Gold Standard for the Global Goals
Key Project Information & Project Design Document (PDD)

Version 1.1 – August 2017

KEY PROJECT INFORMATION

Title of Project:	Solar DC programme in off-grid regions in India
Brief description of Project:	The technology removes the requirement of AC to DC and DC to AC conversions which helps in

	reducing the cost of production of per unit watt power. Applying a suitable UNFCCC approved methodology for the estimation of emission reductions, the project scenario fits into the type-1 category as the consumers are not connected to a national/regional grid and consume less than 500 kWh of electricity per year.
Expected Implemetation Date: Expected duration of Project:	21/03/2018 10 years
Project Developer:	Cygni Energy
Project Representative:	Value Network Venture Advisory Services
Project Participants and any communities involved:	Same as above
Version of PDD: Date of Version:	Version – 1.1 05/08/2019
Host Country / Location:	India
Certification Pathway (Project Certification/Impact Statements & Products	Project Certification
Activity Requirements applied: (mark GS4GG if none relevant)	GS4GG
Methodologies applied:	AMS III BL, version 1.0
Product Requirements applied:	GS VER
Regular/Retroactive:	Retroactive
SDG Impacts:	1 – SDG 03 2 –SDG 7 3 – SDG 13
Estimated amount of SDG Impact Certified	16,692 tCO2e

SECTION A. Description of project

A.1. Purpose and general description of project

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Today, India is pushing for a future powered by Solar Energy with a vision of 50% of electrical power from renewable technologies by 2030. But, so far decentralized rooftop solar deployments have all been subsidy driven and haven't really made significant inroads into Indian homes. However, this narrative is, today, being changed by Solar DC Inverterless solution.

Developed by Indian Institute of Technology Madras (IITM), Solar DC Inverterless systems offer the most efficient way of utilizing solar power without compromising on affordability.

The Solar DC concept works. Solar DC Inverterless solution includes solar PV generating DC power, battery charging and discharging in DC, and DC loads with wiring at home which is DC. It also has an option to draw limited power from grid in which case AC from grid is converted to DC.

Solar DC electrification for rural communities: The project involves the installation of a solar DC system for each home powered by a rooftop solar panel. Each consumer is provided with a small sized battery, inverter-less converter, bulbs, fan, a mobile charging unit and a socket.

A Total of 40,000 household which are not connected to the grid will be included in this project activity.

The household are spread across India viz. Assam, Meghalaya, Manipur, Madhay Pradesh and Jammu & Kashmir.

The pre-project scenario: In the pre-project scenarios, the communities are not connected to the national or regional grid.

The fossil fuel energy displaces by project activity will result in a total emission reduction of 16,692 tonnes of CO2e/year. The total emission reduction by the project activity is estimated to be 83,460 tonnes of CO2e for the first crediting period, which is 21/03/2018 to 20/03/2023

A.2. Eligibility of the project under Gold Standard

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As per section 3.1.1 of the GS4GG Principles and Requirements, the project is eligible under Gold Standard. The project falls under the eligibility criteria described in section 3.1.1.1 - "A Project type is automatically eligible for Gold Standard Certification if there are Gold Standard published Activity Requirements and/or Gold Standard Approved Methodologies associated with it or as referenced in Gold Standard Product Requirements."

The project is a solar DC based renewable energy project which falls under the category of *Renewable Energy Activities* published under the list of activities in GS4GG

It in noteworthy that the PP has declared that the proposed GS project activity is not registered with any other scheme

A.3. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

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The project participant has full and uncontested legal ownership of the products that are generated under Gold Standard Certification. The project participant has signed an end user agreement with each of the beneficiaries participating in the project.

A.4. Location of project

A.4.1. Host Country

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India

A.4.2. Region/State/Province etc.

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Assam, Manipur, Meghalaya, Madhya Pradesh and J & K

A.4.3. City/Town/Community etc.

>>
Spear across villages in Assam, Manipur, Meghalaya, Madhya Pradesh and J & K

A.4.4. Physical/Geographical location

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Lattitude – 20.5937 ^{0} North, Longitude – 78.9629 ^{0} E

A.5. Technologies and/or measures

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The project involves the installation of solar DC based PV systems for household users that displace fossil fuel use, such as in fuel-based lighting systems, stand-alone power generators, and fossil fuel based mini-grids.

Solar irradiance. The level of solar irradiation is an important factor for the solar PV systems to work efficiently since solar irradiance is the “input” to the solar PV system. Hence, solar irradiance is taken into account when sizing and installing the systems.

Module/Panel. The module/panel is mounted in a tilted angle. This is to avoid dust collection and to facilitate for rain to evaporate from the surface.

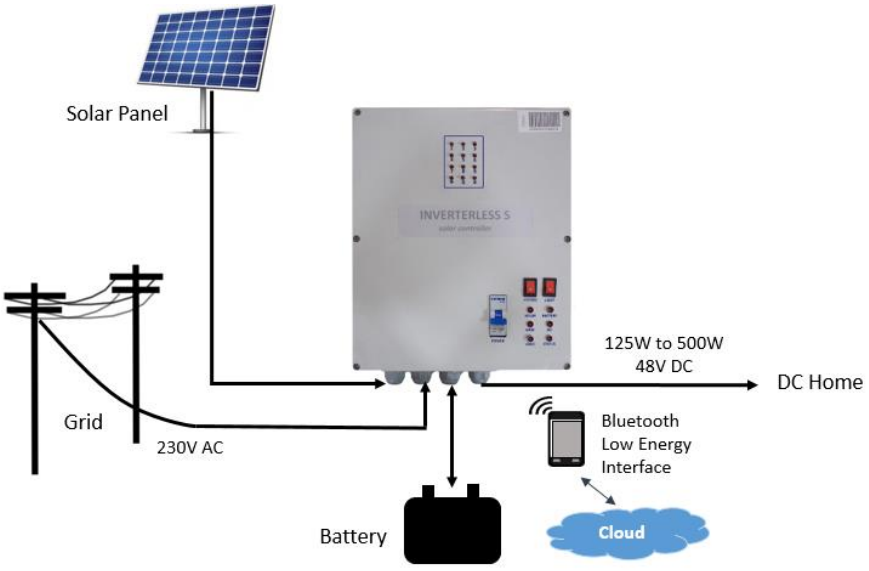
Charge controller. The charge controller ensures a stable current. In addition, in order to avoid generation of (flammable) hydrogen gas, the charge controller ensures that the battery stops charging when full. It also prevents the battery from completely discharging. It is important to supply charge controllers with charge and discharge voltage set points that match the battery requirements to ensure adequate protection and cycling regimes.

Battery. The battery, storing the energy, has an autonomy time, i.e. a period when the battery can operate on its charge without additional solar irradiance to avoid load shedding.

