PROGRAMME DESIGN DOCUMENT FORM FOR SMALL-SCALE CDM PROGRAMMES OF ACTIVITIES (F-CDM-SSC-PoA-DD) Version 02.0

PROGRAMME OF ACTIVITIES DESIGN DOCUMENT (PoA-DD)

PART I. Programme of activities (PoA)

SECTION A. General description of PoA

A.1. Title of the PoA

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Sustainable Development Programme of Rural Electrification by Husk Power Systems

Version : 1.5
Date : 12/12/2012

A.2. Purpose and general description of the PoA

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Policy/measure or stated goal of the PoA

India is a developing country where majority of the population lives in rural areas without access to electricity. Extension of the central or state electricity grid to such areas is either financially not viable, practically or feasible as these locations are geographically isolated, sparsely populated and have a very low power demand.[1] In India, over 400 million people in India, including 47.5% of those living in India's rural areas, still had no access to electricity. Because of the remoteness of much of India's un-electrified population, renewable energy can offer an economically viable means of providing connections to these groups.[2]

The main reason for lower electrification rate in rural areas worldwide is that grid extension is more expensive in rural than in urban areas.[3] The high transmission and distribution cost in rural areas make it unattractive, especially because most people are poor and thus unable to pay for electric services. In other cases, when subsidized grid extension does reach rural areas, the tariffs are too high for people to pay because the existent demand is too low. For example in India, according to a report from the International Energy Agency (IEA), "the electricity network is technically within reach of 90% of the population, however only 43% are actually connected because people cannot afford the cost of connection".[4] Modern renewable energy technologies such as SPV systems and biomass based generation systems are efficient options for decentralized, off-grid village electrification.[5]

The proposed PoA by Husk Power Systems (hereafter referred as HPS) aims to provide electricity to facilities and electricity consumers that do not have access to any electricity distribution system/network such as a national grid or regional grid before project implementation, by producing power from renewable sources. The renewable technology options to be utilized in the proposed PoA are as follows:

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[1] Kanase-Patil, A.B., Saini, R.P., Sharma, M.P. (2011) 'Sizing of integrated renewable energy system based on load profiles and reliability index for the state of Uttarakhand in India', *Renewable Energy* 36 , pp. 2809 – 2821

[2] http://mnre.gov.in/schemes/decentralized-systems/

[3] http://www.oasyssouthasia.info/docs/oasyssouthasia_rohitsen_sept2011.pdf

[4] http://www.princeton.edu/~mauzeral/wws402d_s06/Lacayo.pdf

[5] http://www.oasyssouthasia.info/docs/oasyssouthasia_rohitsen_sept2011.pdf

1. Biomass[6] based gasification system
2. Solar photovoltaic (SPV) technology
   a. *Solar PV based AC grid system*
   b. *Solar PV based DC grid system*
3. Hybrid systems of solar PV and biomass based gasification
   a. *Biomass and Solar PV based AC grid hybrid system*
   b. *Biomass and Solar PV based DC grid hybrid system*

The amount of power generated in the PoA would replace the usage of kerosene/diesel[7] (fossil fuel) consumption by the rural households/communities in India in absence of the proposed PoA.

General operating and implementing framework of PoA:

Under the proposed PoA, HPS aims to electrify thousands of rural households in India in an environmentally friendly and sustainable manner. The firm proposes to install and operate generation units of capacity from 5kW-250 kW (hereby referred to as unit or generation unit) in the rural areas of host country. The firm proposes to generate electricity using solar PV and / or biomass gasifiers. The power generated would be distributed using a point-to-point system, supplying the electricity to the rural households/communities with the end-use applications such as lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc. Starting from the rural areas of the states of Bihar & Uttar Pradesh in India, HPS plans to install up to 3000 units by 2017 to cater to the power needs of electricity deprived rural areas of India.

HPS is considering the following three models for the operation & implementation of the PoA for electrifying the various states of India.

BOOM (Build Own Operate Maintain)	BOM (Build Own Maintain)	BM (Build Maintain)
•HPS does the installations and handles the operations •HPS takes the ownership of the installed plants •CERs are owned by HPS	•Communities/groups/third parties approach HPS •HPS installs and owns the plant for a specified period and later transfers the ownership to the community •HPS provides maintenance support •Revenues go to the communities and HPS is paid a monthly rental for the plant •CERs are owned by HPS	•Any third party purchases the technology/ equipments from HPS and installs and operates the plants •HPS provides maintenace support •CERs are shared as per the mutual agreement between HPS and the third party

[6] Types of biomass to be utilized shall be described in each specific CPA depending upon biomass availability of the region

[7] *In rural India people mostly use kerosene oil for lighting purposes at home by means of lantern lamps and wood for cooking purposes and canals for irrigation purposes, diesel operated generators for pumping out water for irrigation when there is no water supplied from canals .The per capita consumption of people is 50.5 kWh or units respectively.*
http://www.ajol.info/index.php/ijest/article/viewFile/67653/55757

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

The proposed PoA is a voluntary initiative by Husk Power Systems and not mandated by any specific government regulation or scheme of the host country.

Project contribution to sustainable development

The proposed PoA would help in the sustainable development on many counts. The implementation of this PoA would contribute to the sustainable development of the region in the following ways as stipulated by the Ministry of Environment & Forest (MoEF) in the interim approval guidelines for Clean Development Mechanism (CDM) projects.

- **Social Well Being**
  The implementation as well as operation of hundreds of generation units under the proposed PoA will provide employment opportunities for the local workforce in a sustainable manner. Employment opportunities are not just limited to the plant operations, the Char, which is left over after the combustion of husk, will be utilized to produce Incense sticks in which hundreds of local women will find employment. As both the genders of the society will be given equal opportunity, this will aid to social parity and women enlistment, thereby elevating the social standards. The mission of electrifying rural India envisioned by HPS is being accepted whole heartedly by the rural population which has been deprived of the basic need of electricity as well as limited means of livelihood.

- **Economic well being**
  The proposed PoA fulfils the most important infrastructure need by providing electricity to the rural communities. This, indirectly, will 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. This investment of utilizing a renewable energy resource for decentralized power generation is more like a social investment because of its direct involvement in catering to the need of power. Electrification of the off-grid regions will not just cater to the power needs of the villages; it also helps in overall economic development. Other than the electricity production, several employment opportunities are also envisaged through the processes involved in the power generation (as mentioned in the earlier para).

- **Environmental well being**
  All SSC-CPAs under the proposed PoA will utilize biomass gasifiers and/or solar technology for power generation process, which is a clean fuel and is 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. The proposed PoA is making sure that the electrification is done in a most energy efficient and cost effective way for the consumers.

- **Technological well being**
  The proposed PoA involves indigenously developed 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.

A.3. CMEs and participants of PoA

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(a) CME (Coordinating and managing entity)

The coordinating and managing entity of the SSC-PoA will be Husk Power Systems Private Limited (*hereafter referred as CME*).

(b) Project participant of the PoA

The Project Participant[8] of the SSC-PoA will be Husk Power Systems Private Limited.

A.4. Party(ies)

Name of Party involved (host) indicates a host Party	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India (host)	Husk Power Systems Private Limited	No

A.5. Physical/ Geographical boundary of the PoA

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The political boundary of India is chosen as the country/ geographical boundary of the SSC-PoA. The SSC-CPAs that will be included under the SSC-PoA will be within the defined geographical location of the SSC-CPA area and follow applicable national and / or sectoral policies and regulations. Lying entirely in the northern hemisphere, the mainland extends between latitudes 8° 4' and 37° 6' north, longitudes 68° 7' and 97° 25' east and measures about 3,214 km from north to south between the extreme latitudes and about 2,933 km from east to west between the extreme longitudes. The map given below represents the PoA boundary:

A.6. Technologies/measures

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A typical CPA under the PoA will consist of a number of units adding up to the maximum installed capacity of 1MW. The capacity of each unit will be ranging from 5kW-250kW that will generate electricity using biomass based gasification technology, solar photovoltaic (SPV) technology and a

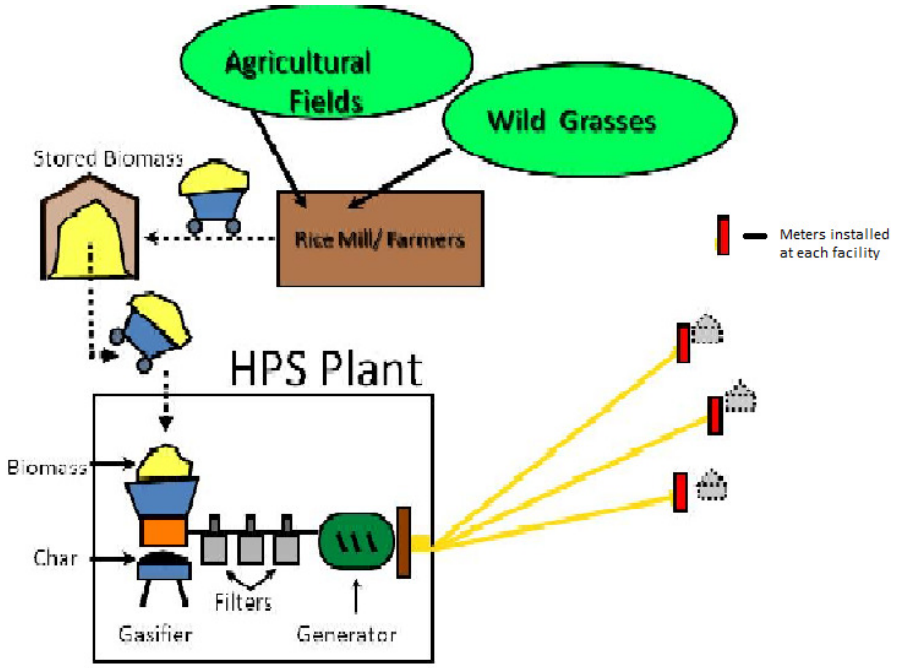
[8] Project participants to the PoA (project participants may or may not be involved in one of the component project activities (CPAs) related to the PoA).

hybrid technology (i.e. of solar & biomass gasification combined) providing electricity to facilities and energy consumers that do not have access to any electricity distribution system/network such as a national grid, regional grid before project implementation[9].

The installations in the CPA under the PoA will include any/all of the following technologies as described below:

1. Biomass based gasification technology:
The biomass gasification technology[10] employed in the proposed PoA is generation of electricity using locally available renewable biomass sources[11]. 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 distribution system is used to provide electricity to each household/community.

The following diagram shows the generation model for a typical unit.



2. Solar Photovoltaic (SPV) technology:
HPS 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

[9] As per the applicable methodology AMS I.L *Electrification of rural communities using renewable energy, version 1, EB 66, Annex 53*

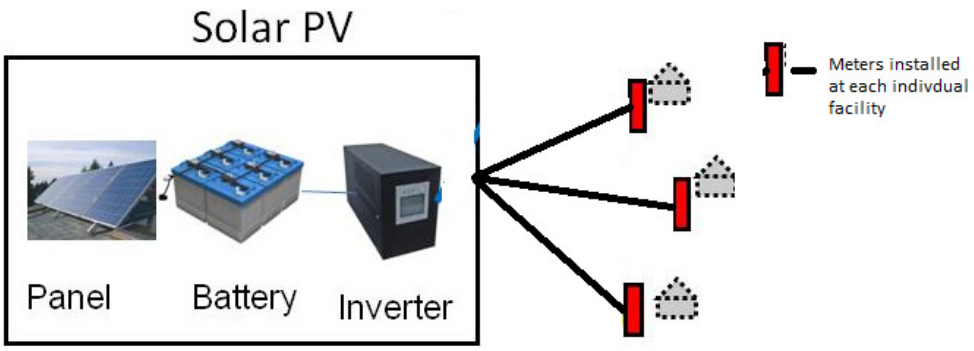
[10] For example for 32 kW gasification unit, the generator set will be specification is of *[1 or 3 Phase-400 V – 50 Hz-1500 RPM]*

[11] Types of biomass to be utilized shall be described in each specific CPA depending upon biomass availability of the region

building blocks of the complete PV generating unit. Several PV panels mounted on a framed are termed as PV array.

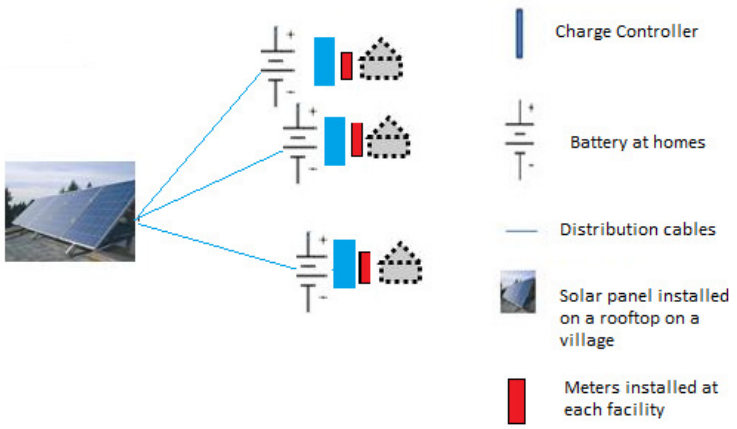
There are two types of system in the solar PV technology that would be implemented:

a. ***Solar PV based AC grid system:*** In this system the solar photovoltaic system are connected to the battery and inverter at the generation end. The inverters shall convert the DC energy produced by array to AC voltage using its MPPT (Maximum Power Point Control) control to extract maximum energy from solar array. The AC output energy of the inverter is then supplied to the facilities as per the requirement.



Solar PV based AC grid system

b. ***Solar PV based DC grid system***: In this system, the DC power generated from the PV panels is distributed to the facilities by the distribution cables. Each facility is equipped with individual battery & converter which converts the electricity to the AC voltage. The following shows the generation model:



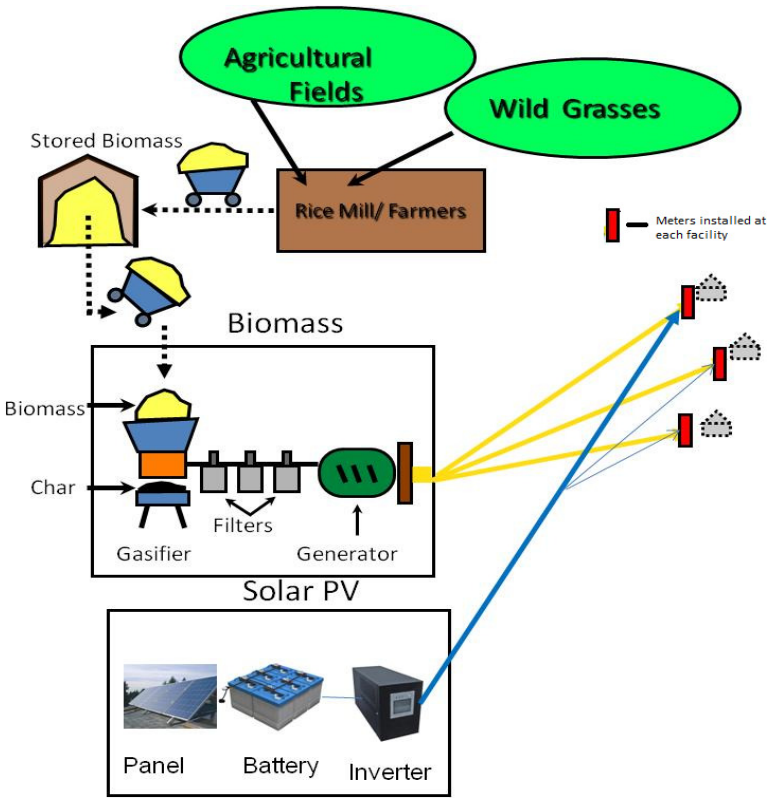
Solar PV based DC grid system

3. Hybrid system of solar PV and biomass based gasification:

In certain instances solar and biomass gasification technologies can be combined to form a hybrid system where hybrid based generation caters to the power needs in the facility. There are two types of hybrid systems proposed in the PoA depending on the Solar PV based system:

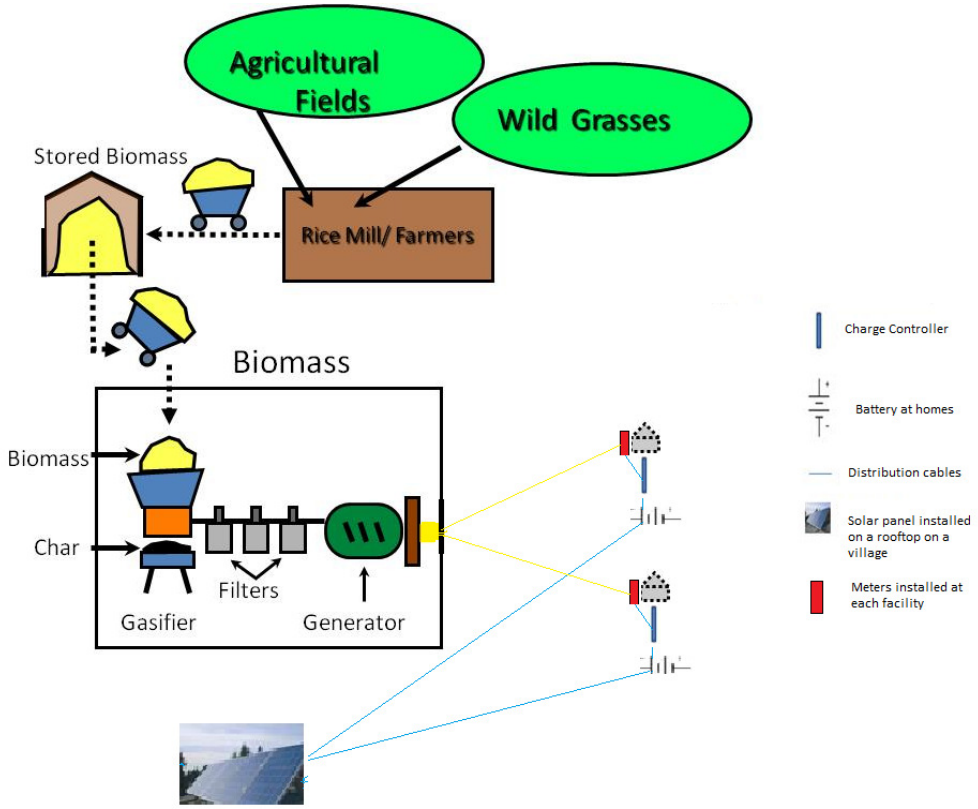
a. ***Biomass and Solar PV based AC grid hybrid system:*** In this system the biomass gasifier & solar PV systems are combined to form a hybrid system. The generated electricity from the solar system and biomass gasification technology will be supplied to each individual facility at AC voltage.

