



**Programme design document form for
small-scale CDM programmes of activities
(Version 04.0)**

Complete this form in accordance with the Attachment "Instructions for filling out the programme design document form for small-scale CDM programmes of activities" at the end of this form.

PROGRAMME DESIGN DOCUMENT (PoA-DD)

Title of the PoA	Renewable Energy Rural Electrification (RERE) Programme
Version number of the PoA-DD	Version 1.0
Completion date of the PoA-DD	23/05/2015
Coordinating/ managing entity	Africa Growth and Energy Solutions (AGES)
Host Party(ies)	Cameroon
Sectoral scope(s) and selected methodology(ies), and where applicable, selected standardized baseline(s)	Sectoral scope 01 Selected methodology: AMS-I.L "Electrification of rural communities using renewable energy"

PART I. Programme of activities (PoA)

SECTION A. General description of PoA

A.1. Title of the PoA

>>

Renewable Energy Rural Electrification (RERE) Programme

A.2. Purpose and general description of the PoA

>>

Policy/measure or stated goal of the PoA:

According to data from the World Energy Outlook, the electrification rate of Cameroon is 54% overall, with 88% in urban areas and only 17% in rural areas¹. Inhabitants of rural areas depend on diesel generators, kerosene lanterns, battery torches and fuel wood to satisfy their energy needs. However, Diesel generators as well as fuel wood also used by them can be broadly characterized as non-sustainable solutions with associated sound, air pollution, health and environmental risks, and most importantly greenhouse gas emissions associated to these technologies.

The overall goal of this PoA is to provide rural off-grid² population of Cameroon with renewable electricity using locally available resources like hydro, biomass, solar or wind. With this goal achieved, population living without electricity now will have affordable electricity at their disposal to go up the energy-ladder, and Cameroon will contribute overall to the reduction of greenhouse gas emissions emitted with existing technologies.

In addition, the PoA will contribute to activities aimed at growing and strengthening the renewable energy industry in the Country. Cameroon signed and ratified the Kyoto Protocol in 2005. The government's policy seeks to get the country out of under-development, through the implementation of the long-term Energy Sector Development Plan (PDSE 2035) and the Poverty Reduction Strategy Paper (PRSP). Development of the energy sector is seen as a factor for attracting investment and strengthening growth. Moreover, Cameroon's development objectives under the Vision 2035 envisage significant investments in the energy sector, with the inclusion of renewable. There are some existing policies that highlight renewable energy in Cameroon. The renewable energy sector has been in consideration since 1996 as according to article 24 of law N° 96/12 of 5th August 1996, relating to Environmental management. According to this article, the competent ministry in collaboration with the ministry in charge of environment and the private

¹ Download the spreadsheet with data about Africa here <http://www.worldenergyoutlook.org/africa/>

² Off-grid here and overall in this PoA means not connected to the electricity grid as defined in different scenarios in the selected methodology AMS-I.L Version 03 that is used for the development of this PoA.

sector are in charge of producing renewable energy so as to protect the atmosphere. Law N° 2011/022 of 14th December 2011 creates Department of Renewable energy. Article 59 (2) imposes the use of renewable energy in the implementation of the decentralized rural electrification program so as to encourage environmental protection³

General operating and implementing framework of PoA:

The PoA is implemented and operated by Africa Growth and Energy Solutions Limited (AGES) trading as Solar ERA⁴. AGES is the “Coordinating/Managing Entity” (hereinafter referred to as “CME”). AGES will introduce this program to several rural areas in Cameroon and will act as the focal point with the CDM Executive Board in all the aspects relating to validation, verification, registration and issuance of carbon credits generated by the PoA. Each CPA developer (hereinafter referred to as “CPA Implementer” or “Project Implementer” or simply “Implementer” is in charge of constructing, operating and managing its off-grid energy generating plant/facility. AGES however will also act in many cases as Implementer without any need of a specific agreement.

As CME, AGES will be responsible to:

- Design the overall program,
- Develop and manage an appropriate operational structure for the PoA
- Encourage the use of renewable and clean energy to reduce emissions from fossil fuels.
- Manage the sales of carbon credits generated by the program

CPA Implementers will be responsible to:

- Install power plants to produce off-grid electricity available to rural populations of Cameroon using technologies and meeting the requirements described in this PoA
- Use the Generic CPA attached to this PoA to develop their CPA
- Monitor the installed power stations during the crediting period.
- Conduct a maintenance program during the crediting period.
- Train local engineers to ensure proper operation during the project cycle

For monitoring data recording and archiving system, AGES as CME is responsible for collecting data from each CPA regularly and providing CPA Implementers with proper guidance for on-site monitoring. CPA Implementers shall report all the CDM relating data and documents to CME periodically or when it's necessary. Local authorities as well as private entities that meet the criteria

³ https://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/Cameroon_EOI.pdf

⁴ In this PoA-DD, AGES and Solar ERA mean all the same company.

outlined in this PoA may also participate as a CPA implementer under the agreements with CME (like MoUs⁵). The agreements between CME and CPA implementer may include each party's responsibilities and duties. To avoid double counting and operate PoA effectively, each CPA shall be issued its own ID by CME, for example CPA001, CPA002 etc.

In this PoA, the first CPA is a project developed by AGES in Cameroon Development Cooperation⁶ (CDC) located in the municipal communities of Mokonje (Mokonje Industrial Unit). The project is a hydro 1MW that will be used by CDC. It consists of a refurbishment and replacement of turbine and generator, penstock and complete reconstruction of the system.

Confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity:

The proposed PoA is a voluntary initiative by AGES and is not mandated by any specific government regulation or scheme of Cameroon.

Project contribution to sustainable development

The implementation of this PoA would contribute to the sustainable development in the following ways:

- Social Well Being

This project will provide renewable, clean, and affordable electricity to the rural communities. The implementation as well as operation of projects under the proposed PoA will provide employment opportunities for the local workforce. The project will dis-enclave and connect these rural communities to the entire national territory, as access to information and communication is improved (people will be able to use TV and radios; also will easily recharge their mobile phones). The project will equally improve the overall health situation of these communities. Medicines could easily be conserved with refrigerators when there is electricity. Also, the use of wood and kerosene produce fumes that are damaging to the health and this program will avoid that. With electricity available, the education level in communities will increase as children will be able to easily study their books.

