordance with the tool, CPAs applying microscale thresholds at the unit level rather than at the aggregate level of the CPA, the term 'project activities' shall be read as 'units'. If each of the units contained in the CPA satisfies the condition to qualify as a 'microscale CDM unit', then the coordinating/managing entity is not required to demonstrate compliance of the CPA with the microscale or small-scale thresholds at the aggregate level of the CPA. In such cases, the requirements related to debundling do not apply either. Therefore, the additionality criteria stated in the POA is appropriate and correctly stated.</p>				
Findings	No finding has been raised regarding additionality assessment.			
Conclusion	<p>The demonstration of the additionality of the programme has been detailed in section B.1 of the PoA-DD. The approach used in the PoA-DD has been assessed initially through the UNFCCC guidelines followed by on-site discussions. Finally, the rationales, assumptions and justifications provided have been verified using sectoral expertise.</p> <p>The proposed PoA is a voluntary action by the coordinating/managing entity. Based on the submitted documents and it is evident that this voluntary coordinated action would not be implemented in the absence of the PoA taking into account that Senegal is a Least Developed Country (LDC). This low level of development severely constrains access to clean and affordable modern energy services. As a result of the barriers to accessing modern energy services, rural electrification rates have remained at only 32% in 2014. This information has been crosschecked against Senegal Factsheet of UNHCR /21/ and Country report from SE4All in Africa /22/.</p> <p>It has been clearly demonstrated that there is no mandatory policy or regulation in the host country enforcing the implementation of this kind of projects and no such</p>			

	<p>regulations are foreseeable, data supported by the document Integrated safeguards data sheet (PID/ISDS) Appraisal Stage (2016) /23/. This information was confirmed based on the on-site interviews and the host country experience of the audit team.</p> <p>In addition, the PoA-DD establishes in Sections B.2 (eligibility criteria) the conditions that ensure that CPAs meet the requirements pertaining to the demonstration of the additionality. The threshold for the microscale is clearly stated for the four generic CPAs and it is one of the eligibility criteria to include any additional CPA into the POA. For those reasons, AENOR validation team confirms that CME demonstrated that compliance with the additionality-related eligibility criteria set in the PoA design document will ensure that all the relevant additionality criteria have been met.</p>
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D.1.5.Start date and duration of the PoA

Means of validation	<p>The start date and the length of the PoA has been assessed through desk review, and against the UNFCCC webpage, and it is confirmed that PoA start date is 07/06/2011 corresponding to the date of submission of the Prior Consideration Form by the CME as it is crosschecked against the official notification published in the UNFCCC webpage /25/. This date has been stated in accordance with paragraph 40 of the CDM project standard for programmes of activities.</p> <p>The form of the date is correctly included in the POA-DD, and the length of the POA is 28 years, in accordance also with paragraph 43 of the CDM Project Standard for POAs.</p>
Findings	No finding has been raised regarding the duration of the POA.
Conclusion	The start date of the Programme of Activities and its length has been correctly and transparently stated in the POA-DD as the date of the prior notification. This date has been supported with evidences and it is consistent with the timeline of the POA, therefore, it is in accordance with the paragraphs 40 and 41 of the CDM project standard for programmes of activities, version 01.0.

D.1.6.Environmental impacts

Means of validation	<p>The analysis of environmental impacts is established at the PoA level. The Programme of Activities is a nation-wide program for Senegal. In the country no environmental impact assessments (EIAs) are required for rural electrification projects as they are classified as "Category 2" projects by the Senegalese government. This justification is verified in the Environmental Impact Assessment voluntarily prepared by ERM in 2004 and provided to the audit team. On the other hand, Code of the Environment 2001 (Le Code de l'Environnement 2001) /27/ has been checked by the audit team and states in the opening paragraph that the project of Category 2 are considered not to present a threat to the environment.</p> <p>During the <i>on site</i> visit, the validation team checked the positive impacts of the Programme. No negative boundary or transboundary impacts were identified and as a whole the activities under the PoA will benefit the environment and contribute to the sustainable development of the host country/countries.</p> <p>Documentation was provided to the validation team, and all of them were in accordance with provisions detailed in the POA-DD and the national regulation as well.</p>
Findings	CL 4 – Evidence regarding the confirmation of the Ministry of Environment regarding the classification of the POA and the Environmental Management Framework is required.
Conclusion	The environment analysis is undertaken at POA level and justification for addressing environmental impacts is that no environmental impact assessments

	<p>(EIAs) are required for rural electrification projects as they are classified as “Category 2” projects by the Senegalese government. This justification is explained in the original investigation of environmental impacts by ERM in 2004, and the Ministry of Environment has confirmed this classification. Therefore, it can be concluded that the PPs have followed a correct analysis of environmental impacts in accordance with procedures as required by the host party.</p> <p>In addition, AENOR confirms that the host party’s DNA confirmed the project’s contribution to the sustainable development of Senegal during the on site visit and through the Letters of Approval.</p>
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D.1.7.Socio-economic impacts

Means of validation	Not applicable since this is not an A/R CDM Programme of activities.
Findings	Not applicable since this is not an A/R CDM Programme of activities.
Conclusion	Not applicable since this is not an A/R CDM Programme of activities.

D.1.8.Local stakeholder consultation

Means of validation	<p>Comments from local stakeholders are solicited at the PoA level to ensure comments/concerns from all regions covered by the PoA are included at the time of registration.</p> <p>In accordance with the POA-DD, the stakeholder consultation process included several phases. Initially, to design the program ASER held a series of consultations in different regions that aligned with the potential concession areas. The earliest consultation was held in 2004 as part of the “Environmental assessment of rural electrification project for concession Kebemer - Louga – Linguere” (Evaluation environnementale du projet d’électrification rurale de la concession Kebemer – Louga – Linguère) and included a wide range of both decision makers and local stakeholders. The audit team checked the Stakeholder Consultation report /28/ and it was found consistent with the information included into the POA-DD.</p> <p>Second consultation meeting was held in April 2012 as part of the “Initial Environmental Analysis Project Rural Electrification of the Concession Kaffrine-Tambacounda-Kédougou” (Analyse Environnementale Initiale du Projet d’Electrification Rurale de la Concession de Kaffrine-Tambacounda-Kédougou /29/). The documentation was also provided to the audit team, and no inconsistencies have been found.</p> <p>Third local stakeholder consultation was held on Friday, March 11, 2016 at the Hotel Ngor Diarama in Dakar, Senegal. This meeting was held with the presence of the DEEC (which serves as the DNA for CDM), the National Committee on Climate Change (COMNACC in French), ASER, the regional divisions of environment for the Regional Development Agencies, departmental advisers, civil society, the private sector, the Ministry of Energy and Development of Renewable Energy, the National Renewable Energy Agency, and the Agency for the Economy and Energy Management. The full list of participants is included in the POA-DD and crosschecked by the audit team against the stakeholder consultation report 2016 /30/.</p> <p>A summary of the comments received and proposed consideration of the comments has been included in the POA-DD. A complete list of attendees and comments is shown in the Local Stakeholder Consultation (LSC) report</p>
Findings	CL 5 - Documentation dated of the local stakeholder consultation process is required.
Conclusion	The local stakeholder consultation is carried out at PoA level. By means of documents reviewed and the interviews performed, AENOR considers that the summary of the comments received during the consultation process, along with the

	PPs responses included in section F of the POA-DD is complete and in accordance with the CDM Validation and Verification Standard for Programme of Activities version 01.0..
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D.1.9.Sustainable development co-benefits

Means of validation	The contribution of the Programme of activities to the development sustainability has been confirmed through both Letters of Approval of the two Parties involved, Senegal and Sweden. Nevertheless, no separate document has been prepared for the monitoring of the co-benefits.
Findings	No finding has been raised.
Conclusion	The validation team confirms that the host Party's DNA has set the contribution of the Programme of Activities to the sustainable development of the host Party. The LoA from the host party's DNA has confirmed the contribution of the programme to the sustainable development and the validity of the LoA has been cross checked by the validation team and also during on site visit through the interview with the DNA personnel. Nevertheless, the coordinating entity has not prepared in this stage a document describing how they intend to monitor sustainable co-benefits of the proposed CDP Programme of activities, which is compliance with CDM validation and verification standard for project activities.

D.1.10.Approval

Means of validation	<p>Two Parties are involved in the Programme of Activities entitled: "Senegal Rural Electrification Program", Senegal and Sweden.</p> <p>The Letter of Approval from the DNA of Senegal has been provided to the validation team directly by the project participants. The LoA was issued on 21 July 2017 (No. 1826) by the Ministry of Environment and rural development. AENOR confirms that the LoA states the following:</p> <ul style="list-style-type: none"> •Senegal has ratified the Kyoto Protocol on 20 July 2001; •The Republic of Senegal voluntarily participates in the CDM and confirms that the Programme contributes to Senegal's sustainable development and the voluntary participation of ASER as coordinating/managing entity. •The LoA refers to the precise proposed CDM programme of Activities title in the PoA-DD being submitted for registration. <p>AENOR confirms that the LoA from Senegal has been issued by the respective party designated national authority and does not doubt the authenticity of the letter of approval received from the PPs. In addition, the validation team of AENOR visited the DNA of Senegal which confirmed the intention of approve the proposed PoA.</p> <p>On the other hand, the Letter of Approval from the DNA of Sweden has been provided to the validation team directly by the project participants. The LoA was issued on 28/06/2017 (No. 2017-007332) by the Swedish Energy Agency and rural development. AENOR confirms that the LoA states the following:</p> <ul style="list-style-type: none"> •Sweden has ratified the Kyoto Protocol on 31 May 2002; •Sweden approves the programme and confirms that the participation is voluntary. •Confirms that any public funding for the Senegal Rural Electrification Programme does not result in a diversion of Sweden's official development assistance and is separate from and is not counted towards Sweden's financial obligations as a Party. <p>The PoA CME (Coordinating and Managing Entity) is Agence Senegalaise d'Electrification Rurale (ASER), which is authorized as Programme Participant and</p>
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	<p>authorized by the host Party Ethiopian DNA, as the Coordinating and Managing Entity.</p> <p>The other programme participant is International Bank for Reconstruction and Development (IBRD) as the Trustee of the Carbon Initiative for Development who is authorized by the Government of Sweden.</p> <p>All project participants have been listed in section A.4 of the final PoA-DD. Information regarding project participants is confirmed as consistent in the latest PoA-DD. AENOR confirms that no entities other than those approved as project participants are included in the final PoA-DD.</p>
Findings	CAR 3 - Letter of Approval from both Parties involved in the programme shall be provided to the validation team.
Conclusion	<p>AENOR confirms that two Parties are involved in the Programme of Activities entitled: "Senegal Rural Electrification Program", Senegal (host) and the Government of Sweden.</p> <p>The participant entities are International Bank for Reconstruction and Development (IBRD) as the Trustee of the Carbon Initiative for Development who will be authorized by the Government of Sweden, and Agence Senegalaise d'Electrification Rurale (ASER) who is authorized by the DNA of Senegal as coordinating/managing entity.</p> <p>The LoA from Senegal and Sweden have been obtained, and they confirm:</p> <ul style="list-style-type: none"> •Senegal and Sweden are Parties to the Kyoto protocol and both have ratified Kyoto Protocol; •CDM is a voluntary participation; •The programme under validation will contribute to the sustainable development of Senegal; •The programme title is in line with the title mentioned under the title page of POA-DD. <p>Therefore, AENOR confirms that LoA has been verified to be unconditional with respect to all the above confirmed aspects.</p> <p>The validation team confirms that the Letter of Approval meets the requirement of paragraphs 69-73 of CDM Validation and Verification Standard for Programme of Activities (version 01.0).</p>

D.1.11.Authorization

Means of validation	As it is explained in section D.1.10 the participant entities are International Bank for Reconstruction and Development (IBRD) as the Trustee of the Carbon Initiative for Development who is authorized by the Government of Sweden, and Agence Senegalaise d'Electrification Rurale (ASER) who is authorized by the DNA of Senegal as coordinating/managing entity. Both authorizations are consistently detailed in the Letters of Approval granted by the DNAs of Senegal and Sweden.
Findings	No finding has been raised
Conclusion	The audit team confirms that no entities other than those authorized as the coordinating/managing entity and the project participants of the proposed CDM PoA are included in the PoA-DD. The authorizations have been issued from relevant DNAs, and no doubt regarding their validity exists as the support of the DNA to the Programme of activities was confirmed during on site visit through the interview with representatives of the DNA in Senegal.

D.1.12.Modalities of communication

Means of validation	In accordance with the CDM Validation and Verification Standard, the audit team has crosschecked the corporate identity of all project participants, the coordinating/managing entity and focal points included in the Modalities of Communication (MoC) statement /31/, as well as the personal identities directly checking with the World Bank and also during the <i>on site</i> visit the personal identities of each of the participant, therefore, in accordance with paragraph 82 (a) of the VVS for Programme of Activities.
Findings	CAR 4 - The MOC has not been provided to the DOE team.
Conclusion	<p>The audit team confirms that:</p> <p>(a) The valid version of the form “Modalities of Communication statement” (CDM-MOC-FORM) has been used;</p> <p>(b) The information required as per the CDM-MOC-FORM, including its annex 1, is correctly completed;</p> <p>(c) The project participants’ authorized signatories signing the CDM-MOC-FORM correspond to the project participants’ authorized signatories included in the CDM-MOC-FORM, annex 1.</p> <p>Therefore, the audit team states the MoC statement was completed and duly authorized in accordance with the valid version of the form and the information required therein.</p>

D.1.13.Global stakeholder consultation

Means of validation	<p>According to Decision 3/CMP.1, the DOE shall make the PoA-DD and publicly available and receive comments on the validation requirements from Parties, stakeholders and UNFCCC accredited NGOs within 30 days, and make them publicly available.</p> <p>AENOR published the project document on CDM website (http://unfccc.cdm.int) on 01/10/2016 and invited comments by Parties, stakeholders and non-governmental organizations. No comments were received.</p>
Findings	No finding has been raised.
Conclusion	<p>In accordance with paragraph 12 of the CDM project cycle procedure for programmes of activities version 01.0, PoA-DD has been made publicly available for global stakeholder consultation in accordance with the Project cycle procedure.</p> <p>No comments were received.</p>

D.2.Generic component project activities Category 1: mini-grids**D.2.1. General description of generic CPA -**

Means of validation	<p>In accordance with the Instructions for completing the POA-DD, all of Part II is repeated for each generic CPA-DD such that one completed Part II represents one generic CPA-DD. Therefore, section D.2 of this validation report is also repeated for each category of generic CPA.</p> <p>The PoA is part of an overall rural electrification program undertaken by the Senegalese Government in order to scale up access to electricity in rural areas and contribute to poverty alleviation in these areas. The PoA includes four technologies for providing electricity services which correspond to four generic CPAs.</p> <p>A typical CPA of Category 1 consists of the installation or extension of solar PV mini-grids. A Category 1 CPA may also include the installation or extension of hybrid solar PV-diesel mini-grids and the hybridization of existing mini-grids through the addition of solar PV power units. CPAs will be differentiated by the time period covered under each CPA. In a generic CPA of category 1 the CME and CPA Implementer may or may not be the same entity. The CPA Implementer will select and manage the installation of technologies under Category 1 CPAs as well as oversee the data collection process for monitoring and verification. The number of power units and the average solar PV unit shall be detailed in each case-specific CPA, which is considered appropriate in order to clearly define the purpose of the CPA.</p> <p>The purpose and general description of the CPAs of category 1 is clearly detailed in Section H of the Part II of the POA-DD, and the tables to be fulfilled by each specific CPA are clearly and transparently detailed. This description has been verified against the eligibility criteria defined in the POA-DD, the documentation provided and the interviews made during on site visit.</p>
Findings	No finding has been raised.
Conclusion	<p>The description is transparent, accurate, complete and consistent with the aim of the POA, the eligibility criteria and supported documentation, and provides an understanding of the generic CPA. The first generic component project activity corresponds to Category 1: Solar PV and hybrid solar PV-diesel mini grids and a description of technologies/measures to be employed by under each specific Category 1 CPA will be provided in the specific CPA document, including all technical specifications required by the applied methodology.</p> <p>Therefore, AENOR confirms that generic CPA-DD has been prepared for Category 1 in accordance with the relevant requirements in the Project standard for Programme of Activities version 01.0.</p>

D.2.2.Application and selection of methodologies and standardized baselines**D.2.2.1.Application of methodologies and standardized baselines**

Means of validation	<p>The CPAs under Category 1 will consist of:</p> <ul style="list-style-type: none"> •installation or extension of solar PV mini-grids; •installation or extension of hybrid solar PV-diesel mini-grids and, •hybridization of exiting mini-grids through the addition of solar PV power units. <p>CPAs of this category will include both consumers that were not connected prior to</p>
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the project and consumers that were connected to a fossil fuel based mini-grid prior to the project. Methodology to be applied as it is detailed in the POA-DD, AMS-III.BL *"Integrated methodology for electrification of communities"*, Version 01.0. Reference number, version number, and title of the approved baseline and monitoring methodology selected are clearly indicated in accordance with the appendix of the POA-DD-FORM *"Instructions for completing CDM-CPA-DD-FORM"*.