The model depicts the hybrid technology of solar and biomass:



Biomass and Solar PV based AC grid Hybrid system

b. ***Biomass and Solar PV based DC grid hybrid system:*** In this system the biomass based gasification unit and the solar PV panels are combined to form a hybrid unit. The biomass gasification unit generates the electricity which is supplied to each individual facility at AC voltage and the electricity generated from the solar PV system is supplied to each individual facility at DC voltage. The DC electricity generated from the PV panels is distributed to the facilities by the distribution cables. Each facility is equipped with individual battery & converter which converts the electricity to the AC voltage. The following shows the generation model:



Biomass based AC grid and Solar PV based AC grid hybrid system

A.7. Public funding of PoA

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No public funding and no ODA from a country listed in Annex 1, is involved in this PoA.

SECTION B. Demonstration of additionality and development of eligibility criteria

B.1. Demonstration of additionality for PoA

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The PoA consists of microscale CPAs, with the individual capacity of each unit ranging from 5-250 kW making each CPA capped at 1 MW. Therefore, "*Guidelines for demonstrating additionality of microscale project activities"* EB 68, Annex 26, ver 04 has been referred for the demonstration of additionality. As per the same project activities up to five megawatts[12] that employ renewable energy technology[13]are additional if any one of the conditions below is satisfied:

[12] A positive list of renewable electricity generation technologies that are automatically defined as additional are included in "Guidelines on the demonstration of additionality of small-scale project activities" attachment A of appendix B for which it is not required to satisfy the conditions indicated here (see EB 68, annex 27 EB 63, annex 22).

[13] All technologies/measures included in approved Type I Small Scale CDM methodologies are eligible to be considered. Furthermore at its fifty-seventh meeting the Board clarified that all CDM project activities that meet the criteria specified in these guidelines are eligible to apply the guidelines irrespective of the scale of the approved CDM methodology applied to the project activity.

(a) The geographic location of the project activity is in one of the least developed countries or the small island developing states(LDCs/SIDs) or in a special underdeveloped zone of the host country identified by the government before 28 May 2010;

(b) The project activity is an off grid activity supplying energy to households/communities (less than 12 hrs grid availability per 24 hrs is also considered as 'off grid' for this assessment);

(c) The project activity is designed for distributed energy generation (not connected to a national or regional grid)[14] with both conditions (i) and (ii) satisfied (see below);

(i) Each of the independent subsystem/measure in the project activity is smaller than or equal to 1500 kW electrical installed capacity;

(ii) End users of the subsystem or measure are households/communities/small & medium enterprises (SMEs)[15].

(d) The project activity employs specific renewable energy technologies/measures recommended by the host country designated national authority (DNA) and approved by the Board to be additional in the host country.

The CPAs under the proposed PoA are additional as per the point (c) above: -

1. The CPAs in the PoA are designed as local distribution networks in the regions not connected to grid. The implementation for the project will be in the areas that do not have access to any electricity distribution system/network such as a national grid/regional grid before project implementation.[16]
2. Under each CPA of the proposed PoA, the smallest unit (or the "*independent subsystem*") to be installed is a mini power plant of capacity between 5kW-250kW. This is significantly less than above mentioned limit of 1500kW. Technological details of the proposed PoA are mentioned in the section A.6.
3. 100% of the end users under the PoA are rural households/communities which include households, commercial facilities such as shops, supplying the electricity to the end –use applications which may include lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc.

The above conditions shall make all the CPAs, and thus the PoA, additional. However, all the CPAs shall be checked to satisfy all these conditions. This check has been incorporated in the eligibility criteria below in section B.2.

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

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Husk Power Systems Private Limited, as the PoA CME has developed the following eligibility conditions for the inclusion of any CPA(s) under the PoA. The eligibility criterions are defined below which is in-line with the requirements of "Standard for demonstration of additionality, development of eligibility

[14] This means that projects applying AMS. I-D are not eligible.

[15] "communities" of consumers may for example include households, commercial facilities such as shops, public services/buildings and small, medium and micro enterprises (SMMEs); Applications may include lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps".

[16] http://mahadiscom.com/emagazine/mar06/Rural%20electrification.pdf

"India has achieved 44% electrification to rural households only."

criteria and application of multiple methodologies for programme of activities"[17], annex 3, version 01.0, EB 65". Further to this the CPA(s) must also comply with the applicability criterions of AMS I.L. methodology as defined in section B.3 of the PoA DD.

S.No.	Eligibility criteria as per the required in "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities"	The eligibility criteria of a CPA to be included in the PoA
(a)	*The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA;*	All the installations in the CPA shall be located within the geographical boundary of India (i.e. host country). Documents to be checked by the CME at the time of inclusion of CPA: • Land documents • Geo-coordinates of the units using GPS device
(b)	Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);	Each unit to be installed in each CPA will be given • Title of the programme • CPA no. • Location details • Geographical co-ordinates • Type of technology used.
(c)	The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications;	Each of the generation unit installed under the CPA shall comply to the MNRE guidelines[18]: • For biomass gasification unit- Notification dated 28/04/2010[19] and/or • For solar PV panels installed - Notification dated 8/07/2010.[20]
(d)	Conditions to check the start date of the CPA through documentary evidence;	The CME shall check the date of the placement of the first work order with respect to the installation of any generation unit in the CPA, which shall be after 24/05/2012[21] and earlier than the end date of the PoA (28 years from the date of registration).
(e)	Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs;	Each CPA shall satisfy the applicability criteria described in the approved methodology AMS-I.L version 01, *Electrification of rural communities using renewable energy*.
(f)	The conditions that ensure that CPAs meet	Each CPA shall demonstrate the additionality as

[17] http://cdm.unfccc.int/filestorage/E/6/T/E6TY7DMI28WGCUV5J0K3LAOHBQ9RFN/eb65_repan03.pdf?t=Q2t8bThxbm1hfDDWIAEv00f0UDkDXXba_Xbc

[18] The prevailing guidelines available at the time of CPA inclusion shall apply.

[19] http://www.mnre.gov.in/file-manager/offgrid-biomass-gas-schemes/biomassgasifier-2010-11.pdf

[20] http://mnre.gov.in/file-manager/dec-solar-thermal-systems/aa-mnre-jnnsm-2010-11.pdf

[21] *Date on which the PoA DD was uploaded at the UNFCCC website for Global Stakeholder Process (GSP)*

	the requirements pertaining to the demonstration of additionality as specified in Section A above;	per the requirements of *"Guidelines for demonstrating additionality of microscale project activities* EB 68, Annex 26, ver 04" as defined in section B.1 of the PoA DD.
(g)	The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;	The local stakeholder consultation meeting shall be conducted for each CPA as per the CDM requirements at the time of inclusion. The CME shall verify all the documents related to stakeholder consultation meeting and the solicitation of the comments received from the stakeholder meetings will be described in section C of the specific CPA DD. The EIA requirement for each CPA shall be checked as per the prevailing host party laws, (the Schedule 1 of Ministry of Environment and Forests (Government of India).
(h)	Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance;	The CME shall provide an undertaking that there shall be no funding from Annex-I parties, if any, does not result in a diversion of official development assistance before the inclusion of the CPA under the proposed PoA
(i)	Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid connected/ off-grid) and distribution mechanisms (e.g. direct installation);	Each CPA will comprise of generating units of capacity 5kW-250kW and the target beneficiaries will be areas that do not have access to any electricity distribution system/network such as a national grid/regional grid before project implementation. The electricity distributed by the CPA will be used for the applications which may include lighting [22] (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc.
(j)	Where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling and surveys	In the proposed PoA, the CME opts for a verification method that does not use sampling to verify each installation in SSC-CPA. A monitoring plan will be established such that each system under the SSC-CPA under this PoA is monitored and verified.
(k)	Where applicable, the conditions that ensure that every CPA in aggregate meets the small-scale or microscale threshold criteria and remains within those thresholds throughout the crediting period of the CPA;	The total installed capacity of the CPA shall not exceed 1MW.The following documents shall be provided at the time of SSC-CPA inclusion: • Declaration from the CME

[22] Compact Fluorescent Lamps (CFLs), Light Emitting Diode (LED) lamps, and/or fluorescent lamps can be used for lighting purposes.

(l)	Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories.	1)For the debundling check, to check that there is no such activity: - i. Which is a CPA registered (included) by the same CME in a PoA; OR ii. There is an application for the registration (inclusion) of the activity (CPA) under a PoA by the same CME; OR iii. Which is a registered CDM project activity by the same CME (2)If the criterion (1) does hold true, the following is to be checked : i. The activity (or any installation in the activity) is not present within 1 km radius of any of the generation units covered in the CPA. (3)If the criterion (1) and (2) does hold true, the following is to be checked : i. The combined capacity of the activity and the proposed CPA is less than 5 MW (the microscale capacity limit). The CME of the PoA to ensure the de-bundling check shall cross-check with the following documents/information at the time of SSC-CPA inclusion: • Land documents • Geo-coordinates • Undertaking from the CME pertaining to above requirement

B.3. Application of methodologies

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As described in section A.6 above, the PoA intends to provide electricity to the rural households/ communities through the installation of Biomass based gasification generation units. AMS I.L: *Electrification of rural communities using renewable energy, version 1, EB 66, Annex 53* has been appropriately chosen to be applied for this PoA. The applicability has been discussed below:

Applicability	Justification
This methodology is applicable to electrification of a community achieved through the installation of new, renewable electricity generation systems[23] *(e.g. solar photovoltaic systems) that displace fossil fuel use, such as in fuel-based lighting systems and stand-alone power generators.*	The PoA involves generation and distribution of electricity through the installation of small capacity Biomass based gasifiers and/or solar PV panels replacing the usage of Kerosene/diesel in the rural communities/ households of India. Thus, the PoA is applicable under this criterion.

[23] *Facilities and consumers supplied electricity through an isolated mini-grid are also included. For the purpose of this methodology, a mini-grid is defined as a small-scale power system with a total capacity not exceeding 15 MW (i.e. the sum of installed capacities of all generators connected to the mini-grid is equal to or less than 15 MW) which is not connected to a national or a regional grid.*

The applicability of this methodology is limited to facilities and energy consumers that do not have access to any electricity distribution system/ network such as a national grid, regional grid before project implementation. Such electricity) end-use facilities may include households; public buildings; and/or small, medium and micro enterprises (SMMEs). Electricity uses may include interior lighting, street lighting, refrigeration, or agricultural water pumps. At least 75% of the end use facilities connected to the project renewable electricity generation system(s) must be households.	The PoA shall provide power to the households/communities that do not have access[24] to any electricity distribution system/ network such as a national grid, regional grid before project implementation The end users are planned to be limited to only households/communities which will use this electricity from the PoA for applications such as lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc. Thus, the PoA is applicable under this criterion.
The applicability of this methodology is limited to end-use facilities that, if they utilize electricity for lighting in the project activity, only utilize high efficient lighting equipment such as Compact Fluorescent Lamps (CFLs), Light Emitting Diode (LED) lamps, and/or fluorescent lamps.	Under the PoA, the households shall use Compact Fluorescent Lamps (CFLs), Light Emitting Diode (LED) and/or fluorescent lamps which they utilize for the lighting purpose. [25] Thus, the PoA is applicable under this criterion.
Project equipment shall comply with applicable international standards or comparable national, regional or local standards/guidelines and the Project Design Document (PDD) shall indicate the standard(s) applied.	The equipments for the biomass gasification generation units shall be installed as per the guidelines set by the Ministry of New and Renewable Energy, Govt. Of India. dated 28/04/2010.[26] (Page 1 & 7) The solar PV panels installed under shall be as per the Annexure 3 of MNRE guideline dated 8/07/2010.[27]
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 proposed PoA involves the generation of renewable power through the permanent installation of biomass gasifiers/solar panels. Thus the proposed PoA does not involve any portable electricity generating systems or LED lanterns.
The aggregate installed capacity of the renewable energy generating systems shall not exceed 15 MW.	The aggregated installed capacity of the renewable energy generating systems will be less than 1 MW under each CPA thus this criterion is fulfilled by the proposed PoA.

SECTION C. Management system

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The operational and management arrangements established by the CME for the implementation of the PoA are as per EB 63 annex 3 para 9. The operational & management arrangement under the PoA is as discussed below:

<u>Roles and Responsibilities for CPA inclusion</u>

[24] http://www.oasyssouthasia.info/docs/oasyssouthasia-wp1-oct2010.pdf

[25] A declaration will be signed by CPA implementer and the customers (i.e. end use facilities), that only CFLs or LED or fluorescent lamps shall be used for lighting purposes.

[26] http://www.mnre.gov.in/file-manager/offgrid-biomass-gas-schemes/biomassgasifier-2010-11.pdf

[27] http://mnre.gov.in/file-manager/dec-solar-thermal-systems/aa-mnre-jnnsm-2010-11.pdf,(annex 3)

CME (Husk Power Systems Private Limited) will have overall operational and management responsibility for the implementation and monitoring of the proposed PoA and therefore is acting as the PoA managing entity.

The roles and responsibilities for the two have been presented below in the table:

Task	Person Responsible	Competencies
Identifying the installations to be included in the CPA	CPA Manager	• Completely understand the technology used in the CPA • Understand the monitoring requirement and record keeping of the CPA. • Follow the training procedures as provided by HPS (CME).
Provisions of all the documents & records	CPA Manager	
To perform eligibility assessment for inclusion of CPA	CPA Manager	
Maintaining records and documentation control process for each CPA	PoA Manager	• Understand the CDM modalities and protocol. • Understand the eligibility criteria of the PoA. • Undertake suitable CDM training programmes to ensure the continuous improvement for PoA management • Implementing all monitoring control procedures and monthly performance report generation
Following the procedures to avoid double accounting	PoA Manager	
Training and the capacity development of the personnel involved for CPA inclusion	PoA Manager	
Measures for continual improvements of the PoA management	PoA Manager	
To complete the CPA-DDs and submit the CPA inclusion request to the DOE	PoA Manager	
Monitoring and verification activities	PoA Manager	

<u>Procedure for inclusion of CPA</u>

As per the standard referred for the development of the PoA DD, a system shall be established to ensure an organized process of CPA inclusion after the registration of the PoA. The following step-wise procedure below covers the process for the CPA inclusion by the CME:

1. CPA manager 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 PoA manager.
3. PoA manager will number the installations proposed as CPA-XXX, where XXX denote the CPA number. For the unique identification of each installation the geographical coordinates will be mentioned in section A.7 of the CPA DD. The CPA shall be checked against the eligibility criteria[28] prepared in the PoA DD by the PoA manager.
4. To assess (and further conclude) compliance of the CPA, the PoA manager will be assisted by the CPA manager(s).
5. PoA manager will prepare the CPA DD for the proposed CPA.
6. DOE engagement and submission of CPA DD for inclusion will be done by the PoA manager.

[28] The check for the double counting will also be covered in the eligibility criteria

7. To ensure compliance of the proposed as well as future CPAs, PoA manager shall conduct training and capacity building exercises for all the personnel involved in the CPA inclusion process.

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 inclusion and monitoring activities. The CME will ensure training of above mentioned team and a record will be kept and made available to the DOE at the time of CPA inclusion.

Procedures for technical review of inclusion of CPAs

The CME will assess/cross-check the CPA(s) against the list of eligibility criterions above by the documentary evidence at the time of CPA inclusion under the PoA. The compliance and justification of CPA to the same shall also be included in the respective CPA-DD.