⁵ For the moment for instance, there is already a MoU signed between AGES with the Mayor of Konje, representing the population of this locality, but projects identified in Konje will be developed by AGES

⁶ There is a specific agreement between CDC and AGES for the development of this project as CPA. AGES is here the CPA Implementer.

- Economic well being

The proposed PoA fulfils the most important infrastructure need by providing electricity to the rural communities. This will directly boost up the local economy. Availing the electricity generated using the technology considered in this proposed PoA is an economic option for the community households, as it is cheaper than the alternative source which is Kerosene/diesel and fuel wood.

The project will have a strong positive impact on the rural economy as farmers' income will be improved as they could use electricity for conservation and pre-transformation of their farming products.

New business opportunities will also be created

AGES will allow electricity to be paid in advance with pre-paid metering system to be installed by AGES. This pre-paid system allows customers to manage and control their electricity costs.

- Environmental well being

All SSC-CPAs under the proposed PoA will utilize hydro, biomass, wind or solar PV energy solutions for power generation process, which are clean fuel and are GHG-neutral. This will certainly have a positive impact on the environment both at local and global level. The power supplied replaces the consumption of fossil fuels, thus resulting in overall emission reduction.

- Technological transfer

The proposed PoA involves renewable technology for power generation. The technology will encourage the power producers/entrepreneurs across the country to develop new low cost solutions to the national energy problem.

None of the technologies used to produce electricity under this PoA is developed in Cameroon so far. This PoA is a good technology transfer between developed countries and Cameroon.

A.3. CME and participants of PoA

>>

The entity that manages and oversees communication with the Designated Operational Entity, the Executive Board and the UNFCCC secretariat is AGES. There is no other project participant of the PoA. AGES will be responsible for ensuring that all renewable energy CPA project activities are developed under correct CDM specifications as detailed by the program; as well as implementing and effectively executing the monitoring plan.

A.4. Party(ies)

Name of Party involved (host) indicates host Party	Private and/or public entity(ies) project participants, CME (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Cameroon (host)	Private entity: AGES	No

A.5. Physical/ Geographical boundary of the PoA

>>

The whole country of Cameroon

The PoA will be implemented within the Geographical boundary of Cameroon. National and sectoral policies in the electricity production sector are the same within the geographical boundaries of Cameroon. With regard to this PoA, there are no differences in the national or sectoral policies between different regions of the country.

A.6. Technologies/measures

>>

A typical CPA under the PoA will be renewable electricity plant with a maximum installed capacity of 5MW. Each plant will generate electricity using hydro, wind, biomass or solar technology to energy consumers that do not have access to any electricity distribution system/network such as a national grid, regional grid before project implementation.

The installations in the CPA under the PoA will include any of the following technologies as described below (full technology description will be provided in each CPA-DD):

Hydroelectric power technology:

The hydrological power plant uses a dam on a river to store water in a reservoir. Water released from the reservoir flows through a turbine, spinning it, which in turn activates a generator to produce electricity.

Wind power technology:

Turbines catch the wind's energy with their propeller-like blades. Usually, two or three blades are mounted on a shaft to form a rotor. A blade acts much like an airplane wing. When the wind blows, a pocket of low-pressure air is formed on the downwind side of the blade. The low-pressure air pocket then pulls the blade toward it, causing the rotor to turn. This is called lift. The force of the lift is actually much stronger than the wind's force against the front side of the blade, which is called drag. The combination of lift and drag causes the rotor to spin like a propeller, and the turning shaft spins a generator to make electricity.

Biomass based gasification technology:

The biomass gasification technology employed in the proposed PoA is generation of electricity using locally available renewable biomass sources. The plant consists of the biomass gasifiers (open-top down draft fixed bed) in which the collected biomass undergoes "bio-mass gasification" to produce a combustible mixture of gases (producer gas) by incomplete combustion. The gas goes through a three phase filtration process before it can be used as a fuel to run the generator for power production. The combustible gas is then used to drive a generator that in turn produces

electricity. Thereby, a village-wide system is used to provide electricity to each household/community.

Solar Photovoltaic (SPV) technology:

AGES plans to use solar PV based generation systems where energy is either stored in a central battery bank or batteries in the households. The photovoltaic module consists of several photovoltaic cells connected by circuits and sealed in an environmentally protective laminate, which forms the fundamental building blocks of the complete PV generating unit. Several PV panels mounted on a framed are termed as PV array.

A.7 Public funding of PoA

>>

The proposed PoA will not received any public funding from Annex I country resulting in the diversion of ODA

SECTION B. Demonstration of additionality and development of eligibility criteria

B.1. Demonstration of additionality for PoA

>>

The PoA consists of CPAs with individual capacities capped at 5 MW and supplying electricity to households and communities in off-grid areas of Cameroon.

According to the “Guidelines for demonstrating additionality of microscale project activities” EB 68, Annex 26:

Paragraph 2: Project activities up to five megawatts that employ renewable energy technology are additional if any one of the conditions below is satisfied:

Paragraph 2 (b): The project activity is an off-grid activity supplying energy to households/communities (less than 12 hours grid availability per 24 hrs is also considered “off-grid” for this assessment);

Each CPA to be added to this PoA meets the requirements of these guidelines and will be automatically additional.

B.2. Eligibility criteria for inclusion of a CPA in the PoA

>>

AGES as CME will verify that the following criteria are met for any CPA to be included in the PoA prior to accepting its inclusion:

No.	Eligibility criteria		Means of proof
	Description	Conditions to be met	
1.	Boundary and location of the CPA	The CPA is located within the boundary of Cameroun.	Location is specified in the specific CPA-DD of each CPA and supported with GPS coordinates.

