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

Version 1.1 – August 2017

Gold Standard

KEY PROJECT INFORMATION

Title of Project:	42 MWp Bundled Solar Photovoltaic Power project in Indonesia
Brief description of Project:	The project ~~activity~~activity is setting up four number of Solar power projects (7 MWp, 7p MW, 7 MWp & 21 MWp) in Indonesia with the total installed capacity of 42 MWp. The purpose of the project activity is to generate electrical power through operation of solar power plants.
Expected Implementation Date: Expected duration of Project:	24/01/2019 25 years
Project Developer:	PT Infrastruktur Terbarukan Adhiguna PT Infrastruktur Terbarukan Buana PT Infrastruktur Terbarukan Cemerlang PT Infrastruktur Terbarukan Lestari
Project Representative:	Kosher Climate India Private Limited
Project Participants and any communities involved:	~~Kosher Climate India Private Limited~~ PT Infrastruktur Terbarukan Adhiguna PT Infrastruktur Terbarukan Buana PT Infrastruktur Terbarukan Cemerlang PT Infrastruktur Terbarukan Lestari
Version of PDD: Date of Version:	~~3~~2 ~~15~~30/~~09~~12/2020
Host Country / Location:	Indonesia
Certification Pathway (Project Certification/Impact Statements & Products	Impact Statement & Product (GS VER)
Activity Requirements applied: (mark GS4GG if none relevant)	GS4GG
Methodologies applied:	ACM0002, version 20
Product Requirements applied:	NA
Regular/Retroactive:	Retroactive
SDG Impacts:	1 – SDG3 Good Health and Well-Being 2 - SDG 7 Affordable and Clean Energy 3 - SDG 8 Decent Work and Economic Growth 4 - SDG 13 Climate Action
Estimated amount of SDG Impact Certified	SDG 3: 3 community development activity/year SDG 7: 64,504 MWh electricity generation/year SDG 8: 2 Trainings for staffs/year 80 number of jobs 0.5 million USD spent on O&M/year SDG 13: 60,310 tCO_2e emission reduction/year

SECTION A. Description of project

A.1. Purpose and general description of project

The project is a bundled project which involves installation of 4 solar project in Indonesia. The details of the four projects are given below:

No	Developer	Capacity	Location	Commissioning date	Grid Connected
1	PT Infrastruktur Terbarukan Adhiguna (ITA)	7 MWp/ 5.4 MWac	Cemporonan sub-village, Pringgabaya Utara village, Pringgabaya district, Lombok Timur regency, Nusa Tenggara Barat province, Indonesia	22-Jul-19	Lombok (in West Nusa Tenggara)
2	PT Infrastruktur Terbarukan Buana (ITB)	7 MWp/ 5.4MWac	Geres Baret sub-village, Geres village, Labuhan Haji district, Lombok Timur regency, Nusa Tenggara Barat province, Indonesia	2-July-19	
3	PT Infrastruktur Terbarukan Cemerlang (ITC)	7 MWp/ 5.4 MWac	Sengkol 1 sub-village, Sengkol village, Pujut district, Lombok Tengah regency, Nusa Tenggara Barat province, Indonesia	2-July-19	
4	PT Infrastruktur Terbarukan Lestari (ITL)	21 MW/ 15.3 MWac	Wineru Village, Likupang Timur District, Minahasa Utara Regency, Sulawesi Utara Province, Indonesia	05-Sep-2019	Sulutgo (in north Sulawesi and Gorontalo)

The purpose of the project activity is to generate electrical power through operation of solar power plants with the cumulative capacity of 42 MWp/32.6 MWac.

ITA, ITB & ITC projects are commissioned on 2nd July 2019 and ITL project was commissioned on 5th September 2019.

The purpose of the project activity is to generate electrical power using solar energy through operation of Solar power plants.