Measures for continuous improvements of the PoA management system

The CME has developed a profound PoA management system which clearly defines the CPA inclusion criterions, 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 to the CPA managers to improve the monitoring process as required by the PoA.
- Ensure that the persons that participate in the actual monitoring process for the CPA will be suitably qualified and 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 accounting

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

- CPA no.
- Location details
- Geographical co-ordinates
- Type of technology used

Also to ensure the same, the CME will provide an undertaking that no emission reduction benefit from the PoA shall be claimed by it through any standalone project or through bundle or as to CPA to any other PoA.

SECTION D. Duration of PoA

D.1. Start date of PoA

>>

24/05/2012 (*Date on which the PoA DD was uploaded at the UNFCCC website for Global Stakeholder Process (GSP)*

D.2. Length 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 Host Government.

E.2. Analysis of the environmental impacts

>>

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

SECTION F. Local stakeholder comments

F.1. Solicitation of comments from local stakeholders

>>

As the PoA boundary is the territorial boundaries of India, the meeting(s) will be conducted at a CPA level.

F.2. Summary of comments received

>>

(Meeting not conducted at the PoA level)

F.3. Report on consideration of comments received

>>

(Meeting not conducted at the PoA level)

SECTION G. Approval and authorization

>>

The approval letter from the host country is received from the Indian DNA for the PoA (as a whole) reference no. 4/15/2012-CCC dated 22/11/2012.

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 implementation entity>* under the PoA by Husk Power Systems Private Limited (CME). Under this CPA, HPS plans to install and operate *<total capacity of the CPA>* kW in India.

The biomass gasification generation unit(s) under the CPA has been planned as per the implementation model <*name of the models as per section A.2 of the part-I of the PoA DD>*. *<Brief description of the models considered under the CPA is to be provided>*

Scope of CPA:

Under the CPA being implemented by the *<name of the CPA implementing entity>*, <*number of generating units>* generation unit shall provide electricity to facilities and energy consumers that do not have access to any electricity distribution system/network such as a national grid, regional grid before

project implementation. The end users are planned to be limited to households/communities as mentioned in the PoA DD, which will use this electricity from the PoA only for applications such as lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc. The electricity generated from the project activity contributes to an average GHG reductions estimated as <*average emission reductions of the CPA*> tCO_2/annum.

SECTION B. Application of a baseline and monitoring methodology

B.1. Reference of the approved baseline and monitoring methodology(ies) selected

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Details of the baseline and monitoring methodology applied in the CPA are provided below.

Title: AMS I.L (Electrification of rural communities using renewable energy), Version 01.0, EB 66, Annex 53, Valid from 2nd March, 2012

Reference: http://cdm.unfccc.int/methodologies/DB/5V3GUB9R90CWY26N7RXSSEVZ6C5W8G

B.2. Application of methodology(ies)

>>

The applicability of the methodology has been checked below for the CPA-XX against all the applicability conditions specified in the baseline and monitoring methodology, AMS I.L: *Electrification of rural communities using renewable energy, version 01.0, EB 66, Annex 53* has been appropriately chosen to be applied for this PoA. The applicability has been discussed below:

Applicability	Justification
This methodology is applicable to electrification of a community achieved through the installation of new, renewable electricity generation systems[29] *(e.g. solar photovoltaic systems) that displace fossil fuel use, such as in fuel-based lighting systems and stand-alone power generators.*	This CPA-XXX involves the generation and distribution of electricity through the installation of small capacity of biomass gasification technology replacing the usage of (Kerosene/diesel) in the rural communities/ households of India. *<Statistical data (as available) for the justification of the applicability criteria>*
The applicability of this methodology is limited to facilities and energy consumers that do not have access to any electricity distribution system/ network such as a national grid, regional grid before project implementation. Such electricity) end-use facilities may include households; public buildings; and/or small, medium and micro enterprises (SMMEs). Electricity uses may include interior lighting, street lighting, refrigeration, or agricultural water pumps. At least 75% of the end use facilities connected to the project renewable electricity generation system(s) must be households.	The CPA-XXX shall provide electricity to facilities and energy consumers that do not have access to any electricity distribution system/ network such as a national grid, regional grid before project implementation to the households/communities not connected to any electricity grid prior to its implementation & the end-users are rural communities/households. *<Statistical data (as available) for the justification of the applicability criteria>*
The applicability of this methodology is limited to	Under the CPA-XXX, the households/communities

[29] *Facilities and consumers supplied electricity through an isolated mini-grid are also included. For the purpose of this methodology, a mini-grid is defined as a small-scale power system with a total capacity not exceeding 15 MW (i.e. the sum of installed capacities of all generators connected to the mini-grid is equal to or less than 15 MW) which is not connected to a national or a regional grid.*

end-use facilities that, if they utilize electricity for lighting in the project activity, only utilize high efficient lighting equipment such as Compact Fluorescent Lamps (CFLs), Light Emitting Diode (LED) lamps, and/or fluorescent lamps.[30]	will utilize only Compact Fluorescent Lamps (CFLs) or Light emitting diode (LED) Lamps and/or fluorescent lamps, which they utilize for the lighting purpose. [31]
Project equipment shall comply with applicable international standards or comparable national, regional or local standards/guidelines and the Project Design Document (PDD) shall indicate the standard(s) applied.	Each of the generation unit installed under the CPA-XXX shall comply to the MNRE guidelines[32]: • For biomass gasification unit-Notification dated 28/04/2010[33]
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 CPA-XXX involves the generation of renewable power through the installation of biomass gasification technology .
The aggregate installed capacity of the renewable energy generating systems shall not exceed 15 MW.	The aggregated installed capacity of the renewable energy generating systems for the CPA-XXX is <*total capacity of the CPA to be mentioned* > kW will be less than 1 MW.

The above justifications provided for the applicability of the methodology, show that the CPA-XXX is a Type I project, as it is involved in the "generation of electricity" using renewable energy. This fundamental objective of the CPA shall remain consistent throughout the crediting period of the CPA. Thus, the CPA-XXX will be a Type I activity for its entire crediting period.

B.3. Sources and GHGs

>>

In accordance with the PoA DD, the sources and the GHGs included in the CPA boundary are presented in the table below:

[30] A declaration will be signed by the customers (i.e. end use facilities), that only CFLs or LED or fluorescent lamps shall be used for lighting purposes.

[31] A declaration will be signed by the customers (i.e. end use facilities), that only CFLs or LED or fluorescent lamps shall be used for lighting purposes.

[32] The prevailing guidelines available at the time of CPA inclusion shall apply.

[33] http://www.mnre.gov.in/file-manager/offgrid-biomass-gas-schemes/biomassgasifier-2010-11.pdf

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Emissions from the (kerosene/diesel) in the rural communities/ households.	CO_2	Yes	Main emission source
		CH_4	No	Excluded
		N_2O	No	Excluded
Project scenario	Use of biomass gasification technology is used in the proposed CPA-XXX for the electricity generation	CO_2	No	The project activity is renewable energy project which will not create any emissions itself.
		CH_4	No	The project activity is renewable energy project which will not create any emissions itself.
		N_2O	No	The project activity is renewable energy project which will not create any emissions itself.

The geographical scope of all the generation units present in the CPA is within the boundary of the PoA (India). <Diagrams to be represented below >

B.4. Description of baseline scenario

>>

The CPA-XXX shall provide electricity to consumers which do not have any access to national or regional grid. The households/communities, which shall be benefited from the PoA, in the baseline scenario, depend primarily on kerosene/diesel for their needs.

As per the methodology, *"two parameters are required to be known to determine the baseline:*

(a) *The amount of renewable electricity consumed by the facilities served by the project renewable electricity generation systems;*
(b) *The number of facilities (e.g. households, SMMEs, public buildings) supplied with renewable electricity by the project activity.*

The following are the baseline emission factors for each tranche of annual amount of renewable electricity consumed per end-use facility during the crediting period.

(a) *For the first 55 kWh of renewable electricity consumed by each facility the baseline emission factor is 6.8 (tCO_2/MWh);*

(b) *For the facility consumption greater than 55 kWh but equal to or less than 250 kWh, the baseline emission factor is 1.3 (tCO_2/MWh) for the tranche between 55 and 250 kWh;*

(c) *For the facility consumption beyond 250 kWh, the baseline emission factor is 1.0 (tCO_2/MWh) for the tranche beyond 250 kWh.*

In the case of the CPA, the end use facilities are households/communities, each of which uses electricity for lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc.

Depending upon the net electricity consumed by the households/communities i.e. of any particular facility, different formulae and emission factors will be used or the purpose of emission reduction calculation.

B.5. Demonstration of eligibility for a generic CPA

>>

The proposed CPA-*XXX* is a group of units each cumulatively presenting installed capacity of *XX* kW. The eligibility criteria stated in the PoA DD are confirmed by the CPA implementer(s) as under:

S.No.	Eligibility criteria as per the required in "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities"	Justification for CPA compliance to the eligibility criteria	Justification/Documents
(a)	*The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA;*	All the installations in the CPA shall be located within the geographical boundary of India (i.e. host country). Documents to be checked by the CME at the time of inclusion of CPA: • Land documents • Geo-coordinates of the units using GPS device	The installation covered under CPA-XXX lies in the geographical boundary of India. *<mention the name of the documents provided for validation>*
(b)	Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);	Each unit to be installed in each CPA will be given • Title of the programme • CPA no. • Location details • Geographical co-ordinates Type of technology used.	The XX unit installed under CPA-XXX has been provided with the following: • Title of the programme • CPA no. • Location details • Geographical co-ordinates • Type of technology used
(c)	The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications;	Each of the generation unit installed under the CPA shall comply to the MNRE guidelines[34]: • For biomass gasification unit- Notification dated 28/04/2010[35]	Each of the generation unit installed under the CPA-XXX shall comply to the MNRE guidelines: • For biomass gasification unit- Notification dated

[34] The prevailing guidelines available at the time of CPA inclusion shall apply.

[35] http://www.mnre.gov.in/file-manager/offgrid-biomass-gas-schemes/biomassgasifier-2010-11.pdf

		and/or • For solar PV panels installed -Notification dated 8/07/2010.[36]	28/04/2010[37] •
(d)	Conditions to check the start date of the CPA through documentary evidence;	The CME shall check the date of the placement of the first work order with respect to the installation of any generation unit in the CPA, which shall be after 24/05/2012[38] and earlier than the end date of the PoA (28 years from the date of registration).	The start date of the CPA is *dd/mm/yyyy* , and thus after the commencement of the validation of the PoA i.e. 24/05/2012. *<mention the name of the documents provided for validation>*
(e)	Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs;	Each CPA shall satisfy the applicability criteria described in the approved methodology AMS-I.L version 01, *Electrification of rural communities using renewable energy*.	The CPA-XXX fulfills all the applicability criteria as mentioned in AMS I.L ver 01.
(f)	The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as specified in Section A above;	Each CPA shall demonstrate the additionality as per the requirements of *"Guidelines for demonstrating additionality of microscale project activities* EB 68, Annex 26, ver 04" as defined in section B.1 of the PoA DD.	The CPA-XXX fulfills the additionality criteria i.e. • The CPA-XXX is designed for the local distribution networks in the regions not connected to grid. The implementation for the project will be in the areas that do not have access to any electricity distribution system/network such as a national grid/regional grid before project implementation. • The CPA-XXX the unit (or the "*independent subsystem*") to be installed is a mini power plant is of

[36] http://mnre.gov.in/file-manager/dec-solar-thermal-systems/aa-mnre-jnnsm-2010-11.pdf
[37] http://www.mnre.gov.in/file-manager/offgrid-biomass-gas-schemes/biomassgasifier-2010-11.pdf
[38] *Date on which the PoA DD was uploaded at the UNFCCC website for Global Stakeholder Process (GSP)*

			capacity of <capacity of the CPA is to be mentioned> kW i.e. less than 1500 kW. • 100% of the end users under the CPA-XXX are rural households and/or communities which include households, commercial facilities such as shops, supplying the electricity to the end –use applications which may include lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc. As also defined in section B.1 of the PoA DD.
(g)	The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;	The local stakeholder consultation meeting shall be conducted for each CPA as per the CDM requirements at the time of inclusion. The CME shall verify all the documents related to stakeholder consultation meeting and the solicitation of the comments received from the stakeholder meetings will be described in section C of the specific CPA DD. The EIA requirement for each CPA shall be checked as per the prevailing host party laws..	The stakeholder consultation was conducted at *<no. of sites>* sites for the generation unit considered in the CPA-*XXX* and the solicitation of the stakeholder meeting conducted at the site has been described in section C of the CPA DD. *<explanation of the EIA requirement is to be provided based on the prevalent host party laws>*

(h)	Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance;	The CME shall provide an undertaking that there shall be no funding from Annex-I parties, if any, does not result in a diversion of official development assistance before the inclusion of the CPA under the proposed PoA	*<Undertaking from the CPA project developer[39]>*
(i)	Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid connected/ off-grid) and distribution mechanisms (e.g. direct installation);	Each CPA will comprise of generating units of capacity 5kW-250kW and the target beneficiaries will be areas that do not have access to any electricity distribution system/network such as a national grid/regional grid before project implementation. The electricity distributed by the CPA will be used for the applications which may include lighting[40] (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc.	The CPA-XXX comprise of biomass gasification technology of capacity XX kW supplying electricity to rural areas that do not have access to any electricity distribution system/network such as a national grid/regional grid before project implementation. Under the CPA-XXX, the end use of the electricity distributed will be used for the applications which may include lighting [41] (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc.
(j)	Where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling and surveys	In the proposed PoA, the CME opts for a verification method that does not use sampling to verify each installation in SSC-CPA. A monitoring plan will be established such that each system under the SSC-CPA under this PoA is monitored and verified.	No sampling is required for the CPA-XXX.
(k)	Where applicable, the conditions that ensure that every CPA in	The total installed capacity of the CPA shall not exceed	The total installed capacity of the CPA-

[39] Undertaking from the CME is submitted to the DOE

[40] Compact Fluorescent Lamps (CFLs), Light Emitting Diode (LED) lamps, and/or fluorescent lamps can be used for lighting purposes.

[41] Compact Fluorescent Lamps (CFLs), Light Emitting Diode (LED) lamps, and/or fluorescent lamps can be used for lighting purposes.

	aggregate meets the small-scale or microscale threshold criteria and remains within those thresholds throughout the crediting period of the CPA;	1MW.The following documents shall be provided at the time of SSC-CPA inclusion: Declaration from the CME	XXX is of <capacity of the CPA is to be mentioned> kW which is less than 1 MW.[42]
(l)	Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories.	1)For the debundling check, to check that there is no such activity: - i. Which is a CPA registered (included) by the same CME in a PoA; OR ii. There is an application for the registration (inclusion) of the activity (CPA) under a PoA by the same CME; OR iii. Which is a registered CDM project activity by the same CME (2)If the criterion (1) does hold true, the following is to be checked : i. The activity (or any installation in the activity) is not present within 1 km radius of any of the generation units covered in the CPA. (3)If the criterion (1) and (2) does hold true, the following is to be checked : i. The combined capacity of the activity and the proposed CPA is less than 5 MW (the microscale capacity limit). The CME of the PoA to ensure the de-bundling check shall cross-check with the following documents/information at the time of SSC-CPA inclusion: • Land documents • Geo-coordinates • Undertaking from the CME pertaining to	There is no other activity by the CPA implementer which has been considered for CDM, thus not making this CPA a debundled component of any small scale or large scale project or PoA. *<mention the name of the documents provided for validation>*

[42] Undertaking from the CME is submitted to the validating DOE.

		above requirement.	