The technical specifications of the solar DC based PV set-up are:

1. PV roof top array : 200 Peak capacity in Wp
2. Inverterless controller
3. Li-ion Battery - 625Wh
4. 1 DC mobile charger
5. 1 DC socket
6. 5 DC bulb
7. 1 BLDC ceiling fan

Solar PV system with a suitable PV array capacity will be installed on the roof of households. Under the “Average Daily Solar Radiation”, the minimum electrical output could be between 1-2kw. The PV Modules must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.



The technology removes the requirement of AC to DC and DC to AC conversions which helps in reducing the cost of production of per unit watt power.

A.6. Scale of the project

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The proposed project is a small scale project.

The maximum capapcity of the solar PV array installed in the project will be:-

PV array of 1 panel of 200Wp power having installed capacity of 200W (0.2 KW).The total installed capacity in the first year for 2019 PV arrays is not more than **10 MW,** which is less than 15 MW. The project falls under the small scale category.

A.7. Funding sources of project

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This information is confidential.

A.8. Assessment that project complies with 'gender sensitive' requirements

>> (Answer the four mandatory questions included under Step 1 to 3 in "Gold Standard Gender Equality Guidelines and Requirements" available here.)

The questions included under Steps 1-3 in the Gold Standard Gender Equality Guidelines and Requirements
are addressed below:
1. Does the project reflect the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy? Explain how.

The project adheres to the key issues and requirements of the Gender Policy set by the Gold Standard.
The project will help women working in their household to get a clean source of light where in the past they(women) are using kerosene lamp for providing light while doing household works including cooking. It will prevent harmful indoor air as well as clean light will help for doing household work and
The 'do no harm' approach that addresses safeguards to prevent or mitigate adverse impacts on women is intrinsic to the project. The household are beneficiaries of the project based on a selection that is indiscriminate of gender and economic condition. The project aims to improve the livelihood of the household by installing solar powered DC system for home.
The solar DC system are provided to the Household on the basis of govt. policy for rural electrification. Due to the installed DC solar based home system, a household user is able to save money by discontinuing kerosene/ other fossil fuel usage to the tune of 50 – 80 litres in a year.

2. Does the project align with existing country policies, strategies and best practices? Explain how.

The project is based in all over in India. The current gender policy is the draft National Policy for Women 2016, and the National Institution for Transforming India which are frameworks for programmes and practices to ensure equal rights and opportunities for women in the family, community, and workplace and in governance.
The project aligns with the priority areas listed in the policy, including health and food security, creating economic opportunities, enabling adaptation to climate change. Household user spent 1/3 of their income in procuring keronse/ fossil fuel . With the solar DC home system, this expense is avoided and the savings which are considerably significant to the user can be utilised for other needs, including repayment of the loan etc.

3. Does the project address the questions raised in the Gold Standard Safeguarding Principles & Requirements document? Explain how.

The following safeguarding principles and requirements are triggered by the project:
Principle 1 - Climate and Energy
Principle 3 – Environment, ecology and land use
Table-1 in section D of this document highlights the project participant's assessment of the key questions on GS Safeguarding Principles & Requirements.

4. Does the project apply the Gold Standard Stakeholder Consultation & Engagement Procedure, Requirements & Guidelines? Explain how

Yes, the project has applied the GS stakeholder consultation & engagement procedures. The details of the stakeholder consultation process is provided in the SCR.

SECTION B. Application of selected approved Gold Standard methodology

B.1. Reference of approved methodology

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The project falls under the Type -1 category and the applicable methodology is AMS III. BL " Integrated methodology for electrification of communities, version 01.0".

B.2. Applicability of methodology

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The project meets each applicability condition of the applied methodology- AMS III. BL "Integrated methodology for electrification of communities, version 01.0". Each criterion is explain in detailed in the table below:

Sl no	Applicability criterias	Justification
1	Project activities involve displacement of fossil fuel use such as in fossil fuel-based lighting systems, stand-alone diesel generators and diesel-based mini-grids.	The project involves dissemination of household DC based solar system which will displace traditional kerosene lamps & other fossil fuel based lighting systems.
2	This methodology is applicable in situations where consumers that were not connected to a national/regional grid, prior to project implementation are supplied with electricity generated from the project activity. It is also applicable in situations where a fraction of consumers that were supplied with electricity from a fossil based individual energy system or fossil fuel based mini-grid prior to the implementation of the project, are supplied with electricity from the project activity (e.g. moving from carbon intensive mini-grid to less carbon intensive grid or mini grid).	The households are not connected to national/regional grid.
3	Electricity consumers may include households, commercial facilities such as shops, public	Project electricity consumers are households. More than 75% of the

	services/buildings and small, medium and micro enterprises (SMMEs). Applications may include lighting, household electrical appliances (e.g. refrigerators, TV, radio), public lighting and water pumps. At least 75 per cent (by number) of the consumers connected by the project activity shall be households.	consumers where DC based solar home system was disseminated are household users.
4	This methodology is applicable to electrification of a community of consumers which is achieved through one or more of the following technologies/measures: (a) New construction of individual energy systems (renewable or hybrid) such as roof-top solar photovoltaic systems or hybrid energy systems; (b) Rehabilitation (or refurbishment) of individual energy systems, mini-grid or hybrid energy system may be undertaken, if it can be demonstrated that the existing system(s) i) are not part of another CDM activity; ii) are non-operational and iii) require a substantial investment for them to be rehabilitated to or above the original electricity generation capacity. To demonstrate compliance with this condition, the project participants shall provide documentation that: (i) The existing system has not generated electricity, or that alternative fuels (e.g. kerosene) have been used, for at least six months prior to Project Design Document (PDD) or SSC-CPA-DD submittal; and (ii) Substantial investments are required to rehabilitate the existing systems (e.g. investments greater than half of the cost to install a new power generation system with the same electricity generation capacity); (c) Installation or extension of a mini-grid that distributes electricity generated from renewable energy systems or hybrid energy systems; (d) Hybridization of existing fossil fuel powered mini-grids using renewable energy systems; (e) Extension of a grid (national or regional) to supply new consumers as well as consumers currently connected to mini-grid.	In the project activity, electrification of the household communities are achieved through new construction of individual energy systems viz. Roof top solar photovoltaic DC based system.
5	Project equipment shall comply with applicable international standards or comparable national, regional or local standards/guidelines and, when relevant, the PDD shall indicate the standard(s) applied for main project equipment.	The project equipment's complies with the international as well as national standards, viz IS
6	For projects involving the installation of hydro	Not applicable

	power plants with reservoirs the requirements prescribed under AMS-I.D shall be followed.	
7	Measures are limited to those that result in emission reductions of less than or equal to 60 kt CO2 equivalent annually.	The total annual emission reduction is 16692 tCo2e/ year which is below 60 kt CO2 equivalent annually.