2.	Avoiding double counting if applicable	The CPA includes a means of uniquely identifying the plant producing electricity and distributing to identified end-users	Location and GPS coordinates of the plant Location of end-users Agreement between CPA Implementer and CME CPA number
3.	Start date of CPA	The CPA start date shall be after the PoA validation start date and shall be earlier than the PoA end date which is 28 years after PoA registration.	The start date of the CPA will be specified in each CPA-DD and an appropriate proof will be provided (e.g. date financial closure for each CPA or date construction start for each CPA). The start date will be checked against end date of the PoA
4.	Applicability of Methodology AMS-I.L	All applicability criteria of the methodology AMS-I.L Version 3 “Electrification of rural communities using renewable energy” shall be met by individual CPAs	CPA Implementer will make sure applicability criteria are met and document this in the CPA-DD
5.	Additionality of CPAs	The CPA shall satisfy the latest version of the “guidelines for demonstrating additionality of microscale project activities” Especially, each CPA will: <ul style="list-style-type: none"> - be less than or equal to 5MW - provide electricity to off-grid households and communities 	CPA Implementers will provide information on the additionality in the CPA-DD
6.	Official Development Assistance (ODA)	The CPA is either: a) not receiving any funding from Annex I parties; or b) the Annex I party funds do not result in a diversion of ODA.	Confirmation by CPA Implementers and information provided in the CPA-DD
7.	End-user group	The CPA is either aimed at households or communities	The CPA-DD specifies the target end-user group(s)
8.	Sampling	Sampling of end-users within each CPA must meet the requirements of AMS-I.L Version 3 and the “Standard on Sampling and Surveys for CDM Projects and Programmes of Activities”	In the proposed PoA, the CME opts for a verification method that does not use sampling to verify each installation in the CPA A monitoring plan will be established such that each system under each CPA is monitored and verified. Only CPA Implementer willing to do this individual monitoring will be accepted to join the PoA.
9.	Microscale Limit for CPAs	The installed capacity of each CPA is limited to 5MW.	The requirement to meet this criteria of 5MW limit will be indicated in each agreement between CPA Implementer and CME
10.	Local Stakeholder Consultation	A Local Stakeholder Consultation (LSC) must be conducted prior to inclusion of the CPA in the PoA. If a LSC has already been done at the national level for the first CPA in the country, and the LSC covered the issues relevant to this CPA, then the LSC does not need to be done again.	A national LSC was conducted and will hold for each CPA to be included in this PoA

11.	Environmental Analysis	An Environmental Impact Analysis must be conducted prior to inclusion of the CPA in the PoA.	A Certificate of Conformity and EIA reports or exemption from the government of Cameroon will be provided for each CPA to be included
12.	CPA crediting period does not exceed PoA life	The duration of the crediting period of each CPA to be included in the PoA shall not exceed the end date of the registered PoA.	CPA-DD shall indicate the duration of the CPA crediting period, either for a single 10 year crediting period or a 7 year renewable crediting period. The final date for which CERs can be credited shall be no later than 28 years after the date of registration of the PoA.

B.3. Application of technologies/measures and methodologies

>>

As described already, the overall goal of this PoA is to provide rural off-grid population of Cameroon with renewable electricity using hydro, wind, biomass or solar energy. The SSC-CDM methodology *AMS-I.L: “Electrification of rural communities using renewable energy”, Version 3* has been selected for the development of this PoA. The applicability criteria for this selected methodology are described in the table below:

para	Applicability	Justification
3.	<p>This methodology is applicable to electrification of a community achieved through the installation of renewable electricity generation systems that displace fossil fuel use, such as in fuel-based lighting systems, stand-alone power generators, and fossil fuel based mini-grids. The two categories of applicable project activities are:</p> <ul style="list-style-type: none"> (a) Implementation of individual, renewable energy systems such as roof top solar photovoltaic systems; (b) Installation or extension of an isolated mini-grid which distributes electricity generated only from renewable energy systems. 	<p>The program falls under paragraph 2 (b) of the methodology. Mini-grids will be constructed and electricity produced will be only from renewable energy sources (hydro, solar, wind, biomass)</p>

<p>4.</p>	<p>This methodology is applicable to:</p> <ul style="list-style-type: none"> (a) Greenfield individual, renewable energy system projects or mini-grid activities; and/or (b) Rehabilitation (or refurbishment) of individual, renewable energy systems if it can be demonstrated that the baseline system(s) are not part of another CDM activity and are non-operational and require a substantial investment for them to be rehabilitated to or above the original electricity generation capacity. Options for demonstrating compliance with this condition include providing documentation that: <ul style="list-style-type: none"> (i) The existing system has not generated electricity, or that alternative fuels (e.g. kerosene) have been used, for at least six months prior to project design document (PDD) or component programme activity design document (CPA-DD) submittal; and/or (ii) Substantial investments are required to rehabilitate the existing systems, e.g. investments greater than half of the cost to install a new system with the same electricity generation capacity. 	<p>Greenfield projects as well as refurbishment individual projects will be accepted in this PoA and meet the requirements described in paragraph 4 of the methodology</p>
<p>5.</p>	<p>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 from the project activity. It is also applicable to situations where a fraction of consumers that are supplied with electricity from a fossil fuel based mini-grid prior to the implementation of the project are now supplied with electricity from the project activity.</p>	<p>Regions targeted by the PoA do not have any grid national/regional grid connection. In very few scarce cases there will be a mini-grid from fossil fuel and if a CPA is developed there, the only energy source considered will be renewable</p>
<p>6.</p>	<p>At least 75 per cent (by number) of the consumers connected to the project renewable electricity generation system(s) shall be households.</p>	<p>The program targets only households and communities. In very few cases there will be commercial users that will never exceed 25% in number of users</p>
<p>7.</p>	<p>Project equipment shall comply with applicable international standards or comparable national, regional or local standards/guidelines and the PDD or CPA-DD shall indicate the standard(s) applied.</p>	<p>The CME will accept only CPA Implementers using high standard equipments</p>
<p>8.</p>	<p>The methodology is applicable to renewable electricity generation systems intended for permanent installation and is not applicable to portable systems, such as portable electricity generating systems or LED lanterns. The aggregate installed capacity of the renewable energy generating systems shall not exceed 15MW.</p>	<p>The only energy sources considered are renewable and only fixed and large plants (at least 1MW) will be considered. A maximum project plant however is 5MW meeting the 15MW requirement</p>
<p>9.</p>	<p>For projects involving the installation of hydro power plants with reservoirs the requirements prescribed under “AMS-I.D.: Grid connected renewable electricity generation” shall be followed.</p>	<p>Project targeted with hydro are mostly run-of-a-river or small dams and therefore there should be no need to follow methodology AMS-I.D</p>

B.4. Date of completion of application of methodology and standardized baseline and contact information of responsible person(s)/ entity(ies)

>>

23/05/2015

By

Durando NDONGSOK; Hervé AZEMTSA

S2 Services Ltd.