B.6. Estimation of emission reductions of a generic CPA
B.6.1. Explanation of methodological choices
>>

As per the methodology, the emission reductions are arrived at by using the formulations below:

Baseline emissions

$$BE_y = BE_{55,y} + BE_{250,y} + BE_{250\,plus,y} \quad \textbf{(1)}$$

Where:

BE_y	Baseline emissions in year *y* (tCO_2)
$BE_{55,y}$	Aggregate baseline emissions for facilities that consumed equal to or less than 55 kWh of renewable electricity from project renewable electricity systems in year *y* (tCO_2)
$BE_{250,y}$	Aggregate baseline emissions for facilities that consumed more than 55 kWh but equal to or less than 250 kWh of renewable electricity from project renewable electricity systems in year *y* (tCO_2)
$BE_{250\,plus,y}$	Aggregate baseline emissions for facilities that consumed greater than 250 kWh of renewable electricity from project renewable electricity systems in year *y* (tCO_2)

1. For facilities that consumed equal to or less than 55 kWh, baseline emissions are calculated as:

$$BE_{55,y} = \sum_{x}^{N} EG_{x,y} \times EF_{CO2,55} \quad \textbf{(2)}$$

Where:

$EG_{x,y}$	Electricity delivered by project renewable electricity generation system to facility *x*, where the electricity delivered to that facility is equal to or less than 55 KWh in year *y* (MWh)
$EF_{CO_2,55}$	6.8 (tCO_2/MWh)
X	Facility supplied with renewable electricity from operating project renewable electricity generation systems consuming equal to or less than 55 kWh in year *y*
N	Number of facilities in the project activity consuming equal to or less than 55 kWh/year

2. For facilities that consumed more than 55 kWh but equal to or less than 250 kWh, baseline emissions are calculated as:

$$BE_{250,y} = \sum_{z}^{M} \left(\left(EG_{z,y} - 0.055 \right) \times EF_{CO2,250} + C \right) \quad \textbf{(3)}$$

Where:

$EG_{z,y}$	Electricity delivered by project renewable electricity generation system to facility *z* in year *y*, where the electricity delivered to the facility is more than

	55 kWh but equal to or less than 250 kWh in year *y* (MWh)
$EF_{CO_2,250}$	1.3 (tCO_2/MWh)
Z	Facility supplied with renewable electricity from operating project renewable electricity generation systems consuming more than 55 kWh but equal to or less than 250 kWh in year *y*
C	0.374 (tCO_2), a constant calculated as (0.055 MWh x 6.8 tCO_2/MWh)
M	Number of facilities in the project activity consuming more than 55 kWh but equal to or less than 250 kWh/year

3. For facilities that consumed more than 250 kWh baseline emissions are calculated as:

$$BE_{250plus,y} = \sum_{w}^{P} \left(\left(EG_{w,y} - 0.250 \right) \times EF_{CO2,250plus} + D \right) \quad \textbf{(4)}$$

Where:

$EG_{w,y}$	Electricity delivered by project renewable electricity generation system to facility w in year *y* such that the electricity delivered to the facility is more than 250 kWh in year *y* (MWh)
$EF_{CO_2,250plus}$	1.0 (tCO_2/MWh)
W	Facility supplied with renewable electricity from operating project renewable electricity generation systems consuming more than 250 kWh in year *y*
D	0.6275 (tCO_2), a constant calculated as (0.055 MWh x 6.8 tCO_2/MWh + 0.195 MWh x 1.3 tCO_2/MWh)
P	Number of facilities in the project activity consuming more than 250 kWh/year

Project emissions

For the renewable energy projects, the project emissions are considered zero (i.e. PE_y =0)

Leakage

<u>Leakage emissions for CPAs that apply biomass gasification technology:</u>
According to AMS-I.L, Version 01, in the specific case of CPAs that apply ***biomass gasification technology i.e. usage of renewable Biomass***, the determination of leakage shall be done following the general guidance for leakage in small-scale biomass project activities (*Attachment C of Appendix B of the "Simplified modalities and procedures for small-scale clean development mechanism project activities; decision 4/CMP.1"*)

Hence:

LE_y= XX tCO_2/annum

Emission reductions

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

$$ER_y = BE_y - PE_y - LE_y \quad \textbf{(5)}$$

Where:

ER_y	Emission reductions in year *y* (tCO_2/y)
PE_y	Project emissions in year *y* (tCO_2/y)
LE_y	Leakage emissions in year *y* (tCO_2/y)

B.6.2. Data and parameters that are to be reported ex-ante

Data / Parameter	$EF_{CO2,55}$
Unit	tCO2/MWh
Description	Default emission factor for the facilities which utilize less than 55 kWh of electricity annually.
Source of data	Referred methodology AMS I.L Version 1
Value(s) applied	6.8
Choice of data or Measurement methods and procedures	The methodology provides default values of the emission factors for the purpose of baseline emissions calculations.
Purpose of data	The value of the emission factor is to be used in the calculation of emission reductions (baseline emissions)
Additional comment	Fixed ex-ante for entire crediting period

Data / Parameter	$EF_{CO2,250}$
Unit	tCO2/MWh
Description	Default emission factor for the facilities which utilize less than 250 kWh and more than 55 kWh of electricity annually.
Source of data	Referred methodology AMS I.L Version 1
Value(s) applied	1.3
Choice of data or Measurement methods and procedures	The methodology provides default values of the emission factors for the purpose of baseline emissions calculations.
Purpose of data	The value of the emission factor is to be used in the calculation of emission reductions (baseline emissions)
Additional comment	Fixed ex-ante for entire crediting period

Data / Parameter	$EF_{CO2,250\,plus}$
Unit	tCO2/MWh
Description	Default emission factor for the facilities which utilize more than 250 kWh of electricity annually.
Source of data	Referred methodology AMS I.L Version 1
Value(s) applied	1.0
Choice of data or Measurement methods and procedures	The methodology provides default values of the emission factors for the purpose of baseline emissions calculations.
Purpose of data	The value of the emission factor is to be used in the calculation of emission reductions (baseline emissions)
Additional comment	Fixed ex-ante for entire crediting period

B.6.3. Ex-ante calculations of emission reductions

>>

As per the emission reduction calculation procedure outlined in the section D.6.1 of Part –I of the CPA-DD, calculation has been performed for the CPA-XXX as below.

For the purpose of calculation of emission reductions, the following parameters shall be used:

Net quantity of the Electricity supplied to the end facility: EG_y
Number of facility: N (number of facilities consuming less than 55 kWh), M (number of facilities consuming between 55 and 250 kWh) and P (number of facilities consuming more than 250 kWh)

Baseline emissions

$$BE_y = BE_{55,y} + BE_{250,y} + BE_{250\,plus,y}$$

For the calculation of the Energy generated per facility in the year y, the following formulation shall be used. The energy consumed shall depend upon the connected load in Watts and the hours of power consumed (or supplied) at any particular household. As per the project design, the consumption hours are equal to the supply hours as the households do not carry any control switch for the usage of power. The generation units provide them power for 5-6 hours in the evening time which they all utilize for lighting.

$$\sum_{x,z,w}^{N,M,P} EG = \sum_{month} \frac{W \times H}{1000}$$

For the purpose of emission reduction estimation for the proposed CPA, the following considerations have been made:

- <number of units for each size to be mentioned> facilities per unit
- <no. of units to be mentioned> units in the CPA
- <average no. of hours of supply to be mentioned> hours of daily power supply
- <average connected load> W average connected load at each facility

Under these assumptions, per facility annual consumption comes to around XXX kWh

$$BE_{250,y} = \sum_{z}^{M} \left(\left(EG_{z,y} - 0.055 \right) \times EF_{CO2,250} + C \right)$$

= *XXX* tCO_2

Project emissions

For the biomass gasification projects, the project emissions are considered zero (i.e. PE_y =0)

Leakage

Leakage emissions for CPAs that apply biomass gasification technology:

According to AMS-I.L, Version 01, in the specific case of CPAs that apply ***biomass gasification technology i.e. usage of renewable Biomass***, the determination of leakage shall be done following the general guidance for leakage in small-scale biomass project activities (*Attachment C of Appendix B of the "Simplified modalities and procedures for small-scale clean development mechanism project activities; decision 4/CMP.1"*)

Hence:

LE_y= XX tCO_2/annum

Emission reductions

Emission reductions on annual basis (*ERy*) are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y = XXX\ tCO_2$$

Where:

ER_y	Emission reductions in year *y* (tCO_2/y)
PE_y	Project emissions in year *y* (tCO_2/y)
LE_y	Leakage emissions in year *y* (tCO_2/y)

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

Data / Parameter	N
Unit	Number
Description	Number of facilities (connected to the generation units in the CPA) consuming less than or equal to 55 kWh in an year y
Source of data	Monthly unit wise statements of consumption shall be used
Value(s) applied	XXX
Measurement methods and procedures	Monthly unit wise statements shall be prepared by the CPA implementer. The same shall be used to arrive at the number of facilities consuming less than 55 kWh.
Monitoring frequency	Monitoring frequency: Continuously Recording frequency: Monthly (Monthly unit wise statements shall be prepared by the CPA implementer and shall be aggregated on an yearly basis.)
QA/QC procedures	Meter shall be used at the delivery points at all the facilities to avoid the possibility of any unwanted or unaccounted connection. Any new connection of a facility shall happen via a formal agreement between the facility owner and the CPA implementer. The agreements can be used to cross check the total number of connections to any generation unit.
Purpose of data	The value shall be used to calculate the baseline emissions.
Additional comments	-

Data / Parameter	M
Unit	Number
Description	Number of facilities (connected to the generation units in the CPA) consuming more than 55 kWh and less than or equal to 250 kWh in an year y
Source of data	Monthly unit wise statements of consumption shall be used
Value(s) applied	XXX
Measurement methods and procedures	Monthly unit wise statements shall be prepared by the CPA implementer. The same shall be used to arrive at the number of facilities consuming between 55 to 250 kWh.
Monitoring frequency	Monitoring frequency: Continuously Recording frequency: Monthly (Monthly unit wise statements shall be prepared by the CPA implementer and shall be aggregated on an yearly basis.)
QA/QC procedures	Meters shall be used at the delivery points at all the facilities to avoid the possibility of any unwanted or unaccounted connection. Any new connection of a facility shall happen via a formal agreement between the facility owner and the CPA implementer. The agreements can be used to cross check the total number of connections to any generation unit.
Purpose of data	The value shall be used to calculate the baseline emissions.
Additional comments	-

Data / Parameter	P
Unit	Number
Description	Number of facilities (connected to the generation units in the CPA) consuming more than 250 kWh in an year y
Source of data	Monthly unit wise statements of consumption shall be used
Value(s) applied	XXX
Measurement methods and procedures	Monthly unit wise statements shall be prepared by the CPA implementer. The same shall be used to arrive at the number of facilities consuming between more than 250 kWh.
Monitoring frequency	Monitoring frequency: Continuously Recording frequency: Monthly (Monthly unit wise statements shall be prepared by the CPA implementer and shall be aggregated on an yearly basis.)
QA/QC procedures	Meters shall be used at the delivery points at all the facilities to avoid the possibility of any unwanted or unaccounted connection. Any new connection of a facility shall happen via a formal agreement between the facility owner and the CPA implementer. The agreements can be used to cross check the total number of connections to any generation unit.
Purpose of data	The value shall be used to calculate the baseline emissions.
Additional comments	-

Data / Parameter	$EG_{x,y}$
Unit	kWh
Description	Net amount of renewable electricity delivered to all the end-use facilities connected to the project renewable electricity generation systems in year y (annual consumption less than 55 kWh)
Source of data	The monthly statements from all the facilities shall be used for the energy values.
Value(s) applied	XXX
Measurement methods and procedures	As per the methodology AMS I.L ver 01, para 17 option 1, energy meters will be installed at each facility to monitor the net amount of renewable energy delivered.
Monitoring frequency	Monitoring: Continuously Recording: On monthly basis
QA/QC procedures	The monthly rent receipt shall be used to cross check the power consumption by any facility. Also, the connection contract (Declaration) between PP and the customer shall also be used to cross check the connected load. Also, the operation records of any generation unit shall be used to cross check the values of the hours of power supply.
Purpose of data	For calculating the baseline emissions
Additional comments	-

Data / Parameter	$EG_{z,y}$
Unit	kWh
Description	Net amount of renewable electricity delivered to all the end-use facilities connected to the project renewable electricity generation systems in year y (annual consumption between more than 55 kWh but equal to or less than 250 kWh)
Source of data	The monthly statements from all the facilities shall be used for the energy values.
Value(s) applied	XXX
Measurement methods and procedures	As per the methodology AMS I.L ver 01, para 17 option 1, energy meters will be installed at each facility to monitor the net amount of renewable energy delivered.
Monitoring frequency	Monitoring: Continuously Recording: On monthly basis
QA/QC procedures	The monthly rent receipt shall be used to cross check the power consumption by any facility. Also, the connection contract (Declaration) between PP and the customer shall also be used to cross check the connected load. Also, the operation records of any generation unit shall be used to cross check the values of the hours of power supply.
Purpose of data	For calculating the baseline emissions
Additional comments	-

Data / Parameter	$EG_{w,y}$
Unit	kWh
Description	Net amount of renewable electricity delivered to all the end-use facilities connected to the project renewable electricity generation systems in year y (annual consumption more than 250 kWh)
Source of data	The monthly statements from all the facilities shall be used for the energy values.
Value(s) applied	XXX
Measurement methods and procedures	As per the methodology AMS I.L ver 01, para 17 option 1, energy meters will be installed at each facility to monitor the net amount of renewable energy delivered.
Monitoring frequency	Monitoring: Continuously Recording: On monthly basis
QA/QC procedures	The monthly rent receipt shall be used to cross check the power consumption by any facility. Also, the connection contract (Declaration) between PP and the customer shall also be used to cross check the connected load. Also, the operation records of any generation unit shall be used to cross check the values of the hours of power supply.
Purpose of data	For calculating the baseline emissions
Additional comments	-

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

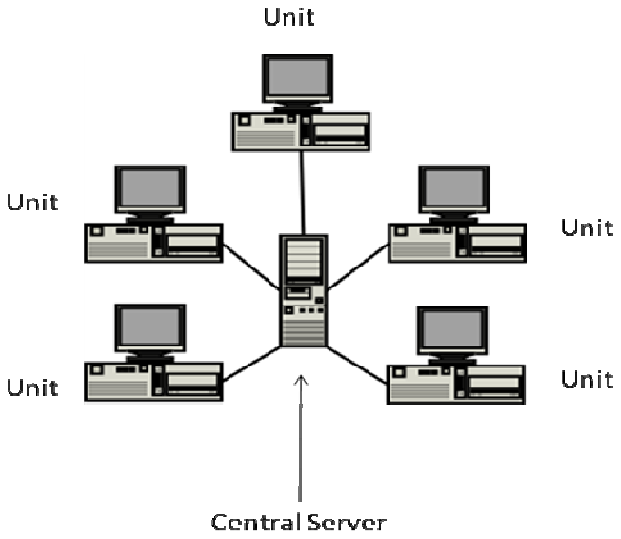
>>

A uniform data monitoring system is being followed for all the CPA under the PoA. For the SSC-CPA under consideration, the monitoring has been charted out below.

Data recording

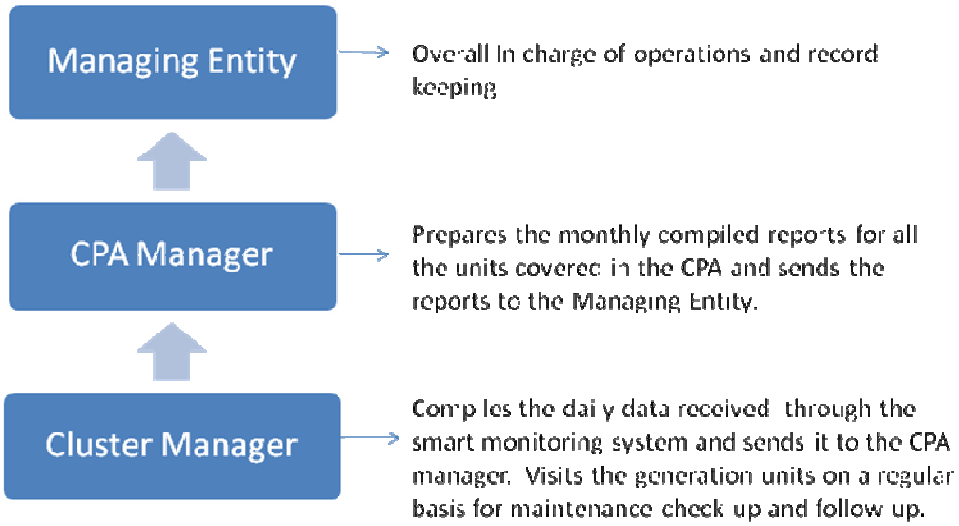
Smart Monitoring System will be used for data recording. It will be capable of monitoring the data like net amount of renewable electricity delivered to all the end-use facilities on a continuous basis. The system will be linked to the meters installed at the generation units. The daily data will be received by the CPA manager and it will be compiled on a monthly basis as per the Monthly compiled sheet shown in Annex 4.

The diagram below shows the information flow from a particular generation unit to the central server. The information will be sent via a GSM network.



<u>*Roles and Responsibilities*</u>

CPA manager present at the generation unit will be involved in completing the data requirement of the smart monitoring system. Once, the data is sent to the central server by the smart monitoring system, data compilation will take place. The diagram below shows the flow of information of data.



The monthly compiled CPA reports mentioned above in the chart will be prepared as per the formats provided in Annex 4. They are in line with the formats provided in the PoA DD.

QA/QC

Maintenance

All the operating equipments at the generation units will be regularly checked for maintenance and a monthly maintenance log shall be maintained. The format of the same has been provided in Annexure 2.

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. On a regular basis, all the meters shall be calibrated annually and the calibration certificates shall be kept with the CPA manager.

Data Archiving

The responsibility of data archival will rest with the managing entity. The monthly reports sent (in soft copy) by the CPA managers for the whole crediting will be checked and archived till 2 years post the end of crediting period of the CPA.

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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 implementation entity*> under the PoA by Husk Power Systems Private Limited (CME). Under this CPA, HPS plans to install and operate <*total capacity of the CPA*> kW in India.