B.3. Project boundary

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According to the applicable methodology AMS III BL" Integrated methodology for electrification of communities, version 01.0" the project boundary is the physical, geographical site the physical sites of the end-use consumers served by the project activity.

For the purpose of GHG mitigation/sequestration following table shall be completed (delete if not required)

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Source 1	CO_2	Yes	Major source of emission
		CH_4	No	Not required by methodology
		N_2O	No	Not required by methodology
Project scenario	Solar DC system	CO_2	Yes	Major source of emission
		CH_4	No	Not required by methodology
		N_2O	No	Not required by methodology

B.4. Establishment and description of baseline scenario

Rural electrification is one of the main requirements for a country like India with major population of approximately 70% living in rural areas. In India a village is said to be electrified if electricity is used in inhabited locality within the revenue boundary of the village for any reason what-so-ever.Only 44% of rural household of India has access to electricity. 7 out of 29 states have more than 70% of rural household without access to electricity.

The expansion of electricity services and electrification are vital to both the economic and social development of India. However the current state of electricity services in most of the states of India indicate signs of crisis and are with severe shortcomings in many areas :a) Limited access to electricity for poor(rural/urban) b)Generation capacity unable to meet peak demand c) Supply reliability, interms of predictability of outages and quality of power.

The Electricity supply across India lacks quality and quantity with an extensive shortage in supply, a poor record for outages, high levels of transmission and distribution(T&D) losses and an overall need for extended and improved infrastructure. A considerable amount of electricity generated is wasted due to transmission and distribution inefficiencies and power theft.

Solar energy forms an excellent solution for India's rural electrification issues. It provides an efficient solution, especially in cases where grid access is limited.

According to a publish report in Current science edition, dated Aug'2016, India has problems with power today. About 50 million homes are still off-grid. In spite of power surplus, there is load-shedding for many hours in several parts of the country. Affordability is a far bigger problem, with almost 50% of Indian homes unable to afford electricity even at subsidized tariff of INR 5 per kWh (unit), a tariff level at which the power distribution companies still lose money. It is in such a situation that solar-DC with DC power lines at homes/offices and DC appliances could break the log-jam. Decentralized rooftop solar DC PV systems, with the benefit of avoiding all the losses

discussed, as well as transmission and distribution losses, could in fact cut down costs and make power more affordable.

Also a preliminary survey has been conducted across the identified areas and the survey results shows that the households are not connected to the national or regional grid.
In the proposed project activity, those household are considered which are previously not connected to national/ regional grid.

The below mentioned weblinks also depicts that a considerable number of rural households are not connected to the national/regional grid at the time of project conceptualization.
https://powermin.nic.in/en/content/overview-1
https://economictimes.indiatimes.com/industry/energy/power/iea-finds-indias-rural-electrification-one-of-greatest-success-stories-this-year/articleshow/66583514.cms
https://mnre.gov.in/remote-village-electrification

B.5. Demonstration of additionality

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The table below is only applicable if the proposed project is deemed additional, as defined by the applied approved methodology or activity requirement or product requirement.

Specify the methodology or activity requirement or product requirement that establish deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).	The project falls under the positive list of technologies and project activity types that are defined as automatically additional as per paragraph 11 (i) of the Demonstration of additionality of small-scale project activities Version 12.0 (Tool 21). The list includes which includes off-grid solar PV technologies.
Describe how the proposed project meets the criteria for deemed additionality.	The project uses solar DC based home PV technology for household lighting and other electrical appliances and falls within the 15 MW small scale benchmark. The project falls under the positive list of technologies that renders the small scale project auto additional.

B.6. Sustainable Development Goals (SDG) outcomes

B.6.1. Relevant target for each of the three SDGs

>> (Specify the relevant SDG target for each of three SDGs addressed by the project. Refer most recent version of targets here .)

While the project has interweaving impacts and outcomes on the environment and the communities in India, the major SDGs addressed by the project are:
SDG 03: Good Health and well-being

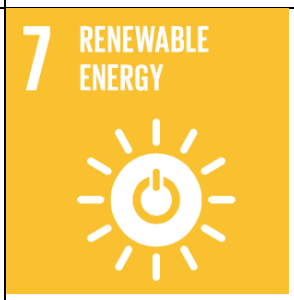
The installation of the solar DC based home system prevents the use of Kerosene or other fossil fuel for the use of home lighting. In the baseline, the use of the kerosene results in harmful fumes inside the house. The project indirectly contributes to the good health of the beneficiaries.

SDG 07: Ensure access to affordable, reliable, sustainable and modern energy for all

The project is a renewable energy project that makes use of solar energy for home based electrification. The provision of lighting during evening & night is a very crucial aspect in the household activities. It directly impacts the livelihood, food security and quality of living of the users. By installing solar panels for DC based home electricity system, the project ensures that affordable, reliable and sustainable clean energy is accessible to the salt farmers.

SDG 13: Take urgent action to combat climate change and its impacts

The project involves the replacement of kerosene lamps/ fossil fuel based lighting source with solar PV panels that produce DC electrical energy to run the DC lamps & other DC based electrical equipment's. The project in its first year replaced 30,000 number of kerosene lamps with solar, thereby reducing more than 16692 tonnes of carbon dioxide emissions from being emitted, annually.

SDG's		SDG Target's
SDG 03: Good Health and well-being		Reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. Continuous operation of each of the solar installations, which will encourage more women household user to participate in the programme, thus improving the health condition due to usage of clean energy. Annual monitoring will be conducted via surveys
SDG 07: Ensure access to affordable, reliable, sustainable and modern energy for all		The project aligns with the SDG targets of universal access to affordable, reliable and modern energy and thus contributes to the share of renewable energy in the global energy mix. This will be done by monitoring the Continuous operation of the solar PV DC based system
SDG 13: Take urgent action to combat climate change and its impacts		The project aligns with the SDG target of improving human and institutional capacity on climate change mitigation, adaptation and impact reduction. This will be done by monitoring the Continuous operation of the solar PV DC based system .

B.6.2. Explanation of methodological choices/approaches for estimating the SDG outcome

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According to the applied methodology AMS III B L, ver 01.0, The baseline emissions are calculated using the three steps as prescribed below –

Step 1. Classification of consumers

The methodology requires that all of the consumers in the CPA be classified according to their current supply and consumption level.