How the proposed activity reduces GHG emissions

The electricity generated by the ITA, ITB & ITC projects export to the Lombok Power Grid and the electricity generated from the ITL project exports power to Sulutgo grid. The project activity will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. Since solar power is Greenhouse Gas (GHG) emissions free, the power generated will prevent the anthropogenic gas emissions generated by from fossil fuel based thermal power stations comprising coal, diesel, furnace oil and gas. Hence, the generation by the proposed activity is non-GHG source and thus reduces the proportion of fossil fuel based generation in the grid leading to lesser carbon intensive grid.

Scenario existing prior to the implementation of project activity:

There was no activity at the site prior to implementation of the project activity. Hence the scenario existing prior to the project activity is same as baseline scenario which is continual use of highly carbon intensive electricity in the South Sulawesi.

Baseline Scenario:
As the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following as per applied methodology: Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants in the respective grids and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system" version 7. Hence, pre-project scenario and baseline scenario are the same.

The estimation of GHG reductions by this project is limited to carbon dioxide (CO_2) only. Thus the project activity leads to an emission reduction of 301,551 tCO_2e for the chosen crediting period of 5 years with the annual average emission reduction of 60,310 tCO_2e

Project Contribution to Sustainable development:
Some of the sustainable development from the project are as following:

a) Social well-being
b) Economic well-being
c) Environmental well-being
d) Technological well-being

These project activity contributions towards the sustainable development are as follows;

Economic well-being:
- The project activity would help in alleviation of poverty in the area as it creates employment opportunities to the local people.
- The project activity would bring in additional investment to the region which would have not been possible in the absence of project activity. The development of project activity would contribute significantly towards infrastructure development of the region which ultimately leads to rural area development.
- The project activity evacuating power to the nearest regional grid would lead to improvement of electricity availability as the electricity is fed into a deficit grid.

Social well-being:
- The project activity would improve the local infrastructure development.
- Power generated from this project activity can be used for small scale industries, thus would generate employment opportunities.

Environmental well-being:
- Solar is one of the cleanest form of renewable energy and power generation does not involve any fossil fuels.
- The project activity by replacing electricity generated from fossil fuels would result in reduction of both GHG emissions and air borne pollutants, such as oxides of nitrogen, oxides of sulphur, carbon monoxide and particulates.
- Produces electricity without any GHG emissions.

Technological well-being:
- The project would use the environmental safe and sound technologies in solar Power sector.
- It will improve the power quality and the improvement of transmission and distribution congestion.

The successful implementation and operation of the project would serve as demonstration for harnessing solar potential and encourage setting up of similar projects in future.

A.2. Eligibility of the project under Gold Standard

>> *(Describe how the project meets the eligibility criteria as per section 3.1.1 of GS4GG Principles & Requirements document and the relevant activity requirements document)*

The project activity is a solar power project and hence is automatically eligible for Gold Standard Certification as per the approved Gold Standard Activity Requirements.

GS eligibility		Justification
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. These are published to the Gold Standard website and shall be followed where provided for a given Project type.	**OK**	The project is a solar photovoltaic power generation activity which is automatically eligible under the project type category (b) of Renewable energy activity requirement[1]: "(*b) Project shall comprise of renewable energy generation units, such as photovoltaic, tidal/wave, wind, hydro, geothermal, waste to energy and renewable biomass:* • *Supplying energy to a national or a regional grid; or* • *Supplying energy to an identified consumer facility via national/regional grid through a contractual agreement such as wheeling*" The CDM approved methodology ACM0002, Version 20.0, is applied to the project activity.
3.1.1.2 For Project types not currently published to the Gold Standard website, the Project Developer may submit to Gold Standard for approval. This shall be done at minimum as part of the Preliminary Review, though it is recommended to engage with Gold Standard earlier to establish the criteria and requirements for approval.	***NA***	The project type is approved and published on the GS website.
3.1.1.3 Project types applying for Gold Standard approval are referred to the Gold Standard Vision and Mission. The Project Developer shall demonstrate how the Project would contribute to these and how the Gold Standard for the Global Goals Requirements would be met in their application for approval.	***OK***	The project activity is implementation solar power plant in Indonesia. The project avoids CO_2 emissions that would have occurred in the absence of the project at the grid connected fossil fuel power plants. Hence the project avoids the GHG emission that is responsible for climate change. The monitoring process required to achieve the Global Goals, are also explained in the project document. Therefore, the project activity is in line with the GS vision of "Climate security and sustainable development for all" and GS mission, "To catalyse more ambitious climate action to achieve the Global Goals through