The chosen version is the most recent one and it is applicable, and the corresponding tools with their latest versions are correctly detailed in the POA-DD. Applicability conditions of the applied methodology are detailed in the generic CPA, and are crosschecked with the methodology and the technical description of the typical CPA of this category. They are correctly listed in the generic CPA:

- Criterion 1 - This methodology is applicable in situations where consumers that were not connected to a national/regional grid, prior to project implementation are supplied with electricity generated from the project activity. It is also applicable in situations where a fraction of consumers that were supplied with electricity from a fossil based individual energy system or fossil fuel based mini-grid prior to the implementation of the project, are supplied with electricity from the project activity (e.g. moving from carbon intensive mini-grid to less carbon intensive grid or mini grid). In this case, CPAs of category 1 will include both consumers that were not connected prior to the project and consumers that were connected to a fossil fuel based mini-grid prior to the project. The ER spreadsheets for the CPA of this category /32/ and Programme National d'Urgence d'ER goals for 2017 /33/ have been checked to verify the situation of the connections in Senegal. Furthermore, the CME will manage a CPA monitoring database where information related to new connection types as well as consumer classification (technology used and consumption type) prior to project implementation will be recorded, therefore, the amount of consumers of each type is verifiable and this criterion is correctly justified.
- Criterion 2 - Electricity consumers may include households, commercial facilities such as shops, public services/buildings and small, medium and micro enterprises (SMMEs). At least 75 per cent (by number) of the consumers connected by the project activity shall be households and it will be checked in the spreadsheets. This criterion shall be verified in each specific case of CPAs under this category against the CPA monitoring database. This is considered appropriate to verify the accomplishment of this criterion since the database will track the percentage of households versus SMEs/Institutions.
- Criterion 3 - This methodology is applicable to electrification of a community of consumers which is achieved through one or more of the following technologies/measures: (a) New construction of individual energy systems (renewable or hybrid) such as roof-top solar photovoltaic systems or hybrid energy systems; (b) Rehabilitation (or refurbishment) of individual energy systems, mini-grid or hybrid energy system may be undertaken, if it can be demonstrated that the existing system(s) i) are not part of another CDM activity; ii) are non-operational and iii) require a substantial investment for them to be rehabilitated to or above the original electricity generation capacity (c) Installation or extension of a mini-grid that distributes electricity generated from renewable energy systems or hybrid energy systems; (d) Hybridization of existing fossil fuel powered mini-grids using renewable energy systems; (e) Extension of a grid (national or regional) to supply new consumers as well as consumers currently connected to mini-grid. In accordance with the description of the generic CPA, a typical CPA will include installation and/or extension of a mini-grid that distributes electricity generated from renewable energy systems or hybrid energy systems, and may include hybridization of existing fossil fuel powered mini-grids using renewable energy systems, therefore, conditions (c) and (d) in the list.
- Criterion 4: Project equipment shall comply with applicable international standards or comparable national, regional or local standards/guidelines

	<p>and, when relevant, the PDD shall indicate the standard(s) applied for main project equipment. All relevant national and international standards are specified by the CME in contracts with implementing agents and vendors for CPAs of this category.</p> <ul style="list-style-type: none"> •Criterion 5: For projects involving the installation of hydro power plants with reservoirs the requirements prescribed under AMS-I.D shall be followed. This is not applicable for the CPAs of this category. •Criterion 6: Measures are limited to those that result in emission reductions of less than or equal to 20 kt CO₂ equivalent annually. The total emission reductions under a CPA will not exceed 20 ktCO₂ annually per CDM Unit and will remain below this limit throughout the entire crediting period. This condition shall be verified in each specific CPA of category 1 CPAs.
Findings	CAR 5 – The reference to the UNFCCC CDM website for the exact reference of approved baseline and monitoring methodologies, tools and standardized baselines is not included in the Section B.1, Part II of the POA-DD.
Conclusion	The applicability criteria of the baseline methodology AMS-III.BL have been transparently detailed in section I.2 of generic CPA detailed in the final version of the POA-DD. The methodology is used and applied in accordance with the CDM project standard for programme of activities.

D.2.2.2.Deviation from methodologies and/or methodological tools

Means of validation	Not applicable since no deviation from the methodology has been detected.
Findings	Not applicable since no deviation from the methodology has been detected.
Conclusion	Not applicable since no deviation from the methodology has been detected.

D.2.2.3.Clarification on applicability of methodology, tool and/or standardized baseline

Means of validation	Not applicable since no clarification on applicability of methodology or tool has been detected.
Findings	Not applicable since no clarification on applicability of methodology or tool has been detected.
Conclusion	Not applicable since no clarification on applicability of methodology or tool has been detected.

D.2.2.4.Project boundary, sources and GHGs

Means of validation	<p>Section I.4 of generic part of category 1 CPAs is prepared for the six types of greenhouse gases and each CPA will detail the gases and sources included in the CPA boundary. This section has been defined in accordance with the applied methodology. Gases included in the project boundary for baseline emissions are carbon dioxide emissions from fossil fuel-fired power plants or fuel consumption for lighting.</p> <p>For a typical CPA of category 1, the project boundary includes the spatial extent of the project boundary including all power plants connected through transmission and/or distribution lines to the mini-grid that is being built or extended through the project activity. For all project types, the spatial extent of the project boundary also includes the physical sites of the end-use consumers served by the project activity", therefore, in accordance with the applied methodology. The boundaries have been verified during the interviews with the CME and against the description</p>
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	of the methodology.
Findings	No finding has been raised.
Conclusion	<p>The description of how to define the project boundary of the corresponding CPA, including which sources and GHGs are to be included in the project boundary under which conditions or circumstances are in accordance with the selected methodology.</p> <p>All the sources and gases included in the project boundary of the generic CPA category 1 (baseline scenario, project scenario and leakage) are in accordance with the applied methodology AMS-III.BL, and the inclusions and exclusions of the sources of gases correctly justified.</p> <p>The physical delineation of the CPA and the description of the emission sources and GHGs that are included in the CPA boundary are appropriate for the purpose of calculating project and baseline emissions for each CPA.</p> <p>Therefore, the validation team states that the identified boundary and the selected sources and gases are correctly justified by the project proponent in the PoA-DD, and they are in accordance with the applied methodology. Hence, the validation team confirms the Programme of Activities is validated in accordance with paragraph 110 of CDM Validation and Verification Standard.</p>

D.2.2.5.Baseline scenario

Means of validation	<p>The description of the baseline scenario has been stated in section I.5 of generic CPA detailed in the POA-DD and it has been crosschecked against the applied methodology. There are forecasted four possible baseline scenarios and the generic CPA clearly describes them. Depend on the type of consumer, the baseline scenario will be:</p> <ul style="list-style-type: none"> •Type I consumers: consumers who were not connected to a national/regional grid or a mini-grid prior to the project implementation and who consume less than 500 kWh per year. •Type II – includes two separate consumer groups (i) consumers that were previously supplied by a stand-alone fossil fuel power system such as diesel generators who consume less than 500 kWh , and (ii) consumers who use more than 500 kWh per year and had no supply prior to the project or were previously supplied by a stand-alone fossil fuel power system such as diesel generators; •Type III – consumers who were connected to a mini-grid system prior to the project activity; •Type IV - consumer category includes water pumping and public lighting consumers, regardless of their previous supply of electricity. <p>Therefore, as it is stated in the generic CPA the first step for each CPA is to identify the type of consumer, the second one is to determine the consumption of each consumer type and sub-group and finally, calculate the baseline emissions. Each specific CPA of this category shall fulfil a table detailing the consumer number by type and project technology to define each type. The CME will manage a CPA monitoring database where information related to new connection types as well as consumer classification (technology used and consumption type) prior to project implementation will be recorded. This information is also included in the eligibility criteria; therefore, the amount of consumers of each type is verifiable. The complete process will be documented in the monitoring plan, and it is clearly defined in the POA-DD, and it is consistent with provisions detailed in the methodology.</p>
Findings	No finding has been raised regarding baseline scenario.
Conclusion	The method used to calculate the baseline for the CPA of category 1 is established according to the small scale methodology AMS-III.BL and the

	<p>technical description of POA. The baseline identified for the four types of consumers identified as potential consumers of the CPAs category 1 are the scenarios that reasonably represent the anthropogenic emissions by sources of GHGs that would occur in the absence of the CPA. For that reason, the audit team confirms:</p> <ul style="list-style-type: none"> •All the assumptions and data used by the coordinating/managing entity are listed in the generic CPA-DD, including their references and sources; •Documentation to be used in the specific CPAs is relevant for establishing the baseline scenario and correctly quoted and interpreted in the generic CPA-DD; •Assumptions and data used in the identification of the baseline scenario are justified appropriately and can be deemed reasonable; •Relevant national circumstances are considered and listed in the generic CPA-DD; •The methodology has been correctly applied to describe identification of the most plausible baseline scenario and the description reasonably represents what would occur in the absence of corresponding CPAs.
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D.2.2.6. Estimation of emission reductions or net anthropogenic removals

Means of validation	<p>The validation team has reviewed the generic CPA assessing the adequate justification of options and equations taken based on the choice of the baseline scenario and context of the CPA in accordance with the applied methodology AMS-III.BL Version 01.0.</p> <p>Baseline emissions:</p> <p>Total baseline emissions are the sum of all the individual consumer groups.</p> $BE_y = BE_{T1,y} + BE_{T2,y} + BE_{T3,y} + BE_{T4,y}$ <p>Where:</p> $BE_y = \text{Baseline emissions in year } y \text{ (tCO}_2\text{)}$ $BE_{T1,y} = \text{Baseline emission from Type I consumers in year } y \text{ (tCO}_2\text{)}$ $BE_{T2,y} = \text{Baseline emission from Type II consumers in year } y \text{ (tCO}_2\text{)}$ $BE_{T3,y} = \text{Baseline emission from Type III consumers in year } y \text{ (tCO}_2\text{)}$ $BE_{T4,y} = \text{Baseline emission from Type IV consumers in year } y \text{ (tCO}_2\text{)}$ <p>In all cases the Baseline Emissions of each type of consumers is calculated using this formulae:</p> $BE_y = \sum_{z=1}^M (EC_{z,y} \times EF_{CO2})$ <p>Where:</p> $BE_y = \text{Baseline emission from Type X of consumers in year } y \text{ (tCO}_2\text{)}$ $EC_{z,y} = \text{Annual electricity consumption of Type X consumer } z \text{ in year } y \text{ (MWh)}$
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EF_{CO_2} = Baseline emissions factor for Type X consumers

M_y = Number of Type X consumers in year y

z = Type X consumer (z = 1, 2, 3, ...)

Depending on the type of consumer, the baseline emissions will be calculated using different emission factors and all of them are clearly described in the generic CPA. The choices and the explanations are consistent with the applied methodology:

For Type I consumers the emission factor: EF_{CO_2} is:

- If $EC_{T1,x,y}$ is equal to or less than 0.055 MWh, then use a default value of 6.8 (tCO₂/MWh);
- If $EC_{T1,x,y}$ is less than or equal to 0.250 MWh but greater than 0.055 MWh, then:
 - For the portion up to and including 0.055 MWh, use a default value of 6.8 (tCO₂/MWh);
 - For the portion greater than 0.055 MWh, use a default value of 1.3 (tCO₂/MWh);
- If $EC_{T1,x,y}$ is greater than 0.250 MWh but less than or equal to 0.500 MWh, then:
 - For the portion up to and including 0.055 MWh use a default value of 6.8 (tCO₂/MWh);
 - For the portion greater than 0.055 MWh and less than 0.25 MWh/y use a default value of 1.3 (tCO₂/MWh); and
 - For the portion greater than 0.250 MWh use a default value of 1.0 (tCO₂/MWh);

If $EC_{T1M,j,y}$ is greater than 0.500 MWh then use a default value of 1.0 (tCO₂/MWh) for the entire portion (i.e. default values of 1.3 (tCO₂/MWh) or 6.8 (tCO₂/MWh) are not eligible for any of the portions)

For Type II and Type IV consumers, baseline emissions factor (tCO₂/MWh) is 1.0.

For Type III consumers, baseline emissions factor (tCO₂/MWh) is:

- a) For a mini-grid system where all generators use exclusively fuel oil and/or diesel fuel, emission factor can be determined using the emissions factors provided in the table 4 of the applied methodology (and included in table 16 of the generic CPA).
- b) For all other mini-grids it shall be calculated as the weighted average emissions for the current generation mix following the procedure provided in "AMS-I.D: Grid connected renewable electricity generation".

The annual electricity consumption shall be determined depending on the technology/measure being implemented at that consumer site, and the generic CPA defines each choice, being option A metering, B sample survey, C distribution metering and consumer numbers and option D deemed consumption.

- Type I consumers may use metering, sample survey or distribution metering and consumer numbers. If their consumption is greater than 1000 kWh/year, however, they must use metering.
- Type II consumers may only use metering or sample survey. If their consumption is greater than 1000 kWh/year, however, they must use metering.
- Type III consumers may use metering or a sample survey. If their consumption is greater than 1000 kWh/year, however, they must use metering.
- Type IV consumers are only required to use metering if their consumption is greater than 1000 kWh/year. Below that consumption level, according to the methodology they may use metering or sample survey.

While some Type I consumers may have some form of metering (normally pre-payment meters), some may have only power limiting devices without meters, so Option C ("Distribution metering and consumer numbers") may be used to

determine consumption. This will only be used when there is a master meter at the main sub-station in the community, or similar overall meter for total electricity distributed. Alternatively, a sample survey may be used to determine the average consumption for Type I consumers in each service level. Furthermore, if Option C is used to determine annual average electricity consumption of Type I consumers (which are not metered) in a project area, it is calculated from total electricity supply to the project area monitored at the nearest sub-station or by monitoring electricity outputs of plants feeding a mini-grid; and the total electricity consumption from other consumer groups (metered). All these options included in the generic CPA, are detailed in accordance with the applied methodology.

Project emissions:

In accordance with the applied methodology, project emissions are associated with the generation of electricity supplied to the project activity end use facilities.

$$PE_{G,y} = \frac{(ES_{tot,y} \times EF_{grid,CO2,y})}{(1 - TL_{grid})}$$

- $PE_{G,y}$ = Project emissions from renewable and hybrid mini-grids (new or rehabilitated) and grid extension in year y (tCO₂)
- $ES_{tot,y}$: Total electricity supply to all consumers (MWh)
- $EF_{grid,CO2,y}$: Emission factor for the project electricity system in year y (tCO₂/MWh). The emissions factor is determined as either: (a) for a mini-grid system where all generators use exclusively fuel oil and/or diesel fuel using the emissions factors in Table 4 [of the methodology]; or (b) for all other mini-grids per the weighted average emissions for the current generation mix following the procedure provided in AMS-I.D.
- TL_{grid} : Transmission losses in the project electricity system, where the project activity is grid extension, with a 10% default value. This does not apply to a mini-grid, because local distribution losses are already captured as TL_p in equation 10 below (i.e. $TL_{grid} = 0$ for mini-grid)

A typical CPA will include the installation/extension of solar PV mini-grids. Category 1 CPAs may also include the installation/extension of hybrid mini-grids and the hybridization of existing mini-grids. In these cases, the project electricity system is likely to have both fossil and renewable generating units, so the procedure in AMS I.D will be used to determine the project emissions factor for each mini-grid.

Regarding the total electricity supply to all consumers ($ES_{tot,y}$), for each mini-grid is either determined by the measurement at an electricity meter at the point of supply to community, or as the sum of electricity consumption of all consumers. In the latter case, the consumption separated by type of Consumer (I, II, III, or IV) shall be summed:

$$ES_{tot,y} = \frac{\sum_{x=1}^{Ny} EC_{T1,x,y} + \sum_{z=1}^{My} EC_{T2,z,y} + \sum_{w=1}^{Py} EC_{T3,w,y} + \sum_{i=1}^{Qy} EC_{T4,i,y}}{(1 - TL_p)}$$

When multiple mini-grids are involved, total project emissions shall be calculated as the sum of the emissions from all of the mini-grids, which is in accordance with the applied methodology.

Leakage:

A generic CPA determines leakage as per AM0045 Grid connection of isolated electricity systems Version 3, and the detail is transparently included in the generic CPA for this category.

Regarding the ex ante calculation of emission reductions, AENOR has validated that data and assumptions considered and listed in generic CPA category 1 are consistent with stated data, methodology and type of CPA. Following assumptions are made:

-A typical CPA could include 45,868 new connections, of which 90% could be

for new mini-grids, and 10% could be from an extension of existing mini-grids, where renewable energy capacity is also added to hybridize these systems.

-For the consumers in a new mini-grid, 10% may have had previous access to a stand-alone diesel generator.

- For the mini-grids that are extended and hybridized, 50% of consumers will be new connections while 50% will be the existing consumers

In accordance with the Electrification plan for Kolda-Dagana-Mbour region and electrification plan for Matam-Ranerou-Bakel region, both provided to the audit team, the service level share and consumption estimates are:

-Type I consumers include population with service levels 1-3 (89%) becoming new consumer from new mini grids or existing mini grids are 35,107, with an average consumption of 123 kWh/year.

-Type II consumers with service level 4 (11%) becoming new or existing mini-grids are 8,467 (new, existing and diesel mini grids) with an average consumption of 986 kWh/y, based on service level 4, as it is detailed in both local electrification plans provided to the audit team.

-Type III consumers with previous access to a fossil fuel mini-grid are 2,293, with an average consumption of 197 kWh/year (service level 3).

As it is previously detailed, these assumptions have been validated using Local Electrification Plan Kolda Dagana Mbour /34/ and Local Electrification Plan Matam Ranerou-Bakel /35/ and ASER technology implementation estimate document /36/ and are deemed appropriate and consistent with the methodology and the generic CPA provisions that state for the establishment of baseline scenario each CPA will provide an ex-ante estimate of the number of consumers that will fall into each group or type, based on business plans or other similar project documents.

Baseline emissions are estimated for the first CPA of category 1 CPAs therefore are:

$BE_{T1,y} = 35,107 \text{ consumers (Type I new MG + Type I existing MG)} \times 0.123 \text{ MWh} \times 3.8 \text{ tCO}_2/\text{MWh} = 16,233 \text{ tCO}_2$

$BE_{T2,y} = 8,467 \text{ consumers (Type II new MG + Type II existing MG + Type II diesel generator)} \times 0.986 \text{ MWh} \times 1.0 \text{ tCO}_2/\text{MWh} = 8,348 \text{ tCO}_2$

$BE_{T3,y} = 2,293 \text{ consumers (type III includes population with previous access to a fossil fuel mini-grid)} \times 0.197 \text{ MWh} \times 1.3 \text{ tCO}_2/\text{MWh} = 587 \text{ tCO}_2$

Total baseline emissions are therefore 25,168 tCO₂.