Table 1. Type of consumers and baseline scenario

Type of consumer	Baseline Scenario
Type I	A combination of fuel based lighting and stand-alone fossil fuel generators. This is reflected in the tiered baseline emission factors in the following section 5.2.3.
Type II	Stand-alone fossil fuel generators
Type III	Generation from existing mini-grid[1]
Type IV	Stand-alone fossil fuel generation

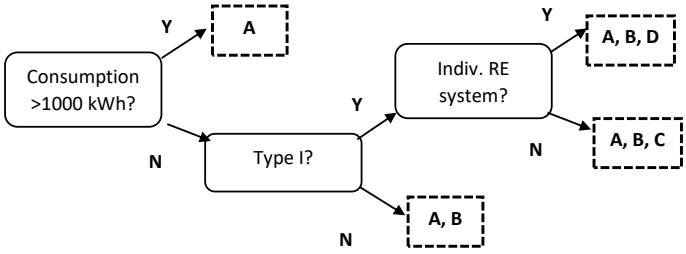
As the baseline scenario is determined by the *type* of consumer. The proposed project activity is Type I, not connected to grid with electricity consumption < 500 KWh/year.

The baseline scenario for Type I is a combination of fossil fuel-based lighting and diesel generators, as reflected in the tiered emissions factors shown in section 5.2.3 of applied methodology.

Step 2. Determine consumption of each consumer type and sub-group

Consumption levels for each type of consumer are determined ex post using option D as mentioned, depending on the technology/measure being implemented at that consumer site. The flow charts in Figure 1 specify the applicability of each of the four options.

Figure 1. Flow chart showing options for determining consumption for Type I consumer



[1] Type III consumers are only served by mini-grids or grid extension measures, while Type I and II consumers could be served by individual energy systems, mini-grids or grid extension

In the project activity Option D is chosen.

Option D. Deemed consumption – as a special case, Type I consumers that are served by an individual renewable energy systems may determine consumption based on the installed system capacity and an availability factor. Default availability factor 12% is considered as per the applied methodology.

Option D. Deemed consumption

This option is used by Type consumers who, under the project activity, are served by individual energy systems that use only renewable energy. The consumption is calculated as the installed capacity of the project renewable energy generation systems multiplied by an annual average value for availability/capacity factor. For solar photovoltaic electricity systems, the annual average value for availability can be obtained through following options:

(a) **Option D1**: Assume a conservative default value of twelve per cent (12 per cent) for the annual average value for availability;[2]

(b) **Option D3**: Source the annual average value for availability from the project feasibility report (e.g. provided by the manufacturer/supplier of the system) when it includes the calculations for estimating the output from the system (i.e. weather data used, system characteristics and losses assumed are described).

In the project , Option D 3 is chosen, wherein the manufacturer's provided solar availability data which is 20.24% is considered.

The annual average electricity consumption of Type-I consumers is then calculated using the equation below:

$$EC_{T1,x,y} = \frac{\left(ES_{tot} \times \left(1 - TL_p\right)\right) - \sum EC_{T2,z,y} - \sum EC_{T3,w,y} - \sum EC_{T4,i,y}}{N_y}$$

Where

$EC_{T1,x,y}$	=	Annual electricity consumption of Type I consumer *x* in year *y* (MWh)
$ES_{tot,y}$	=	Total electricity supply to all consumers (MWh)
TL_p	=	Transmission and distribution losses within the project area (%), with 10 per cent as a default value
$EC_{T2,z,y}$	=	Annual electricity consumption of Type II consumer *z* in year *y* (MWh)
$EC_{T3,w,y}$	=	Annual electricity consumption of Type III consumer *w* in year *y* (MWh)
$EC_{T4,i,y}$	=	Annual electricity consumption of Type IV consumer *i* in year *y* (MWh)
N_y	=	Number of Type I consumers in year y

[2] For example a 15 Wp Solar Home System would deliver 15.77 kWh annually (0.015 x 8760 x 0.12).

In the proposed project activity, only Type I consumers are involved, and since DC current is used in the equipment and the distance between the current flow from Solar PV to the end user points is very minimal, so the transmission and distribution less are negligible and thus, the calculation for average annual electricity consumption (EC) will be

$$EC_{T1,x,y} = EC\ T1, x, y \qquad \text{Equation (1)}$$

Step 3. Determine baseline emissions of each consumer type and sub-group

The parameters are determined differently for different project technologies and consumer groups, as outlined below. Total baseline emissions are the sum of all the individual consumer groups

$$BE_y = BE_{T1,y} + BE_{T2,y} + BE_{T3,y} + BE_{T4,y}$$

Where:

BE_y	=	Baseline emissions in year *y* (tCO_2)
$BE_{T1,y}$	=	Baseline emission from Type I consumers in year *y* (tCO_2)
$BE_{T2,y}$	=	Baseline emission from Type II consumers in year *y* (tCO_2)
$BE_{T3,y}$	=	Baseline emission from Type III consumers in year *y* (tCO_2)
$BE_{T4,y}$	=	Baseline emission from Type IV consumers in year *y* (tCO_2)

In the proposed project activity, only Type I consumers are involved, so the calculation for baseline emission will be

$$BE_y = BE_{T1,y} \qquad \text{Equation (2)}$$

For Type I consumers, baseline emissions are calculated as follows:

$$BE_{T1,y} = \sum_{x=1}^{N} \left(EC_{T1,x,y} \times EF_{CO2,T1}\right) \qquad \text{Equation (3)}$$

Where:

$BE_{T1,y}$	=	Baseline emission from Type I consumers in year *y* (tCO_2)
$EC_{T1,x,y}$	=	Annual electricity consumption of Type I consumer *x* in year *y* (MWh)

$EF_{CO2,T1}$ =
- If $EC_{T1,x,y}$ is equal to or less than 0.055 MWh, then use a default value of 6.8 (tCO_2/MWh);
- If $EC_{T1,x,y}$ is less than or equal to 0.250 MWh but greater than 0.055 MWh, then:
  - For the portion up to and including 0.055 MWh, use a default value of 6.8 (tCO_2/MWh);
  - For the portion greater than 0.055 MWh, use a default value of 1.3 (tCO_2/MWh);
- If $EC_{T1,x,y}$ is greater than 0.250 MWh but less than or equal to 0.500 MWh, then:
  - For the portion up to and including 0.055 MWh use a default value of 6.8 (tCO_2/MWh);
  - For the portion greater than 0.055 MWh and less than 0.25 MWh/y use a default value of 1.3 (tCO_2/MWh); and
  - For the portion greater than 0.250 MWh use a default value of 1.0 (tCO_2/MWh);
- If $EC_{T1M,j,y}$ is greater than 0.500 MWh then use a default value of 1.0 (tCO_2/MWh) for the entire portion (i.e. default values of 1.3 (tCO_2/MWh) or 6.8 (tCO_2/MWh) are not eligible for any of the portions)

N_y = Number of Type I consumers in year *y*

x = Type I consumer (x = 1, 2, 3, …)

Leakage

No leakage involved in the project activity.