The Solar photovoltaic (SPV) technology unit(s) under the CPA-XXX of <*mention the type of installation used i.e. Solar PV based AC grid system and/or solar PV based DC grid system*> has been planned as per the implementation model <*name of the models as per section A.2 of the part-I of the PoA DD*>. *<Brief description of the models considered under the CPA is to be provided>*

Scope of CPA:

Under the CPA being implemented by the <*name of the CPA implementing entity*>, <*number of generating units*> generation unit shall provide electricity to facilities and energy consumers that do not have access to any electricity distribution system/network such as a national grid, regional grid before project implementation. The end users are planned to be limited to households/communities as mentioned in the PoA DD, which will use this electricity from the PoA only for applications such as lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc. The electricity generated from the project activity contributes to an average GHG reductions estimated as <*average emission reductions of the CPA*> tCO_2/annum.

SECTION B. Application of a baseline and monitoring methodology

B.1. Reference of the approved baseline and monitoring methodology(ies) selected

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Details of the baseline and monitoring methodology applied in the CPA are provided below.

Title: AMS I.L (Electrification of rural communities using renewable energy), Version 01.0, EB 66, Annex 53, Valid from 2nd March, 2012

Reference: http://cdm.unfccc.int/methodologies/DB/5V3GUB9R90CWY26N7RXSSEVZ6C5W8G

B.2. Application of methodology(ies)

>>

The applicability of the methodology has been checked below for the CPA-XX against all the applicability conditions specified in the baseline and monitoring methodology, AMS I.L: *Electrification of rural communities using renewable energy, version 01.0, EB 66, Annex 53* has been appropriately chosen to be applied for this PoA. The applicability has been discussed below:

Applicability	Justification
This methodology is applicable to electrification of a community achieved through the installation of new, renewable electricity generation systems[43] *(e.g. solar photovoltaic systems) that displace fossil fuel use, such as in fuel-based lighting systems and stand-alone power generators.*	This CPA-XXX involves the generation and distribution of electricity through the installation of small capacity solar photovoltaic (SPV) technology replacing the usage of (Kerosene/diesel) in the rural communities/ households of India. *<Statistical data (as available) for the justification*

[43] *Facilities and consumers supplied electricity through an isolated mini-grid are also included. For the purpose of this methodology, a mini-grid is defined as a small-scale power system with a total capacity not exceeding 15 MW (i.e. the sum of installed capacities of all generators connected to the mini-grid is equal to or less than 15 MW) which is not connected to a national or a regional grid.*

	of the applicability criteria>
The applicability of this methodology is limited to facilities and energy consumers that do not have access to any electricity distribution system/ network such as a national grid, regional grid before project implementation. Such electricity) end-use facilities may include households; public buildings; and/or small, medium and micro enterprises (SMMEs). Electricity uses may include interior lighting, street lighting, refrigeration, or agricultural water pumps. At least 75% of the end use facilities connected to the project renewable electricity generation system(s) must be households.	The CPA-XXX shall provide electricity to facilities and energy consumers that do not have access to any electricity distribution system/ network such as a national grid, regional grid before project implementation to the households/communities not connected to any electricity grid prior to its implementation & the end-users are rural communities/households. *<Statistical data (as available) for the justification of the applicability criteria>*
The applicability of this methodology is limited to end-use facilities that, if they utilize electricity for lighting in the project activity, only utilize high efficient lighting equipment such as Compact Fluorescent Lamps (CFLs), Light Emitting Diode (LED) lamps, and/or fluorescent lamps.[44]	Under the CPA-XXX, the households/communities will utilize only Compact Fluorescent Lamps (CFLs) or Light emitting diode (LED) Lamps and/or fluorescent lamps, which they utilize for the lighting purpose. [45]
Project equipment shall comply with applicable international standards or comparable national, regional or local standards/guidelines and the Project Design Document (PDD) shall indicate the standard(s) applied.	Each of the generation unit installed under the CPA-XXX shall comply to the MNRE guidelines[46]: • For solar PV panels installed -Notification dated 8/07/2010.[47]
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 CPA-XXX involves the generation of renewable power through the installation of Solar photovoltaic (SPV) technology.
The aggregate installed capacity of the renewable energy generating systems shall not exceed 15 MW.	The aggregated installed capacity of the renewable energy generating systems for the CPA-XXX is <*total capacity of the CPA to be mentioned* > kW will be less than 1 MW.

The above justifications provided for the applicability of the methodology, show that the CPA-XXX is a Type I project, as it is involved in the "generation of electricity" using renewable energy. This fundamental objective of the CPA shall remain consistent throughout the crediting period of the CPA. Thus, the CPA-XXX will be a Type I activity for its entire crediting period.

[44] A declaration will be signed by the customers (i.e. end use facilities), that only CFLs or LED or fluorescent lamps shall be used for lighting purposes.

[45] A declaration will be signed by the customers (i.e. end use facilities), that only CFLs or LED or fluorescent lamps shall be used for lighting purposes.

[46] The prevailing guidelines available at the time of CPA inclusion shall apply.

[47] http://mnre.gov.in/file-manager/dec-solar-thermal-systems/aa-mnre-jnnsm-2010-11.pdf

B.3. Sources and GHGs

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In accordance with the PoA DD, the sources and the GHGs included in the CPA boundary are presented in the table below:

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Emissions from the (kerosene/diesel) in the rural communities/ households.	CO_2	Yes	Main emission source
		CH_4	No	Excluded
		N_2O	No	Excluded
Project scenario	Use of Solar photovoltaic (SPV) technology is used in the proposed CPA-XXX for the electricity generation	CO_2	No	The project activity is renewable energy project which will not create any emissions itself.
		CH_4	No	The project activity is renewable energy project which will not create any emissions itself.
		N_2O	No	The project activity is renewable energy project which will not create any emissions itself.

The geographical scope of all the generation units present in the CPA is within the boundary of the PoA (India). <Diagrams to be represented below>

B.4. Description of baseline scenario

>>

The CPA-XXX shall provide electricity to consumers which do not have any access to national or regional grid. The households/communities, which shall be benefited from the PoA, in the baseline scenario, depend primarily on kerosene/diesel for their needs.

As per the methodology, *"two parameters are required to be known to determine the baseline:*

(c) *The amount of renewable electricity consumed by the facilities served by the project renewable electricity generation systems;*
(d) *The number of facilities (e.g. households, SMMEs, public buildings) supplied with renewable electricity by the project activity.*

The following are the baseline emission factors for each tranche of annual amount of renewable electricity consumed per end-use facility during the crediting period.

(d) *For the first 55 kWh of renewable electricity consumed by each facility the baseline emission factor is 6.8 (tCO_2/MWh);*

(e) *For the facility consumption greater than 55 kWh but equal to or less than 250 kWh, the baseline emission factor is 1.3 (tCO_2/MWh) for the tranche between 55 and 250 kWh;*

(f) *For the facility consumption beyond 250 kWh, the baseline emission factor is 1.0 (tCO_2/MWh) for the tranche beyond 250 kWh.*

In the case of the CPA, the end use facilities are households/communities, each of which uses electricity for lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc.

Depending upon the net electricity consumed by the households/communities i.e. of any particular facility, different formulae and emission factors will be used or the purpose of emission reduction calculation.

B.5. Demonstration of eligibility for a generic CPA

>>

The proposed CPA-*XXX* is a group of units each cumulatively presenting installed capacity of *XX* kW. The eligibility criteria stated in the PoA DD are confirmed by the CPA implementer(s) as under:

S.No.	Eligibility criteria as per the required in "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities"	Justification for CPA compliance to the eligibility criteria	Justification/Documents
(a)	*The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA;*	All the installations in the CPA shall be located within the geographical boundary of India (i.e. host country). Documents to be checked by the CME at the time of inclusion of CPA: • Land documents • Geo-coordinates of the units using GPS device	The installation covered under CPA-XXX lies in the geographical boundary of India. *<mention the name of the documents provided for validation>*
(b)	Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);	Each unit to be installed in each CPA will be given • Title of the programme • CPA no. • Location details • Geographical co-ordinates Type of technology used.	The XX unit installed under CPA-XXX has been provided with the following: • Title of the programme • CPA no. • Location details • Geographical co-ordinates • Type of technology used
(c)	The specifications of technology/measure including the level and type of service, performance specifications including compliance with	Each of the generation unit installed under the CPA shall comply to the MNRE guidelines[48]: • For biomass	Each of the generation unit installed under the CPA-XXX shall comply to the MNRE guidelines[51]:

[48] The prevailing guidelines available at the time of CPA inclusion shall apply.

	testing/certifications;	gasification unit- Notification dated 28/04/2010[49] and/or • For solar PV panels installed -Notification dated 8/07/2010.[50]	• For solar PV panels installed - Notification dated 8/07/2010.[52]
(d)	Conditions to check the start date of the CPA through documentary evidence;	The CME shall check the date of the placement of the first work order with respect to the installation of any generation unit in the CPA, which shall be after 24/05/2012[53] and earlier than the end date of the PoA (28 years from the date of registration).	The start date of the CPA is *dd/mm/yyyy* , and thus after the commencement of the validation of the PoA i.e. 24/05/2012. *<mention the name of the documents provided for validation>*
(e)	Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs;	Each CPA shall satisfy the applicability criteria described in the approved methodology AMS-I.L version 01, *Electrification of rural communities using renewable energy*.	The CPA-XXX fulfills all the applicability criteria as mentioned in AMS I.L ver 01.
(f)	The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as specified in Section A above;	Each CPA shall demonstrate the additionality as per the requirements of *"Guidelines for demonstrating additionality of microscale project activities* EB 68, Annex 26, ver 04" as defined in section B.1 of the PoA DD.	The CPA-XXX fulfills the additionality criteria i.e. • The CPA-XXX is designed for the local distribution networks in the regions not connected to grid. The implementation for the project will be in the areas that do not have access to any electricity distribution system/network such as a national grid/regional grid before project implementation. • The CPA-XXX the

[51] The prevailing guidelines available at the time of CPA inclusion shall apply.
[49] http://www.mnre.gov.in/file-manager/offgrid-biomass-gas-schemes/biomassgasifier-2010-11.pdf
[50] http://mnre.gov.in/file-manager/dec-solar-thermal-systems/aa-mnre-jnnsm-2010-11.pdf
[52] http://mnre.gov.in/file-manager/dec-solar-thermal-systems/aa-mnre-jnnsm-2010-11.pdf
[53] *Date on which the PoA DD was uploaded at the UNFCCC website for Global Stakeholder Process (GSP)*

			unit (or the "*independent subsystem*") to be installed is a mini power plant is of capacity of <capacity of the CPA is to be mentioned> kW i.e. less than 1500 kW. • 100% of the end users under the CPA-XXX are rural households and/or communities which include households, commercial facilities such as shops, supplying the electricity to the end –use applications which may include lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc. As also defined in section B.1 of the PoA DD.
(g)	The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;	The local stakeholder consultation meeting shall be conducted for each CPA as per the CDM requirements at the time of inclusion. The CME shall verify all the documents related to stakeholder consultation meeting and the solicitation of the comments received from the stakeholder meetings will be described in section C of the specific CPA DD. The EIA requirement for each CPA shall be checked as per the prevailing host party laws..	The stakeholder consultation was conducted at *<no. of sites>* sites for the generation unit considered in the CPA-*XXX* and the solicitation of the stakeholder meeting conducted at the site has been described in section C of the CPA DD. *<explanation of the EIA requirement is to be provided based on the prevalent host party laws>*

(h)	Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance;	The CME shall provide an undertaking that there shall be no funding from Annex-I parties, if any, does not result in a diversion of official development assistance before the inclusion of the CPA under the proposed PoA	*<Undertaking from the CPA project developer[54]>*
(i)	Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid connected/ off-grid) and distribution mechanisms (e.g. direct installation);	Each CPA will comprise of generating units of capacity 5kW-250kW and the target beneficiaries will be areas that do not have access to any electricity distribution system/network such as a national grid/regional grid before project implementation. The electricity distributed by the CPA will be used for the applications which may include lighting[55] (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc.	The CPA-XXX comprise of Solar photovoltaic (SPV) technology of capacity XX kW supplying electricity to rural areas that do not have access to any electricity distribution system/network such as a national grid/regional grid before project implementation. Under the CPA-XXX, the end use of the electricity distributed will be used for the applications which may include lighting [56] (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc.
(j)	Where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling and surveys	In the proposed PoA, the CME opts for a verification method that does not use sampling to verify each installation in SSC-CPA. A monitoring plan will be established such that each system under the SSC-CPA under this PoA is monitored and verified.	No sampling is required for the CPA-XXX.
(k)	Where applicable, the conditions that ensure that every CPA in	The total installed capacity of the CPA shall not exceed	The total installed capacity of the CPA-

[54] Undertaking from the CME is submitted to the DOE

[55] Compact Fluorescent Lamps (CFLs), Light Emitting Diode (LED) lamps, and/or fluorescent lamps can be used for lighting purposes.

[56] Compact Fluorescent Lamps (CFLs), Light Emitting Diode (LED) lamps, and/or fluorescent lamps can be used for lighting purposes.

	aggregate meets the small-scale or microscale threshold criteria and remains within those thresholds throughout the crediting period of the CPA;	1MW.The following documents shall be provided at the time of SSC-CPA inclusion: Declaration from the CME	XXX is of <capacity of the CPA is to be mentioned> kW which is less than 1 MW.[57]
(l)	Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories.	1)For the debundling check, to check that there is no such activity: - iv. Which is a CPA registered (included) by the same CME in a PoA; OR v. There is an application for the registration (inclusion) of the activity (CPA) under a PoA by the same CME; OR vi. Which is a registered CDM project activity by the same CME (2)If the criterion (1) does hold true, the following is to be checked : ii. The activity (or any installation in the activity) is not present within 1 km radius of any of the generation units covered in the CPA. (3)If the criterion (1) and (2) does hold true, the following is to be checked : ii. The combined capacity of the activity and the proposed CPA is less than 5 MW (the microscale capacity limit). The CME of the PoA to ensure the de-bundling check shall cross-check with the following documents/information at the time of SSC-CPA inclusion: • Land documents • Geo-coordinates • Undertaking from the CME pertaining to	There is no other activity by the CPA implementer which has been considered for CDM, thus not making this CPA a debundled component of any small scale or large scale project or PoA. *<mention the name of the documents provided for validation>*

[57] Undertaking from the CME is submitted to the validating DOE.

		above requirement.	

B.6. Estimation of emission reductions of a generic CPA
B.6.1. Explanation of methodological choices
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As per the methodology, the emission reductions are arrived at by using the formulations below:

Baseline emissions

$$BE_y = BE_{55,y} + BE_{250,y} + BE_{250\,plus,y} \quad \textbf{(6)}$$

Where:

BE_y	Baseline emissions in year *y* (tCO_2)
$BE_{55,y}$	Aggregate baseline emissions for facilities that consumed equal to or less than 55 kWh of renewable electricity from project renewable electricity systems in year *y* (tCO_2)
$BE_{250,y}$	Aggregate baseline emissions for facilities that consumed more than 55 kWh but equal to or less than 250 kWh of renewable electricity from project renewable electricity systems in year *y* (tCO_2)
$BE_{250\,plus,y}$	Aggregate baseline emissions for facilities that consumed greater than 250 kWh of renewable electricity from project renewable electricity systems in year *y* (tCO_2)

4. For facilities that consumed equal to or less than 55 kWh, baseline emissions are calculated as:

$$BE_{55,y} = \sum_{x}^{N} EG_{x,y} \times EF_{CO2,55} \quad \textbf{(7)}$$

Where:

$EG_{x,y}$	Electricity delivered by project renewable electricity generation system to facility *x*, where the electricity delivered to that facility is equal to or less than 55 KWh in year *y* (MWh)
$EF_{CO_2,55}$	6.8 (tCO_2/MWh)
X	Facility supplied with renewable electricity from operating project renewable electricity generation systems consuming equal to or less than 55 kWh in year *y*
N	Number of facilities in the project activity consuming equal to or less than 55 kWh/year

5. For facilities that consumed more than 55 kWh but equal to or less than 250 kWh, baseline emissions are calculated as:

$$BE_{250,y} = \sum_{z}^{M} \left(\left(EG_{z,y} - 0.055 \right) \times EF_{CO2,250} + C \right) \quad \textbf{(8)}$$

Where:

$EG_{z,y}$	Electricity delivered by project renewable electricity generation system to facility *z* in year *y*, where the electricity delivered to the facility is more than

55 kWh but equal to or less than 250 kWh in year *y* (MWh)

$EF_{CO_2,250}$ 1.3 (tCO_2/MWh)

Z Facility supplied with renewable electricity from operating project renewable electricity generation systems consuming more than 55 kWh but equal to or less than 250 kWh in year *y*

C 0.374 (tCO_2), a constant calculated as (0.055 MWh x 6.8 tCO_2/MWh)

M Number of facilities in the project activity consuming more than 55 kWh but equal to or less than 250 kWh/year

6. For facilities that consumed more than 250 kWh baseline emissions are calculated as:

$$BE_{250plus,y} = \sum_{w}^{P} \left(\left(EG_{w,y} - 0.250 \right) \times EF_{CO2,250plus} + D \right) \quad \textbf{(9)}$$

Where:

$EG_{w,y}$ Electricity delivered by project renewable electricity generation system to facility w in year *y* such that the electricity delivered to the facility is more than 250 kWh in year *y* (MWh)

$EF_{CO_2,250plus}$ 1.0 (tCO_2/MWh)

W Facility supplied with renewable electricity from operating project renewable electricity generation systems consuming more than 250 kWh in year *y*

D 0.6275 (tCO_2), a constant calculated as (0.055 MWh x 6.8 tCO_2/MWh + 0.195 MWh x 1.3 tCO_2/MWh)

P Number of facilities in the project activity consuming more than 250 kWh/year

Project emissions

For the renewable energy projects, the project emissions are considered zero (i.e. PE_y =0)

Leakage

As per the applicable methodology AMS I.L ver 1.0 "Leakage emissions shall be considered when energy generating equipment is transferred from another activity. Since the CPA does not employ any transfer of generating equipment, leakage emissions can be neglected.