Regarding project emissions the emission factor is calculated based on the weighted average emissions of the generation mix in the year in which project generation occurs, hence, in accordance with provisions stated in the applied methodology. For the purpose of the sample calculation, it is assumed that diesel generators are delivering 25% of the electricity to the mini-grid, and the solar panels satisfy the rest of the electricity demand (75%). The exact fraction of diesel contribution to the mini-grid will be measured during monitoring. For the determining the emissions factor from diesel generators it is assumed that:

- Fuel emission factor of diesel for project emissions: 74,800 kg/TJ (value obtained from the IPCC)

- Generator Efficiency of 30% (value extracted from the methodology AMS-I.D)

Based on the above considerations, the emission factor for the electricity generated from diesel generator is assumed to be 0.9 tCO₂/MWh which is considered in accordance with applied methodologies.

$PE_y = (13,119 \text{ MWh} / (1-0.1)) \times 0.225 \text{ tCO}_2/\text{MWh} = 3,280 \text{ tCO}_2$

No leakage are considered, therefore, the estimate of emissions reductions is:

$ER_y = 25,168 \text{ tCO}_2 - 3,280 \text{ tCO}_2 = 21,888 \text{ tCO}_2$

Findings	<p>CAR 6 – The spreadsheets used for the emission reductions calculations are not provided to the DOE team.</p> <p>CAR 7 - The description and justification of the value of 0.590 tCO₂/MWh for the emission factor for the project system is not transparently included in the POA-DD. The spreadsheets used for the calculation of the emission factor are required by the DOE team. This is applicable also in Generic component for category 2 and 3.</p>
Conclusion	<p>The application of the baseline methodology has been transparently detailed in the generic CPA. The consideration of the leakages, the boundaries of each type of CPA and the calculations are in accordance with the provisions of the relevant methodology. The guidelines for the application of the methodology in the POA are correctly detailed in generic CPA.</p> <p>The generic CPAs confirm to meet the procedures provided in the methodology and PoA-DD. The formulae are correctly presented for the determination of emission reductions. The assumptions and data used to determine the emission reductions are listed in each generic CPA and all the sources have been detailed. In summary, the calculations of emission reductions are considered to be correct and according to requirements stated in the applied methodologies and POA.</p> <p>Therefore, AENOR, based on the above assessment, confirms that:</p> <ul style="list-style-type: none"> •All assumptions and data used by the project participants are listed in the six generic CPAs, including their references and sources; •All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the generic CPAs; •All values used in the generic CPAs are considered reasonable in the context of the proposed CDM Programme of Activities; •The baseline methodologies have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions; and •All estimates of the baseline emissions can be replicated using the data and parameter values provided in the generic CPAs.

D.2.2.7. Monitoring plan

Means of validation	<p>For the proposed PoA, the submission of the monitoring plan is delayed and submitted either at any time prior to the submission of request for issuance for the first monitoring period, or together with the request for issuance for the first monitoring period.</p> <p>Nevertheless, the first version of POA-DD, published for Global Stakeholder consultation process, detailed a complete monitoring methodology, including roles and responsibilities, and Quality Assurance and Quality Control and parameters to be monitored. During validation activities, the CME decided not to complete the monitoring plan section, and to delay the submission, therefore, according to paragraph 116 of the CDM Project Standard for Programme of Activities.</p>
Findings	No finding has been raised
Conclusion	Not applicable since project participants have decided that the submission of monitoring plan is delayed and that the PoA-DD submitted for registration do not contain information related to the monitoring plan, in accordance with paragraph 116 of the CDM Project Standard for Programme of Activities.

D.2.3. Crediting period type and duration

Means of validation	The crediting period of the generic CPA of this category is correctly detailed in the
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	<p>POA-DD as a renewable crediting period, and the length of the first one is 7 years and 0 months.</p> <p>This information has been stated in accordance with the CDM project standard for programmes of activities.</p>
Findings	No finding has been raised regarding the duration of the POA.
Conclusion	The crediting period of the generic CPA for CPAs of category 1 and its length has been correctly and transparently stated in the POA-DD in accordance with the CDM project standard for programmes of activities, version 01.0.

D.2.4. Eligibility criteria for inclusion of CPAs

During the assessment of eligibility criteria for inclusion of CPAs, one CAR for all of them was raised:

CAR 2 - Eligibility criteria defined in the PoA-DD are not sufficiently objective and comprehensive to permit the assessment of the inclusion of the CPAs in the PoA. The kind of evidence to be used in order to verify every eligibility criterion has not been described in the PoA-DD.

The edition of the eligibility criteria in the final version of the POA-DD is considered appropriate and they are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA. AENOR confirms that the eligibility criteria including additionality are appropriately in accordance with the eligibility criteria listed in PoA-DD.

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
1	Geographical boundary Each CPA will be located within the physical/geographical boundary of the PoA as demonstrated by the geographical boundary of the CPA-DD.	Geographic reference shows the physical/geographical location of the CPA, therefore, it is verifiable if the CPA is located into the boundary of the POA. The audit team considers appropriate to justify the accomplishment of this criterion.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
2	Start date The CPA start dates shall not be before the start date of the PoA (07/06/2011). The start date of the CPA is the date on which construction, implementation, or real action concerning the CPA, as shown through a payment receipt detailing real action, an invoice for equipment, a receipt from an end-user or technician serving as proof of installation, or signed contract.	The receipt showing payment for activities detailing a real action or an invoice for equipment or receipt showing installation of a system justify the adequate definition of start date of the CPA and it is verifiable, and will allow to demonstrate that the start date is stated after the 07/06/2011, therefore it is considered correct.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
3	Crediting period CPA crediting period shall be within the lifetime of the PoA (07/06/2011 to 06/06/2039) as demonstrated in the CPA-DD.	CPA starting date and crediting period (fixed or renewable) shall be specified in CPA DD section C, and shall be after the inclusion of the CPA into the POA. Therefore, the CME will be able to assess if the date is consistent with the crediting period of the CPA, therefore, it is appropriate to assess the fulfilment of this criterion.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
4	ODA For all CPAs, funding from Annex I Parties, if any, does not result in a diversion of ODA as evidenced through a	Statement from Annex I Parties is provided and valid for all the CPAs, therefore, this criterion is fulfilled.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
	statement on ODA.			assessment of the inclusion of CPAs in the PoA

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
5	Debundling Each CPA will demonstrate that debundling does not apply as the CPA is micro-scale and applies the microscale threshold at the CDM Unit level	Each CPA-DD shall detail the total emission reductions and it will be supported by the ER spreadsheets of each CPA; therefore, this criterion is verifiable and clearly shown.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
6	Double counting The CPAs of PoA "Senegal Rural Electrification Program" shall not result in double counting as evidenced through unique identifiers, such as GPS coordinates	A description of the unique identifier will allow the assessment that no double counting is produced. This criterion is correctly stated and it is verifiable in each CPA.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
7	Local Stakeholder and environmental analysis The Local Stakeholder Consultation and Environmental Impact Analysis have been conducted at the PoA level. Each CPA will take into consideration the comments from the Stakeholder Consultation and abide by the environmental regulations of the host country	The local stakeholder consultation and environmental analysis is done at PoA level and adhere to the requirements stipulated at the PoA level, therefore, this criterion is accomplished by all the CPAs.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
8	Target group and distribution mechanism The CPA specifies the target group of the project unit/system and distribution mechanisms in the CPA-DD	The ex-ante estimates included in each CPA of this category shall detail the number and type of consumer, information extracted from the Implementation estimates up 2020 (ASER) and consistent with the documentation "Rapport global du Recensement general des Entreprises (<i>"Global report of the General census companies"</i>) /41/ therefore, this criterion is verifiable and	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
		transparently defined.		
9	Sampling Sampling design and calculation shall meet the requirement in the sampling standard as evidenced in the CPA-DD	Each CPA will elaborate a sampling plan for each relevant parameter, which is correctly stated and in accordance with the applied methodology and CDM Project Standard for Programme of Activities.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
10	Microscale threshold The CPAs shall adhere to the microscale threshold and result in emission reductions equivalent to or less than 20 ktCO ₂ e emissions reductions at the CDM Unit level per annum.	Each CPA-DD shall detail the total emission reductions; therefore, this criterion is verifiable and clearly shown.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
11	Additionality CPA shall be additional as per micro-scale additionality by being located in an LDC and resulting in less than or equal to 20k tCO ₂ e emission reductions at the CDM Unit level per annum.	Each CPA-DD shall detail the total emission reductions; therefore, this criterion is verifiable and clearly shown.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
12	Technology CPA will distribute and install/expand solar PV mini-grids, including both the power generation units and the associated distribution infrastructure, for electrification of communities. CPA may also include installation/extension of hybrid solar PV-diesel mini-grids and the hybridization of existing mini-grids. Equipment shall comply with applicable international standards or comparable national, regional or local standards/guidelines.	The ex-ante estimates included in each CPA of this category shall detail the number and type of consumer, and also the previous situation, with or without access. CPA monitoring database will track previous status of the consumers prior to project implementation, therefore, the amount of consumers previously connected or previously supplied by fossil fuel energy system or mini-grids will be known, hence criterion is verifiable	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
		and transparently defined. On the other hand, the CME will assure as well that mini-grid connections meet ASER Minimum Technical & Environmental Standards.		
13	<p>Methodology</p> <p>Each CPA will apply the CDM baseline and monitoring methodology AMS-III.BL Version 01.0, and adhere to all applicability conditions and other requirements of the methodology.</p> <p>At least 75% of the end-users that receive electricity from systems installed under the CPA shall be households.</p>	<p>The CPA-DD will detail the applied methodology and the calculation spreadsheets shall be assessed, therefore, this criterion is verifiable and stated in accordance with the description of this category of CPAs.</p>	CAR 2	<p>The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA</p>

D.3. Generic component project activities Category 2: Grid extension**D.3.1. General description of generic CPA**

Means of validation	<p>In accordance with the Instructions for completing the POA-DD, all of Part II is repeated for each generic CPA-DD such that one completed Part II represents one generic CPA-DD. Therefore, section D.2 of this validation report is also repeated for each category of generic CPA.</p> <p>The PoA is part of an overall rural electrification program undertaken by the Senegalese Government in order to scale up access to electricity in rural areas and contribute to poverty alleviation in these areas. The PoA includes four technologies for providing electricity services which correspond to four generic CPAs.</p> <p>A typical CPA of Category 2 consists of the connection of new consumers to the national grid. CPAs will be differentiated by the time period covered under each CPA. In a generic CPA of category 2 the CME and CPA Implementer may or may not be the same entity. The CPA Implementer will select and manage the installation of technologies under Category 2 CPAs as well as oversee the data collection process for monitoring and verification.</p> <p>The purpose and general description of the CPAs of category 2 has been detailed in Section H of the Part II of the POA-DD. This description has been verified against the eligibility criteria defined in the POA-DD, the documentation provided and the interviews made during on site visit.</p>
Findings	No finding has been raised.
Conclusion	<p>The description is transparent, accurate, complete and consistent with the aim of the POA, the eligibility criteria and supported documentation, and provides an understanding of the generic CPA. The first generic component project activity corresponds to Category 2: Grid Extension.</p> <p>Therefore, AENOR confirms that generic CPA-DD has been prepared for Category 2 in accordance with the relevant requirements in the Project standard for Programme of Activities version 01.0.</p>

D.3.2. Application and selection of methodologies and standardized baselines**D.3.2.1. Application of methodologies and standardized baselines**

Means of validation	<p>The CPAs under Category 2 will consist of connection of new consumers to the national grid. The rural communities will receive access to electricity through the grid connections, and may or may have been connected previously to a fossil-fuel based mini-grid. Methodology to be applied as it is detailed in the POA-DD, AMS-III.BL "<i>Integrated methodology for electrification of communities</i>", Version 01.0. Reference number, version number, and title of the approved baseline and monitoring methodology selected are clearly indicated in accordance with the Instructions to filling up the POA-DD FORM.</p> <p>The chosen version is the most recent one and it is applicable, and the corresponding tools with their latest versions are correctly detailed in the POA-DD.</p> <p>Applicability conditions of the applied methodology are detailed in the generic CPA, and are crosschecked with the methodology and the technical description of the typical CPA of this category. They are correctly listed in the generic CPA:</p> <ul style="list-style-type: none"> •Criterion 1 - This methodology is applicable in situations where consumers
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that were not connected to a national/regional grid, prior to project implementation are supplied with electricity generated from the project activity. It is also applicable in situations where a fraction of consumers that were supplied with electricity from a fossil based individual energy system or fossil fuel based mini-grid prior to the implementation of the project, are supplied with electricity from the project activity (e.g. moving from carbon intensive mini-grid to less carbon intensive grid or mini grid). In this case, CPAs of category 2 will include both consumers that were not connected prior to the project and consumers that were connected to a fossil fuel based mini-grid prior to the project. The ER spreadsheets for the CPAs /37/ and Programme National d'Urgence d'ER goals for 2017 have been checked to verify the situation of the connections in Senegal. Furthermore, the CME will manage a CPA monitoring database where information related to new connection types as well as consumer classification (technology used and consumption type) prior to project implementation will be recorded, therefore, the amount of consumers of each type is verifiable and this criterion is correctly justified.

- Criterion 2 - Electricity consumers may include households, commercial facilities such as shops, public services/buildings and small, medium and micro enterprises (SMMEs). At least 75 per cent (by number) of the consumers connected by the project activity shall be households and it will be checked in the spreadsheets. This criterion shall be verified in each specific case of CPAs under this category against the CPA monitoring database. This is considered appropriate to verify the accomplishment of this criterion since the database will track the percentage of households versus SMEs/Institutions.
- Criterion 3 - This methodology is applicable to electrification of a community of consumers which is achieved through one or more of the following technologies/measures: (a) New construction of individual energy systems (renewable or hybrid) such as roof-top solar photovoltaic systems or hybrid energy systems; (b) Rehabilitation (or refurbishment) of individual energy systems, mini-grid or hybrid energy system may be undertaken, if it can be demonstrated that the existing system(s) i) are not part of another CDM activity; ii) are non-operational and iii) require a substantial investment for them to be rehabilitated to or above the original electricity generation capacity (c) Installation or extension of a mini-grid that distributes electricity generated from renewable energy systems or hybrid energy systems; (d) Hybridization of existing fossil fuel powered mini-grids using renewable energy systems; (e) Extension of a grid (national or regional) to supply new consumers as well as consumers currently connected to mini-grid. In accordance with the description of the generic CPA, a typical CPA will include extension of a national grid to supply new consumers as well as consumers currently connected to mini-grid, therefore, condition (e) in the list.
- Criterion 4: Project equipment shall comply with applicable international standards or comparable national, regional or local standards/guidelines and, when relevant, the PDD shall indicate the standard(s) applied for main project equipment. All relevant national and international standards are specified by the CME in contracts with implementing agents and vendors for CPAs of this category.
- Criterion 5: For projects involving the installation of hydro power plants with reservoirs the requirements prescribed under AMS-I.D shall be followed. This is not applicable for the CPA.
- Criterion 6: Measures are limited to those that result in emission reductions of less than or equal to 20 kt CO₂ equivalent annually per CDM unit. The total emission reductions under a CPA will not exceed 20 ktCO₂ annually per CDM Unit and will remain below this limit throughout the entire crediting period.

Findings	CAR 5 – The reference to the UNFCCC CDM website for the exact reference of approved baseline and monitoring methodologies, tools and standardized baselines is not included in the Section B.1, Part II of the POA-DD.
Conclusion	The applicability criteria of the baseline methodology have been transparently detailed in section I.2 of generic CPA (table 19) detailed in the final version of the POA-DD. The methodology is used and applied in accordance with the CDM project standard for programme of activities.

D.3.2.2.Deviation from methodologies and/or methodological tools

Means of validation	Not applicable since no deviation from the methodology has been detected.
Findings	Not applicable since no deviation from the methodology has been detected.
Conclusion	Not applicable since no deviation from the methodology has been detected.

D.3.2.3.Clarification on applicability of methodology, tool and/or standardized baseline

Means of validation	Not applicable since no clarification on applicability of methodology or tool has been detected.
Findings	Not applicable since no clarification on applicability of methodology or tool has been detected.
Conclusion	Not applicable since no clarification on applicability of methodology or tool has been detected.

D.3.2.4.Project boundary, sources and GHGs

Means of validation	<p>Section I.4 of generic part of category 2 CPAs is prepared for the six types of greenhouse gases and each CPA will detail the gases and sources included in the CPA boundary. This section has been defined in accordance with the applied methodology. Gases included in the project boundary for baseline emissions are carbon dioxide emissions from fossil fuel-fired power plants or fuel consumption for lighting.</p> <p>For a typical CPA of category 2, the project boundary includes all plants in the grid (renewable and fossil fuel), as well as the physical sites of the consumers (e.g. households and other consumers), therefore, in accordance with the applied methodology. The boundaries have been verified during the interviews with the CME and against the description of the methodology.</p>
Findings	No finding has been raised.
Conclusion	<p>The description of how to define the project boundary of the corresponding CPA, including which sources and GHGs are to be included in the project boundary under which conditions or circumstances are in accordance with the selected methodology.</p> <p>All the sources and gases included in the project boundary of the generic CPA category 2 (baseline scenario, project scenario and leakage) are in accordance with the applied methodology AMS-III.BL, and the inclusions and exclusions of the sources of gases correctly justified.</p> <p>The physical delineation of the CPA and the description of the emission sources and GHGs that are included in the CPA boundary are appropriate for the purpose of calculating project and baseline emissions for each CPA.</p>

	Therefore, the validation team states that the identified boundary and the selected sources and gases are correctly justified by the project proponent in the PoA-DD, and they are in accordance with the applied methodology. Hence, the validation team confirms the Programme of Activities is validated in accordance with paragraph 110 of CDM Validation and Verification Standard.
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D.3.2.5. Baseline scenario

Means of validation	<p>The description of the baseline scenario has been stated in section I.5 of generic CPA detailed in the POA-DD and it has been crosschecked against the applied methodology. There are forecasted four possible baseline scenarios and the generic CPA clearly describes them. Depend on the type of consumer, the baseline scenario will be:</p> <ul style="list-style-type: none"> •Type I consumers: consumers who were not connected to a national/regional grid or a mini-grid prior to the project implementation and who consume less than 500 kWh per year. •Type II – includes two separate consumer groups (i) consumers that were previously supplied by a stand-alone fossil fuel power system such as diesel generators who consume less than 500 kWh , and (ii) consumers who use more than 500 kWh per year and had no supply prior to the project or were previously supplied by a stand-alone fossil fuel power system such as diesel generators; •Type III – consumers who were connected to a mini-grid system prior to the project activity; •Type IV - consumer category includes water pumping and public lighting consumers, regardless of their previous supply of electricity. <p>Therefore, as it is stated in the generic CPA the first step for each CPA is to identify the type of consumer, the second one is to determine the consumption of each consumer type and sub-group and finally, calculate the baseline emissions. Each specific CPA of this category shall fulfil a table detailing the consumer number by type and project technology to define each type,</p> <p>The amount of consumers of each type is determined in the CPA monitoring database, and for the ex-ante calculation the local electrification plans are used. Since the contract information is included in the CPA monitoring data base, the amount of consumers of each type is verifiable, and it is included in the eligibility criteria of CPAs of this category, which is considered verifiable and appropriate.</p> <p>The complete process will be documented in the monitoring plan, and it is clearly defined in the POA-DD, and it is consistent with provisions detailed in the methodology.</p>
Findings	No finding has been raised regarding baseline scenario.
Conclusion	<p>The method used to calculate the baseline for the CPA of category 2 is established according to the small scale methodology AMS-III.BL and the technical description of POA. The baseline identified for the four types of consumers identified as potential consumers of the CPAs category 2 are the scenarios that reasonably represent the anthropogenic emissions by sources of GHGs that would occur in the absence of the CPA. For that reason, the audit team confirms:</p> <ul style="list-style-type: none"> •All the assumptions and data used by the coordinating/managing entity are listed in the generic CPA-DD, including their references and sources; •Documentation to be used in the specific CPAs is relevant for establishing the baseline scenario and correctly quoted and interpreted in the generic CPA-DD; •Assumptions and data used in the identification of the baseline scenario are justified appropriately and can be deemed reasonable;

- Relevant national circumstances are considered and listed in the generic CPA-DD;
- The methodology has been correctly applied to describe identification of the most plausible baseline scenario and the description reasonably represents what would occur in the absence of corresponding CPAs.