Project emissions

The table below shows a summary of the approaches for project emissions:

Table 2. Approaches to determine project emissions based on technology type

Project technology	Project emissions approach	Justification
New or rehabilitation of individual renewable or hybrid energy systems	If only renewables, no project emission If hybrid system, emissions from diesel generator fuel use	Project activity is a new individual renewable energy system. So no project emission involved
Renewable or hybrid mini-grids	Emissions factors based on default emissions factors for fossil fuel plants or weighted average following AMS I.D	Not applicable

Project technology	Project emissions approach	Justification
Grid-extension	Emissions factor based on: top 10 per cent high emission intensive plants in the grid or default emission factor based on the highest carbon intensive fuel in the grid for projects implemented in LDCs/SIDs/Underrepresented countries Project emissions is zero if: Grid extension is directly associated with the renewable energy plant Fuel mix in grid is greater than 95% renewable and projects are located in LDCs/SIDs/Underrepresented countries	Not applicable

B.6.3. Data and parameters fixed ex ante for monitoring contribution to each of the three SDGs

Relevant SDG Indicator	SDG 13: Take urgent action to combat climate change and its impacts
Data/parameter	Emission factor for type I consumer(EF CO2, T1-upto 0.055 MWh/year)
Unit	tCO2/MWh
Description	Emission factor for type I consumer(EF CO2, T1)-upto 0.055 MWh/ year
Source of data	Default vault, AMS III BL, version 1.0
Value(s) applied	6.8
Choice of data or Measurement methods and procedures	Default value for type I consumer upto 0.055 MWh/year
Purpose of data	Baseline emission calculation
Additional comment	

Relevant SDG Indicator	SDG 13: Take urgent action to combat climate change and its impacts
Data/parameter	(EF CO2, T1-Between 0.055 to 0.125 MWh/year)
Unit	tCO2/MWh
Description	Emission factor for type I consumer(EF CO2, T1-Between 0.055 to 0.125 MWh/year)

Source of data	Default vault, AMS III BL, version 1.0
Value(s) applied	1.3
Choice of data or Measurement methods and procedures	Default value for type I consumer between 0.055 to 0.125 MWh/year
Purpose of data	Baseline emission calculation
Additional comment	

Relevant SDG Indicator	SDG 13: Take urgent action to combat climate change and its impacts
Data/parameter	Solar Availability factor
Unit	%
Description	Annual average solar availability factor based on manufacturer's data
Source of data	Manufacturer's data
Value(s) applied	20.24%
Choice of data or Measurement methods and procedures	As per Option D3 under para 54 of applied methodology AMD III BL, ver 01.0
Purpose of data	Baseline emission calculation
Additional comment	

Relevant SDG Indicator	SDG 13: Take urgent action to combat climate change and its impacts
Data/parameter	Annual hours
Unit	hr
Description	Annual hours
Source of data	As per methodology
Value(s) applied	8670
Choice of data or Measurement methods and procedures	
Purpose of data	For calculating energy consumption
Additional comment	

Relevant SDG Indicator	SDG 13: Take urgent action to combat climate change and its impacts
Data/parameter	Type of DC equipment installed at households
Unit	No
Description	Type of DC equipment installed at households DC Fan, DC LED Bulb & DC mobile Charging point/ socket
Source of data	Distribution records
Value(s) applied	DC FAN – 1 no, DC LED Bulb – 5 Nos & DC mobile Charging point/ socket – 1 no

Choice of data or Measurement methods and procedures	
Purpose of data	For calculating the energy consumptions
Additional comment	

B.6.4. Ex ante estimation of outcomes linked to each of the three SDGs

According to methodology AMS III.BL version 1.0, emission reductions shall be calculated as:

$$BE_{T1,y} = \sum_{x=1}^{N} \left(EC_{T1,x,y} \times EF_{CO2,T1} \right)$$

Now consumption for type I is

$$EC_{T1,x,y} = EC\ T1, x, y$$

The detailed calculation is shown below

DC equipments per HH	Capacity(W)	Annual hours	Nos	MWh/ Year
1 fan	24	8670	1	0.20808
1 Bulb	5	8670	5	0.21675
mobile charging point	5	8670	1	0.04335
Total EC per year (ECT1,x,y) MWh/ year				0.46818

Thus EC T1,x,y = 0.046818 MWh/year

Baseline emission is calculated as shown below –

Total number of households (N)	39214	numbers
Defaut solar availability factor as per meth	20%	
Total annual EC(ECT1,x,y)	0.095	MWh
Emission factor for type I consumer(EF CO2, T1-upto 0.055 MWh/year)	6.8	tCO2/MWh
Emission factor for type I consumer(EF CO2, T1-Between 0.055 to 0.125 MWh/year)	1.3	tCO2/MWh
BE T1 upto 0.055MWh/year	0.374	tCO2/year
BE T1 between 0.05 to 0.125MWh/year	0.0517	tCO2/year
Total Baseline emission	16692.91	tCO2/year

Since,

$$BE_y = BE_{T1,y}$$

Therefore baseline emissions per year = 16692 tCO2/y

Project Emissions:

In the project scenario, there are no project emissions.

The emission reductions from the project are: 0

B.6.5. Summary of ex ante estimates of each SDG outcome

Year	Baseline estimate	Project estimate	Net benefit
Year 1	16692	0	16692
Year 2	16692	0	16692
Year 3	16692	0	16692
Year 4	16692	0	16692
Year 5	16692	0	16692
Total	83460	0	83460
Total number of crediting years	5		
Annual average over the crediting period	16692	0	16692

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

Relevant SDG Indicator	SDG 13: Take urgent action to combat climate change and its impacts
Data / Parameter	$EC_{T1,x,y}$
Unit	MWh
Description	Electricity consumption at Type I,
Source of data	As per distribution records
Value(s) applied	0.468
Measurement methods and procedures	Option D – recording of capacity at installation, based on manufacturer's specifications. Deemed consumption will be estimated as described in paragraphs 0, **Error! Reference source not found.**, and **Error! Reference source not found.**. Annual/biennial checks that individual systems are still working, done with a statistically significant sample of consumers. Use 90/10 and 95/10 precision for annual and biennial checks, respectively

Monitoring frequency	Option B – sample survey to be conducted in first year after installation, and repeated at least every 24 months Option D – once at installation (proportion of operational systems would still need to be monitored as per data /parameter table 2 below)
QA/QC procedures	Periodic cross checking of database
Purpose of data	Only used for monitoring option A, option B and option D. Options C is not included because it is calculated from other parameters.
Additional comment	

Relevant SDG Indicator	SDG 13: Take urgent action to combat climate change and its impacts
Data / Parameter	Proportion of operational systems and connections
Unit	No of units
Description	Check for continued operation or access to the grid or mini-grid
Source of data	Database records
Value(s) applied	39214
Measurement methods and procedures	Annual/biennial checks that individual systems and connections to the grid or mini-grid are still working, by taking a statistically significant sample of consumers. Use 90/10 and 95/10 precision for annual and biennial checks, respectively When a consumer has a meter, these readings may be used in place of on-site checks.
Monitoring frequency	Annual/biennial
QA/QC procedures	Periodic cross checking of database
Purpose of data	Baseline emission calculations
Additional comment	Only used for individual energy systems applying monitoring Option D and mini-grid and grid connections applying Options B or C.