[1] https://globalgoals.goldstandard.org/wp-content/uploads/2017/06/200-GS4GG-Renewable-Energy-Activity-Requirements-v1.1.pdf

		robust standards and verified impacts".
3.1.1.4 In reviewing a new Project type for approval, Gold Standard may establish new Requirements to be met by the Project in order to achieve Gold Standard Design Certification and ongoing Project Certification. Where required, Gold Standard shall engage expert peer reviewers to establish these Requirements, at the Project Developer's expense.	***NA***	*Non-Applicable*
3.1.1.5 Gold Standard does not support Project types associated with geo-engineering or energy generated from fossil fuel or nuclear, fossil fuel switch, or any project that supports, enhances or prolongs such energy generation. In certain cases, concerning energy efficiency involving fossil fuels (for example, LPG stoves), an exception is made. This is captured in the relevant Activity Requirements, Gold Standard Approved Methodologies and/or Product Requirements.	***NA***	*Non-Applicable*

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

>> *(Justify that project owner has full and uncontested legal ownership of the products that are generated under Gold Standard Certification and has legal rights concerning changes in use of resources required to service the Project for e.g water rights, where applicable.*)

The respective Project proponents hav~~s~~e complete rights on the environmental attributes and other products detailed in the report. The project has not pledged any of the aforesaid products to any party and does not involve any double counting. The legal ownership of GS VER and other legal rights are with the respective project proponent as given in the below table:

Project	**Capacity**	**Legal owner of VER and other legal rights**
ITA	7 MWp	PT Infrastruktur Terbarukan Adhiguna (ITA)
ITB	7 MWp	PT Infrastruktur Terbarukan Buana (ITB)
ITC	7 MWp	PT Infrastruktur Terbarukan Cemerlang (ITC)
ITL	21 MWp	PT Infrastruktur Terbarukan Lestari (ITL)

No other parties or communities are involved in the project.

The legal ownership of the project with the respective project proponent which can be confirmed via the following documents:
1. Commissioning Certificate
2. Approvals

A.4. Location of project

A.4.1. Host Country

>>
Indonesia

A.4.2. Region/State/Province etc.

>>
Refer section A.4.4 below

A.4.3. City/Town/Community etc.

>>
Refer section A.4.4 below

A.4.4. Physical/Geographical location

>> (*Include information allowing the unique identification of this project.)*

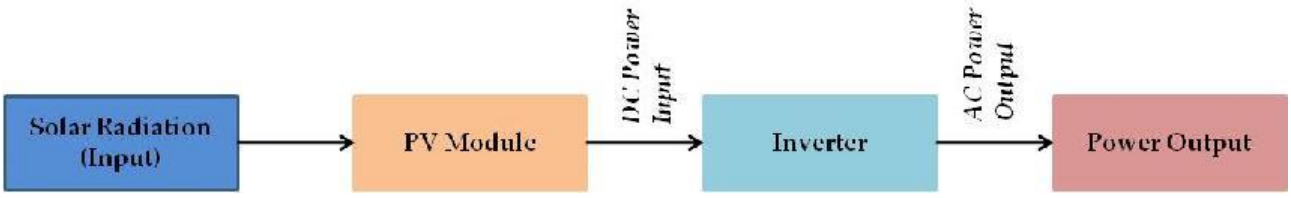
Project	Capacity	Region/Province	City/Town/Community	Geographical Location
ITA	7 MWp	Nusa Tenggara Barat Province	Cemporonan sub-village, Pringgabaya Utara village, Pringgabaya district, Lombok Timur regency	8.519° S 116.634° E
ITB	7 MWp	Nusa Tenggara Barat Province	Geres Baret sub-village, Geres village, Labuhan Haji district, Lombok Timur regency	8.658° S 116.574° E
ITC	7 MWp	Nusa Tenggara Barat Province	Sengkol 1 sub-village, Sengkol village, Pujut district, Lombok Tengah regency	8.794° S 116.294° E
ITL	21 MWp	Sulawesi Utara Province	Wineru Village, Likupang Timur District, Minahasa Utara Regency	1.658° N 125.096° E