Po. Box: 12218 Douala, Cameroon

+237 243 17 75 58

info@s2-gmbh.com**SECTION C. Management system**

>>

The operational and management arrangements established by the CME for the implementation of the PoA are following the EB 63 annex 3, paragraph 9. The operational and management arrangements under this PoA are presented below:

Roles and Responsibilities for CPA inclusion

AGES the CME will have overall operational and management responsibility for the implementation and monitoring of the proposed PoA. However, CPA Implementers will play key roles in the monitoring and management of their CPAs. Different tasks, responsibilities and required competencies to fulfil different tasks are presented in the table below:

Task	Responsibility	Competencies required
Identifying the households/communities to be included in the CPA	CPA Implementer	<ul style="list-style-type: none"> • Completely understand the technology used in the CPA • Understand the monitoring requirement and record keeping on the CPA • Follow the recommendations provided by AGES (CME) in the PoA-DD and Generic CPA-DD
Provisions of all necessary documents & records	CPA Implementer	
Performing eligibility assessment for inclusion of CPA	CPA Implementer	
Maintaining records and documentation control process for each CPA	CME	<ul style="list-style-type: none"> • Understand the CDM modalities and protocol • Understand the eligibility criteria of the PoA • Implementing all monitoring control procedures and monthly performance report generation
Following the procedures to avoid double accounting	CME	
Training and the capacity development of the personnel involved for CPA inclusion	CME	
Measures for continual improvements of the PoA management	CME	
To complete the CPA-DDs and submit the CPA inclusion request to the DOE	CME	
Monitoring and verification activities	CME	

Procedure for inclusion of CPA

The following step-wise procedure below covers the process for the CPA inclusion by the CME:

- 1) The CPA Implementer will identify the installations to be covered under the new proposed CPA.
- 2) All the details and the supporting documents shall be forwarded to the CME
- 3) The CME will number the installations proposed as CPA-XXX, where XXX is the CPA's number. For the unique identification of each installation the geographical coordinates of the CPA will be indicated.
- 4) The CPA shall be checked by the CPA Implementer and controlled by the CME against the eligibility criteria indicated in this PoA-DD.
- 5) The CPA Implementer will prepare the CPA-DD based on the Generic CPA-DD provided to him by the CME.
- 6) DOE engagement and submission of CPA DD for inclusion will be done by the CME. The side visit validation will be done at PoA level, but if for any reason the DOE request to conduct a site visit for a specific CPA, the CME will arrange together with the CPA Implementer for that to happen

Training records and arrangements for training and capacity development of the personnel

Training will be provided by the CME to all the personnel involved in the CPA development and monitoring activities.

Procedures for technical review of inclusion of CPAs

The CME will assess/cross-check the CPA(s) against the list of eligibility criteria above before accepting the CPA-DD and submitting to DOE for inclusion

Measures for continuous improvements of the PoA management system

The CME has developed a profound PoA management system which clearly defines the CPA inclusion criterias, monitoring structure, data recording system, and roles and responsibilities of the PoA Manager and the CPA manager etc.

The length of the PoA being 28 years, the CME finds it appropriate to review the PoA management system frequently and take measures for improvement in the system. The following are the few steps adopted by the CME to establish measures for further improvement in the management system:

- Necessary information and training of CPA Implementers to improve the monitoring process as required by the PoA.

- Ensure that people involved in the actual monitoring process for the CPA are suitably trained.
- Updating the monitoring or measurement procedures at the time of revision in the actual scenarios.
- Conduct internal meeting and workshops for the management of the CPAs

Procedure to avoid double counting

In order to avoid double counting, each unit to be installed in each CPA will have unique identification based on the following information:

- Location and GPS coordinates of the plant
- Location of end-users
- Agreement between CPA Implementer and CME
- CPA number

SECTION D. Duration of PoA

D.1. Start date of PoA

>>
01/01/2016

D.2. Duration of the PoA

>>
28 years 00 months

SECTION E. Environmental impacts

E.1. Level at which environmental analysis is undertaken

>>
The environmental analysis will be performed at the CPA level because the individual CPA's will vary in their design and this will enable the specific local impacts to be analysed. The environmental analysis will be performed in accordance with the requirements of the government of Cameroon.

E.2. Analysis of the environmental impacts

>>
The analysis for the EIA will be provided at the CPA level.

SECTION F. Local stakeholder consultation

F.1. Solicitation of comments from local stakeholders

>>

The Local Stakeholder Consultation has been done at PoA level for this program and will cover all CPAs to be included in this PoA. The characteristics of rural off-grid areas of Cameroon are identical from one region to another and there is no need to conduct multiple stakeholders' consultations. These people not connected to the electricity grid use kerosene lanterns for lighting for the poorest or diesel generators for the wealthier.

Also, environmental impact assessment will be done at CPA level and by the legislation of Cameroon, environmental impact assessments need to conduct stakeholder meetings. These meetings necessary for the EIE will cover specific needs of local stakeholders for specific CPAs.

A wide range of stakeholders were invited to physically attend a local stakeholder consultation organized by Solar ERA or to express their concerns/contributions by email or telephone. Invitation were all physically dropped or sent by post. Further, an invitation was inserted in the local newspaper "The Detective" of February 5, 2015. The meeting was attended by more than 160 people, ranging from village chiefs, to local Government authorities, interested NGOs and Common Initiative Groups and the wider community. The DNA of Cameroon was represented by Mr. Patrick Forghab who is acting secretary of the National Committee on CDM.