Relevant SDG Indicator	SDG 13: Take urgent action to combat climate change and its impacts
Data / Parameter	Number of Household
Unit	Number
Description	Total number of household where the DC based solar system is installed
Source of data	Distribution records
Value(s) applied	39214
Measurement methods and procedures	From distribution records
Monitoring frequency	Continuous
QA/QC procedures	Cross check with the end user through periodic site visits/ phone calls
Purpose of data	For baseline emission
Additional comment	

Relevant SDG Indicator	SDG 03: Good Health and well-being
Data / Parameter	Air Quality
Unit	Qualitative
Description	Users' perception on smoke reduction and Incidence of disease
Source of data	Sampling Surveys/ Annual usage survey/Monitoring survey
Value(s) applied	To be monitored
Measurement methods and procedures	Air quality will be assess through users interviews during the HH User Survey. Observations as to inside working area to confirm answers. Preproject information shall be collected during survey to analyse the project benefits
Monitoring frequency	Annually
QA/QC procedures	
Purpose of data	Sustainable Development Assessment.
Additional comment	

Relevant SDG Indicator	SDG 07: Ensure access to affordable, reliable, sustainable and modern energy for all
Data / Parameter	Access to affordable and clean energy services
Unit	Number
Description	Total number of household where the DC based solar system is installed
Source of data	Distribution / installation records
Value(s) applied	To be monitored
Measurement methods and procedures	From distribution records & Sample survey to confirm if project Solar DC system are operational. Operational status will confirms that the users are accessed to affordable and clean energy
Monitoring frequency	Annually
QA/QC procedures	Cross check with the end user through periodic site visits/ phone calls
Purpose of data	Sustainable Development Assessment.
Additional comment	

B.7.2. Sampling plan

(a) Sampling Approach:
i. Objectives and reliability requirements: The objective of the sampling plan is to achieve unbiased and reliable estimates of the proportion or the mean value of the key variables over the crediting period. As per the sampling and survey standard (EB 92 annex 2, version 7, para 10) in case "where there is no specific guidance in the applicable methodology, project proponents shall use 90/10 confidence/precision as the criteria for reliability of sampling efforts for small-scale project activities and 95/10 for large scale project activities."
Since it is small scale project and PP has opted for the annual inspection, the survey will be conducted to achieve the confidence/precision of 90/10 and this is in accordance with the requirements set out as per the sampling standard.

Parameter	Description	Method
Continuous operation of the solar PV system	Number of units in operation	Sample survey, annually

ii. Target Population
The target population is the total number of operational solar PV systems for which the emission reductions will be accounted for the monitoring period.
iii. Sampling frame
All beneficiaries with installed solar PV systems will be in the sampling frame.
iv. Sampling Method
A simple random sampling will be adopted for estimating the sample size for the monitoring surveys. Simple random sampling is suited to populations that are homogenous (EB 67 annex 06).
v. Sample Size
The calculation of the required sample size for each parameter will be calculated at 90/10 confidence/precision as required for the annual monitoring. The sample size is determined using the Guidelines for Sampling and Surveys for CDM Project activities and Programme of Activities Ver. 7.0 (EB92, Annex 2)

The minimum sample size is determined as follows:

$$n \geq \frac{1.645^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.645^2 p(1-p)}$$

Where,
n= sample size
N = Total number of solar DC system installed under the project
p = expected proportion (0.5)[15]
1.645 = represents the 90% confidence required
0.1 = represents the 10% relative precision (0.1x0.5=0.05 = 5% points either side of p)

The value for N will be included into the equation for each monitoring period to get the sample size for the monitoring survey.

vi. Quality Assurance/Quality Control
A survey questionnaire will be prepared to seek responses of operating status of solar DC PV units. The survey will be performed by the project developer.

The project developer will collect, compile and analyse the data to derive the number of beneficiaries, the solar PV system in operation, and other events. The developer will prepare monitoring report based on the survey report.

For the current monitoring period, PP has conducted a baseline and monitoring survey.
The below table depicts the sampling which is calculated as per the sampling equation mentioned below.

$$n \geq \frac{1.645^2 N \times p(1-p)}{(N-1) \times 0.1^2 \times p^2 + 1.645^2 p(1-p)}$$

Where,
n= sample size
N = Total number of solar DC system installed under the project
p = expected proportion (0.5)[15]
1.645 = represents the 90% confidence required
0.1 = represents the 10% relative precision (0.1x0.5=0.05 = 5% points either side of p)

Total Population (N)	39214
Expected proportion (p)	90%
Sample size (n)	31

B.7.3. Other elements of monitoring plan

>>

A detailed operation and maintenance procedure will be adopted by Cigni. The initial installation of the solar DC system will be the responsibility of the Selected Technology Provider. After each installation, a separate check & certification of proper implementation will be done by an independent entity. An Operation and Maintenance Manual, in English and in local language, shall be provided to the beneficiaries along with the solar PV DC system. The manual shall have information about solar energy, photovoltaic, modules, DC fan, and tracking system, mounting structures, electronics and switches. It should also have clear instructions about mounting of PV module, DO's and DONT's and on regular maintenance and Trouble Shooting of the Solar DC system (including easy to understand sketches /diagrams for training, memory and reference purposes). Name and address of the person or Centre to be contacted in case of failure or complaint shall be made available to the beneficiaries. Warranty cards for modules, electronics & Fan & LED bulbs shall also be provided to the beneficiaries.

SECTION C. Duration and crediting period

C.1. Duration of project

C.1.1. Start date of project

21/03/2018

C.1.2. Expected operational lifetime of project

>> 25 years

C.2. Crediting period of project

5 years renewable

C.2.1. Start date of crediting period

21/03/2018

C.2.2. Total length of crediting period

5 years

SECTION D. Safeguarding principles assessment

D.1. Analysis of social, economic and environmental impacts

>> (Refer the GS4GG Safeguarding Principles and Requirements document for detailed guidance on carrying out this assessment.)