Hence:

LE_y= XX tCO_2/annum

Emission reductions

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

$$ER_y = BE_y - PE_y - LE_y \quad \textbf{(10)}$$

Where:

ER_y Emission reductions in year *y* (tCO_2/y)

PE_y Project emissions in year *y* (tCO_2/y)

LE_y Leakage emissions in year *y* (tCO_2/y)

B.6.2. Data and parameters that are to be reported ex-ante

Data / Parameter	$EF_{CO2,55}$
Unit	tCO2/MWh
Description	Default emission factor for the facilities which utilize less than 55 kWh of electricity annually.
Source of data	Referred methodology AMS I.L Version 1
Value(s) applied	6.8
Choice of data or Measurement methods and procedures	The methodology provides default values of the emission factors for the purpose of baseline emissions calculations.
Purpose of data	The value of the emission factor is to be used in the calculation of emission reductions (baseline emissions)
Additional comment	Fixed ex-ante for entire crediting period

Data / Parameter	$EF_{CO2,250}$
Unit	tCO2/MWh
Description	Default emission factor for the facilities which utilize less than 250 kWh and more than 55 kWh of electricity annually.
Source of data	Referred methodology AMS I.L Version 1
Value(s) applied	1.3
Choice of data or Measurement methods and procedures	The methodology provides default values of the emission factors for the purpose of baseline emissions calculations.
Purpose of data	The value of the emission factor is to be used in the calculation of emission reductions (baseline emissions)
Additional comment	Fixed ex-ante for entire crediting period

Data / Parameter	$EF_{CO2,250\,plus}$
Unit	tCO2/MWh
Description	Default emission factor for the facilities which utilize more than 250 kWh of electricity annually.
Source of data	Referred methodology AMS I.L Version 1
Value(s) applied	1.0
Choice of data or Measurement methods and procedures	The methodology provides default values of the emission factors for the purpose of baseline emissions calculations.
Purpose of data	The value of the emission factor is to be used in the calculation of emission reductions (baseline emissions)
Additional comment	Fixed ex-ante for entire crediting period

B.6.3. Ex-ante calculations of emission reductions

>>

As per the emission reduction calculation procedure outlined in the section D.6.1 of Part –I of the CPA-DD, calculation has been performed for the CPA-XXX as below.

For the purpose of calculation of emission reductions, the following parameters shall be used:

Net quantity of the Electricity supplied to the end facility: EG_y
Number of facility: N (number of facilities consuming less than 55 kWh), M (number of facilities consuming between 55 and 250 kWh) and P (number of facilities consuming more than 250 kWh)

Baseline emissions

$$BE_y = BE_{55,y} + BE_{250,y} + BE_{250\,plus,y}$$

For the calculation of the Energy generated per facility in the year y, the following formulation shall be used. The energy consumed shall depend upon the connected load in Watts and the hours of power consumed (or supplied) at any particular household. As per the project design, the consumption hours are equal to the supply hours as the households do not carry any control switch for the usage of power. The generation units provide them power for 5-6 hours in the evening time which they all utilize for lighting.

$$\sum_{x,z,w}^{N,M,P} EG = \sum_{month} \frac{W \times H}{1000}$$

For the purpose of emission reduction estimation for the proposed CPA, the following considerations have been made:

- <number of units for each size to be mentioned> facilities per unit
- <no. of units to be mentioned> units in the CPA
- <average no. of hours of supply to be mentioned> hours of daily power supply
- <average connected load> W average connected load at each facility

Under these assumptions, per facility annual consumption comes to around XXX kWh

$$BE_{250,y} = \sum_{z}^{M} \left(\left(EG_{z,y} - 0.055 \right) \times EF_{CO2,250} + C \right)$$

$= XXX$ tCO_2

Project emissions

For the Solar photovoltaic (SPV) technology projects, the project emissions are considered zero (i.e. $PE_y = 0$)

Leakage

As per the applicable methodology AMS I.L ver 1.0 "Leakage emissions shall be considered when energy generating equipment is transferred from another activity. Since the CPA does not employ any transfer of generating equipment, leakage emissions can be neglected.
Hence:

LE_y= XX tCO_2/annum

Emission reductions

Emission reductions on annual basis (*ER*y) are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y = XXX\ tCO_2$$

Where:

ER_y	Emission reductions in year *y* (tCO_2/y)
PE_y	Project emissions in year *y* (tCO_2/y)
LE_y	Leakage emissions in year *y* (tCO_2/y)

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

Data / Parameter	N
Unit	Number
Description	Number of facilities (connected to the generation units in the CPA) consuming less than or equal to 55 kWh in an year y
Source of data	Monthly unit wise statements of consumption shall be used
Value(s) applied	XXX
Measurement methods and procedures	Monthly unit wise statements shall be prepared by the CPA implementer. The same shall be used to arrive at the number of facilities consuming less than 55 kWh.
Monitoring frequency	Monitoring frequency: Continuously Recording frequency: Monthly (Monthly unit wise statements shall be prepared by the CPA implementer and shall be aggregated on an yearly basis.)
QA/QC procedures	Meter shall be used at the delivery points at all the facilities to avoid the possibility of any unwanted or unaccounted connection. Any new connection of a facility shall happen via a formal agreement between the facility owner and the CPA implementer. The agreements can be used to cross check the total number of connections to any generation unit.
Purpose of data	The value shall be used to calculate the baseline emissions.
Additional comments	-

Data / Parameter	M
Unit	Number
Description	Number of facilities (connected to the generation units in the CPA) consuming more than 55 kWh and less than or equal to 250 kWh in an year y
Source of data	Monthly unit wise statements of consumption shall be used
Value(s) applied	XXX
Measurement methods and procedures	Monthly unit wise statements shall be prepared by the CPA implementer. The same shall be used to arrive at the number of facilities consuming between 55 to 250 kWh.
Monitoring frequency	Monitoring frequency: Continuously Recording frequency: Monthly (Monthly unit wise statements shall be prepared by the CPA implementer and shall be aggregated on an yearly basis.)
QA/QC procedures	Meters shall be used at the delivery points at all the facilities to avoid the possibility of any unwanted or unaccounted connection. Any new connection of a facility shall happen via a formal agreement between the facility owner and the CPA implementer. The agreements can be used to cross check the total number of connections to any generation unit.
Purpose of data	The value shall be used to calculate the baseline emissions.
Additional comments	-

Data / Parameter	P
Unit	Number
Description	Number of facilities (connected to the generation units in the CPA) consuming more than 250 kWh in an year y
Source of data	Monthly unit wise statements of consumption shall be used
Value(s) applied	XXX
Measurement methods and procedures	Monthly unit wise statements shall be prepared by the CPA implementer. The same shall be used to arrive at the number of facilities consuming between more than 250 kWh.
Monitoring frequency	Monitoring frequency: Continuously Recording frequency: Monthly (Monthly unit wise statements shall be prepared by the CPA implementer and shall be aggregated on an yearly basis.)
QA/QC procedures	Meters shall be used at the delivery points at all the facilities to avoid the possibility of any unwanted or unaccounted connection. Any new connection of a facility shall happen via a formal agreement between the facility owner and the CPA implementer. The agreements can be used to cross check the total number of connections to any generation unit.
Purpose of data	The value shall be used to calculate the baseline emissions.
Additional comments	-

Data / Parameter	$EG_{x,y}$
Unit	kWh
Description	Net amount of renewable electricity delivered to all the end-use facilities connected to the project renewable electricity generation systems in year y (annual consumption less than 55 kWh)
Source of data	The monthly statements from all the facilities shall be used for the energy values.
Value(s) applied	XXX
Measurement methods and procedures	As per the methodology AMS I.L ver 01, para 17 option 1, energy meters will be installed at each facility to monitor the net amount of renewable energy delivered.
Monitoring frequency	Monitoring: Continuously Recording: On monthly basis
QA/QC procedures	The monthly rent receipt shall be used to cross check the power consumption by any facility. Also, the connection contract (Declaration) between PP and the customer shall also be used to cross check the connected load. Also, the operation records of any generation unit shall be used to cross check the values of the hours of power supply.
Purpose of data	For calculating the baseline emissions
Additional comments	-

Data / Parameter	$EG_{z,y}$
Unit	kWh
Description	Net amount of renewable electricity delivered to all the end-use facilities connected to the project renewable electricity generation systems in year y (annual consumption between more than 55 kWh but equal to or less than 250 kWh)
Source of data	The monthly statements from all the facilities shall be used for the energy values.
Value(s) applied	XXX
Measurement methods and procedures	As per the methodology AMS I.L ver 01, para 17 option 1, energy meters will be installed at each facility to monitor the net amount of renewable energy delivered.
Monitoring frequency	Monitoring: Continuously Recording: On monthly basis
QA/QC procedures	The monthly rent receipt shall be used to cross check the power consumption by any facility. Also, the connection contract (Declaration) between PP and the customer shall also be used to cross check the connected load. Also, the operation records of any generation unit shall be used to cross check the values of the hours of power supply.
Purpose of data	For calculating the baseline emissions
Additional comments	-

Data / Parameter	$EG_{w,y}$
Unit	kWh
Description	Net amount of renewable electricity delivered to all the end-use facilities connected to the project renewable electricity generation systems in year y (annual consumption more than 250 kWh)
Source of data	The monthly statements from all the facilities shall be used for the energy values.
Value(s) applied	XXX
Measurement methods and procedures	As per the methodology AMS I.L ver 01, para 17 option 1, energy meters will be installed at each facility to monitor the net amount of renewable energy delivered.
Monitoring frequency	Monitoring: Continuously Recording: On monthly basis
QA/QC procedures	The monthly rent receipt shall be used to cross check the power consumption by any facility. Also, the connection contract (Declaration) between PP and the customer shall also be used to cross check the connected load. Also, the operation records of any generation unit shall be used to cross check the values of the hours of power supply.
Purpose of data	For calculating the baseline emissions
Additional comments	-

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

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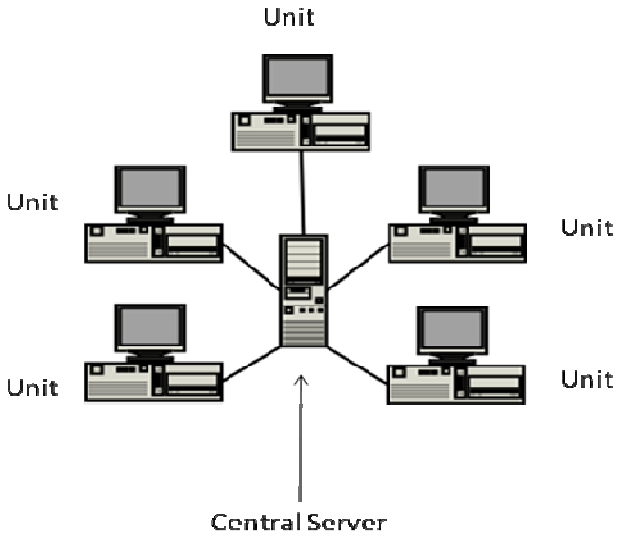
A uniform data monitoring system is being followed for all the CPA under the PoA. For the SSC-CPA under consideration, the monitoring has been charted out below.

Data recording

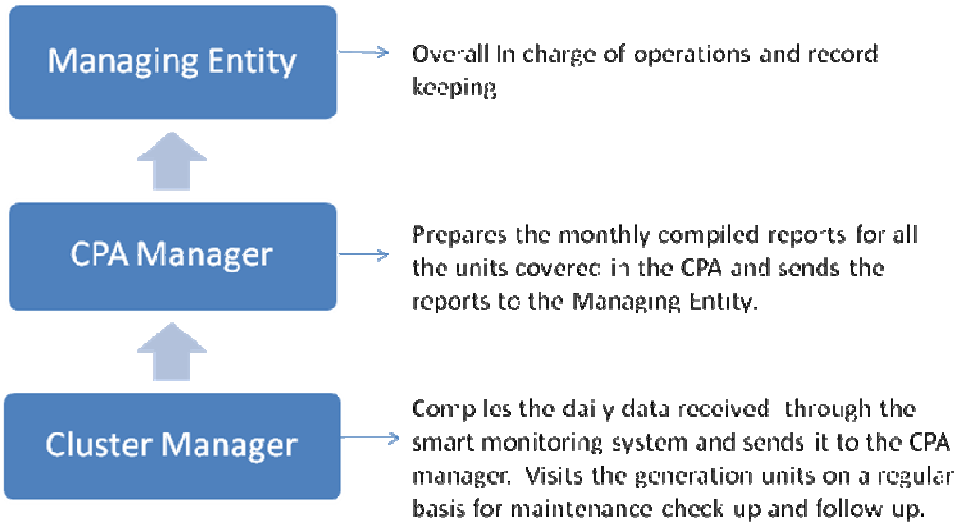
Smart Monitoring System will be used for data recording. It will be capable of monitoring the data like net amount of renewable electricity delivered to all the end-use facilities on a continuous basis. The system will be linked to the meters installed at the generation units. The daily data will be received by the CPA manager and it will be compiled on a monthly basis as per the Monthly compiled sheet shown in Annex 4.

The diagram below shows the information flow from a particular generation unit to the central server. The information will be sent via a GSM network.



<u>*Roles and Responsibilities*</u>

CPA manager present at the generation unit will be involved in completing the data requirement of the smart monitoring system. Once, the data is sent to the central server by the smart monitoring system, data compilation will take place. The diagram below shows the flow of information of data.



The monthly compiled CPA reports mentioned above in the chart will be prepared as per the formats provided in Annex 4. They are in line with the formats provided in the PoA DD.

QA/QC

Maintenance

All the operating equipments at the generation units will be regularly checked for maintenance and a monthly maintenance log shall be maintained. The format of the same has been provided in Annexure 2.

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. On a regular basis, all the meters shall be calibrated annually and the calibration certificates shall be kept with the CPA manager.

Data Archiving

The responsibility of data archival will rest with the managing entity. The monthly reports sent (in soft copy) by the CPA managers for the whole crediting will be checked and archived till 2 years post the end of crediting period of the CPA.

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PART II. Generic component project activity (CPA)

SECTION A. General description of a generic CPA

A.1. Purpose and general description of generic CPAs

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The CPA is being implemented by <*name of the implementation entity*> under the PoA by Husk Power Systems Private Limited (CME). Under this CPA, HPS plans to install and operate <*total capacity of the CPA*> kW in India.

The hybrid systems of solar PV and biomass based gasification unit(s) under the CPA-XXX of <*mention the type of installation used i.e. biomass and solar PV based AC grid hybrid system and/or biomass and solar PV based DC grid hybrid system*> has been planned as per the implementation model <*name of the models as per section A.2 of the part-I of the PoA DD*>. *<Brief description of the models considered under the CPA is to be provided>*

Scope of CPA:

Under the CPA being implemented by the <*name of the CPA implementing entity*>, <*number of generating units*> generation unit shall provide electricity to facilities and energy consumers that do not have access to any electricity distribution system/network such as a national grid, regional grid before project implementation. The end users are planned to be limited to households/communities as mentioned in the PoA DD, which will use this electricity from the PoA only for applications such as lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc. The electricity generated from the project activity contributes to an average GHG reductions estimated as <*average emission reductions of the CPA*> tCO_2/annum.

SECTION B. Application of a baseline and monitoring methodology

B.1. Reference of the approved baseline and monitoring methodology(ies) selected

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Details of the baseline and monitoring methodology applied in the CPA are provided below.