D.3.2.6. Estimation of emission reductions or net anthropogenic removals

Means of validation	<p>The validation team has reviewed the generic CPA assessing the adequate justification of options and equations taken based on the choice of the baseline scenario and context of the CPA in accordance with the applied methodology AMS-III.BL Version 01.0.</p> <p><u>Baseline emissions:</u></p> <p>Total baseline emissions are the sum of all the individual consumer groups.</p> $BE_y = BE_{T1,y} + BE_{T2,y} + BE_{T3,y} + BE_{T4,y}$ <p>Where:</p> $BE_y = \text{Baseline emissions in year } y \text{ (tCO}_2\text{)}$ $BE_{T1,y} = \text{Baseline emission from Type I consumers in year } y \text{ (tCO}_2\text{)}$ $BE_{T2,y} = \text{Baseline emission from Type II consumers in year } y \text{ (tCO}_2\text{)}$ $BE_{T3,y} = \text{Baseline emission from Type III consumers in year } y \text{ (tCO}_2\text{)}$ $BE_{T4,y} = \text{Baseline emission from Type IV consumers in year } y \text{ (tCO}_2\text{)}$ <p>In all cases the Baseline Emissions of each type of consumers is calculated using this formulae:</p> $BE_y = \sum_{z=1}^M (EC_{z,y} \times EF_{CO_2})$ <p>Where:</p> $BE_y = \text{Baseline emission from Type X of consumers in year } y \text{ (tCO}_2\text{)}$ $EC_{z,y} = \text{Annual electricity consumption of Type X consumer } z \text{ in year } y \text{ (MWh)}$ $EF_{CO_2} = \text{Baseline emissions factor for Type X consumers}$ $M_y = \text{Number of Type X consumers in year } y$ $z = \text{Type X consumer (} z = 1, 2, 3, \dots \text{)}$ <p>Depending on the type of consumer, the baseline emissions will be calculated using different emission factors and all of them are clearly described in the generic CPA. The choices and the explanations are consistent with the applied methodology:</p> <p>For <u>Type I consumers</u> the emission factor: EF_{CO_2} is:</p> <ul style="list-style-type: none"> • If $EC_{T1,x,y}$ is equal to or less than 0.055 MWh, then use a default value of 6.8 (tCO₂/MWh);
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- If $EC_{T1,x,y}$ is less than or equal to 0.250 MWh but greater than 0.055 MWh, then:
 - For the portion up to and including 0.055 MWh, use a default value of 6.8 (tCO₂/MWh);
 - For the portion greater than 0.055 MWh, use a default value of 1.3 (tCO₂/MWh);
- If $EC_{T1,x,y}$ is greater than 0.250 MWh but less than or equal to 0.500 MWh, then:
 - For the portion up to and including 0.055 MWh use a default value of 6.8 (tCO₂/MWh);
 - For the portion greater than 0.055 MWh and less than 0.25 MWh/y use a default value of 1.3 (tCO₂/MWh); and
 - For the portion greater than 0.250 MWh use a default value of 1.0 (tCO₂/MWh);

If $EC_{T1M,i,y}$ is greater than 0.500 MWh then use a default value of 1.0 (tCO₂/MWh) for the entire portion (i.e. default values of 1.3 (tCO₂/MWh) or 6.8 (tCO₂/MWh) are not eligible for any of the portions)

For Type II and Type IV consumers, baseline emissions factor (tCO₂/MWh) is 1.0.

For Type III consumers, baseline emissions factor (tCO₂/MWh) is:

- c) For a mini-grid system where all generators use exclusively fuel oil and/or diesel fuel, emission factor can be determined using the emissions factors provided in the table 4 of the applied methodology (and included in table 22 of the generic CPA).
- d) For all other mini-grids it shall be calculated as the weighted average emissions for the current generation mix following the procedure provided in "AMS-I.D: Grid connected renewable electricity generation"

The annual electricity consumption shall be determined depending on the technology/measure being implemented at that consumer site, and the generic CPA defines each choice, being option A metering, B sample survey, C distribution metering and consumer numbers and option D deemed consumption.

- Type I consumers may use metering, sample survey or distribution metering and consumer numbers. If their consumption is greater than 1000 kWh/year, however, they must use metering.
- Type II consumers may only use metering or sample survey. If their consumption is greater than 1000 kWh/year, however, they must use metering.
- Type III consumers may use metering or a sample survey. If their consumption is greater than 1000 kWh/year, however, they must use metering.
- Type IV consumers are only required to use metering if their consumption is greater than 1000 kWh/year. Below that consumption level, according to the methodology they may use metering or sample survey.

While some Type I consumers may have some form of metering (normally pre-payment meters), some may have only power limiting devices without meters, so Option C ("Distribution metering and consumer numbers") may be used to determine consumption. This will only be used when there is a master meter at the main sub-station in the community, or similar overall meter for total electricity distributed. Alternatively, a sample survey may be used to determine the average consumption for Type I consumers in each service level. Furthermore, if Option C is used to determine annual average electricity consumption of Type I consumers (which are not metered) in a project area, it is calculated from total electricity supply to the project area monitored at the nearest sub-station or by monitoring electricity outputs of plants feeding a mini-grid; and the total electricity consumption from other consumer groups (metered). All these options included in the generic CPA, are detailed in accordance with the applied methodology.

Project emissions:

In accordance with the applied methodology, project emissions are associated with the generation of electricity supplied to the project activity end use facilities.

$$PE_{G,y} = \frac{(ES_{tot,y} \times EF_{grid,CO2,y})}{(1 - TL_{grid})}$$

- $PE_{G,y}$: Project emissions from renewable and hybrid mini-grids (new or rehabilitated) and grid extension in year y (tCO₂)
- $ES_{tot,y}$: Total electricity supply to all consumers (MWh)
- $EF_{grid,CO2,y}$: Emission factor for the project electricity system in year y (tCO₂/MWh). In accordance with paragraph 46 of the methodology AMS.III.BL, the grid emission factor is determined using Option 3 (ii). Senegal is least developed country (LDCs) and national grid includes, diesel and fuel oil power plants, with the vast majority of power from fuel oil plants. This has been crosschecked against SENELEC Annual Report 2015 /42/ (National Electricity Society) which is considered a confident and reliable source of information. The grid emissions factor is chosen from the table of the applied methodology as 0.9 tCO₂/MWh, and it is fixed ex-ante for all Category 2 CPAs.
- TL_{grid} : Transmission losses in the project electricity system, where the project activity is grid extension, with a 10% default value. This does not apply to a mini-grid, because local distribution losses are already captured as TL_p in equation 10 below (i.e. $TL_{grid} = 0$ for mini-grid)

Regarding the total electricity supply to all consumers ($ES_{tot,y}$), is either determined by the measurement at an electricity meter at the point of supply to community, or as the sum of electricity consumption of all consumers. Note that, if Option C is used for calculating consumption by any consumer groups, then $ES_{tot,y}$ shall be measured directly. If the sum of consumption from all consumers is used, $ES_{tot,y}$ is calculated using the following equation:

$$ES_{tot,y} = \frac{\sum_{x=1}^{Ny} EC_{T1,x,y} + \sum_{z=1}^{My} EC_{T2,z,y} + \sum_{w=1}^{Py} EC_{T3,w,y} + \sum_{i=1}^{Qy} EC_{T4,i,y}}{(1 - TL_p)}$$

Leakage:

A generic CPA determines leakage as per AM0045 Grid connection of isolated electricity systems Version 3, and the detail is transparently included in the generic CPA for this category.

Regarding the ex-ante calculation, AENOR has validated that data and assumptions considered and listed in generic CPA category 2 are consistent with stated data, methodology and type of CPA. Following assumptions are made:

- A typical CPA could include 130,654 new connections, of which 20% would have had previous access to a fossil fuel mini-grid and 5% had previous access to a stand-alone diesel generator
- For consumers with no previous access, 89% will be Type I, with average consumption of 123 kWh/year (service levels 1-3), while 11% will be Type II (based on consumption > 500 kWh/year), with average consumption of 986 kWh/year (service level 4).
- Type III consumers will have average consumption of 197 kWh/year.
- None of the consumers are Type IV.
- For type III consumers, the existing mini-grid is all fossil fuel-based, a temporary service (4-6 hrs/day), and between 15 and 35 kW.

These assumptions have been validated using Local Electrification Plan Kolda

	<p>Dagana Mbour, and Local Electrification Plan Matam Ranerou-Bakel, and ASER technology implementation estimate document, and are deemed appropriate and consistent with the methodology and the generic CPA provisions that state for the establishment of baseline scenario each CPA will provide an ex-ante estimate of the number of consumers that will fall into each group or type, based on business plans or other similar project documents</p> <p>Baseline emissions are estimated for the first CPA of category 2 CPAs therefore are:</p> $BE_{T1,y} = 87,212 \text{ consumers} \times 0.123 \text{ MWh} \times 3.8 \text{ tCO}_2/\text{MWh} = 40,293 \text{ tCO}_2$ $BE_{T2,y} = 17,312 \text{ consumers} \times 0.986 \text{ MWh} \times 1.0 \text{ tCO}_2/\text{MWh} = 17,060 \text{ tCO}_2$ $BE_{T3,y} = 26,131 \text{ consumers} \times 0.197 \text{ MWh} \times 1.3 \text{ tCO}_2/\text{MWh} = 6,695 \text{ tCO}_2$ <p>Total baseline emissions are therefore 64,048 tCO₂.</p> <p>Project emissions would be:</p> $PE_y = 32,913 \text{ MWh} / (1-0.1) \times 0.0.9 \text{ tCO}_2/\text{MWh} \text{ (default emissions factor from the applied methodology)} = 32,913 \text{ tCO}_2$ <p>No leakage are considered, therefore, the estimate of emissions reductions is:</p> $ER_y = 64,048 \text{ tCO}_2 - 32,913 \text{ tCO}_2 = 31,135 \text{ tCO}_2$
Findings	<p>CAR 6 – The spreadsheets used for the emission reductions calculations are not provided to the DOE team.</p> <p>CAR 7 - The description and justification of the value of 0.590 tCO₂/MWh for the emission factor for the project system is not transparently included in the POA-DD. The spreadsheets used for the calculation of the emission factor are required by the DOE team. This is applicable also in Generic component for category 2 and 3.</p>
Conclusion	<p>The application of the baseline methodology has been transparently detailed in the generic CPA. The consideration of the leakages, the boundaries of each type of CPA and the calculations are in accordance with the provisions of the relevant methodology. The guidelines for the application of the methodology in the POA are correctly detailed in generic CPA.</p> <p>The generic CPAs confirm to meet the procedures provided in the methodology and PoA-DD. The formulae are correctly presented for the determination of emission reductions. The assumptions and data used to determine the emission reductions are listed in each generic CPA and all the sources have been detailed. In summary, the calculations of emission reductions are considered to be correct and according to requirements stated in the applied methodologies and POA.</p> <p>Therefore, AENOR, based on the above assessment, confirms that:</p> <ul style="list-style-type: none"> • All assumptions and data used by the project participants are listed in the six generic CPAs, including their references and sources; • All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the generic CPAs; • All values used in the generic CPAs are considered reasonable in the context of the proposed CDM Programme of Activities; • The baseline methodologies have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions; and • All estimates of the baseline emissions can be replicated using the data and parameter values provided in the generic CPAs.

D.3.2.7. Monitoring plan

Means of validation	<p>For the proposed PoA, the submission of the monitoring plan is delayed and submitted either at any time prior to the submission of request for issuance for the first monitoring period, or together with the request for issuance for the first monitoring period.</p> <p>Nevertheless, the first version of POA-DD, published for Global Stakeholder consultation process, detailed a complete monitoring methodology, including roles and responsibilities, and Quality Assurance and Quality Control and parameters to be monitored. During validation activities, the CME decided not to complete the monitoring plan section, and to delay the submission, therefore, according to paragraph 116 of the CDM Project Standard for Programme of Activities.</p>
Findings	No finding has been raised
Conclusion	Not applicable since project participants have decided that the submission of monitoring plan is delayed and that the PoA-DD submitted for registration do not contain information related to the monitoring plan, in accordance with paragraph 116 of the CDM Project Standard for Programme of Activities.

D.3.3. Crediting period type and duration

Means of validation	<p>The crediting period of the generic CPA of this category is correctly detailed in the POA-DD as a renewable crediting period, and the length of the first one is 7 years and 0 months.</p> <p>This information has been stated in accordance with the CDM project standard for programmes of activities.</p>
Findings	No finding has been raised regarding the duration of the POA.
Conclusion	The crediting period of the generic CPA for CPAs of category 2 and its length has been correctly and transparently stated in the POA-DD in accordance with the CDM project standard for programmes of activities, version 01.0.

D.3.4. Eligibility criteria for inclusion of CPAs

During the assessment of eligibility criteria for inclusion of CPAs, one CAR for all of them was raised:

CAR 2 - Eligibility criteria defined in the PoA-DD are not sufficiently objective and comprehensive to permit the assessment of the inclusion of the CPAs in the PoA. The kind of evidence to be used in order to verify every eligibility criterion has not been described in the PoA-DD.

The edition of the eligibility criteria in the final version of the POA-DD is considered appropriate and they are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA. AENOR confirms that the eligibility criteria including additionality are appropriately in accordance with the eligibility criteria listed in PoA-DD.

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
1	Geographical boundary Each CPA will be located within the physical/geographical boundary of the PoA as demonstrated by the geographical boundary of the CPA-DD.	Geographic reference shows the physical/geographical location of the CPA, therefore, it is verifiable if the CPA is located into the boundary of the POA. The audit team considers appropriate to justify the accomplishment of this criterion.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
2	Start date The CPA start dates shall not be before the start date of the PoA (07/06/2011). The start date of the CPA is the date on which construction, implementation, or real action concerning the CPA, as shown through a payment receipt detailing real action, an invoice for equipment, a receipt from an end-user or technician serving as proof of installation, or signed contract.	The receipt showing payment for the first activities detailing a real action or an invoice for equipment or receipt showing installation of a system justify the adequate definition of start date of the CPA and it is verifiable, therefore it is considered correct.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
3	Crediting period CPA crediting period shall be within the lifetime of the PoA (07/06/2011 to 06/06/2039) as demonstrated in the CPA-DD.	CPA starting date and crediting period (fixed or renewable) shall be specified in CPA-DD section C, and shall be after the inclusion of the CPA into the POA therefore, it is appropriate to assess the fulfilment of this criterion.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
4	ODA For all CPAs, funding from Annex I Parties, if any, does not result in a diversion of ODA as evidenced through a statement on ODA.	Statement from Annex I Parties is provided and valid for all the CPAs, therefore, this criterion is fulfilled.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
5	Debundling Each CPA will demonstrate that debundling does not apply as the CPA is micro-scale and applies the microscale threshold at the CDM Unit level	Each CPA-DD shall detail the total emission reductions and it will be supported by the ER spreadsheets of each CPA; therefore, this criterion is verifiable and clearly shown.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
6	Double counting The CPAs of PoA "Senegal Rural Electrification Program" shall not result in double counting as evidenced through unique identifiers, such as GPS coordinates	A description of the unique identifier will allow the assessment that no double counting is produced. This criterion is correctly stated and it is verifiable in each CPA.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
7	Local Stakeholder and environmental analysis The Local Stakeholder Consultation and Environmental Impact Analysis have been conducted at the PoA level. Each CPA will take into consideration the comments from the Stakeholder Consultation and abide by the environmental regulations of the host country	The local stakeholder consultation and environmental analysis is done at PoA level and adhere to the requirements stipulated at the PoA level, therefore, this criterion is accomplished by all the CPAs.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
8	Target group and distribution mechanism The CPA specifies the target group of the project unit/system and distribution mechanisms in the CPA-DD	The ex-ante estimates included in each CPA of this category shall detail the number and type of consumer, information extracted from the contract document and consistent with the documentation "Rapport global du Recensement general des Entreprises" ("Global report of the General census companies") therefore, this criterion is verifiable and transparently defined.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
9	Sampling Sampling design and calculation shall meet the requirement in the sampling standard as evidenced in the CPA-DD	Each CPA will elaborate a sampling plan for each relevant parameter, which is correctly stated and in accordance with the applied methodology and CDM Project Standard for Programme of Activities.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
10	Microscale threshold The CPAs shall adhere to the microscale threshold and result in emission reductions equivalent to or less than 20 ktCO ₂ e emissions reductions at the CDM Unit level per annum.	Each CPA-DD shall detail the total emission reductions; therefore, this criterion is verifiable and clearly shown.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
11	Additionality CPA shall be additional as per micro-scale additionality by being located in an LDC and resulting in less than or equal to 20k tCO ₂ e emission reductions at the CDM Unit level per annum.	Each CPA-DD shall detail the total emission reductions; therefore, this criterion is verifiable and clearly shown.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
12	Technology CPA will extend the national grid to new consumers and consumers supplied by a mini-grid prior to the implementation of the project. Equipment shall comply with applicable international standards or comparable national, regional or local standards/guidelines.	The ex-ante estimates included in each CPA of this category shall detail the number and type of consumer, and also the previous situation, with or without access. CPA monitoring database will track previous status of the consumers prior to project implementation, therefore, the amount of consumers previously connected or previously supplied by fossil fuel energy system or mini-grids will be known, hence criterion is verifiable and transparently	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
		defined. On the other hand, the CME will assure as well that mini-grid connections meet ASER Minimum Technical & Environmental Standards.		
13	<p>Methodology</p> <p>Each CPA will apply the CDM baseline and monitoring methodology AMS-III.BL Version 01.0, and adhere to all applicability conditions and other requirements of the methodology.</p> <p>At least 75% of the end-users that receive electricity from systems installed under the CPA shall be households.</p>	The CPA-DD will detail the applied methodology and the calculation spreadsheets shall be assessed therefore, this criterion is verifiable and stated in accordance with the description of this category of CPAs.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA

D.4. Generic component project activities Category 3: Solar Home Systems

D.4.1. General description of generic CPA

Means of validation	<p>In accordance with the Instructions for completing the POA-DD, all of Part II is repeated for each generic CPA-DD such that one completed Part II represents one generic CPA-DD. Therefore, section D.2 of this validation report is also repeated for each category of generic CPA.</p> <p>The PoA is part of an overall rural electrification program undertaken by the Senegalese Government in order to scale up access to electricity in rural areas and contribute to poverty alleviation in these areas. The PoA includes four technologies for providing electricity services which correspond to four generic CPAs.</p> <p>A typical CPA of Category 3 consists of the installation of solar home systems in rural communities. CPAs will be differentiated by the time period covered under each CPA. In a generic CPA of category 3 the CME and CPA Implementer may or may not be the same entity. The CPA Implementer will select and manage the installation of technologies under Category 3 CPAs as well as oversee the data collection process for monitoring and verification.</p> <p>The purpose and general description of the CPAs of category 3 has been detailed in Section H of the Part II of the POA-DD. This description has been verified against the eligibility criteria defined in the POA-DD, the documentation provided and the interviews made during on site visit.</p>
Findings	No finding has been raised.
Conclusion	<p>The description is transparent, accurate, complete and consistent with the aim of the POA, the eligibility criteria and supported documentation, and provides an understanding of the generic CPA. The first generic component project activity corresponds to Category 3: Solar Home Systems.</p> <p>Therefore, AENOR confirms that generic CPA-DD has been prepared for Category 3 in accordance with the relevant requirements in the Project standard for Programme of Activities version 01.0.</p>

D.4.2. Application and selection of methodologies and standardized baselines

D.4.2.1. Application of methodologies and standardized baselines

Means of validation	<p>The CPAs under Category 3 will consist of end-users who previously did not have access to power or were connected to an individual fossil fuel system, will receive access to electricity through the implementation of individual, renewable energy systems comprising fixed, stand-alone solar photovoltaic systems.</p> <p>Methodology to be applied as it is detailed in the POA-DD, AMS-III.BL “<i>Integrated methodology for electrification of communities</i>”, Version 01.0. Reference number, version number, and title of the approved baseline and monitoring methodology selected are clearly indicated in accordance with the “<i>Instructions for completing the POA-DD FORM</i>”.</p> <p>The chosen version is the most recent one and it is applicable, and the corresponding tools with their latest versions are correctly detailed in the POA-DD.</p> <p>Applicability conditions of the applied methodology are detailed in the generic CPA,</p>
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and are crosschecked with the methodology and the technical description of the typical CPA of this category. They are correctly listed in the generic CPA:

- Criterion 1 - This methodology is applicable in situations where consumers that were not connected to a national/regional grid, prior to project implementation are supplied with electricity generated from the project activity. It is also applicable in situations where a fraction of consumers that were supplied with electricity from a fossil based individual energy system or fossil fuel based mini-grid prior to the implementation of the project, are supplied with electricity from the project activity (e.g. moving from carbon intensive mini-grid to less carbon intensive grid or mini grid). In this case, CPAs of category 3 are implemented in ASER jurisdictions which include only communities in rural areas that do not have access to the national grid. Solar home systems are renewable energy generation that supplies individual households/users or groups of households with electricity. The ER spreadsheets /38/ for the CPA of this category provided and Programme National d'Urgence d'ER goals for 2017 have been checked. Furthermore, the CME will manage a CPA monitoring database where information related to new connection types as well as consumer classification (technology used and consumption type) prior to project implementation will be recorded, therefore, the amount of consumers of each type is verifiable and this criterion is correctly justified.
- Criterion 2 - Electricity consumers may include households, commercial facilities such as shops, public services/buildings and small, medium and micro enterprises (SMMEs). At least 75 per cent (by number) of the consumers connected by the project activity shall be households and it will be checked in the spreadsheets. Consumers included in this category of CPA may include all of the groups detailed in the methodology, and this information will be provided in each specific CPA. This criterion is verified in each specific case of CPAs under this category against the CPA monitoring database. This is considered appropriate to verify the accomplishment of this criterion since the database will track the percentage of households versus SMEs/Institutions.
- Criterion 3 - This methodology is applicable to electrification of a community of consumers which is achieved through one or more of the following technologies/measures: (a) New construction of individual energy systems (renewable or hybrid) such as roof-top solar photovoltaic systems or hybrid energy systems; (b) Rehabilitation (or refurbishment) of individual energy systems, mini-grid or hybrid energy system may be undertaken, if it can be demonstrated that the existing system(s) i) are not part of another CDM activity; ii) are non-operational and iii) require a substantial investment for them to be rehabilitated to or above the original electricity generation capacity (c) Installation or extension of a mini-grid that distributes electricity generated from renewable energy systems or hybrid energy systems; (d) Hybridization of existing fossil fuel powered mini-grids using renewable energy systems; (e) Extension of a grid (national or regional) to supply new consumers as well as consumers currently connected to mini-grid. In accordance with the description of the generic CPA, a typical CPA is entirely new construction of individual renewable energy systems, therefore, condition (a) in the list.
- Criterion 4: Project equipment shall comply with applicable international standards or comparable national, regional or local standards/guidelines and, when relevant, the PDD shall indicate the standard(s) applied for main project equipment. All relevant national and international standards are specified by the CME in contracts with implementing agents and vendors for CPAs of this category.
- Criterion 5: For projects involving the installation of hydro power plants with reservoirs the requirements prescribed under AMS-I.D shall be followed. This is not applicable for the CPA.
- Criterion 6: Measures are limited to those that result in emission reductions of

	less than or equal to 20 kt CO ₂ equivalent annually per CDM unit. The total emission reductions under a CPA will not exceed 20 ktCO ₂ annually per CDM Unit and will remain below this limit throughout the entire crediting period.
Findings	No finding has been raised
Conclusion	The applicability criteria of the baseline methodology have been transparently detailed in section I.2 of generic CPA (table 26) detailed in the final version of the POA-DD. The methodology is used and applied in accordance with the CDM project standard for programme of activities.

D.4.2.2.Deviation from methodologies and/or methodological tools

Means of validation	Not applicable since no deviation from the methodology has been detected.
Findings	Not applicable since no deviation from the methodology has been detected.
Conclusion	Not applicable since no deviation from the methodology has been detected.

D.4.2.3.Clarification on applicability of methodology, tool and/or standardized baseline

Means of validation	Not applicable since no clarification on applicability of methodology or tool has been detected.
Findings	Not applicable since no clarification on applicability of methodology or tool has been detected.
Conclusion	Not applicable since no clarification on applicability of methodology or tool has been detected.

D.4.2.4.Project boundary, sources and GHGs

Means of validation	<p>Section I.4 of generic part of category 3 CPAs is prepared for the six types of greenhouse gases and each CPA will detail the gases and sources included in the CPA boundary. This section has been defined in accordance with the applied methodology. Gases included in the project boundary for baseline emissions are carbon dioxide emissions from fossil fuel-fired power plants or fuel consumption for lighting.</p> <p>For a typical CPA of category 3, the project boundary includes all plants in the grid (renewable and fossil fuel), as well as the physical sites of the consumers (e.g. households and other consumers), therefore, in accordance with the applied methodology. The boundaries have been verified during the interviews with the CME and against the description of the methodology.</p>
Findings	No finding has been raised.
Conclusion	<p>The description of how to define the project boundary of the corresponding CPA, including which sources and GHGs are to be included in the project boundary under which conditions or circumstances are in accordance with the selected methodology.</p> <p>All the sources and gases included in the project boundary of the generic CPA category 3 (baseline scenario, project scenario and leakage) are in accordance with the applied methodology AMS-III.BL, and the inclusions and exclusions of the sources of gases correctly justified.</p> <p>The physical delineation of the CPA and the description of the emission sources</p>

	<p>and GHGs that are included in the CPA boundary are appropriate for the purpose of calculating project and baseline emissions for each CPA.</p> <p>Therefore, the validation team states that the identified boundary and the selected sources and gases are correctly justified by the project proponent in the PoA-DD, and they are in accordance with the applied methodology. Hence, the validation team confirms the Programme of Activities is validated in accordance with paragraph 110 of CDM Validation and Verification Standard.</p>
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D.4.2.5. Baseline scenario

Means of validation	<p>The description of the baseline scenario has been stated in section I.4 of generic CPA detailed in the POA-DD and it has been crosschecked against the applied methodology. There are forecasted four possible baseline scenarios and the generic CPA clearly describes them. Depend on the type of consumer, the baseline scenario will be:</p> <ul style="list-style-type: none"> •Type I consumers: consumers who were not connected to a national/regional grid or a mini-grid prior to the project implementation and who consume less than 500 kWh per year. •Type II – includes two separate consumer groups (i) consumers that were previously supplied by a stand-alone fossil fuel power system such as diesel generators who consume less than 500 kWh , and (ii) consumers who use more than 500 kWh per year and had no supply prior to the project or were previously supplied by a stand-alone fossil fuel power system such as diesel generators; •Type III – consumers who were connected to a mini-grid system prior to the project activity; •Type IV - consumer category includes water pumping and public lighting consumers, regardless of their previous supply of electricity. <p>Therefore, as it is stated in the generic CPA, a typical CPA will only include Type I, Type II and Type IV consumers since solar home systems will not be provided to consumers who were already connected to a mini-grid system prior to the project activity. The amount of consumers of each type is determined in the CPA monitoring database, and for the ex-ante calculation the local electrification plans are used. Since the contract information is included in the CPA monitoring data base, the amount of consumers of each type is verifiable, and it is included in the eligibility criteria of CPAs of this category, which is considered verifiable and appropriate.</p> <p>On the other hand, the methodology states that the baseline scenario for Type I consumers is, “A combination of fuel based lighting and stand-alone fossil fuel generators”, while the baseline scenario for Type II and Type IV consumers is stand-alone fossil fuel generation. This is considered appropriate and defined in accordance with the category of CPAs and the applied methodology.</p> <p>Thus, in the baseline definition in each specific CPA of this category, the first step will be to identify the type of consumer, the second one to determine the consumption of each consumer type and sub-group and finally, calculate the baseline emissions. Each specific CPA of this category shall fulfil a table detailing the consumer number by type, and the generic CPA correctly details the non-applicable cases since type III consumers are not considered. The complete process will be documented in the monitoring plan, and it is clearly defined in the POA-DD, and it is consistent with provisions detailed in the methodology.</p>
Findings	No finding has been raised regarding baseline scenario.
Conclusion	The method used to calculate the baseline for the CPA of category 3 is established according to the small scale methodology AMS-III.BL and the technical description of POA. The baseline identified for the four types of consumers identified as potential consumers of the CPAs category 3 are the scenarios that reasonably represent the anthropogenic emissions by sources of

	<p>GHGs that would occur in the absence of the CPA. For that reason, the audit team confirms:</p> <ul style="list-style-type: none"> •All the assumptions and data used by the coordinating/managing entity are listed in the generic CPA-DD, including their references and sources; •Documentation to be used in the specific CPAs is relevant for establishing the baseline scenario and correctly quoted and interpreted in the generic CPA-DD; •Assumptions and data used in the identification of the baseline scenario are justified appropriately and can be deemed reasonable; •Relevant national circumstances are considered and listed in the generic CPA-DD; •The methodology has been correctly applied to describe identification of the most plausible baseline scenario and the description reasonably represents what would occur in the absence of corresponding CPAs.
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D.4.2.6. Estimation of emission reductions or net anthropogenic removals

Means of validation	<p>The validation team has reviewed the generic CPA assessing the adequate justification of options and equations taken based on the choice of the baseline scenario and context of the CPA in accordance with the applied methodology AMS-III.BL Version 01.0.</p> <p><u>Baseline emissions:</u></p> <p>Total baseline emissions are the sum of all the individual consumer groups, taking into consideration that no type III consumer is included in this kind of CPAs:</p> $BE_Y = BE_{T1,y} + BE_{T2,y} + BE_{T4,y}$ <p>Where:</p> $BE_y = \text{Baseline emissions in year } y \text{ (tCO}_2\text{)}$ $BE_{T1,y} = \text{Baseline emission from Type I consumers in year } y \text{ (tCO}_2\text{)}$ $BE_{T2,y} = \text{Baseline emission from Type II consumers in year } y \text{ (tCO}_2\text{)}$ $BE_{T4,y} = \text{Baseline emission from Type IV consumers in year } y \text{ (tCO}_2\text{)}$ <p>In all cases the Baseline Emissions of each type of consumers is calculated using this formulae:</p> $BE_y = \sum_{z=1}^M (EC_{z,y} \times EF_{CO_2})$ <p>Where:</p> $BE_y = \text{Baseline emission from Type X of consumers in year } y \text{ (tCO}_2\text{)}$ $EC_{z,y} = \text{Annual electricity consumption of Type X consumer } z \text{ in year } y \text{ (MWh)}$ $EF_{CO_2} = \text{Baseline emissions factor for Type X consumers}$ $M_y = \text{Number of Type X consumers in year } y$
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z = Type X consumer ($z = 1, 2, 3, \dots$)

Depending on the type of consumer, the baseline emissions will be calculated using different emission factors and all of them are clearly described in the generic CPA. The choices and the explanations are consistent with the applied methodology:

For Type I consumers the emission factor: EF_{CO_2} is:

- If $EC_{T1,x,y}$ is equal to or less than 0.055 MWh, then use a default value of 6.8 (tCO₂/MWh);
- If $EC_{T1,x,y}$ is less than or equal to 0.250 MWh but greater than 0.055 MWh, then:
 - For the portion up to and including 0.055 MWh, use a default value of 6.8 (tCO₂/MWh);
 - For the portion greater than 0.055 MWh, use a default value of 1.3 (tCO₂/MWh);
- If $EC_{T1,x,y}$ is greater than 0.250 MWh but less than or equal to 0.500 MWh, then:
 - For the portion up to and including 0.055 MWh use a default value of 6.8 (tCO₂/MWh);
 - For the portion greater than 0.055 MWh and less than 0.25 MWh/y use a default value of 1.3 (tCO₂/MWh); and
 - For the portion greater than 0.250 MWh use a default value of 1.0 (tCO₂/MWh);

If $EC_{T1M,i,y}$ is greater than 0.500 MWh then use a default value of 1.0 (tCO₂/MWh) for the entire portion (i.e. default values of 1.3 (tCO₂/MWh) or 6.8 (tCO₂/MWh) are not eligible for any of the portions)

For Type II and Type IV consumers, baseline emissions factor (tCO₂/MWh) is 1.0.

Type III consumers (consumers who were connected to a mini-grid system prior to the project activity) are not considered under CPA Category 3. It is supported by the eligibility criterion number 12 which states that only new consumers are included in this category.

The annual electricity consumption shall be determined depending on the technology/measure being implemented at that consumer site, and the generic CPA defines each choice, being option A metering, B sample survey, C distribution metering and consumer numbers and option D deemed consumption.

Consumption greater than 1000 kWh/year will be determined using metering - Option A from the methodology. Consumption for Type I consumers ($EC_{T1,x,y}$), Type II ($EC_{T2,x,y}$), and Type IV ($EC_{T4,i,y}$) consumers with consumption of less than 1000 kWh/year will be determined using Deemed Consumption - Option D from the methodology ("Calculate the annual average value for availability based on local site conditions and system characteristics"). For this option, RETScreen is used as a tool for the calculation, and the detail of the values of the parameters included as input is transparently included.

Based on these inputs, the audit team has repeated the simulation in the tool, and the location of Tambacounda included in the model has been crosschecked with data from SOLARGIS /39/ related to global horizontal irradiation. The results have been similar, minimum availability factor for solar home systems in Senegal, across the range of possible slopes, would be 15.0%, regardless of whether mono-Si or poly-Si is used.

Project emissions:

In accordance with the applied methodology, energy production for solar home systems is renewable, therefore, project emissions are considered zero (i.e. $PE_y = 0$).

Nevertheless, the generic CPA states the potential case that individual hybrid energy systems are installed. In that case, the formula (8) to be applied for calculation the project are is in accordance with the applied methodology.