Safeguarding principles	Assessment questions	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
SOCIAL & ECONOMIC SAFEGUARDING PRINCIPLES				
1. Human rights	1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights.	No	The project is dedicated to promote and penetrate the adoption of clean and reliable energy supply in rural areas leading to a reduction in air pollution. It does not concern issues of human rights, dignity and cultural property of indigenous people. India enacted the Protection of Human Rights Act in 1993, later amended in 2006. Among other he Act established the National Human Right Commission to safeguard and investigate in any complaint regarding human rights violations. **The parameter will not be monitored.**	
	2. The Project shall not discriminate with regards to participation and inclusion.	No	Project is targeted towards economically backward and marginalized members of the community who could benefit from the project and whose socio-economic condition could be improved due to the project- specifically households of indigeneous people. The project helps to	

			enhance participation in more inclusive manner. **The parameter will not be monitored.**	
2. Gender equality and Women's rights	1. The Project shall complete the following gender assessment questions in order to inform Requirements 2-4, below: a. Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits? b. Is there a possibility that the Project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential increased burden on women or social isolation of men)? c. Is there a possibility that the Project might not take into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's activities (such as lack of time, child care duties, low literacy or educational levels, or societal discrimination)?	a. No b. No c. No d. No e. No	a. The project enhances the women's access and entitlement of benefits. Since the women were involved in household activities (cooking etc) for which they earlier used fossil fuel based lighting system, will be the direct user of the DC based solar lighting system, it will benefit women by reducing their exposure to the indoor air pollution thereby improving their health. In addition, the decrease in quantity of fossil fuel required after the installation of Solar DC based lighting system will reduce workload of women for the collection of fossil fuel/ kerosene. Reduced workload for fuel collection results in time saving that the women can use for other productive activities. **The parameter will not be monitored** b. The project will not adversely affect men and women in marginalized or vulnerable communities. Implementation of the project will contribute towards preservation of common resources in form of "fossil fuel". Households duties related to cooking,	

	d. Does the Project take into account gender roles and the abilities of women or men to benefit from the Project's activities (e.g., Does the project criteria ensure that it includes minority groups or landless peoples)? e. Does the Project design contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities? f. Would the Project potentially reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and implementation or access to opportunities and benefits? g. Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and	f. No g. No h. No	teaching kids and cleaning utensils remain with women. The project therefore tends to decrease burden on women and won't result in social isolation of men. **The parameter will not be monitored.** c. The project duly accounts the gender roles. Time saving is one of the key benefits from the project which the beneficiary can utilize to fulfill their gender roles. With the saved time, one can perform the respective gender role more effectively. **The parameter will not be monitored** d. Inherited to its design, the project intends to benefit the minority groups in need of assistance, specifically the tribals and indigeneous people. The project shall also make every effort to include landless people in its design. Benefits from the project is expected to culminate in form of creation of entrepreneurial opportunities While the focus is on capacitating women to take advantage of the entrepreneurial opportunity, the project shall not deprive men from the families of minority groups or the landless people to take advantage of the capacity building activities. **Conclusion: the**	

	priorities of women and men in accessing and managing environmental goods and services? h. Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards?		**parameter will not be monitored annually.** e. No, the project is not designed such that it increased workload of women and their care responsibilities. This will enable them engage in other activities. **The parameter will not be monitored.** f. The project will enhance social participation and decision making role of women. Moreover, the women are expected to develop entrepreneurial skills which will enable them economically to deal with the household problems. The potential of the project to enable women economically will help reduce discrimination against women rather than deepening it. T**he parameter will not be monitored** g. Limiting women's ability to use, develop and protect natural resources is not likely with the project implementation. Moreover, the project will create awareness among the people on the usage of clean energy. **The parameter will not be monitored.** h. No, the proposed technology for dissemination is relatively safe compared to the traditional fossil fuel based lighting sysytem. This will	

			decrease the exposure of women and girls to further risks and hazard. **The parameter will not be monitored**	
	2. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women.	No	2. No, the project doesn't directly or indirectly lead to/contribute to adverse impacts on gender equality. In contrast, the project will contribute to health and well-being of women. Moreover, the project will deploy adequate measures to foster social status of women. **The parameter will not be monitored**	
	3. Projects shall apply the principles of nondiscrimination, equal treatment, and equal pay for equal work .	Yes	3. The project shall embrace the spirit of the Labor Regulations providing equal remuneration to the male and female workers without making discrimination when they are engaged in works of similar nature. For all the staffs employed by the project, principle of equal treatment shall prevail. **The parameter will not be monitored**	
	4. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks.	No	There are no specific gender risks identified during the project design. Howsoever, if any assessment is required to frame gender risks associated with the project, the project participant ensures its full commitment to do so. **The parameter will not be monitored.**	
3. Community Health, Safety and Working Conditions	1. The Project shall avoid community exposure to increased health risks and shall not	No	The installation of the Solar DC based system doesn't involve any activity that trigger safety requirements..	

	adversely affect the health of the workers and the community.		Parameter to be monitored is included in section B.7.1 **The parameter will not be monitored**	
4. Cultural Heritage, Indigenous Peoples, Displacement and Resettlement	1. The Project shall not involve or be complicit in the alteration, damage or removal of any sites, objects or structures of significant cultural heritage.	No	The project units will be simple and small in dimension. The project will not result in any change in people's habits because of substitution of fuel. Therefore the result of this project won't damage or remove cultural heritage, since the project is implemented in the households of families. India ratified the Convention Concerning the Protection of Cultural and Natural Heritage in 1977 **The parameter will not be monitored.**	
	2. Where a Project proposes to utilise Cultural Heritage, including the knowledge, innovations, or practices of local communities, affected communities shall be informed of: (a) Their rights under Applicable Law, (b) The scope and nature of the proposed commercial development; and (c) The potential consequences of such development.	No	The project is service oriented and doesn't involve commercialization of any activities. Therefore the safeguarding principle under discussion will not be triggered by the project. **The parameter will not be monitored**	
	3. The Project shall provide for equitable sharing of benefits from commercialization of such knowledge, innovation, or practice, consistent	No	The project is service oriented and doesn't involve commercialization of any activities. Therefore the safeguarding principle under discussion will	

	with their customs and traditions.		not be triggered by the project. **The parameter will not be monitored.**	
	4. The opinions and recommendations of an Expert Stakeholder shall be sought and demonstrated as being included in the Project design.	No	As discussed in the points above pertaining to this safeguard requirement, expert opinion and recommendations during stakeholders' consultation for this particular avenue shall not be required. Therefore the safeguarding principle under discussion will not be triggered. **The parameter will not be monitored**	