Title: AMS I.L (Electrification of rural communities using renewable energy), Version 01.0, EB 66, Annex 53, Valid from 2nd March, 2012

Reference: http://cdm.unfccc.int/methodologies/DB/5V3GUB9R90CWY26N7RXSSEVZ6C5W8G

B.2. Application of methodology(ies)

>>

The applicability of the methodology has been checked below for the CPA-XX against all the applicability conditions specified in the baseline and monitoring methodology, AMS I.L: *Electrification of rural communities using renewable energy, version 01.0, EB 66, Annex 53* has been appropriately chosen to be applied for this PoA. The applicability has been discussed below:

Applicability	Justification
This methodology is applicable to electrification of a community achieved through the installation of new, renewable electricity generation systems[58] *(e.g. solar photovoltaic systems) that displace fossil fuel use, such as in fuel-based lighting*	This CPA-XXX involves the generation and distribution of electricity through the installation of small capacity hybrid systems of solar PV and biomass based gasification unit(s) replacing the usage of (Kerosene/diesel) in the rural

[58] *Facilities and consumers supplied electricity through an isolated mini-grid are also included. For the purpose of this methodology, a mini-grid is defined as a small-scale power system with a total capacity not exceeding 15 MW (i.e. the sum of installed capacities of all generators connected to the mini-grid is equal to or less than 15 MW) which is not connected to a national or a regional grid.*

systems and stand-alone power generators.	communities/ households of India. *<Statistical data (as available) for the justification of the applicability criteria>*
The applicability of this methodology is limited to facilities and energy consumers that do not have access to any electricity distribution system/ network such as a national grid, regional grid before project implementation. Such electricity) end-use facilities may include households; public buildings; and/or small, medium and micro enterprises (SMMEs). Electricity uses may include interior lighting, street lighting, refrigeration, or agricultural water pumps. At least 75% of the end use facilities connected to the project renewable electricity generation system(s) must be households.	The CPA-XXX shall provide electricity to facilities and energy consumers that do not have access to any electricity distribution system/ network such as a national grid, regional grid before project implementation to the households/communities not connected to any electricity grid prior to its implementation & the end-users are rural communities/households. *<Statistical data (as available) for the justification of the applicability criteria>*
The applicability of this methodology is limited to end-use facilities that, if they utilize electricity for lighting in the project activity, only utilize high efficient lighting equipment such as Compact Fluorescent Lamps (CFLs), Light Emitting Diode (LED) lamps, and/or fluorescent lamps.[59]	Under the CPA-XXX, the households/communities will utilize only Compact Fluorescent Lamps (CFLs) or Light emitting diode (LED) Lamps and/or fluorescent lamps, which they utilize for the lighting purpose. [60]
Project equipment shall comply with applicable international standards or comparable national, regional or local standards/guidelines and the Project Design Document (PDD) shall indicate the standard(s) applied.	Each of the generation unit installed under the CPA-XXX shall comply to the MNRE guidelines[61]: • For biomass gasification unit-Notification dated 28/04/2010[62] and/or • For solar PV panels installed -Notification dated 8/07/2010.[63]
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 CPA-XXX involves the generation of renewable power through the installation of hybrid systems of solar PV and biomass based gasification.
The aggregate installed capacity of the renewable energy generating systems shall not exceed 15 MW.	The aggregated installed capacity of the renewable energy generating systems for the CPA-XXX is <*total capacity of the CPA to be mentioned* > kW will be less than 1 MW.

[59] A declaration will be signed by the customers (i.e. end use facilities), that only CFLs or LED or fluorescent lamps shall be used for lighting purposes.

[60] A declaration will be signed by the customers (i.e. end use facilities), that only CFLs or LED or fluorescent lamps shall be used for lighting purposes.

[61] The prevailing guidelines available at the time of CPA inclusion shall apply.

[62] http://www.mnre.gov.in/file-manager/offgrid-biomass-gas-schemes/biomassgasifier-2010-11.pdf

[63] http://mnre.gov.in/file-manager/dec-solar-thermal-systems/aa-mnre-jnnsm-2010-11.pdf

The above justifications provided for the applicability of the methodology, show that the CPA-XXX is a Type I project, as it is involved in the "generation of electricity" using renewable energy. This fundamental objective of the CPA shall remain consistent throughout the crediting period of the CPA. Thus, the CPA-XXX will be a Type I activity for its entire crediting period.

B.3. Sources and GHGs

>>

In accordance with the PoA DD, the sources and the GHGs included in the CPA boundary are presented in the table below:

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Emissions from the (kerosene/diesel) in the rural communities/ households.	CO_2	Yes	Main emission source
		CH_4	No	Excluded
		N_2O	No	Excluded
Project scenario	Use of hybrid systems of solar PV and biomass based gasification units is used in the proposed CPA-XXX for the electricity generation	CO_2	No	The project activity is renewable energy project which will not create any emissions itself.
		CH_4	No	The project activity is renewable energy project which will not create any emissions itself.
		N_2O	No	The project activity is renewable energy project which will not create any emissions itself.

The geographical scope of all the generation units present in the CPA is within the boundary of the PoA (India). <Diagrams to be represented below>

B.4. Description of baseline scenario

>>

The CPA-XXX shall provide electricity to consumers which do not have any access to national or regional grid. The households/communities, which shall be benefited from the PoA, in the baseline scenario, depend primarily on kerosene/diesel for their needs.

As per the methodology, *"two parameters are required to be known to determine the baseline:*

(e) *The amount of renewable electricity consumed by the facilities served by the project renewable electricity generation systems;*
(f) *The number of facilities (e.g. households, SMMEs, public buildings) supplied with renewable electricity by the project activity.*

The following are the baseline emission factors for each tranche of annual amount of renewable electricity consumed per end-use facility during the crediting period.

(g) *For the first 55 kWh of renewable electricity consumed by each facility the baseline emission factor is 6.8 (tCO_2/MWh);*

(h) *For the facility consumption greater than 55 kWh but equal to or less than 250 kWh, the baseline emission factor is 1.3 (tCO_2/MWh) for the tranche between 55 and 250 kWh;*

(i) *For the facility consumption beyond 250 kWh, the baseline emission factor is 1.0 (tCO_2/MWh) for the tranche beyond 250 kWh.*

In the case of the CPA, the end use facilities are households/communities, each of which uses electricity for lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc.

Depending upon the net electricity consumed by the households/communities i.e. of any particular facility, different formulae and emission factors will be used or the purpose of emission reduction calculation.

B.5. Demonstration of eligibility for a generic CPA

>>

The proposed CPA-*XXX* is a group of units each cumulatively presenting installed capacity of *XX* kW. The eligibility criteria stated in the PoA DD are confirmed by the CPA implementer(s) as under:

S.No.	Eligibility criteria as per the required in "Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities"	Justification for CPA compliance to the eligibility criteria	Justification/Documents
(a)	*The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA;*	All the installations in the CPA shall be located within the geographical boundary of India (i.e. host country). Documents to be checked by the CME at the time of inclusion of CPA: • Land documents • Geo-coordinates of the units using GPS device	The installation covered under CPA-XXX lies in the geographical boundary of India. *<mention the name of the documents provided for validation>*
(b)	Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);	Each unit to be installed in each CPA will be given • Title of the programme • CPA no. • Location details • Geographical co-ordinates Type of technology used.	The XX unit installed under CPA-XXX has been provided with the following: • Title of the programme • CPA no. • Location details • Geographical co-ordinates • Type of technology used
(c)	The specifications of technology/measure including the	Each of the generation unit installed under the CPA shall	Each of the generation unit installed under the

	level and type of service, performance specifications including compliance with testing/certifications;	comply to the MNRE guidelines[64]: • For biomass gasification unit- Notification dated 28/04/2010[65] and/or • For solar PV panels installed -Notification dated 8/07/2010.[66]	CPA-XXX shall comply to the MNRE guidelines: • For biomass gasification unit- Notification dated 28/04/2010[67] and/or • For solar PV panels installed - Notification dated 8/07/2010.[68]
(d)	Conditions to check the start date of the CPA through documentary evidence;	The CME shall check the date of the placement of the first work order with respect to the installation of any generation unit in the CPA, which shall be after 24/05/2012[69] and earlier than the end date of the PoA (28 years from the date of registration).	The start date of the CPA is *dd/mm/yyyy* , and thus after the commencement of the validation of the PoA i.e. 24/05/2012. *<mention the name of the documents provided for validation>*
(e)	Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs;	Each CPA shall satisfy the applicability criteria described in the approved methodology AMS-I.L version 01, *Electrification of rural communities using renewable energy*.	The CPA-XXX fulfills all the applicability criteria as mentioned in AMS I.L ver 01.
(f)	The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as specified in Section A above;	Each CPA shall demonstrate the additionality as per the requirements of *"Guidelines for demonstrating additionality of microscale project activities* EB 68, Annex 26, ver 04" as defined in section B.1 of the PoA DD.	The CPA-XXX fulfills the additionality criteria i.e. • The CPA-XXX is designed for the local distribution networks in the regions not connected to grid. The implementation for the project will be in the areas that do not have access to

[64] The prevailing guidelines available at the time of CPA inclusion shall apply.

[65] http://www.mnre.gov.in/file-manager/offgrid-biomass-gas-schemes/biomassgasifier-2010-11.pdf
[66] http://mnre.gov.in/file-manager/dec-solar-thermal-systems/aa-mnre-jnnsm-2010-11.pdf
[67] http://www.mnre.gov.in/file-manager/offgrid-biomass-gas-schemes/biomassgasifier-2010-11.pdf
[68] http://mnre.gov.in/file-manager/dec-solar-thermal-systems/aa-mnre-jnnsm-2010-11.pdf
[69] *Date on which the PoA DD was uploaded at the UNFCCC website for Global Stakeholder Process (GSP)*

			any electricity distribution system/network such as a national grid/regional grid before project implementation. • The CPA-XXX the unit (or the "*independent subsystem*") to be installed is a mini power plant is of capacity of <capacity of the CPA is to be mentioned> kW i.e. less than 1500 kW. • 100% of the end users under the CPA-XXX are rural households and/or communities which include households, commercial facilities such as shops, supplying the electricity to the end –use applications which may include lighting (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc. As also defined in section B.1 of the PoA DD.
(g)	The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;	The local stakeholder consultation meeting shall be conducted for each CPA as per the CDM requirements at the time of inclusion. The CME shall verify all the documents related to stakeholder consultation meeting and the solicitation of the comments received from the stakeholder	The stakeholder consultation was conducted at *<no. of sites>* sites for the generation unit considered in the CPA-*XXX* and the solicitation of the stakeholder meeting conducted at the site has been described in

		meetings will be described in section C of the specific CPA DD. The EIA requirement for each CPA shall be checked as per the prevailing host party laws..	section C of the CPA DD. *<explanation of the EIA requirement is to be provided based on the prevalent host party laws>*
(h)	Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance;	The CME shall provide an undertaking that there shall be no funding from Annex-I parties, if any, does not result in a diversion of official development assistance before the inclusion of the CPA under the proposed PoA	*<Undertaking from the CPA project developer[70]>*
(i)	Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid connected/ off-grid) and distribution mechanisms (e.g. direct installation);	Each CPA will comprise of generating units of capacity 5kW-250kW and the target beneficiaries will be areas that do not have access to any electricity distribution system/network such as a national grid/regional grid before project implementation. The electricity distributed by the CPA will be used for the applications which may include lighting[71] (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc.	The CPA-XXX comprise of hybrid systems of solar PV and biomass based gasification of capacity XX kW supplying electricity to rural areas that do not have access to any electricity distribution system/network such as a national grid/regional grid before project implementation. Under the CPA-XXX, the end use of the electricity distributed will be used for the applications which may include lighting [72] (interior, public street lighting), electrical appliances such as refrigerators, agricultural water pumps, mobile recharging etc.
(j)	Where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard	In the proposed PoA, the CME opts for a verification method that does not use sampling to verify each installation in SSC-	No sampling is required for the CPA-XXX.

[70] Undertaking from the CME is submitted to the DOE

[71] Compact Fluorescent Lamps (CFLs), Light Emitting Diode (LED) lamps, and/or fluorescent lamps can be used for lighting purposes.

[72] Compact Fluorescent Lamps (CFLs), Light Emitting Diode (LED) lamps, and/or fluorescent lamps can be used for lighting purposes.

	from the Board pertaining to sampling and surveys	CPA. A monitoring plan will be established such that each system under the SSC-CPA under this PoA is monitored and verified.	
(k)	Where applicable, the conditions that ensure that every CPA in aggregate meets the small-scale or microscale threshold criteria and remains within those thresholds throughout the crediting period of the CPA;	The total installed capacity of the CPA shall not exceed 1MW.The following documents shall be provided at the time of SSC-CPA inclusion: Declaration from the CME	The total installed capacity of the CPA-XXX is of <capacity of the CPA is to be mentioned> kW which is less than 1 MW.[73]
(l)	Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or microscale project categories.	1)For the debundling check, to check that there is no such activity: - vii. Which is a CPA registered (included) by the same CME in a PoA; OR viii. There is an application for the registration (inclusion) of the activity (CPA) under a PoA by the same CME; OR ix. Which is a registered CDM project activity by the same CME (2)If the criterion (1) does hold true, the following is to be checked : iii. The activity (or any installation in the activity) is not present within 1 km radius of any of the generation units covered in the CPA. (3)If the criterion (1) and (2) does hold true, the following is to be checked : iii. The combined capacity of the activity and the proposed CPA is less than 5 MW (the microscale capacity limit). The CME of the PoA to ensure	There is no other activity by the CPA implementer which has been considered for CDM, thus not making this CPA a debundled component of any small scale or large scale project or PoA. *<mention the name of the documents provided for validation>*

[73] Undertaking from the CME is submitted to the validating DOE.

		the de-bundling check shall cross-check with the following documents/information at the time of SSC-CPA inclusion: • Land documents • Geo-coordinates • Undertaking from the CME pertaining to above requirement.	

B.6. Estimation of emission reductions of a generic CPA
B.6.1. Explanation of methodological choices
>>

As per the methodology, the emission reductions are arrived at by using the formulations below:

Baseline emissions

$$BE_y = BE_{55,y} + BE_{250,y} + BE_{250\,plus,y} \quad \textbf{(11)}$$

Where:

BE_y	Baseline emissions in year *y* (tCO_2)
$BE_{55,y}$	Aggregate baseline emissions for facilities that consumed equal to or less than 55 kWh of renewable electricity from project renewable electricity systems in year *y* (tCO_2)
$BE_{250,y}$	Aggregate baseline emissions for facilities that consumed more than 55 kWh but equal to or less than 250 kWh of renewable electricity from project renewable electricity systems in year *y* (tCO_2)
$BE_{250\,plus,y}$	Aggregate baseline emissions for facilities that consumed greater than 250 kWh of renewable electricity from project renewable electricity systems in year *y* (tCO_2)

7. For facilities that consumed equal to or less than 55 kWh, baseline emissions are calculated as:

$$BE_{55,y} = \sum_{x}^{N} EG_{x,y} \times EF_{CO2,55} \quad \textbf{(12)}$$

Where:

$EG_{x,y}$	Electricity delivered by project renewable electricity generation system to facility *x*, where the electricity delivered to that facility is equal to or less than 55 KWh in year *y* (MWh)
$EF_{CO_2,55}$	6.8 (tCO_2/MWh)
X	Facility supplied with renewable electricity from operating project renewable electricity generation systems consuming equal to or less than 55 kWh in year *y*
N	Number of facilities in the project activity consuming equal to or less than 55 kWh/year

8. For facilities that consumed more than 55 kWh but equal to or less than 250 kWh, baseline emissions are calculated as:

$$BE_{250,y} = \sum_{z}^{M} \left(\left(EG_{z,y} - 0.055 \right) \times EF_{CO2,250} + C \right) \quad \textbf{(13)}$$

Where:

$EG_{z,y}$	Electricity delivered by project renewable electricity generation system to facility *z* in year *y*, where the electricity delivered to the facility is more than 55 kWh but equal to or less than 250 kWh in year *y* (MWh)
$EF_{CO_2,250}$	1.3 (tCO_2/MWh)
Z	Facility supplied with renewable electricity from operating project renewable electricity generation systems consuming more than 55 kWh but equal to or less than 250 kWh in year *y*
C	0.374 (tCO_2), a constant calculated as (0.055 MWh x 6.8 tCO_2/MWh)
M	Number of facilities in the project activity consuming more than 55 kWh but equal to or less than 250 kWh/year

9. For facilities that consumed more than 250 kWh baseline emissions are calculated as:

$$BE_{250plus,y} = \sum_{w}^{P} \left(\left(EG_{w,y} - 0.250 \right) \times EF_{CO2,250plus} + D \right) \quad \textbf{(14)}$$

Where:

$EG_{w,y}$	Electricity delivered by project renewable electricity generation system to facility w in year *y* such that the electricity delivered to the facility is more than 250 kWh in year *y* (MWh)
$EF_{CO_2,250plus}$	1.0 (tCO_2/MWh)
W	Facility supplied with renewable electricity from operating project renewable electricity generation systems consuming more than 250 kWh in year *y*
D	0.6275 (tCO_2), a constant calculated as (0.055 MWh x 6.8 tCO_2/MWh + 0.195 MWh x 1.3 tCO_2/MWh)
P	Number of facilities in the project activity consuming more than 250 kWh/year

Project emissions

For the renewable energy projects, the project emissions are considered zero (i.e. PE_y =0)

Leakage

<u>Leakage emissions for CPAs that apply hybrid technology with biomass gasification as one of the technology):</u>

According to AMS-I.L, Version 01, in the specific case of CPAs that apply ***biomass gasification technology i.e. usage of renewable Biomass***, the determination of leakage shall be done following the general guidance for leakage in small-scale biomass project activities (*Attachment C of Appendix B of the "Simplified modalities and procedures for small-scale clean development mechanism project activities; decision 4/CMP.1"*)

Hence:

LE_y= XX tCO_2/annum

Emission reductions

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

$$ER_y = BE_y - PE_y - LE_y \quad \textbf{(15)}$$

Where:

ER_y	Emission reductions in year *y* (tCO_2/y)
PE_y	Project emissions in year *y* (tCO_2/y)
LE_y	Leakage emissions in year *y* (tCO_2/y)

B.6.2. Data and parameters that are to be reported ex-ante

Data / Parameter	$EF_{CO2,55}$
Unit	tCO2/MWh
Description	Default emission factor for the facilities which utilize less than 55 kWh of electricity annually.
Source of data	Referred methodology AMS I.L Version 1
Value(s) applied	6.8
Choice of data or Measurement methods and procedures	The methodology provides default values of the emission factors for the purpose of baseline emissions calculations.
Purpose of data	The value of the emission factor is to be used in the calculation of emission reductions (baseline emissions)
Additional comment	Fixed ex-ante for entire crediting period

Data / Parameter	$EF_{CO2,250}$
Unit	tCO2/MWh
Description	Default emission factor for the facilities which utilize less than 250 kWh and more than 55 kWh of electricity annually.
Source of data	Referred methodology AMS I.L Version 1
Value(s) applied	1.3
Choice of data or Measurement methods and procedures	The methodology provides default values of the emission factors for the purpose of baseline emissions calculations.
Purpose of data	The value of the emission factor is to be used in the calculation of emission reductions (baseline emissions)
Additional comment	Fixed ex-ante for entire crediting period

Data / Parameter	$EF_{CO2,250\,plus}$
Unit	tCO2/MWh
Description	Default emission factor for the facilities which utilize more than 250 kWh of electricity annually.
Source of data	Referred methodology AMS I.L Version 1
Value(s) applied	1.0
Choice of data or Measurement methods and procedures	The methodology provides default values of the emission factors for the purpose of baseline emissions calculations.
Purpose of data	The value of the emission factor is to be used in the calculation of emission reductions (baseline emissions)
Additional comment	Fixed ex-ante for entire crediting period

B.6.3. Ex-ante calculations of emission reductions

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As per the emission reduction calculation procedure outlined in the section D.6.1 of Part –I of the CPA-DD, calculation has been performed for the CPA-XXX as below.