	$PE_{IS,y} = EG_{diesel,y} \times EF_{CO_2,diesel}$ <p>Leakage need not be considered because energy generating equipment is not transferred from another activity (i.e. LEy = 0).</p> <p>Regarding the ex ante calculation, AENOR has validated that data and assumptions considered and listed in generic CPA category 3 are consistent with stated data, methodology and type of CPA. Following assumptions are made:</p> <ul style="list-style-type: none"> -None of the solar home system installations are Type IV. -None of the solar home systems had prior access to a stand-alone diesel generator for electricity supply. -25% of solar home system installation have consumption > 500 kWh/year, and so are Type II consumers, with average consumption of 526 kWh/year. -75% of the solar home installations have consumption < 500 kWh, and are Type I consumers, with average consumption of 132 kWh/year. -A total of 111,100 installations are included in a typical CPA. -The breakdown of 75/25 is determined based on the maximum allowable limit of SMEs and institutions to households as per the methodology. -None of the individual systems is a hybrid system – they are all 100% renewable <p>These assumptions have been validated using ASER technology implementation estimate document. Solar availability using RETScreen analysis for Senegal has been used to calculate the consumption (kWh/year) of each service level. Therefore, the assumptions are deemed appropriate and consistent with documentation provided.</p> <p>Baseline emissions are estimated for the first CPA of category 3 CPAs therefore are:</p> $BE_{T1,y} = (111,100 \times 0.75) \times 0.132 \text{ MWh} \times 3.59 \text{ tCO}_2/\text{MWh} = 39,486 \text{ tCO}_2$ $BE_{T2,y} = (111,100 \times 0.25) \times 0.526 \text{ MWh} \times 1.0 \text{ tCO}_2/\text{MWh} = 14,609 \text{ tCO}_2$ <p>Total baseline emissions are therefore 54,095 tCO₂.</p> <p>Project emissions and leakage are zero.</p>
Findings	<p>CAR 6 – The spreadsheets used for the emission reductions calculations are not provided to the DOE team.</p> <p>CAR 7 - The description and justification of the value of 0.590 tCO₂/MWh for the emission factor for the project system is not transparently included in the POA-DD. The spreadsheets used for the calculation of the emission factor are required by the DOE team. This is applicable also in Generic component for category 2 and 3.</p>
Conclusion	<p>The application of the baseline methodology has been transparently detailed in the generic CPA. The consideration of the leakages, the boundaries of each type of CPA and the calculations are in accordance with the provisions of the relevant methodology. The guidelines for the application of the methodology in the POA are correctly detailed in generic CPA.</p> <p>The generic CPAs confirm to meet the procedures provided in the methodology and PoA-DD. The formulae are correctly presented for the determination of emission reductions. The assumptions and data used to determine the emission reductions are listed in each generic CPA and all the sources have been detailed. In summary, the calculations of emission reductions are considered to be correct</p>

	<p>and according to requirements stated in the applied methodologies and POA.</p> <p>Therefore, AENOR, based on the above assessment, confirms that:</p> <ul style="list-style-type: none"> •All assumptions and data used by the project participants are listed in the six generic CPAs, including their references and sources; •All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the generic CPAs; •All values used in the generic CPAs are considered reasonable in the context of the proposed CDM Programme of Activities; •The baseline methodologies have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions; and •All estimates of the baseline emissions can be replicated using the data and parameter values provided in the generic CPAs.
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D.4.2.7. Monitoring plan

Means of validation	<p>For the proposed PoA, the submission of the monitoring plan is delayed and submitted either at any time prior to the submission of request for issuance for the first monitoring period, or together with the request for issuance for the first monitoring period.</p> <p>Nevertheless, the first version of POA-DD, published for Global Stakeholder consultation process, detailed a complete monitoring methodology, including roles and responsibilities, and Quality Assurance and Quality Control and parameters to be monitored. During validation activities, the CME decided not to complete the monitoring plan section, and to delay the submission, therefore, according to paragraph 116 of the CDM Project Standard for Programme of Activities.</p>
Findings	No finding has been raised
Conclusion	Not applicable since project participants have decided that the submission of monitoring plan is delayed and that the PoA-DD submitted for registration do not contain information related to the monitoring plan, in accordance with paragraph 116 of the CDM Project Standard for Programme of Activities.

D.4.3. Crediting period type and duration

Means of validation	<p>The crediting period of the generic CPA of this category is correctly detailed in the POA-DD as a renewable crediting period, and the length of the first one is 7 years and 0 months.</p> <p>This information has been stated in accordance with the CDM project standard for programmes of activities.</p>
Findings	No finding has been raised regarding the duration of the POA.
Conclusion	The crediting period of the generic CPA for CPAs of category 3 and its length has been correctly and transparently stated in the POA-DD in accordance with the CDM project standard for programmes of activities, version 01.0.

D.4.4. Eligibility criteria for inclusion of CPAs

During the assessment of eligibility criteria for inclusion of CPAs, one CAR for all of them was raised:

CAR 2 - Eligibility criteria defined in the PoA-DD are not sufficiently objective and comprehensive to permit the assessment of the inclusion of the CPAs in the PoA. The kind of

evidence to be used in order to verify every eligibility criterion has not been described in the PoA-DD.

The edition of the eligibility criteria in the final version of the POA-DD is considered appropriate and they are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA. AENOR confirms that the eligibility criteria including additionality are appropriately in accordance with the eligibility criteria listed in PoA-DD.

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
1	Geographical boundary Each CPA will be located within the physical/geographical boundary of the PoA as demonstrated by the geographical boundary of the CPA-DD.	Geographic reference shows the physical/geographical location of the CPA, therefore, it is verifiable if the CPA is located into the boundary of the POA. The audit team considers appropriate to justify the accomplishment of this criterion.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
2	Start date The CPA start dates shall not be before the start date of the PoA (07/06/2011). The start date of the CPA is the date on which construction, implementation, or real action concerning the CPA, as shown through a payment receipt detailing real action, an invoice for equipment, a receipt from an end-user or technician serving as proof of installation, or signed contract.	The receipt showing payment for activities detailing a real action or an invoice for equipment or receipt showing installation of a system justify the adequate definition of start date of the CPA and it is verifiable, therefore it is considered correct.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
3	Crediting period CPA crediting period shall be within the lifetime of the PoA (07/06/2011 to 06/06/2039) as demonstrated in the CPA-DD.	CPA starting date and crediting period (fixed or renewable) shall be specified in CPA DD section C, and shall be after the inclusion of the CPA into the POA therefore, it is appropriate to assess the fulfilment of this criterion.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
4	ODA For all CPAs, funding from Annex I Parties, if any, does not result in a diversion of ODA as evidenced through a statement on ODA.	Statement from Annex I Parties is provided and valid for all the CPAs, therefore, this criterion is fulfilled.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
5	Debundling Each CPA will demonstrate that debundling does not apply as the CPA is micro-scale and applies the microscale threshold at the CDM Unit level	Each CPA-DD shall detail the total emission reductions and it will be supported by the ER spreadsheets of each CPA; therefore, this criterion is verifiable and clearly shown.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
6	Double counting The CPAs of PoA "Senegal Rural Electrification Program" shall not result in double counting as evidenced through unique identifiers, such as GPS coordinates	A description of the unique identifier will allow the assessment that no double counting is produced. This criterion is correctly stated and it is verifiable in each CPA.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
7	Local Stakeholder and environmental analysis The Local Stakeholder Consultation and Environmental Impact Analysis have been conducted at the PoA level. Each CPA will take into consideration the comments from the Stakeholder Consultation and abide by the environmental regulations of the host country	The local stakeholder consultation and environmental analysis is done at PoA level and adhere to the requirements stipulated at the PoA level, therefore, this criterion is accomplished by all the CPAs.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
8	Target group and distribution mechanism The CPA specifies the target group of the project unit/system and distribution mechanisms in the CPA-DD	The ex-ante estimates included in each CPA of this category shall detail the number and type of consumer, information extracted from the Implementation estimates up 2020 (ASER) and consistent with the documentation "Rapport global du Recensement general des Entreprises" (<i>"Global report of the General census companies"</i>) therefore, this criterion is verifiable and	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
		transparently defined.		
9	Sampling Sampling design and calculation shall meet the requirement in the sampling standard as evidenced in the CPA-DD	Each CPA will elaborate a sampling plan for each relevant parameter, which is correctly stated and in accordance with the applied methodology and CDM Project Standard for Programme of Activities.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
10	Microscale threshold The CPAs shall adhere to the microscale threshold and result in emission reductions equivalent to or less than 20 ktCO ₂ e emissions reductions at the CDM Unit level per annum.	Each CPA-DD shall detail the total emission reductions; therefore, this criterion is verifiable and clearly shown.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
11	Additionality CPA shall be additional as per micro-scale additionality by being located in an LDC and resulting in less than or equal to 20k tCO ₂ e emission reductions at the CDM Unit level per annum.	Each CPA-DD shall detail the total emission reductions; therefore, this criterion is verifiable and clearly shown.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
12	Technology CPA will distribute new renewable energy generating systems for electrification of a community(ies), and specifications of the systems are provided. Equipment shall comply with applicable international standards or comparable national, regional or local standards/guidelines.	Consumer types and capacities will be included in the CPA and the minimal technical and Environmental Standards are referred as well and used as reference documentation. On the other hand, CPA monitoring database will track previous status of the consumers prior to project implementation, therefore, the amount of consumers previously connected or previously supplied by fossil fuel energy	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
		system or mini-grids will be known, hence, this criterion will be verifiable and it is transparently defined.		
13	<p>Methodology</p> <p>Each CPA will apply the CDM baseline and monitoring methodology AMS-III.BL Version 01.0, and adhere to all applicability conditions and other requirements of the methodology.</p> <p>At least 75% of the end-users that receive electricity from systems installed under the CPA shall be households.</p>	<p>The CPA-DD will detail the applied methodology and the calculation spreadsheets shall be assessed, therefore, this criterion is verifiable and stated in accordance with the description of this category of CPAs.</p>	CAR 2	<p>The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA</p>

D.5. Generic component project activities Category 4: Solar lanterns

D.5.1. General description of generic CPA

Means of validation	<p>In accordance with the Instructions for completing the POA-DD, all of Part II is repeated for each generic CPA-DD such that one completed Part II represents one generic CPA-DD. Therefore, section D.2 of this validation report is also repeated for each category of generic CPA.</p> <p>The PoA is part of an overall rural electrification program undertaken by the Senegalese Government in order to scale up access to electricity in rural areas and contribute to poverty alleviation in these areas. The PoA includes four technologies for providing electricity services which correspond to four generic CPAs.</p> <p>A typical CPA of Category 4 consists of the distribution of solar-powered lanterns ("solar lanterns", hereafter) in rural communities. CPAs will be differentiated by the time period covered under each CPA. In a generic CPA of category 4 the CME and CPA Implementer may or may not be the same entity.</p> <p>The purpose and general description of the CPAs of category 4 has been detailed in Section H of the Part II of the POA-DD. This description has been verified against the eligibility criteria defined in the POA-DD, the documentation provided and the interviews made during on site visit.</p>
Findings	No finding has been raised.
Conclusion	<p>The description is transparent, accurate, complete and consistent with the aim of the POA, the eligibility criteria and supported documentation, and provides an understanding of the generic CPA. The first generic component project activity corresponds to Category 4: Solar Lanterns.</p> <p>Therefore, AENOR confirms that generic CPA-DD has been prepared for Category 4 in accordance with the relevant requirements in the Project standard for Programme of Activities version 01.0.</p>

D.5.2. Application and selection of methodologies and standardized baselines

D.5.2.1. Application of methodologies and standardized baselines

Means of validation	<p>The CPAs under Category 4 will consist of distribution of solar-powered lanterns in rural communities. The CPA applies Type III small-scale methodology AMS-III.AR Version 5. The CPA is therefore a Type III CPA. The CPA also qualifies as a Type III microscale CPA. The CPA is implemented entirely in and LDC and the size of each CDM Unit, defined as a single lantern, is limited to emission reductions of 20,000 tCO₂e or less per annum.</p> <p>Methodology to be applied as it is detailed in the POA-DD, AMS-III.AR "<i>Substituting fossil fuel based lighting with LED/CFL lighting systems</i>", Version 05.0. Reference number, version number, and title of the approved baseline and monitoring methodology selected are clearly indicated in accordance with the "<i>Instructions for completing the POA form</i>". This methodology also refers to the following:</p> <ul style="list-style-type: none"> -AMS-I.D. "Grid connected renewable electricity generation", Version 18.0; -AMS-I.F. "Renewable electricity generation for captive use and mini-grid", Version 03.0 <p>The chosen version of the methodology is the most recent one and it is applicable,</p>
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and the corresponding tools with their latest versions are correctly detailed in the POA-DD.

Applicability conditions of the applied methodology are detailed in the generic CPA, and are crosschecked with the methodology and the technical description of the typical CPA of this category. They are correctly listed in the generic CPA:

- **Criterion 1** - This methodology is applicable only to project lamps whose batteries are charged using one of the following options: (a) Charged by renewable energy system (e.g. photovoltaic systems or mechanical systems such as wind battery chargers); (b) Charged by a standalone distributed generation system (e.g. a diesel generator set) or a mini-grid; (c) Charged by a grid that is connected to regional/national grid. In accordance to the generic CPA, this category of CPAs only allow option (a) as they will be implemented in ASER jurisdictions which include only communities in rural areas that do not have access to the national grid. The lamps in this PoA will all be only solar charged - option (a), no other lamps will be distributed and the information is included in the technical description of the generic CPA for this category.
- **Criterion 2** - At a minimum project lamps shall be certified by their manufacturer to have a rated average operational life of at least: (a) 5,000 hours for Option 1, paragraph 17; (b) 10,000 hours for Option 2, paragraph 18. ASER will only allow equipment that meets the Lighting Global Minimum Quality Standards (MQS). The MQS includes a requirement that luminous flux over 2000 hours shall not decline by more than 15%, which is equivalent to a 10,000 hour rated life. So the PoA uses option (b). The Lighting Global Minimum Quality Standards (MQS) /40/ has been used to crosscheck this information.
- **Criterion 3** - Rated average life is the life certified by the manufacturer or responsible vendor as being the time at which the lamp's initial light output will decline by no more than 30 per cent. In addition, for project lamps charged using Option 3(c) as provided for in paragraph 3 above, the manufacturer shall certify that the battery-charging-circuit efficiency of the project lamps, at the time of the purchase, is at least 50 per cent. For project lamps charged under option indicated in paragraph 3(b), if the mini-grid or distributed generation system is not entirely powered by renewable energy generation unit(s), the manufacturer shall certify that the project lamp's battery charging circuit efficiency, at the time of purchase, is at least 50 per cent. Only equipment that is tested and approved for Lighting Africa under the MQS is permitted in the PoA, so this equipment is certified. All lamps in this PoA will be charged by solar (option a), so the other provisions do not apply. Since this is an eligibility criterion it is considered appropriate.
- **Criterion 4**: Project lamps shall meet warranty requirements of the Lighting Global Minimum Quality Standard. The project lamps shall have a warranty of a minimum of one year from the time the end-user takes ownership or begins using the lamp. At a minimum, the warranty shall cover free replacement or repair of any failed lamps, batteries, and where applicable solar panels. The warranty shall be clearly communicated and supported through the supply chain and available to end-users of the project lamps during the warranty period. In a situation where the project lamps are distributed through intermediaries, the one-year warranty shall commence from the time that the project lamps are distributed to end-users. The full warranty terms shall be available in writing, in a regionally appropriate language and included with each unit. All lamps have a one-year warranty covering free replacement or repair of any failed lamp, battery or solar panel. This is detailed in the MQS and will be presented with the lamps.
- **Criterion 5**: Project lamps shall meet or exceed the following minimum performance characteristics, which should be proven by third-party test results:
 - (a) Light Output - luminous flux of 25 lumens or illuminance of 50 lux over

an area ≥ 0.1 m² when suspended at a distance of 0.75 meters or self-supported. The light output over a 2,000-hour lumen maintenance test should not decline by more than 15%;

(b) Run Time and Battery Capacity - Daily Burn Time (DBT) shall meet the following requirements: (i) DBT shall be equal to or greater than 4 hours; For charging Option 3(a) with solar PV, the DBT is defined by the Solar Run Time for the project lamp (as determined per paragraph 9(g)) (ii) For other technologies in Option 3(a), the DBT is defined based on typical expected patterns of use. (iii) For charging Options 3(b) and 3(c):

The maximum claimed DBT shall be less than or equal to the typical capabilities of the regional or local energy system at delivering reliable power sufficient for recharging; The autonomous (full battery) run-time of the project lamps shall be equal to or greater than 200 per cent of the DBT of the project lamps; The project lamp shall be fully recharged from a discharged state after eight hours of charging. The PoA only allows equipment that meets the Lighting Global MQS. This includes (a) luminous flux decline of no more than 15% over 2000 hours. All equipment approved under the MQS undergoes independent testing, with results reported in an official specifications sheet that includes solar run time. ASER requires that only lamps with a rated solar run time of 4 hours or more will be included in the PoA. The distributors of the lamps will provide the relevant product certifications prior to the start of distribution.

- Criterion 6: The project design document shall explain the proposed distribution method of the project lamps. It shall also explain how the proposed project activity shall: (a) Ensure that the replaced baseline lamps are those that directly consume fossil fuel. This can be done through documentation of the common practice of fuel usage for lighting in the project region (e.g. based on representative sample surveys, official data or peer reviewed literature) that demonstrates that fossil fuel is a commonly used fuel for lighting; (b) Encourage the consumers, targeted by the project activity, to use the project lamps and discourage hoarding; (c) Eliminate potential double counting of emission reductions that could occur, for example, if more than one entity (e.g. lamp manufacturers, suppliers of solar and/or battery equipment, etc.) claims credit for emission reductions for the project lamps. At a minimum, project lamps shall be marked as CDM project lamps; (d) Ensure compliance with prevailing regulations pertaining to the use and disposal of batteries.

The baseline study for each concession shall be used to show the use of fuel based lighting. As it is detailed in the description of the generic CPA, the lamps are not given to consumer for free, all lamps will be marked as part of the PoA and the CPA entity will, at the time of lamp distribution, inform the consumers about the collection and disposal of batteries in an environmentally friendly manner and offer an option for replacement, collection and safe disposal of batteries to the users. Therefore, this criterion is justified.