A.5. Technologies and/or measures

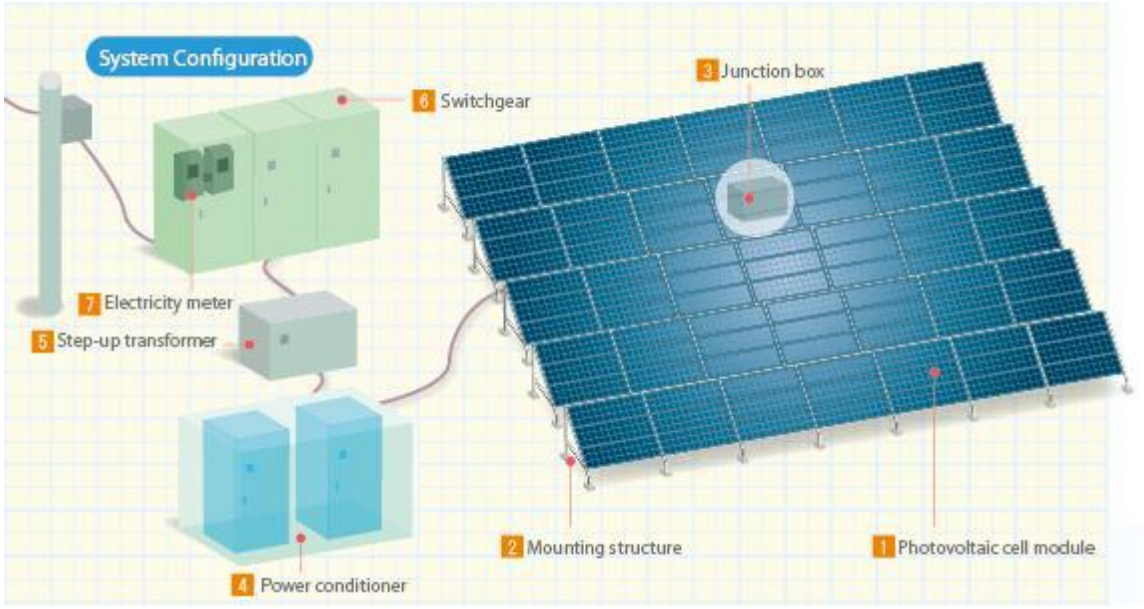
>> *(Describe the technologies and measures to be employed and/or implemented by the project, including a list of the facilities, systems and equipment that will be installed and/or modified by the project. Include information essential to understand the purpose of the project and how it will contribute positively to three SDGs.)*

Photovoltaic (PV) is a method of generating electrical power by directly converting sunlight into electricity. This conversion is facilitated by special semiconductor material which exhibit photoelectric effect. PV modules which are made up of the semiconductor material are used for power generation. The semiconductor materials used for the modules could be monocrystalline silicon, polycrystalline silicon, amorphous silicon, cadmium telluride and copper indium selenide/sulfide. Currently all the panels erected at the project activity uses polycrystalline modules. The project activity is the installation of an environmentally safe and sound technology since there are no GHG emissions associated with the electricity generation.

The technical specifications as below.



The Project would generate electricity by converting solar radiations into electricity using photo – electric properties of silicon semiconductors. Grid connected solar PV project employs two-step process for converting solar radiations into AC power to be fed into the grid. The process flow of power generation process in a PV plant is as depicted below.



A grid connected PV project typically has solar modules, inverters, unit control switchboard, energy meter and transformer as main components.