F.2. Summary of comments received

>>

The stakeholders expressed issues, concerns and worries summarized as follow:

- Under what framework/contractual agreement is Solar ERA developing the project
- Does Solar ERA not interfere with ENEO⁷?
- Which type of renewable energy is suitable for Konye Sub-division?
- How do people benefit from carbon credits revenue?
- How can the people participate in the success of the program?

In paragraph F.3. below, summary of main questions raised is presented in a table with answers provided to questions during the meeting indicated in the same table. The full report of the meeting is available for the DOE.

F.3. Report on consideration of comments received

>>

⁷ ENEO is the para-statal electricity company of Cameroon and for the moment, producing, transporting and distributing electricity where there is grid connection.

#	Name/Function	Question	Answer provided
1	OBASE Rixon Farmer from Kokaka	Does Solar Era project interfere with Eneo?	Solar Era is an independent power producer (IPP), in such it cannot interfere with Eneo. It follows the Cameroonian laws and rules with regards to IPPs. For the moment Solar ERA is focusing on off-grid where there is no ENEO at all. But even if it was on-grid, Solar ERA will negotiate a tariff to feed the electricity produced in to the grid.
2	Chief Bomas Solar	Which type of renewable energy source would be suitable to Konye sub-division?	The prefeasibility study shows that there is potential for biomass (from agriculture waste, mostly waste from cocoa production), hydro (many mini hydro potential in the region) and solar energy to a lesser extent. Solar ERA will focus first on hydro and biomass but can also put in place hybrid systems. The selected technologies per cluster will solely depend on the outcome of the ongoing feasibility study.
3	Chief Esono Joseph	Could Solar Era implement their projects simultaneously in 2 villages?	No, in order to meet the investment criteria, the 51 villages that have Konye Sub-Division have been grouped in 10 clusters; Solar ERA will provide electricity in one cluster before going to another.
4	Counsellor Anastacia	Is the power that will be produced enough to meet all the demand in the location including households, businesses and public places like schools and hospitals?	Yes, the electricity produced in different clusters will be enough to meet the demand. Also, the technology used is sophisticated and will adjust automatically up or down depending on the fluctuation of the demand in different periods. And finally Solar ERA will introduce a "smart grid" and "smart meters" that people prepaid their energy before using it; and people could actually sell their energy to other users.
5	Deputy Mayor	Since Solar ERA want to sell carbon credit, what will be the farmer's benefit?	(Answer provided by the DNA representative, Mr. Patrick Forghab) Carbon credit prices have dropped from 12 000 FCFA to less than 500 FCFA for a carbon credit. It is better for the population to concentrate just on getting the energy instead of bothering with carbon credits that are not really bringing anything for the moment to investors. But if prices of carbon credits go up or if Solar ERA finds a good buyer using carbon credits for its compliance, then price of electricity will go down accordingly.
6	Chief	Could it be to our disadvantage in the long run to engage in such privately run project? If for example the project is slow and the government has plans to electrify the region, will we not miss that opportunity?	No, the government works hand in hand with the council to check the priority needs of the population. Each council in Cameroon has a Community Development Plan and government looks at that plan to see what are priorities, what are ongoing projects and their status of development before starting new projects that will benefit the population.
7		You said the project is a BOT with an agreement of 25 years for the project to become property of the community. Why the project has to take 25 years before becoming Konye's property?	It is not too long; the project costs 6 billion FCFA (58 million EURO). It will take a lot of time to recover all the money. And having this long period means also that electricity will not be sold to expensive to end users (Answer from the Lordmayor) Before signing the MoU, we also considered the time our people will need to fully understand different technologies put in place and be ready to operate after the project has been transferred to the council. The following 4 points were very well considered: a. Solar ERA will train people on the management and operation of the project b. There is a possibility to keep Solar ERA for the management of the project beyond 25 years if need be c. In-kind contribution of the community (like land for

#	Name/Function	Question	Answer provided
			plants construction) will be very well valued d. Any arising specific situation will be well analyzed and addressed
8		If my farm is far away from the power plant will I still have access to electricity?	Cables for electricity transport will be put underground to facilitate the transport with the idea to give electricity to all.
9		what contribution is expected from the population?	Population contribution is to buy the energy and use it. FEICOM (the governmental fund for councils) is also discussing to bring a financial contribution to the development of the projects. And this is also considered as contribution of the population
10		Who will be in charge of the project after the BOT of 25 years?	The project will go back to the council. The management committee will be put in place with representative from different clusters to manage the project under the supervision of the mayor (who is elected by the population and hence represents the latter)
11	Amade	When will the projects be operational?	In 2017 (first projects are starting construction soon) Clarification of Solar ERA: The MOU is a document putting in place a good framework for working together and not only showing 25 years BOT.
12		Is the project going beyond Konye Sub-Division	That is the plan of Solar ERA, but the idea is to start in Konye, build confidence before going to other places

SECTION G. Approval and authorization

>>

The Host Country Approval is not yet secured for this PoA, but there is already a Letter of Non-Objection from the DNA.

PART II. Generic component project activity (CPA)

SECTION A. General description of a generic CPA

A.1. Purpose and general description of generic CPAs

>>

The CPA is being implemented by *<name of the CPA Implementer>* under the PoA Renewable Energy Rural Electrification (RERE) Programme in Cameroon by AGES (CME). Under this CPA, the CPA Implementer plans to install and operate *<total capacity of the CPA>* MW *<indicate if hydro, solar, wind or biomass>* in *<name of location>* in the *<name of region>* region of Cameroon. The technology to be used is *<very brief description of the technology>*

Scope of CPA:

Under this CPA being implemented by *<name of the CPA Implementer>*, the installed plant will provide electricity to facilities and energy consumers that do not have access to any electricity

distribution system/network such as a national or regional grid before this project implementation. The end users will be limited to households/communities as mentioned which will use this electricity for applications such as lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc. Few businesses could also benefit the electricity generated, but will not exceed 25% in numbers. The electricity generated from the project activity contributes to an average GHG reductions estimated as *<average emission reductions of the CPA>* tCO2/year.

SECTION B. Application of a baseline and monitoring methodology and standardized baseline

B.1. Reference of methodology(ies) and standardized baseline(s)

>>

The SSC-CDM methodology AMS-I.L: “Electrification of rural communities using renewable energy”, Version 3, EB 81, Annex 21, Valid from 28 November 2014 is used for the development of this CPA.