- Criterion 7: The project design document shall include the minimum requirements for the design specifications of project lamps including the following specifications: (a) Lamp wattage (in Watts) and luminous flux output (in lumens); (b) Rated lamp life (in hours); (c) Where applicable, the type and rated capacity of the renewable energy equipment used for battery-charging (in Watts); (d) Type (e.g. NiMH, Lead-Acid, Li-ion, Lithium-iron-phosphate, etc.), nominal voltage, and rated capacity of the batteries (in Ampere hours); (e) Type of charge controller (e.g. active or passive); (f) Autonomous time and DBT; (g) Solar Run Times(s) (SRT) for products with solar energy charging systems. If regional solar data are available, the maximum, minimum and average estimated SRT values for each month of a typical year shall be provided. If regional solar data are not available the standard solar day (5 kWh/m²) shall be used to estimate SRT; (h) Where applicable, the amount of time to fully charge the product using mechanical means or a centralized charging system (e.g. the

	<p>national grid); (i) Physical protection against environmental factors (e.g. rain, heat, insect ingress).</p> <p>All equipment must meet the Lighting Global MQS. This covers (b) and (i). (c) and (h) are not applicable because the PoA lanterns will have built-in solar PV chargers. (f) is not applicable for solar charged lanterns, since SRT is used instead. ASER has specified minimum lamp output (a) , battery type and capacity (d), type of charge controller (e) and minimum solar run time (g) in the contract with distributors.</p> <p>•Criterion 8: Measures are limited to those that result in emissions reductions of less than or equal to 20 ktCO₂ equivalent at the CDM Unit Level annually. A typical CPA will have total emissions reductions less than or equal to 20k tCO₂e at the CDM Unit level.</p>
Findings	No finding has been raised
Conclusion	The applicability criteria of the baseline methodology have been transparently detailed in section I.2 of generic CPA (table 32) detailed in the final version of the POA-DD. The methodology is used and applied in accordance with the CDM project standard for programme of activities.

D.5.2.2.Deviation from methodologies and/or methodological tools

Means of validation	Not applicable since no deviation from the methodology has been detected.
Findings	Not applicable since no deviation from the methodology has been detected.
Conclusion	Not applicable since no deviation from the methodology has been detected.

D.5.2.3.Clarification on applicability of methodology, tool and/or standardized baseline

Means of validation	Not applicable since no clarification on applicability of methodology or tool has been detected.
Findings	Not applicable since no clarification on applicability of methodology or tool has been detected.
Conclusion	Not applicable since no clarification on applicability of methodology or tool has been detected.

D.5.2.4.Project boundary, sources and GHGs

Means of validation	<p>Section I.4 of generic part of category 4 CPAs is prepared for the six types of greenhouse gases and each CPA will detail the gases and sources included in the CPA boundary. This section has been defined in accordance with the applied methodology.</p> <p>For a typical CPA of category 4, the project boundary detailed in the methodology is: The methodology states that:</p> <p>“the project boundary includes the project lamps as well as the charging systems, as follows: (a) If the project lamps are charged by a renewable energy system, then the project boundary includes the physical, geographical site of the renewable energy system; (b) If the project lamps are charged by a mini-grid or a distributed generation system, then the project boundary includes the physical, geographical site of the mini-grid or distributed generation system; (c) If the project lamps are charged by a regional or national grid, then the project boundary includes the physical, geographical site of the regional/national grid.”</p> <p>In this generic CPA, the boundary includes the lamps, charging systems, and</p>
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	renewable energy systems used for charging, option (a).
Findings	No finding has been raised.
Conclusion	<p>The description of how to define the project boundary of the corresponding CPA, including which sources and GHGs are to be included in the project boundary under which conditions or circumstances are in accordance with the selected methodology.</p> <p>All the sources and gases included in the project boundary of the generic CPA category 4 (baseline scenario, project scenario and leakage) are in accordance with the applied methodology AMS-III.AR, and the inclusions and exclusions of the sources of gases correctly justified.</p> <p>The physical delineation of the CPA and the description of the emission sources and GHGs that are included in the CPA boundary are appropriate for the purpose of calculating project and baseline emissions for each CPA.</p> <p>Therefore, the validation team states that the identified boundary and the selected sources and gases are correctly justified by the project proponent in the PoA-DD, and they are in accordance with the applied methodology. Hence, the validation team confirms the Programme of Activities is validated in accordance with paragraph 110 of CDM Validation and Verification Standard.</p>

D.5.2.5.Baseline scenario

Means of validation	<p>Small-scale methodology AMS-III.AR, Version 05.0 applied in this category of CPAs covers activities that replace portable fossil fuel based lamps with battery charged LED or CFL based lighting systems in residential and/or non-residential applications.</p> <p>In accordance with the methodology, the baseline scenario is “the use of portable fossil fuel based lamps” and Option 2 will be used to determine the baseline. Project lamps are assumed to operate up to seven years after distribution to end-users.</p> <p>Therefore, baseline emissions are derived from a fixed baseline emission factors for project lamps, and this default values are correctly used.</p>
Findings	No finding has been raised regarding baseline scenario.
Conclusion	<p>The method used to calculate the baseline for the CPA of category 4 is established according to the small scale methodology AMS-III.AR and the technical description of POA. The baseline identified is the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the CPA. For that reason, the audit team confirms:</p> <ul style="list-style-type: none"> •All the assumptions and data used by the coordinating/managing entity are listed in the generic CPA-DD, including their references and sources; •Documentation to be used in the specific CPAs is relevant for establishing the baseline scenario and correctly quoted and interpreted in the generic CPA-DD; •Assumptions and data used in the identification of the baseline scenario are justified appropriately and can be deemed reasonable; •Relevant national circumstances are considered and listed in the generic CPA-DD; •The methodology has been correctly applied to describe identification of the most plausible baseline scenario and the description reasonably represents what would occur in the absence of corresponding CPAs.

D.5.2.6. Estimation of emission reductions or net anthropogenic removals

Means of validation	<p>The validation team has reviewed the generic CPA assessing the adequate justification of options and equations taken based on the choice of the baseline scenario and context of the CPA in accordance with the applied methodology AMS-III.AR Version 05.0.</p> <p><u>Baseline emissions:</u></p> <p>To calculate the baseline emissions the CPA uses following equation:</p> $BE_y = DV \times GF_y \times DB_y$ <p>Where:</p> <p>BE_y = Baseline emissions per project lamp in year y (t CO₂e)</p> <p>GF_y = Grid Factor in year y,</p> <ul style="list-style-type: none"> • Equal to 1.0 when charging option defined in paragraph 3(a) is used;60 • Equal to 1.0 if the project activity is for off-grid households/communities (defined as no grid access or less than 12 hours grid availability per day on an annual average basis); • Otherwise it is equal to 1.0 minus (the fraction of time grid is available to the target households and communities/users in the region of project activity) <p>DB_y = Dynamic Baseline Factor (change in baseline fuel, fuel use rate, and/or utilization during crediting period) in year y. Calculated as either: Option 1: default of 1.0 in the absence of relevant information; Option 2: value of 1.0+FFg where FFg is the documented national growth rate of kerosene fuel use in lighting from the preceding years (use the most recent available data for a three or five years average (fraction))</p> <p>The Grid Factor (GF_y) is 1.0, because only renewable charging is used (option 3a in paragraph 3 of the methodology). The Dynamic Baseline Factor is also 1.0 (option 1).</p> <p>On the other hand, the CPA will use the default parameters from the applied methodology</p> $DV = FUR \times O \times U \times EF \div 1000 \times LF \times n \times NTG$ <p>Where:</p> <p>DV = Lamp Emission Factor (default is 0.092 t CO₂e per project lamp)</p> <p>FUR = Fuel use rate (0.03 liters/hour)</p> <p>O = Utilization rate (3.5 hours/day)</p> <p>U = Annual utilization (365 days/year)</p> <p>EF = Fuel emissions factor (2.4 kgCO₂/liter)</p>
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	<p>LF Leakage factor (1.0)</p> <p>N Number of fuel-based lamps replaced per project lamp (1.0)</p> <p>NTG Net-to-gross adjustment factor (1.0)</p> <p><u>Project emissions:</u></p> <p>Since only renewable energy charge is used, there are no project emissions associated with the PoA or this CPA, project emissions are zero.</p> <p>Leakage need not be considered because energy generating equipment is not transferred from another activity (i.e. LE_y = 0).</p> <p>Regarding the ex ante calculation, AENOR has validated that data and assumptions considered and listed in generic CPA category 4 are consistent with stated data, methodology and type of CPA. Following assumptions are made:</p> <ul style="list-style-type: none"> -The CPA would distribute 60,000 solar lanterns -The average operating fraction of all lamps in a given year is 90% <p>These assumptions have been validated using ASER technology implementation estimate document, and are deemed appropriate.</p> <p>$ER_y = 60,000 \text{ lamp} \times 0.092 \text{ tCO}_2/\text{lamp} \times 0.9 = 4,968 \text{ tCO}_2$</p> <p>Project emissions and leakage are zero.</p>
Findings	CAR 6 – The spreadsheets used for the emission reductions calculations are not provided to the DOE team.
Conclusion	<p>The application of the baseline methodology has been transparently detailed in the generic CPA. The consideration of the leakages, the boundaries of each type of CPA and the calculations are in accordance with the provisions of the relevant methodology. The guidelines for the application of the methodology in the POA are correctly detailed in generic CPA.</p> <p>The generic CPAs confirm to meet the procedures provided in the methodology and PoA-DD. The formulae are correctly presented for the determination of emission reductions. The assumptions and data used to determine the emission reductions are listed in each generic CPA and all the sources have been detailed. In summary, the calculations of emission reductions are considered to be correct and according to requirements stated in the applied methodologies and POA.</p> <p>Therefore, AENOR, based on the above assessment, confirms that:</p> <ul style="list-style-type: none"> •All assumptions and data used by the project participants are listed in the six generic CPAs, including their references and sources; •All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the generic CPAs; •All values used in the generic CPAs are considered reasonable in the context of the proposed CDM Programme of Activities; •The baseline methodologies have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions; and •All estimates of the baseline emissions can be replicated using the data and parameter values provided in the generic CPAs.

D.5.2.7. Monitoring plan

Means of validation	For the proposed PoA, the submission of the monitoring plan is delayed and submitted either at any time prior to the submission of request for issuance for the
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	<p>first monitoring period, or together with the request for issuance for the first monitoring period.</p> <p>Nevertheless, the first version of POA-DD, published for Global Stakeholder consultation process, detailed a complete monitoring methodology, including roles and responsibilities, and Quality Assurance and Quality Control and parameters to be monitored. During validation activities, the CME decided not to complete the monitoring plan section, and to delay the submission, therefore, according to paragraph 116 of the CDM Project Standard for Programme of Activities.</p>
Findings	No finding has been raised
Conclusion	Not applicable since project participants have decided that the submission of monitoring plan is delayed and that the PoA-DD submitted for registration do not contain information related to the monitoring plan, in accordance with paragraph 116 of the CDM Project Standard for Programme of Activities.

D.5.3.Crediting period type and duration

Means of validation	<p>The crediting period of the generic CPA of this category is correctly detailed in the POA-DD as a renewable crediting period, and the length of the first one is 7 years and 0 months.</p> <p>This information has been stated in accordance with the CDM project standard for programmes of activities.</p>
Findings	No finding has been raised regarding the duration of the POA.
Conclusion	The crediting period of the generic CPA for CPAs of category 4 and its length has been correctly and transparently stated in the POA-DD in accordance with the CDM project standard for programmes of activities, version 01.0.

D.5.4.Eligibility criteria for inclusion of CPAs

During the assessment of eligibility criteria for inclusion of CPAs, one CAR for all of them was raised:

CAR 2 - Eligibility criteria defined in the PoA-DD are not sufficiently objective and comprehensive to permit the assessment of the inclusion of the CPAs in the PoA. The kind of evidence to be used in order to verify every eligibility criterion has not been described in the PoA-DD.

The edition of the eligibility criteria in the final version of the POA-DD is considered appropriate and they are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA. AENOR confirms that the eligibility criteria including additionality are appropriately in accordance with the eligibility criteria listed in PoA-DD.

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
1	Geographical boundary Each CPA will be located within the physical/geographical boundary of the PoA as demonstrated by the geographical boundary of the CPA-DD.	Geographic reference shows the physical/geographical location of the CPA, therefore, it is verifiable if the CPA is located into the boundary of the POA. The audit team considers appropriate to justify the accomplishment of this criterion.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
2	Start date The CPA start dates shall not be before the start date of the PoA (07/06/2011). The start date of the CPA is the date on which construction, implementation, or real action concerning the CPA, as shown through a payment receipt detailing real action, an invoice for equipment, a receipt from an end-user or technician serving as proof of installation, or signed contract.	The receipt showing payment for activities detailing a real action or an invoice for equipment or receipt showing installation of a system justify the adequate definition of start date of the CPA and it is verifiable, therefore it is considered correct.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
3	Crediting period CPA crediting period shall be within the lifetime of the PoA (07/06/2011 to 06/06/2039) as demonstrated in the CPA-DD.	CPA starting date and crediting period (fixed or renewable) shall be specified in CPA DD section C, and shall be after the inclusion of the CPA into the POA therefore, it is appropriate to assess the fulfilment of this criterion.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
4	ODA For all CPAs, funding from Annex I Parties, if any, does not result in a diversion of ODA as evidenced through a statement on ODA.	Statement from Annex I Parties is provided and valid for all the CPAs, therefore, this criterion is fulfilled.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
5	Debundling Each CPA will demonstrate that debundling does not apply as the CPA is micro-scale and applies the microscale threshold at the CDM Unit level	Each CPA-DD shall detail the total emission reductions; therefore, this criterion is verifiable and clearly shown.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
6	Double counting The CPAs of PoA "Senegal Rural Electrification Program" shall not result in double counting as evidenced through unique identifiers, such as GPS coordinates	A description of the unique identifier will allow the assessment that no double counting is produced. This criterion is correctly stated and it is verifiable in each CPA.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
7	Local Stakeholder and environmental analysis The Local Stakeholder Consultation and Environmental Impact Analysis have been conducted at the PoA level. Each CPA will take into consideration the comments from the Stakeholder Consultation and abide by the environmental regulations of the host country	The local stakeholder consultation and environmental analysis is done at PoA level and adhere to the requirements stipulated at the PoA level, therefore, this criterion is accomplished by all the CPAs.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
8	Target group and distribution mechanism The CPA specifies the target group of the project unit/system and distribution mechanisms in the CPA-DD	The ex-ante estimates included in each CPA of this category shall detail the number and type of consumer, therefore, this criterion is verifiable and transparently defined.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
9	Sampling Sampling design and calculation shall meet the requirement in the sampling standard as evidenced in the CPA-DD	Each CPA will elaborate a sampling plan for each relevant parameter, which is correctly stated and in accordance with the applied methodology and CDM Project Standard for	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
		Programme of Activities.		the PoA
10	<p>Microscale threshold</p> <p>The CPAs shall adhere to the microscale threshold and result in emission reductions equivalent to or less than 20 ktCO₂e emissions reductions at the CDM Unit level per annum.</p>	Each CPA-DD shall detail the total emission reductions; therefore, this criterion is verifiable and clearly shown.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
11	<p>Additionality</p> <p>CPA shall be additional as per micro-scale additionality by being located in an LDC and resulting in less than or equal to 20k tCO₂e emission reductions at the CDM Unit level per annum.</p>	Each CPA-DD shall detail the total emission reductions; therefore, this criterion is verifiable and clearly shown.	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA
12	<p>Technology</p> <p>Each CPA covers solar powered CFL or LED lighting systems to provide energy for lighting previously supplied through kerosene or other fossil fuels. Project lamps under each Type B CPA will be charged through a solar panel or mechanical system. The lamp battery will be lithium-ion, with a passive charge controller. The project lamps will be certified by their manufacturer to have a rated operational life of at least 5,000 hours. The light output of the lamps will be at least 25 lumens or illuminance of 50 lux over an area greater than 0.1 m². The DBT of the lamps will be equal to or greater than 4 hours.</p> <p>The lamps in the CPA comply with international or comparable national/regional/local standards/ guidelines and only equipment that is</p>	<p>Technical information of the solar lanterns will be included in the CPA and the Lighting Global Minimum Quality Standards will be referred and used as reference documentation, in line with applicability condition of the methodology number 3. The CME will check that only solar charged lanterns will be included in the CPA against the contract document. Rated operational life of the lamps must be certified by their manufacturer and the CPA monitoring database will track the lantern model to support/demonstrate that the CPA only will involve solar powered lanterns or lanterns charged through mechanical systems. Therefore, this criterion will be</p>	CAR 2	The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA

No.	Eligibility criterion - Category/Required condition	Means of validation	Findings	Conclusion
	tested and approved for Lighting Africa under the Lighting Global Minimum Quality Standards (MQS) is permitted under the CPA.	verifiable and it is transparently defined.		
13	<p>Distribution</p> <p>Each CPA will use one or multiple of the following methods for distribution of appliances implemented under the CPA:</p> <ol style="list-style-type: none"> 1. Direct sale/service to end--users 2. Bulk sales to distributors who sell on to the end user 3. Distribution to the end-user by an organization receiving the products/measures from the CME 	The CPA will describe the distribution method in the CPA-DD therefore, this criterion is verifiable.	CAR 2	<p>The edition of this eligibility criterion is considered appropriate and sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA</p>

SECTION E. Internal quality control

Following the completion of the assessment process by the validation team, all documentation undergoes an internal quality control through a technical review before submission to the CDM-EB. The technical reviewer is a qualified member of AENOR, independent from the team that carried out the validation of the project activity. The technical reviewer or the team appointed for the technical review are qualified in the technical area and sectoral scope of the PoA.

SECTION F.Validation opinion

AENOR has performed a validation of the Programme of Activities “Senegal Rural Electrification Program”. The validation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria given for the Programmes of Activities to provide for consistent operations, monitoring and reporting.

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

The review of the programme design documentation and additional documents related to baseline and monitoring methodologies, and the subsequent background investigation, follow-up interviews and review of comments by Parties and stakeholders have provided AENOR with sufficient evidence to validate the fulfilment of the stated criteria.