The solar PV power plant has solar PV modules, inverters, transformers and other protection system and supporting components as under:

Project	**ITA**	**ITB**	**ITC**	**ITL**
Solar PV modules				
Solar PV modules (Make)	Trina Solar	Trina Solar	Trina Solar	Trina Solar
Technology	Polycrystalline	Polycrystalline	Polycrystalline	Polycrystalline
Capacity	325 Wp	325 Wp	325 Wp	325 Wp
No. Of Modules	21,560	21,560	21,560	64,720
Capacity, MW (DC)	7.007 MWp	7.007 MWp	7.007 MWp	21.034 MWp
Inverter				
Input voltage of inverter	550 - 885 V	550 - 885 V	550 - 885 V	550 - 885 V
Rated output voltage of inerter	380 V	380 V	380 V	380 V
Inverter output (min)	680 kWac	680 kWac	680 kWac	680 kWac
Number of Inverter	8	8	8	24
Total AC Capacity	5.44 MW	5.44 MW	5.44 MW	16.32 MW
Inverter Transformer				
Capacity	1.360 kVA	1.360 kVA	1.360 kVA	1.360 kVA
Input Voltage range	100 -380 V	100 -380 V	100 -380 V	100 -380 V
Output Voltage	20k V	20k V	20k V	20k V
Number of transformer	4	4	4	4
Power Transformer				
Capacity	NA	NA	NA	20 MVA
Input/ Output Voltage	NA	NA	NA	20 kV/66kV
Number of transformer	NA	NA	NA	1
Grid Connection				
Interconnection Voltage	20 kV	20 kV	20 kV	66 kV
Transmission line distance	3 km	6 km	2.1 km	0.2 km

Substation	150/20kV Pringgabaya	150/20kV Selong	150/20kV Sengkol	66/20kV Likupang
Total Capacity, MW (DC)	42 MWp			
Total Capacity, MW (AC)	32.6 MWac			

The average lifetime of the project is around 25 years as per the equipment supplier specifications. The plant load factor assessed at project sites as below:

Project	**ITA**	**ITB**	**ITC**	**ITL**
PLF (DC)	17.17%	18.02%	17.97%	17.70%
Generation	10,526 MWh	11,047 MWh	11,018 MWh	32561 MWh

The total annual net generation is estimated to be 65,152 MWh

In the absence of the project activity the equivalent amount of electricity sold to grid would have been generated by grid connected power plants from the respective grid, which is predominantly based on fossil fuels, hence baseline scenario of the project activity is the grid based electricity system, which is also the pre-project scenario.

The technology and the project do not pose any adverse threat to the environment and contribute positively in reducing GHG emissions by displacing energy generation from fossil fuel powered projects. The proposed project activity is environmentally safe to implement and operate.

A.6. Scale of the project

>> (Define whether project is micro scale, small scale or others. Justify the scale referring to relevant activity requirement.)

The project is seeking emission reduction certification from 42 MWp/32.6 MW_{AC} Solar Power Project. The estimated emission reduction from this project is 33,775 tCO_2/year. Since the annual estimated emission reduction is greater than10,000 tCO_2eq, the project falls under "non-micro scale" category as per the section 1.2.3 of Renewable energy activity requirement.

A.7. Funding sources of project

>> (Provide the public and private funding sources for the project. Confidential information need not be provided.)

The project activity is funded by debt and equity. Debt being sourced from Asian Development Bank. No public funding is involved in this project.

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.)

Step 1: Basic Context

1M. Does the project reflect the key issues and requirements of gender-sensitive design and implementation as outlined in the gender policy? Explain how.

Answer: Yes, from the pre-feasibility study stage to the operation time, from the stakeholder investigation to the employment, fair chance and gender equality to access the source, information and to reflect their opinions as a main consideration is taken by the project owner. Further, even if the customers both including suppliers and power buyer are also investigated by the project owner for gender equality issues.