Reference: <https://cdm.unfccc.int/methodologies/DB/CCZKY3FSL1T28BNEGDRSCKS0CY0WVA>

B.2. Applicability of methodology(ies) and standardized baseline(s)

>>

The applicability criteria for the selected methodology to this CPA are described in the table below:

para	Applicability	Justification
3.	<p>This methodology is applicable to electrification of a community achieved through the installation of renewable electricity generation systems that displace fossil fuel use, such as in fuel-based lighting systems, stand-alone power generators, and fossil fuel based mini-grids. The two categories of applicable project activities are:</p> <ul style="list-style-type: none"> (c) Implementation of individual, renewable energy systems such as roof top solar photovoltaic systems; (d) Installation or extension of an isolated mini-grid which distributes electricity generated only from renewable energy systems. 	<p>This CPA falls under paragraph <i><indicate paragraph of the methodology></i> of the methodology. <i><provide a short description why project falls under this applicability criteria></i></p>

<p>4.</p>	<p>This methodology is applicable to:</p> <p>(c) Greenfield individual, renewable energy system projects or mini-grid activities; and/or</p> <p>(d) Rehabilitation (or refurbishment) of individual, renewable energy systems if it can be demonstrated that the baseline system(s) are not part of another CDM activity and are non-operational and require a substantial investment for them to be rehabilitated to or above the original electricity generation capacity. Options for demonstrating compliance with this condition include providing documentation that:</p> <p>(iii) The existing system has not generated electricity, or that alternative fuels (e.g. kerosene) have been used, for at least six months prior to project design document (PDD) or component programme activity design document (CPA-DD) submittal; and/or</p> <p>(iv) Substantial investments are required to rehabilitate the existing systems, e.g. investments greater than half of the cost to install a new system with the same electricity generation capacity.</p>	<p>This CPA falls under paragraph <indicate paragraph>. <provide a short description why project falls under this applicability criteria></p>
<p>5.</p>	<p>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 from the project activity. It is also applicable to situations where a fraction of consumers that are supplied with electricity from a fossil fuel based mini-grid prior to the implementation of the project are now supplied with electricity from the project activity.</p>	<p>Consumers of the electricity generated by this project are <indicate who consumers are>. This criteria is met</p>
<p>6.</p>	<p>At least 75 per cent (by number) of the consumers connected to the project renewable electricity generation system(s) shall be households.</p>	<p><indicate who consumers are>. They are more than 75% households and this criteria is therefore met</p>
<p>7.</p>	<p>Project equipment shall comply with applicable international standards or comparable national, regional or local standards/guidelines and the PDD or CPA-DD shall indicate the standard(s) applied.</p>	<p>The equipment is very high standard from <indicate the supplier>. <indicate 2-3 characteristics why standard is high> and therefore this criteria is met.</p>
<p>8.</p>	<p>The methodology is applicable to renewable electricity generation systems intended for permanent installation and is not applicable to portable systems, such as portable electricity generating systems or LED lanterns. The aggregate installed capacity of the renewable energy generating systems shall not exceed 15MW.</p>	<p>This CPA is a permanent installation of <hydro or solar or wind or biomass > plant of <indicate capacity> of 1MW, thus this criteria is met</p>
<p>9.</p>	<p>For projects involving the installation of hydro power plants with reservoirs the requirements prescribed under “AMS-I.D.: Grid connected renewable electricity generation” shall be followed.</p>	<p>The project is a <hydro or solar or wind or biomass > plant and <indicate if references to AMS-I.D. will be followed or not >. The criteria is therefore met</p>

B.3. Sources and GHGs**B.4. Description of baseline scenario**

>>

The CPA <CPA number> will provide electricity to consumers in the <location> of the <region> of Cameroon which do not have any access to national or regional grid. The households/communities, benefiting from the electricity generated are using for electricity generation <indicate baseline electricity production source if any> prior to the project activity.

The project will be the installation of a <indicate capacity> MW <hydro or solar or wind or biomass> plant that will reduce GHG emissions associated with the baseline electricity generation system.

Baseline emissions will be calculated using the formulae as indicated in paragraph D.6.1 of this CPA-DD.

B.5. Demonstration of eligibility for a generic CPA

>>

No	Eligibility criteria		Means of proof	Confirmation
	Description	Conditions to be met		
1.	Boundary and location of the CPA	The CPA is located within the boundary of Cameroun.	Location is specified in the specific CPA-DD of each CPA and supported with GPS coordinates.	Yes CPA is located in Cameroon and GPS coordinates and map of the site are indicated in paragraph A.7 of this CPA-DD
2.	Avoiding double counting if applicable	The CPA includes a means of uniquely identifying the plant producing electricity and distributing to identified end-users	Location and GPS coordinates of the plant Location of end-users Agreement between CPA Implementer and CME CPA number	Yes CPA number and location and GPS are indicated <indicate if agreement between CPA Implementer and CME is necessary and signed>
3.	Start date of CPA	The CPA start date shall be after the PoA validation start date and shall be earlier than the PoA end date which is 28 years after PoA registration.	The start date of the CPA will be specified in each CPA-DD and an appropriate proof will be provided (e.g. date financial closure for each CPA or date construction start for each CPA). The start date will be checked against end date of the PoA	Yes Start date is indicated in paragraph A.8.1 of this CPA-DD
4.	Applicability of Methodology AMS-I.L	All applicability criteria of the methodology AMS-I.L Version 3 "Electrification of rural communities using renewable energy" shall be met by individual CPAs	CPA Implementer will make sure applicability criteria are met and document this in the CPA-DD	Yes The CPA meets all applicability criteria of the methodology AMS-I.L as indicated in paragraph D.2 of this CPA-DD
5.	Additionalit	The CPA shall satisfy	CPA Implementers will	Yes