5. Corruption	The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects.	No	The project doesn't involve any transaction of cash and/or kind between the project participant and the beneficiary. The project participant will facilitate the implementation of the project by capacitating the local people with necessary technical expertise to prepare and install the stoves. There are no specific permit and/or approvals required to implement the project. Finally, anything generated as project revenue shall be spent towards the project monitoring, repair and maintenance, project operation and costs against project verification and issuance of the emission reduction credits. Therefore, the project is not expected to involve any corrupt practices or reinforce the same. T**his parameter will not be monitored**	
6. Economic impacts	1. The Project Developer shall ensure that there is no forced labour and that all employment is in compliance with national labour and occupational health and safety laws, with obligations under international law, and consistency with the	No	The project is not labour intensive. Since it doesn't involve major construction works, employing labours is not within the scope of the project. Project will train the local people to properly maintain the system. While training the persons, project	

	principles and standards embodied in the International Labour Organization (ILO) fundamental conventions. Where these are contradictory and a breach of one or other cannot be avoided, then guidance shall be sought from Gold Standard.		shall make sure that the trained persons are grown up citizen of the country. Therefore the safeguarding principle under discussion will not be triggered. **This parameter will not be monitored.**	
	2. Workers shall be able to establish and join labour organisations.	No	As discussed earlier, the project intends to encourage Household end users to become self-reliant in terms of their energy needs. Since the project is not stand alone establishment, there are not any proper “labours” working for the project. Further, the people working for the project will not be salaried staffs to the project. Therefore the possibility of workers forming labour unions and joining labour organizations is not applicable for the project. **This parameter will not be monitored**	
	3. Working agreements with all individual workers shall be documented and implemented. These shall at minimum comprise: (a) Working hours (must not exceed 48 hours per week	No	Project employs few administrative staffs to support secretarial functions. These staffs work 40 hours/week (6 days/week). Each staff is provided with a set terms of reference highlighting the responsibilities, terms of payment and terms	

	on a regular basis), AND (b) Duties and tasks, AND (c) Remuneration (must include provision for payment of overtime), AND (d) Modalities on health insurance, AND (e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND (f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave.		of detachment. Since all the aspects related to working modality prevail, this parameter need not be monitored. **This parameter will not be monitored**	
	4. The Project Developer shall justify that the employment model applied is locally and culturally appropriate. Stakeholder shall be sought and demonstrated as being included in the Project design.	No	The project design inherently requires capacitating local people to support the solar project. As such, context of local employment is well deliberated in the project design. Therefore the project doesn't trigger the safeguards requirement under consideration. **This parameter will not be monitored.**	
	5. Child labour, as defined by the ILO Minimum Age Convention is not allowed. The Project Developer shall use adequate and verifiable mechanisms for age verification in recruitment procedures. Exceptions are	No	All the staffs recruited by the project as an employee or as training participants are age verified. For this, the project uses citizenship certificate as the means of verification. Therefore the project doesn't trigger the safeguards requirement	

	children for work on their families' property as long as: (a) Their compulsory schooling (minimum of 6 schooling years) is not hindered, AND (b) The tasks they perform do not harm their physical and mental development, AND (c) The opinions and recommendations of an Expert		under consideration. **This parameter will not be monitored.**	
	6. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.	No	No hazardous material will be used in any of the activity of the project. The Solar DC based system biogas units will be constructed of Solar PV module, Charge controller, Bulb, DC fan, Sockets, and wires. These materials do not contain any toxic subtracts. **The parameter will not be monitored**	
ENVIRONMENTAL & ECOLOGICAL SAFEGUARDING PRINCIPLES				
7. Climate and Energy	1. Projects shall not increase emissions over the Baseline Scenario unless this is specifically allowed within Activity Requirements or Gold Standard Approved Methodologies.	Yes	The project involved installation of solar PV arrays connected to the household to provide electricity. These equipment is a very crucial aspect of the household activities. It replaces the fossil fuel used in the baseline scenario. Implementation of the project will result in reduction of fossil fuel and ultimately the GHG emission reduction. **This parameter will be monitored.**	

			Means of verification: Annual monitoring. Indicator: Continuous use of the solar PV DC system installed.	
	2. The Project shall not affect the availability and reliability of energy supply to other users.	Yes	Installation and use of the solar DC based system avoiding the use of diesel. Therefore the availability and reliability of energy supply to other users is not compromised. **This parameter will not be monitored**	
8. Water	Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	The project doesn't involve any activity related to extraction of surface or ground water. Therefore the safeguarding principle under consideration will not be triggered by the project. **This parameter will not be monitored.**	
9. Environment, ecology and land use	Does the Project involve the use of land and soil for production of crops or other products?	No	The project doesn't involve any activity related to extraction of surface or ground water. Therefore the safeguarding principle under consideration will not be triggered by the project. T**his parameter will not be monitored.**	

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from stakeholders

>> (Describe how stakeholder consultation was conducted in accordance with GS4GG Stakeholder Procedure Requirements and Guidelines.)

A live stakeholder's consultation has been conducted on 25/06/2019. During the meeting, no negative comments are received from the local stakeholders. Also, the stakeholders' feedback process for 2 months is going on and if any comments receive during this period will be duly taken care by the PP.

E.2. Summary of comments received

>> *(Provide a summary of key comments received during the consultation process.)*

During the in-person local stakeholder consultation the feedback received are provided in the LSC report. There are no negative feedback received.

E.3. Report on consideration of comments received

>> *(Describe how the comments have been addressed by providing a clarification to the stakeholder or by altering the design of the project or by proposing to monitor any anticipated negative impacts etc.)*

Since the feedback process of 2 months is still under process, and the feedback received during the in-person local stakeholder consultation meeting held on 25/06/2019, were duly taken are. The attendees were provided clarification with respect to the project and their concerns are duly addressed

Appendix 1. Contact information of project participants

Organization name	Cygni Energy Private Limited
Registration number with relevant authority	-
Street/P.O. Box	Road No. 78
Building	Lansum House, Jubilee Hills
City	Hyderabad
State/Region	Telangana
Postcode	500033
Country	India
Telephone	+9140 2354 5001
Fax	-
E-mail	nandkishore@cygni.com
Website	https://www.cygni.com/
Contact person	
Title	Deputy General Manager
Salutation	Mr.
Last name	
Middle name	
First name	Nandkishore
Department	Marketing
Mobile	7899620985
Direct fax	
Direct tel.	
Personal e-mail	nandkishore@cygni.com

Organization name	Value Network Venture Advisory Services LLP
Registration number with relevant authority	AAA-1130
Street/P.O. Box	41/1, Church Street
Building	Reyyan Towers
City	Bangalore
State/Region	Karnataka
Postcode	560001
Country	India
Telephone	+91 98450 17165
Fax	-
E-mail	sandeep@vnvadvisory.com
Website	http://www.vnvadvisory.com/
Contact person	
Title	Partner
Salutation	Mr.
Last name	Roy Choudhury
Middle name	
First name	Sandeep
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Direct fax	

Direct tel.	
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Appendix 2. Summary of post registration design changes

Not Applicable

Revision History

Version	Date	Remarks
1.1	24 August 2017	Updated to include section A.8 on 'gender sensitive' requirements
1	10 July 2017	Initial adoption