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

Answer: In Indonesia, the policy on gender equality and empowerment of women has been adopted at the international and national levels[2]:

(a) at the international and national levels, through the ratification of the UN Convention on the Elimination of All Forms of Discrimination against Women with Law Number 7/1984;
(b) at the national level, through the People's Consultative Assembly (the highest political body in Indonesia) Decree Number IV/MPR/1999 on the Broad Guidelines of State Policy 1999-2004;
(c) the establishment of National Machinery for the Advancement of Women with the Presidential Decree of 1978;
(d) Law Number 25/2000 on the National Development Programme;
(e) Presidential Instruction Number 9/2000 on Gender Mainstreaming in National Development;
(f) National Action Plan for the Elimination of Violence Against Women;
(g) the inclusion of gender-mainstreaming policy in 38 programmes of the National Development Programme (2000-2004);
(h) Law Number 23/2002 on Child Protection;
(i) Presidential Decree Number 87/2002 on National Plan of Action on Eradication of Child Commercial Sexual Exploitation;
(j) Presidential Decree Number 88/2002 on National Plan of Action on Elimination of Trafficking in Women and Children;
(k) Law no. 12/2003 on General Election in which each political party participating in a general election should consider at least 30% of women representation in the nomination of its members of national, provincial and local representative council.

Indonesia is ranked 115 out of 188 countries in 2016 on its Gender Inequality Index (GII)[3]. Moreover, the Human Development Index (HDI) is higher for females (0.666) than for females (0.715), which shows the gender policies are effectively implemented in Indonesia. Hence, the project implemented in Indonesia complies with all the laws and policies of the gender equality as follows.

- *The project activity promotes and encourages active participation of women and men during the stakeholder meetings, giving an equal opportunity to both genders.*
- *The project provides equal employment opportunities for men and women.*
- *Equal pay for equal work is followed. No discrimination is made in the salaries of men and women.*

Hence, the project aligned with existing country policies, strategies and best practices**.**

Step 2: Apply Gold Standard Safeguarding Principles

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

Answer: Yes, please see below table.

The questions raised in the Gold Standard safeguarding principles and requirements document.	Assessment	Explanation
Is there a possibility that the Project might reduce or put at risk women's access to or control of resources,	No	The project activities are located at barren lands, in absent of the project, no specific and special resource is available

[2] https://www.un.org/womenwatch/daw/Review/responses/INDONESIA-English.pdf

[3] *2016 Human Development Report (HDR),* United Nations Development Program

entitlements and benefits?		for women and affect by the construction and operation of the project. And any relevant of the project activity such as work opportunity, supply act is fair and open to any quality people.
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)?	No	No evidence to show the construction of the solar project affect men and women in marginalised or vulnerable communities.
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)?	No	During the decision, designs even operation of the project activity, the project developer, employes people base on the principle of open, fair opportunity without the discrimination on men or women. The project will aim to ensure gender equality by creating job opportunities for women. (Refer ESIA Report, page 70/94)
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)?	No	The project developer gives the benefit including salary, social welfare and bonus base on the workload and position and without setting any criteria to specially benefit men or women. As per EHS Policy, PP confirms that the workers will be free from all forms of harassment and discrimination based on race, color, religion, national origin, gender (including pregnancy), age, disability, sexual orientation, gender identity, HIV status, marital status, or any other status protected by the laws and regulations in the locations where we operate. (Refer ESIA Report, page 84/14)
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?	No	The proposed project does not increase the workload or prevent women from engaging in other activities.
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?	No	From the statistic and ESIA report of the construction of the solar project, it has no evidence to show that 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.
Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into	No	The nature resource of the project is only solar radiation. Whether or not to develop the proposed project, the ability

account different roles and priorities of women and men in accessing and managing environmental goods and services?		of women to access, use, develop and protect natural resource is not affect or limited.
Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards?	No	There is no likelihood, because the propose project does not change any factor which may expose women and girls to further risks or hazards. Conversely, more gender equality principle and advance knowledges from large cities will bring to the local girl or women that encourages and educates them to protect their right and mitigate the potential risks.

Step 3: Conduct Stakeholder Consultation:

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

Answer: The PP conducted stakeholder consultation for each site for the purpose of Gold Standard. All men and woman stakeholders are given equal opportunity provide their feedbacks during the consultation. Please refer Section E below for more details on the stakeholder consultation process.