	y of CPAs	the latest version of the “guidelines for demonstrating additionality of microscale project activities” Especially, each CPA will: <ul style="list-style-type: none"> - be less than or equal to 5MW - provide electricity to off-grid households and communities 	provide information on the additionality in the CPA-DD	<p>According to the “Guidelines for demonstrating additionality of microscale project activities” EB 68, Annex 26:</p> <p>Paragraph 2: Project activities up to five megawatts that employ renewable energy technology are additional if any one of the conditions below is satisfied:</p> <p>Paragraph 2 (b) The project activity is an off-grid activity supplying energy to households/communities (less than 12 hours grid availability per 24 hrs is also considered “off-grid” for this assessment);</p> <p>This CPA is 1MW, off-grid and supplying electricity to households/communities and is therefore automatically additional and the eligibility criteria is thus met</p>
6.	Official Development Assistance (ODA)	The CPA is either: a) not receiving any funding from Annex I parties; or b) the Annex I party funds do not result in a diversion of ODA.	Confirmation by CPA Implementers and information provided in the CPA-DD	Yes The proposed CPA will not received any public funding from Annex I country resulting in the diversion of ODA, as confirmed in paragraph A.11 and by the letter emitted by AGES
7.	End-user group	The CPA is either aimed at households or communities	The CPA-DD specifies the target end-user group(s)	Yes The electricity is dedicated to households
8.	Sampling	Sampling of end-users within each CPA must meet the requirements of AMS-I.L Version 3 and the “Standard on Sampling and Surveys for CDM Projects and Programmes of Activities”	In the proposed PoA, the CME opts for a verification method that does not use sampling to verify each installation in the CPA A monitoring plan will be established such that each system under each CPA is monitored and verified. Only CPA Implementer willing to do this individual monitoring will be accepted to join the PoA.	Yes This CPA opts for verification method and sampling is not needed
9.	Microscale Limit for CPAs	The installed capacity of each CPA is limited to 5MW.	The requirement to meet this criteria of 5MW limit will be indicated in each agreement between CPA Implementer and CME	Yes The installed capacity is just <indicate capacity>MW, less than or equal to the 5MW limit
10.	Local	A Local Stakeholder	A national LSC was	Yes

	Stakeholder Consultation	Consultation (LSC) must be conducted prior to inclusion of the CPA in the PoA. If a LSC has already been done at the national level for the first CPA in the country, and the LSC covered the issues relevant to this CPA, then the LSC does not need to be done again.	conducted and will hold for each CPA to be included in this PoA	The LSC was done already at PoA level as indicated in the PoA at Section F, paragraph F1
11.	Environmental Analysis	An Environmental Impact Analysis must be conducted prior to inclusion of the CPA in the PoA.	A Certificate of Conformity and EIA reports or exemption from the government of Cameroon will be provided for each CPA to be included	Yes EIA is done
12.	CPA crediting period does not exceed PoA life	The duration of the crediting period of each CPA to be included in the PoA shall not exceed the end date of the registered PoA.	CPA-DD shall indicate the duration of the CPA crediting period, either for a single 10 year crediting period or a 7 year renewable crediting period. The final date for which CERs can be credited shall be no later than 28 years after the date of registration of the PoA.	Yes, <indicate the crediting period and say why the criteria is met>.

B.6. Estimation of emission reductions of a generic CPA

B.6.1. Explanation of methodological choices

>>

As per the selected methodology AMS-I.L used for the development of this CPA and based on the reality of the project, emission reductions will be estimated for baseline, project and leakage as followed:

Baseline emissions:

Baseline emissions are calculated using the equation <indicate equation> in paragraph <indicate paragraph>, section <indicate section> of the methodology as indicated below:

<indicate formulae and parameters considered>

Project emissions

Project emissions are calculated based on the section 5.3 and paragraph 31 of the methodology as followed:

5.3. Project emissions

31. Project emissions are considered zero (i.e. $PE_y = 0$) except in the cases below where method indicated in the most recent version of “AMS-I.D: Grid connected renewable electricity generation” is applied to calculate project emissions.
- (a) Emissions related to the operation of geothermal power plants (e.g. non-condensable gases, electricity/fossil fuel consumption);
 - (b) Emissions from water reservoirs of hydro power plants.

<indicate what consideration is made and why>

Leakage emissions

Leakage emissions are calculated based on the section 5.4 and paragraph 32 of the methodology as followed:

5.4. Leakage

32. If the energy generating equipment is transferred from another activity leakage is to be considered.

<indicate what consideration is made and why>

Emission reductions

Emission reduction for the CPA are finally calculated based on the section 5.5 and paragraph 33 of the methodology as followed

5.5. Emission reductions

33. Emission reductions on annual basis (ER_y) are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y \quad \text{Equation (13)}$$

Where:

ER_y	=	Emission reductions in year y (t CO ₂ e/y)
BE_y	=	Baseline Emissions in year y (t CO ₂ /y)
PE_y	=	Project emissions in year y (t CO ₂ /y)
LE_y	=	Leakage emissions in year y (t CO ₂ /y)

B.6.2. Data and parameters fixed ex-ante

>>

<Indicate parameter(s) fixed ex-ante in the table(s) below and delete unnecessary table(s)>

(Copy this table for each data and parameter.)

Data / Parameter	$ED_{\text{exist,y}}$
Unit	MWh
Description	Total electricity delivered to existing consumers (connected to the existing mini-grid)
Source of data	<Indicate source of data>
Value(s) applied	<Indicate value>
Choice of data or Measurement methods and procedures	<Indicate source of data>
Purpose of data	This data is used to calculate baseline emissions
Additional comment	<Indicate any useful additional comment>

Data / Parameter	$N_{\text{exist,y}}$
Unit	Dimensionless
Description	Number of existing consumers of electricity from the existing mini-grid
Source of data	<Indicate source of data>
Value(s) applied	<Indicate value>
Choice of data or Measurement methods and procedures	<Indicate source of data>
Purpose of data	This data is used to calculate baseline emissions
Additional comment	<Indicate any useful additional comment>

Data / Parameter	EF_{mgrid}
Unit	tCO ₂ /MWh
Description	Baseline emissions factor for the mini-grid (existing mini-grid)
Source of data	<Indicate source of data>
Value(s) applied	<Indicate value>
Choice of data or Measurement methods and procedures	<Indicate source of data>
Purpose of data	This data is used to calculate baseline emissions
Additional comment	<Indicate any useful additional comment>