The conclusions are:

- The PoA is in line with all relevant host country criteria in accordance with the Letter of Approval from Senegal and Annex I party involved (Sweden), and with all relevant UNFCCC requirements for Programme of Activities.
- The operational and management plan established by the coordinating entity is suitable for the PoA validated.
- The baseline has been appropriately identified as per the applied methodologies.
- Eligibility criteria in the PoA-DD are sufficient to ensure that all CPAs would comply with the CDM requirements applicable to the PoA. These requirements include the means of demonstrating the additionality of the CPA and the applicability of the applied methodology.
- The programme’s additionality is sufficiently justified in the PoA-DD.
- The guidelines for emission reduction calculation have been transparently detailed in the four generic CPAs.
- Information on the local stakeholders’ consultation by the project participants prior to submitting the PoA for validation is sufficiently provided in the PoA-DD.

For these reasons, in AENOR’s opinion, the Programme correctly applies and meets the relevant UNFCCC requirements for the CDM Programme of Activities and the relevant host country criteria.

28/02/2018



Mercedes García Madero - Validation Team Leader

28/02/2018



Jose Magro - Authorized person

Appendix 1. Abbreviations

Abbreviations	Full Texts
AMS-III.BL	Integrated methodology for electrification of communities
AMS-III.AR	Substituting Fossil Fuel Based Lighting with LED/CFL Lighting Systems
ASER	Agence Senegalaise d'Electrification Rurale
CAR	Corrective action request
CL	Clarification Request
CDM	Clean Development Mechanism
CDM-CPA-DD	CDM Component Programme Activity Design Document
CDM-PoA-DD	CDM Programme Of Activities Design Document
CER	Certified emission reductions
CME	Coordinating/Managing Entity
CPA	CDM Component Programme Activity
CPF	Carbon Partnership facility
DNA	Designated National Authority
EB	Executive Board of the CDM of the Kyoto Protocol
ECOWAS	White Paper on Energy Access
EIA	Environmental Impact Assessment
EWURA	Energy & Water Utilities Regulatory Authority
GHG	Greenhouse Gas
FAR	Forward Action Request
GSC	Global stakeholder consultation
IBRD	International Bank for Reconstruction and Development
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring plan
MWh	Megawatt hour

NGO	Non-Governmental Organization
PoA	Programme of Activities
PP	Project Participant
PPA	Power Purchase Agreement
SE4ALL	UN Sustainable Energy For All
SNDES	National Strategy for Economic and Social Development
tC	Tonnes of Carbon
TJ	Terajoule
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and verification Standard for Programme of Activities

Appendix 2. Competence of team member and technical reviewers

Subject: Validation and Technical Review Team for Programme of Activities: "Senegal Rural Electrification Program"

Madrid, 30th October 2017

Hereby I confirm the following records of qualification, according with AENOR internal instruction "Validation, Verification and Certification of Clean Development Mechanism (CDM) project activities" IE-DTC-039, and in relation with the validation process of the above mentioned project activity:

Name: **Mercedes García Madero**

CDM Team leader: Yes

CDM Validator: Yes

CDM Verifier: N/A

CDM technical reviewer: N/A

External Technical Expert: N/A

Technical areas related with the project activity:

TA 1.2 Renewables



Jose Magro

Subject: Validation and Technical Review Team for Programme of Activities: "Senegal Rural Electrification Program"

Madrid, 30th October 2017

Hereby I confirm the following records of qualification, according with AENOR internal instruction "Validation, Verification and Certification of Clean Development Mechanism (CDM) project activities" IE-DTC-039, and in relation with the validation process of the above mentioned project activity:

Name: **Luis Robles Olmos**

CDM Team leader: Yes

CDM Validator: Yes

CDM Verifier: N/A

CDM technical reviewer: N/A

External Technical Expert: N/A

Technical areas related with the project activity:

TA 1.2Renewables

A handwritten signature in black ink, appearing to be 'Jose Magro', written over a light gray rectangular background.

Jose Magro

Subject: Validation and Technical Review Team for Programme of Activities: "Senegal Rural Electrification Program"

Madrid, 30th October 2017

Hereby I confirm the following records of qualification, according with AENOR internal instruction "Validation, Verification and Certification of Clean Development Mechanism (CDM) project activities" IE-DTC-039, and in relation with the validation process of the above mentioned project activity:

Name: **Elena Llorente Pérez**

CDM Team leader: N/A

CDM Validator: Yes

CDM Verifier: N/A

CDM technical reviewer: N/A

External Technical Expert: N/A

Technical areas related with the project activity:

TA 1.2Renewables



Jose Magro

Subject: Validation and Technical Review Team for Programme of Activities: "Senegal Rural Electrification Program"

Madrid, 30th October 2017

Hereby I confirm the following records of qualification, according with AENOR internal instruction "Validation, Verification and Certification of Clean Development Mechanism (CDM) project activities" IE-DTC-039, and in relation with the validation process of the above mentioned project activity:

Name: **Alfonso Medrano Gutiérrez**

CDM Team leader: N/A

CDM Validator: N/A

CDM Verifier: N/A

CDM technical reviewer: YES

External Technical Expert: N/A

Technical areas related with the project activity:

TA 1.2Renewables



Jose Magro

Subject: Validation and Technical Review Team for Programme of Activities: "Senegal Rural Electrification Program"

Madrid, 30th October 2017

Hereby I confirm the following records of qualification, according with AENOR internal instruction "Validation, Verification and Certification of Clean Development Mechanism (CDM) project activities" IE-DTC-039, and in relation with the validation process of the above mentioned project activity:

Name: **Luis Javier Arribas Alonso**

CDM Team leader: N/A

CDM Validator: N/A

CDM Verifier: N/A

CDM technical reviewer: YES

External Technical Expert: N/A

Technical areas related with the project activity:

TA 1.2Renewables



Jose Magro

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	AENOR	Specific Instruction for Validation, Verification and Certification of Clean Development Mechanism (CDM) Project Activities (IE/DTC/039)	-	AENOR
2	CDM-EB	CDM Validation and Verification Standard for Programme of Activities, version 01.0	03/03/2017	UNFCCC
3	CME	"Senegal Rural Electrification Program", CDM-PoA-DD – version 01.0	21/09/2016	CME
4	CME	Senegal Rural Electrification Program", CDM-PoA-DD - version 08.0	30/10/2017	CME
5	UNFCCC	AMS-III.BL Version 01.0 Integrated methodology for electrification of communities	24/07/2015	UNFCCC
6	UNFCCC	AMS-III.AR Version 05.0 Substituting Fossil Fuel Based Lighting with LED/CFL Lighting Systems	24/07/2015	UNFCCC
7	UNFCCC	Decision 3/CMP.1	--	UNFCCC
8	UNFCCC	CDM Project Standard for Programme of Activities, version 01.0	03/03/2017	UNFCCC
9	UNFCCC	CDM Project Cycle Procedure for Programme of Activities version 01.0	03/03/2017	UNFCCC
10	UNFCCC	Demonstration of additionality of microscale activities, Version 8.		UNFCCC
11	UNFCCC	Instructions for filling out the validation report form for CDM Programme of Activities		UNFCCC
12	NSESD	National Strategies for Economic and Social Development (NSESD, 2013-17)		NSESD
13	ECOWAS	(ECOWAS) White Paper on Energy Access (2006)		ECOWAS
14	UNDP	The energy access situation - UNDP		UNDP
15	ENDA	Energy Security in West Africa, reported by ENDA (ENDA Energy,		ENDA

		Environment, Development).		
16	Swedish Energy Agency	Letter of Approval from Sweden	28/06/2017	CME
17	DNA Senegal	Letter of Approval from Senegal	21/09/2017	CME
18	ASER	Stakeholder Consultation report		CME
19	ERM	Environmental Impact Assessment report		ASER
20	IBRD	GEF project document on a proposed grant from the Global Environment Facility Trust Fund		IBRD
21	UNHCR	Senegal Factsheet UNHCR		AENOR
22	SE4All	Country report from SE4All in Africa, 2017. Sustainable energy for all.		AENOR
23	IBRD	COMBINED PROJECT INFORMATION DOCUMENTS / INTEGRATED SAFEGUARDS DATA SHEET (PID/ISDS). APPRAISAL STAGE. Report No.: PIDISDSA19684	12-Dec-2016	IBRD
24	UNFCCC	Guidelines for the consideration of interactive effects for the application of multiple CDM methodologies for a programme of activities		
25	UNFCCC	Prior notification form	07/06/2011	UNFCCC
26	UNFCCC	Glossary of terms		UNFCCC
27	Le Conseil économique, social et environnemental	Le Code de l'Environnement 2001	12/04/2011	AENOR
28	ASER	Stakeholder Consultation report 2011		ASER
29	ASER	Analyse Environnementale Initiale du Projet d'Electrification Rurale de la Concession de Kaffrine-Tambacounda-Kédougou		ASER
30	ASER	Stakeholder Consultation report 2016		ASER
31	ASER	Modalities of Communication		ASER
32	ASER	ER SPREADSHEETS		ASER
33	ASER	Programme National d'Urgence d'ER goals for 2017		ASER
34	Groupeement SEMIS – TRANSENERGIE	Local Electrification Plan Kolda Dagana Mbour		ASER

35	Groupement SEMIS – TRANSENERGIE	Local Electrification Plan Matam Ranerou-Bakel		ASER
36	ASER	ASER technology implementation estimate document		ASER
37	ASER	ER Spreadsheets CPA category 1 and 2		ASER
38	ASER	ER Spreadsheets CPA category 3		ASER
39	RETScreen	Data from Senegal taken in RETScreen		RETScreen
40	ASER	Lighting Global Minimum Quality Standards (MQS)58F		ASER
41		<i>Global report of the General census companies</i>		
42	SENELEC	<i>SENELEC Annual Report 2015</i>		Senelec website

Appendix 4. Clarification requests, corrective action requests and forward action requests

CAR ID	CAR 1	Section no.	A.2	Date: 15/12/2016
Description of CAR				
Information on Parties providing public funding is not included in the POA-DD. The affirmation obtained from such Parties in accordance with applicable provisions related to official development assistance in the Project standard is not detailed in attachment 2 of the POA-DD.				
Project participant response				Date: 28/06/2017
LoA will provide information regarding public funding				
Documentation provided by project participant				
LOA from Sweden (28/06/2017)				
DOE assessment				Date: 01/07/2017
LOA from Sweden (ref 2017-007332) has been provided and it confirms that any public funding for the Senegal Rural Electrification Program does not result in a diversion of Sweden's official development assistance and is separate from and is not counted towards Sweden's financial obligations as a Party. CAR is closed.				

CAR ID	CAR 2	Section no.	B.2	Date: 15/12/2016
Description of CAR				
Eligibility criteria defined in the PoA-DD are not sufficiently objective and comprehensive to permit the assessment of the inclusion of the CPAs in the PoA. The kind of evidence to be used in order to verify every eligibility criterion has not been described in the PoA-DD.				
Project participant response				Date: 02/03/2017
Eligibility criteria have been revised to add clearly the evidence required for verification.				
Documentation provided by project participant				
POA-DD version 2.0				
DOE assessment				Date: 01/07/2017
The edition of the eligibility criteria is considered appropriate and they are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA. Pending on the table included in the new template detailing the documentation used to assess the inclusion of the CPAs into the POA.				
Project participant response #2				Date: 10/10/2017
The PoA has been updated the new template.				

Documentation provided by project participant #2	
PoA-DD version 4.0	
DOE assessment #2	Date: 30/10/2017
The template is the correct version, therefore, CAR is closed.	

CAR ID	CAR 3	Section no.	G	Date: 15/12/2016
Description of CAR				
Letter of Approval from both Parties involved in the programme shall be provided to the validation team.				
Project participant response				Date: 28/06/2017
LOA has been obtained and provided to the audit team.				
Documentation provided by project participant				
LOA from Senegal and LOA from Sweden.				
DOE assessment				Date: 01/07/2017
Loa From Sweden has been correctly obtained and provided to the audit team. Nevertheless, the title included in the LOA from Senegal is not consistent with title included in POA-DD and LOA from Sweden.				
Project participant response #2				Date: 10/08/2017
An updated LoA has been obtained from the DNA of Senegal to accurately reflect the title of the PoA.				
Documentation provided by project participant #2				
LoA Senegal_RE_PoA.pdf				
DOE assessment #2				Date: 30/10/2017
LoA is provided, CAR is closed				

CAR ID	CAR 4	Section no.	J	Date: 15/12/2016
Description of CAR				
The MOC has not been provided to the DOE team.				
Project participant response				Date: 10/10/2017
MoC has been provided to the DOE team.				
Documentation provided by project participant				
MOC-Senegal Rural Electrification.pdf				
DOE assessment				Date: 30/10/2017
MoC has been correctly provided, therefore, CAR is closed.				

CAR ID	CAR 5	Section no.	B.1 (category 1 and 2)	Date: 15/12/2016
Description of CAR				
The reference to the UNFCCC CDM website for the exact reference of approved baseline and monitoring methodologies, tools and standardized baselines is not included in the Section B.1, Part II of the POA-DD.				
Project participant response				Date: 02/03/2017
The PoA-DD has been updated to include all references.				
Documentation provided by project participant				
POA-DD version 2.0				
DOE assessment				Date: 09/03/2017
New links have been correctly included in the POA-DD, therefore, CAR is solved.				

CAR ID	CAR 6	Section no.	B.5.1 (all categories)	Date: 15/12/2016
Description of CAR				
The spreadsheets used for the emission reductions calculations are not provided to the DOE team.				
Project participant response				Date: 02/03/2017
All ER spreadsheets have been submitted to the DOE.				
Documentation provided by project participant				
ER spreadsheets				
DOE assessment				Date: 08/03/2017
Spreadsheets have been provided, and they are considered consistent with data included in CPA-DDs. Therefore, this CAR is solved.				

CAR ID	CAR 7	Section no.	B.5.1 (categories 1, 2 and 3)	Date: 15/12/2016
Description of CAR				
The description and justification of the value of 0.590 tCO ₂ /MWh for the emission factor for the project system is not transparently included in the POA-DD. The spreadsheets used for the calculation of the emission factor are required by the DOE team. This is applicable also in Generic component for category 2 and 3.				
Project participant response				Date: 02/03/2017
The emission factor of 0.590 tCO ₂ /MWh for the Mini-grid CPAs is calculated from the methodology, considering a temporary service, between 15 kW and 35 kW. This is shown in the respective ER spreadsheet calculation. All ERs spreadsheet calculations have been made available to the DOE. A calculation of the emission factor has been included in section B.6.3 of PoA-DD.				
Documentation provided by project participant				

DOE assessment	Date: 01/07/2016
Calculations have been provided in a separate spreadsheet per CPA. They are consistent with generic CPAs of the POA, therefore, CAR is closed.	

CAR ID	CAR 8	Section no.	A.1	Date: 01/07/2017
Description of CAR				
The version of the form of the POA-DD used (version 05.0) is not the most recent version published in the UNFCCC webpage.				
Project participant response				Date: 10/10/2017
The PoA has been updated the new template.				
Documentation provided by project participant				
POA-DD version 08				
DOE assessment				Date: 30/10/2017
The final document uses the last version published in the UNFCCC, therefore, CAR is closed.				

CL ID	CL 1	Section no.	A.2	Date: 15/12/2016
Description of CL				
Documented evidence to justify the description of the POA is required.				
Project participant response				Date: 02/03/2017
A full description of the program is included in the second Stakeholder Consultation report and in the Environmental Impact Assessment report				
Documentation provided by project participant				
Stakeholder Consultation report; Environmental Impact Assessment report.				
DOE assessment				Date: 08/03/2017
Documentation is provided and no inconsistency has been detected. Therefore, CL is closed.				

CL ID	CL 2	Section no.	C	Date: 15/12/2016
Description of CL				
Figure 2 detailing roles of the different actors is not correctly included in the document.				
Project participant response				Date: 02/03/2017
Figure 2 has been removed from the description of the management system.				
Documentation provided by project participant				

POA-DD version 02.0	
DOE assessment	Date: 08/03/2017
The management system has been edited, and it is considered appropriate. Therefore, CL is clarified.	

CL ID	CL 3	Section no.	C	Date: 15/12/2016
Description of CL				
All the documents related to the PoA management system shall be provided to the DOE team (records of arrangements for training and capacity development of the personnel, procedures for technical review of inclusion of CPAs, records of control of documents, measures for continuous improvement.. etc).				
Project participant response				Date: 02/03/2017
We are in the process of developing an Operations Manual. We expect the document to be ready after the validation.				
Documentation provided by project participant				
DOE assessment				Date: 08/03/2017
The description of the management system included in the POA-DD is considered in accordance with the <i>CDM project Standard for Programme of Activities, version 01.0</i> . Therefore, documentation will be checked during verification.				

CL ID	CL 4	Section no.	E.	Date: 15/12/2016
Description of CL				
Evidence regarding the confirmation of the Ministry of Environment regarding the classification of the POA and the Environmental Management Framework is required..				
Project participant response				Date: 02/03/2017
<p>The confirmation of the Ministry of Environment regarding the classification of the PoA has been provided to the DOE.</p> <p>Also, the final report of the Ministry of Environment regarding the PoA was made publicly available in November 2011 under the following link:</p> <p>http://www.aser.sn/attachments/045_Rapport%20Final%20-%20CGES%20%20PNER%20-%20version%20du%2010%20novembre%20%20%20%202016.pdf</p>				
Documentation provided by project participant				
<p>ASER Environmental Management Framework.pdf</p> <p>http://www.aser.sn/attachments/045_Rapport%20Final%20-%20CGES%20%20PNER%20-%20version%20du%2010%20novembre%20%20%20%202016.pdf</p>				
DOE assessment				Date: 08/03/2016

The document has been provided and it shows the project classified as "Category 2" (Classe II). The classification is shown on page 6 of the document. Page 21 of the same document cites the Code of the Environment 2001 (Le Code de l'Environnement 2001) and states in the opening paragraph that the project of Category 2 are considered not to present a threat to the environment. Therefore, CL is clarified.

CL ID	CL 5	Section no.	F.	Date: 15/12/2016
Description of CL				
Documentation dated of the first stakeholder consultation process is required.				
Project participant response				Date: 02/03/2017
The report on the stakeholder consultation process has been provided to the DOE.				
Documentation provided by project participant				
Stakeholder Consultation report.				
DOE assessment				Date: 08/03/2017
The Stakeholder Consultation report has been provided, therefore, CL is clarified.				