Apart from this, as part of ESHIA development process, stakeholder consultation was also conducted on 25-28 July 2017 for ITA, ITB & ITC projects and stakeholder consultation conducted on 17th October 2016 for the ITL project. This consultation involved head of permitting office, head of villages, midwives, landowners, and representatives of environmental office. These local stakeholder consultation processes reach a wide range of community representatives in ways that ensure equal and effective participation of women and men in consultation, and that gender issues are fully factored into comprehensive social and environmental impact assessment. Developer also established framework for Stakeholder Engagement Plan (SEP) as result of and ESHIA study This SEP document (Appendix 2) shall be treated as live document and shall be revised regularly as the Project progresses.

SECTION B. Application of selected approved Gold Standard methodology

B.1. Reference of approved methodology

>>

Title: Grid-connected electricity generation from renewable sources

References: Approved Large Scale Consolidated Methodology: ACM0002 "Grid-connected electricity generation from renewable sources" (Version 20.0)[4]

ACM0002 draws upon the following tools which have been used in the PDD:

- Methodological Tool: Tool to calculate the emission factor for an electricity system - Version 7.0[5].
- ~~Methodological Tool: Tool for the demonstration and assessment of additionality – Version 07.0[6].~~

B.2. Applicability of methodology

>> (Justify the choice of the selected methodology(ies) by demonstrating that the project meets each applicability condition of the applied methodology(ies))

This methodology applies to project activities that include retrofitting, rehabilitation (or refurbishment), replacement or capacity addition of an existing power plant or construction and operation of a Greenfield power plant.

The project activity meets the applicability conditions of the approved consolidated baseline and monitoring methodology ACM0002, version 20.0, as described below:

Applicability Criteria	Applicability status
This methodology is applicable to grid-connected renewable power generation project activities that: (a) install Greenfield power plant; (b) involve a capacity addition to (an) existing plant(s); (c) involve a retrofit of (an) existing plant(s)/unit(s); (d) involve a rehabilitation of (an) existing plant(s)/unit(s); or (d) involve a replacement of (an) existing plant(s)/unit(s)	The proposed project activity is a Green field, grid connected renewable power plant. Therefore, it confirms to the said criteria
The methodology is applicable under the following conditions: The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit	The project activity is the installation of a new grid connected renewable solar power project. Thus, it meets the first applicability condition
In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion or retrofit or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity	The proposed project activity is the installation of a new solar power plant/unit. Therefore, the said criteria is not applicable
In case of hydro power plants, one of the following conditions shall apply:	The proposed project activity is the installation of a solar power plant/unit. Therefore, the said criteria is

[4] https://cdm.unfccc.int/filestorage/A/G/0/AG07ZJQ3EXD42LT5YV9HR16M8KINPO/EB105_repan03_ACM0002.pdf?t=Z1B8cTluZnlxfDBcys0U7c7xBzYT3KkkX_QG

[5] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

[6] ~~https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf~~

(a) The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of reservoirs; or (b) The project activity is implemented in an existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (3) is greater than 4 W/m2; or (c) The project activity results in new single or multiple reservoirs and the power density calculate equation (3), is greater than 4 W/m2. (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density of any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m2, all of the following conditions shall apply. (i) The power density calculated using the total installed capacity of the integrated project, as per equation (4) is greater than 4W/m2; (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m2shall be: (a) Lower than or equal to 15 MW; and (b) Less than 10% of the total installed capacity of integrated hydro power project	not applicable
In the case of integrated hydro power projects, project proponent shall: Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability indifferent seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	The proposed project activity is the installation of a solar power plant/unit. Therefore, the said criterion is not applicable
The methodology is not applicable to:	The proposed project activity is the installation of a solar power plant/unit. Therefore, the said criteria is not applicable