Data / Parameter	$EF_{\text{CO}_2,\text{tot}}$
Unit	tCO ₂ /MWh
Description	Emissions factor of the mini-grid
Source of data	<Indicate source of data>
Value(s) applied	<Indicate value>

Choice of data or Measurement methods and procedures	<Indicate source of data>
Purpose of data	This data is used to calculate emission reductions
Additional comment	<Indicate any useful additional comment>

Data / Parameter	TL _p
Unit	%
Description	Transmission losses of the mini-grid
Source of data	<Indicate source of data>
Value(s) applied	<Indicate value>
Choice of data or Measurement methods and procedures	<Indicate source of data>
Purpose of data	This data is used to calculate the energy effectively consumed by end-users
Additional comment	<Indicate any useful additional comment>

B.6.3. Ex-ante calculations of emission reductions

>>

Baseline emissions are calculated using the formula(s)

<Indicate all formulas useful for the calculation of the baseline emissions>

Project emissions and **leakage emissions** are zero per methodology

Emission reductions are calculated using the formula

$$ER_y = BE_y - PE_y - LE_y$$

The table below indicate in details how ex-ante calculations are made:

<delete/add rows as necessary>

Parameter	Values <Indicate value>	Units	Comments <give indicative information in each cell on the value to facilitate understanding>
Power installed		MW	Feasibility study
Yearly operation		Month	<Indicate yearly months of operation>
		Days	calculated considering average month is 30 days
		hours	Calculated considering a daily operation of <Indicate daily hours of operation>
Electricity generation (ED _{tot})		MWh	
Electricity delivered to existing consumers (ED _{exist,y})		MWh	
Transmission losses (TL _p)			

Electricity consumed		MWh	
Emissions factor for the mini-grid (EF _{co2})		tCO ₂ /MWh	
Annual electricity consumption of Type I consumers		MWh	
Annual electricity consumption of Type II consumers		MWh	
Baseline emission factor for the mini-grid (EF _{grid})		tCO ₂ /MWh	
Baseline emissions of existing consumers		tCO ₂ /year	
Baseline emissions of Type I consumers		tCO ₂ /year	
Baseline emissions for Type II consumers		tCO ₂ /year	
Baseline emissions (BE)		tCO ₂ /year	
Project emissions (PE)		tCO ₂ /year	default value
Leakage emissions (LE)		tCO ₂ /year	default value
Emissions reductions (BE-PE-LE)		tCO ₂ /year	Calculated

>

B.7. Application of the monitoring methodology and description of the monitoring plan

B.7.1. Data and parameters to be monitored by each generic CPA

<Indicate parameter(s) to be monitored in the table(s) below and delete unnecessary table(s)>

(Copy this table for each data and parameter).

Data / Parameter	ED _{tot,y}
Unit	MWh
Description	Electricity generated by the power plant
Source of data	From the meter installed at the output of the power plant
Value(s) applied	<Indicate the value>
Measurement methods and procedures	Reading the meter
Monitoring frequency	The meter will be read frequently to ensure it's still in operation
QA/QC procedures	The meter will be well calibrated and tested before installation at the beginning of the project. Then it will be calibrated every year by a recognized institution.
Purpose of data	This data is needed for the estimation of emission reductions
Additional comment	NA

Data / Parameter	EC _{T1,y}
Unit	MWh
Description	Annual electricity consumption of Type I consumer
Source of data	<Indicate source of data>

Value(s) applied	<Indicate the value>
Measurement methods and procedures	<Indicate measurement methods and procedures>
Monitoring frequency	<Indicate monitoring frequency and explain why>
QA/QC procedures	<Indicate QA/QC procedures>
Purpose of data	This data is needed for the estimation of emission reductions
Additional comment	NA

B.7.2. Description of the monitoring plan for a generic CPA

This CPA will follow the monitoring system put in place by the PoA

Data recording

The meter installed at the outlet of the hydro plant will be read every day and data recorded by the project manager on site on a physical sheet but also saved electronically. Data recorded will be monthly sent to the headquarters of AGES for archiving.

Roles/Responsibilities

This CPA will have a permanent project manager on site ensuring all equipments are working properly.

The project manager has the role to read the meter every day and record the information.

On a monthly basis, the CME will receive data sent by the on-site project manager, then check against expectations to make sure all is working well

The project manager on-site has the responsibility to signal any malfunction of the meter (but also of the whole installations) to AGES who will take necessary measures.

Maintenance

All the operating equipments at the generation units will be regularly checked for maintenance and a monthly maintenance log shall be maintained.

Calibration

The meter at the consumption units involved in the proposed PoA shall be tested for calibration on an annual basis. CERs will not be claimed for any period for which the data could not be recorded for any emergency reason. The meter will be calibrated annually and the calibration certificate will be kept by the CME (photocopy will be kept on-site by the project manager).

Data Archiving

The responsibility of data archival will rest with the on-site project manager and CME. The monthly reports sent (in soft copy) by the on-site project manager to AGES for the whole crediting will be checked and archived till 2 years post the end of crediting period of the CPA.

Appendix 1. Contact information of coordinating/managing entity and responsible person(s)/ entity(ies)

CME and/or responsible person/ entity	<input checked="" type="checkbox"/> CME <input type="checkbox"/> Responsible person/ entity for application of the selected methodology(ies) and, where applicable, the selected standardized baseline(s) to the PoA
Organization	Africa Growth and Energy Solutions
Street/P.O. Box	
Building	
City	
State/Region	
Postcode	
Country	
Telephone	
Fax	
E-mail	royston@solarera.eu
Website	www.solarera.eu
Contact person	Royston Dawkins
Title	Director
Salutation	
Last name	Dawkins
Middle name	

Appendix 2. Affirmation regarding public funding

The proposed PoA will not received any public funding from Annex I country resulting in the diversion of ODA

Appendix 3. Applicability of methodology(ies) and standardized baseline(s)

Not applicable

Appendix 4. Further background information on ex ante calculation of emission reductions

Not applicable

Appendix 5. Further background information on monitoring plan

Not applicable

Appendix 6. Summary of post registration changes