For the purpose of calculation of emission reductions, the following parameters shall be used:

Net quantity of the Electricity supplied to the end facility: EG_y
Number of facility: N (number of facilities consuming less than 55 kWh), M (number of facilities consuming between 55 and 250 kWh) and P (number of facilities consuming more than 250 kWh)

Baseline emissions

$$BE_y = BE_{55,y} + BE_{250,y} + BE_{250\,plus,y}$$

For the calculation of the Energy generated per facility in the year y, the following formulation shall be used. The energy consumed shall depend upon the connected load in Watts and the hours of power consumed (or supplied) at any particular household. As per the project design, the consumption hours are equal to the supply hours as the households do not carry any control switch for the usage of power. The generation units provide them power for 5-6 hours in the evening time which they all utilize for lighting.

$$\sum_{x,E,W}^{N,M,P} EG = \sum_{month} \frac{W \times H}{1000}$$

For the purpose of emission reduction estimation for the proposed CPA, the following considerations have been made:

- <number of units for each size to be mentioned> facilities per unit
- <no. of units to be mentioned> units in the CPA
- <average no. of hours of supply to be mentioned> hours of daily power supply
- <average connected load> W average connected load at each facility

Under these assumptions, per facility annual consumption comes to around XXX kWh

$$BE_{250,y} = \sum_{z}^{M} \left(\left(EG_{z,y} - 0.055 \right) \times EF_{CO2,250} + C \right)$$

= *XXX* tCO_2

Project emissions

For the hybrid systems of solar PV and biomass based gasification projects, the project emissions are considered zero (i.e. PE_y =0)

Leakage

<u>Leakage emissions for CPAs that apply hybrid technology with biomass gasification as one of the technology):</u>

According to AMS-I.L, Version 01, in the specific case of CPAs that apply ***biomass gasification technology i.e. usage of renewable Biomass***, the determination of leakage shall be done following the general guidance for leakage in small-scale biomass project activities (*Attachment C of Appendix B of the "Simplified modalities and procedures for small-scale clean development mechanism project activities; decision 4/CMP.1"*)

Hence:

LE_y= XX tCO_2/annum

Emission reductions

Emission reductions on annual basis (*ERy*) are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y = XXX\ tCO_2$$

Where:

ER_y	Emission reductions in year *y* (tCO_2/y)
PE_y	Project emissions in year *y* (tCO_2/y)
LE_y	Leakage emissions in year *y* (tCO_2/y)

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

Data / Parameter	N
Unit	Number
Description	Number of facilities (connected to the generation units in the CPA) consuming less than or equal to 55 kWh in an year y
Source of data	Monthly unit wise statements of consumption shall be used
Value(s) applied	XXX
Measurement methods and procedures	Monthly unit wise statements shall be prepared by the CPA implementer. The same shall be used to arrive at the number of facilities consuming less than 55 kWh.
Monitoring frequency	Monitoring frequency: Continuously Recording frequency: Monthly (Monthly unit wise statements shall be prepared by the CPA implementer and shall be aggregated on an yearly basis.)
QA/QC procedures	Meter shall be used at the delivery points at all the facilities to avoid the possibility of any unwanted or unaccounted connection. Any new connection of a facility shall happen via a formal agreement between the facility owner and the CPA implementer. The agreements can be used to cross check the total number of connections to any generation unit.
Purpose of data	The value shall be used to calculate the baseline emissions.
Additional comments	-

Data / Parameter	M
Unit	Number
Description	Number of facilities (connected to the generation units in the CPA) consuming more than 55 kWh and less than or equal to 250 kWh in an year y
Source of data	Monthly unit wise statements of consumption shall be used
Value(s) applied	XXX
Measurement methods and procedures	Monthly unit wise statements shall be prepared by the CPA implementer. The same shall be used to arrive at the number of facilities consuming between 55 to 250 kWh.
Monitoring frequency	Monitoring frequency: Continuously Recording frequency: Monthly (Monthly unit wise statements shall be prepared by the CPA implementer and shall be aggregated on an yearly basis.)
QA/QC procedures	Meters shall be used at the delivery points at all the facilities to avoid the possibility of any unwanted or unaccounted connection. Any new connection of a facility shall happen via a formal agreement between the facility owner and the CPA implementer. The agreements can be used to cross check the total number of connections to any generation unit.
Purpose of data	The value shall be used to calculate the baseline emissions.
Additional comments	-

Data / Parameter	P
Unit	Number
Description	Number of facilities (connected to the generation units in the CPA) consuming more than 250 kWh in an year y
Source of data	Monthly unit wise statements of consumption shall be used
Value(s) applied	XXX
Measurement methods and procedures	Monthly unit wise statements shall be prepared by the CPA implementer. The same shall be used to arrive at the number of facilities consuming between more than 250 kWh.
Monitoring frequency	Monitoring frequency: Continuously Recording frequency: Monthly (Monthly unit wise statements shall be prepared by the CPA implementer and shall be aggregated on an yearly basis.)
QA/QC procedures	Meters shall be used at the delivery points at all the facilities to avoid the possibility of any unwanted or unaccounted connection. Any new connection of a facility shall happen via a formal agreement between the facility owner and the CPA implementer. The agreements can be used to cross check the total number of connections to any generation unit.
Purpose of data	The value shall be used to calculate the baseline emissions.
Additional comments	-

Data / Parameter	$EG_{x,y}$
Unit	kWh
Description	Net amount of renewable electricity delivered to all the end-use facilities connected to the project renewable electricity generation systems in year y (annual consumption less than 55 kWh)
Source of data	The monthly statements from all the facilities shall be used for the energy values.
Value(s) applied	XXX
Measurement methods and procedures	As per the methodology AMS I.L ver 01, para 17 option 1, energy meters will be installed at each facility to monitor the net amount of renewable energy delivered.
Monitoring frequency	Monitoring: Continuously Recording: On monthly basis
QA/QC procedures	The monthly rent receipt shall be used to cross check the power consumption by any facility. Also, the connection contract (Declaration) between PP and the customer shall also be used to cross check the connected load. Also, the operation records of any generation unit shall be used to cross check the values of the hours of power supply.
Purpose of data	For calculating the baseline emissions
Additional comments	-

Data / Parameter	$EG_{z,y}$
Unit	kWh
Description	Net amount of renewable electricity delivered to all the end-use facilities connected to the project renewable electricity generation systems in year y (annual consumption between more than 55 kWh but equal to or less than 250 kWh)
Source of data	The monthly statements from all the facilities shall be used for the energy values.
Value(s) applied	XXX
Measurement methods and procedures	As per the methodology AMS I.L ver 01, para 17 option 1, energy meters will be installed at each facility to monitor the net amount of renewable energy delivered.
Monitoring frequency	Monitoring: Continuously Recording: On monthly basis
QA/QC procedures	The monthly rent receipt shall be used to cross check the power consumption by any facility. Also, the connection contract (Declaration) between PP and the customer shall also be used to cross check the connected load. Also, the operation records of any generation unit shall be used to cross check the values of the hours of power supply.
Purpose of data	For calculating the baseline emissions
Additional comments	-

Data / Parameter	$EG_{w,y}$
Unit	kWh
Description	Net amount of renewable electricity delivered to all the end-use facilities connected to the project renewable electricity generation systems in year y (annual consumption more than 250 kWh)
Source of data	The monthly statements from all the facilities shall be used for the energy values.
Value(s) applied	XXX
Measurement methods and procedures	As per the methodology AMS I.L ver 01, para 17 option 1, energy meters will be installed at each facility to monitor the net amount of renewable energy delivered.
Monitoring frequency	Monitoring: Continuously Recording: On monthly basis
QA/QC procedures	The monthly rent receipt shall be used to cross check the power consumption by any facility. Also, the connection contract (Declaration) between PP and the customer shall also be used to cross check the connected load. Also, the operation records of any generation unit shall be used to cross check the values of the hours of power supply.
Purpose of data	For calculating the baseline emissions
Additional comments	-

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

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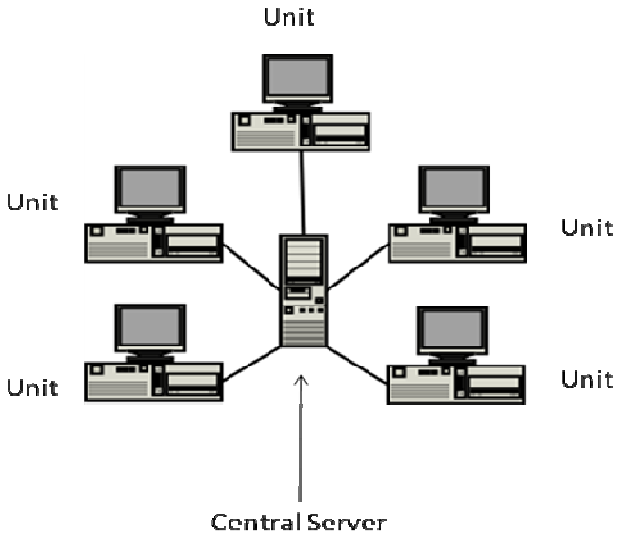
A uniform data monitoring system is being followed for all the CPA under the PoA. For the SSC-CPA under consideration, the monitoring has been charted out below.

Data recording

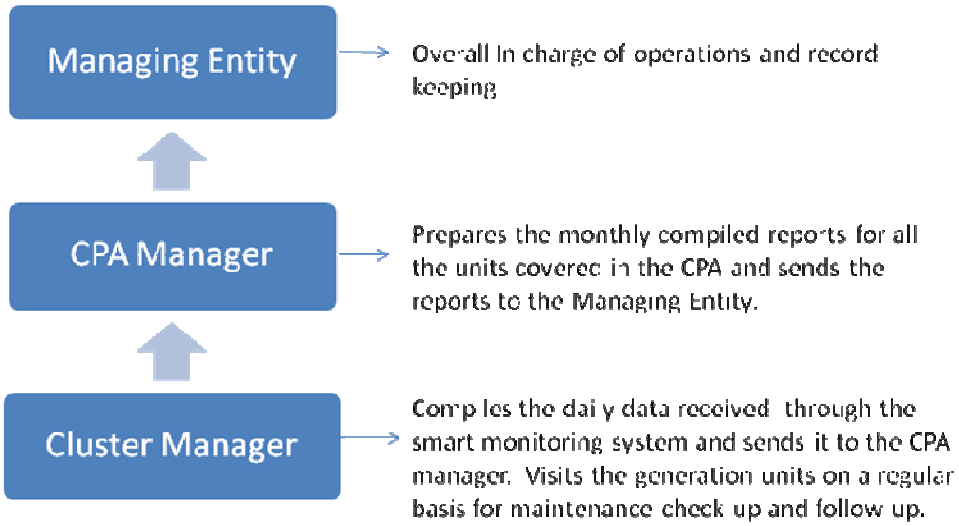
Smart Monitoring System will be used for data recording. It will be capable of monitoring the data like net amount of renewable electricity delivered to all the end-use facilities on a continuous basis. The system will be linked to the meters installed at the generation units. The daily data will be received by the CPA manager and it will be compiled on a monthly basis as per the Monthly compiled sheet shown in Annex 4.

The diagram below shows the information flow from a particular generation unit to the central server. The information will be sent via a GSM network.



<u>*Roles and Responsibilities*</u>

CPA manager present at the generation unit will be involved in completing the data requirement of the smart monitoring system. Once, the data is sent to the central server by the smart monitoring system, data compilation will take place. The diagram below shows the flow of information of data.



The monthly compiled CPA reports mentioned above in the chart will be prepared as per the formats provided in Annex 4. They are in line with the formats provided in the PoA DD.

QA/QC

Maintenance

All the operating equipments at the generation units will be regularly checked for maintenance and a monthly maintenance log shall be maintained. The format of the same has been provided in Annexure 2.

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. On a regular basis, all the meters shall be calibrated annually and the calibration certificates shall be kept with the CPA manager.

Data Archiving

The responsibility of data archival will rest with the managing entity. The monthly reports sent (in soft copy) by the CPA managers for the whole crediting will be checked and archived till 2 years post the end of crediting period of the CPA.

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Appendix 1: Contact information on entity/individual responsible for the PoA

Organization	Husk Power Systems Private Limited
Street/P.O. Box	A-4, Road no.4
Building	Professor Colony
City	West Patel Nagar, Patna
State/Region	Bihar
Postcode	800023
Country	India
Telephone	+91 612-2283333
Fax	+91 612-2283333
E-mail	yadav@huskpowersystems.com
Website	http://www.huskpowersystems.com
Contact person	
Title	Mr.
Salutation	Co-Founder & COO
Last name	Yadav
Middle name	-
First name	Ratnesh
Department	-
Mobile	+91 8986181808
Direct fax	
Direct tel.	
Personal e-mail	yadav@huskpowersystems.com

Appendix 2: Affirmation regarding public funding

There is no public funding available in the proposed PoA

Appendix 3: Application of methodology(ies)

The detailed information on selected methodology is provided in section B.3 of the PoA DD

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

The ex-ate estimation of emission reductions are based on the simplified assumptions with respect to the scope of the generation units of the CPA-XXX. During the crediting period however, all the parameters including the number of facilities, types of connections and their consumption levels shall be monitored appropriately and emission reductions will be calculated based on the same.

Appendix 5: Further background information on the monitoring plan

Templates for Monthly SSC-CPA reports

Operation sheet for MM/YYYY for SSC-CPA XXX

SSC-CPA XXX							
Unit			Capacity	Operator Name	Active (Y/N)	Cluster	Region
Number	Name	Geo-Coordinates					
XXX-YY							

UNIT WISE MONTHLY COMPILED SHEET FOR MM/YYYY

UNIT NUMBER, UNIT NAME, GEO-COORDINATES			
DAY	**AVERAGE CURRENT (AMP)**	**NO. OF HOURS OF SUPPLY (HRS)**	**HUSK CONSUMPTION (QUINTALS)**
DD/MM/YYYY			

UNIT/PLANT WISE CONNECTION LIST

Unit Number, Unit name, Geo-coordinates									
SR.NO	**CUSTOMER NAME**	**POLE NO.**	**CONNECTION DATE**	**WATT CONSUMED**	**RECEIPT NO.**	**PAYMENT BILL**	**REBATE**	**BALANCE DUE**	**COMMENT/REMARK**
1									
2									

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History of the document

Version	Date	Nature of revision(s)
02.0	EB 66 13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the programme design document form for small-scale CDM programmes of activities" (EB 66, Annex 13).
01	EB33, Annex43 27 July 2007	Initial adoption.
Decision Class: Regulatory **Document Type:** Form **Business Function:** Registration		