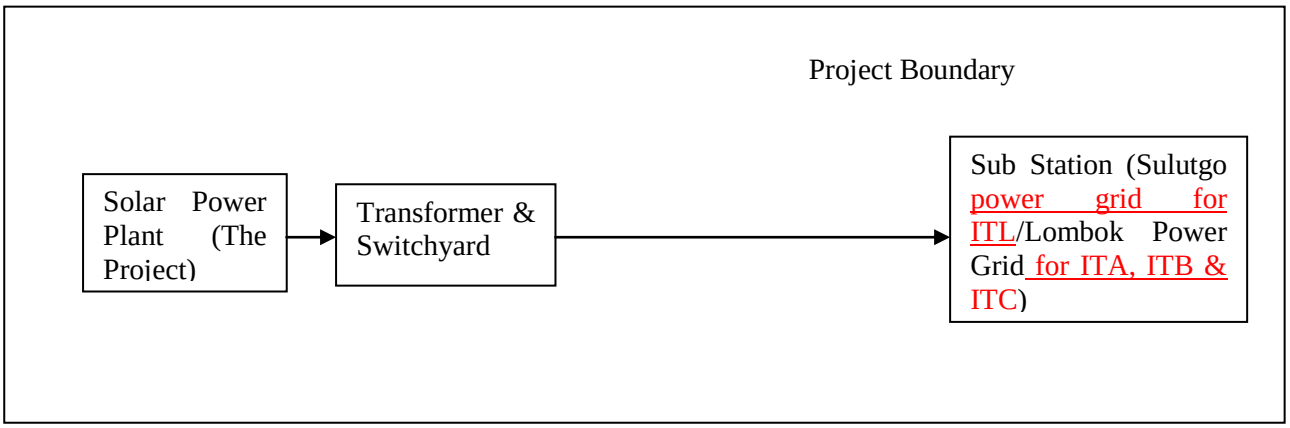
(a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants;	
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	The proposed project activity is the installation of a green field solar power plant. Therefore, the said criterion is not applicable.
In addition, the above applicability conditions the applicability conditions of tool referred in the methodology ACM0002, version 20 (ie, Tool to calculate the emission factor for an electricity system, v7) has been referred here under:	
This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid(e.g. demand-side energy efficiency projects).	This condition is applicable. OM, BM and CM are estimated using the tool under section B.6.1 for calculating baseline emissions.
Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, the conditions specified in "Appendix 2: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	Since the project activity is grid connected, this condition is applicable and the emission factor has been calculated accordingly.
In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	The project activity is located in Indonesia, a non-Annex I country. Therefore, this criterion is not applicable for the project activity
Under this tool, the value applied to the CO_2 emission factor of bio fuels is zero	The project activity is a grid connected solar power project and therefore, this criterion is not applicable for the project activity

B.3. Project boundary

>> *(Present a flow diagram of the project boundary, physically delineating the project, based on the description provided in section A.5 above.)*

As per Para 20 of applied baseline and monitoring methodology ACM0002, Version-20 the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the project power plant is connected to. This includes the solar power plant installation, transformer & switch yard and sub-stations.

The proposed project activity evacuates the power to the regional grid. Therefore, all the power plants contributing electricity to the ~~National~~ respective regional grid (Sulutgo/Lombok Power Grid) have been considered in the project boundary for the purpose of baseline estimation. The project activity targets reduction of CO_2e as main GHG greenhouse gas in baseline, there are no GHG emission associated with project activity.



Power Evacuation:
Power will be evacuated at 20 kV voltages in each power station. The details of the power evacuation is given below:

Details	**ITA**	**ITB**	**ITC**	**ITL**
Interconnection Voltage	20 kV	20 kV	20 kV	20 kV
Transmission line distance	3 km	6 km	2.1 km	0.2 km
Substation	150/20kV Pringgabaya	150/20kV Selong	150/20kV Sengkol	66/20kV Likupang

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

Source		**GHGs**	**Included?**	**Justification/Explanation**
Baseline scenario	Emission from grid connected fossil fuel power plants	CO_2	Yes	Main emission source.
		CH_4	No	Minor emission source.
		N_2O	No	Minor emission source.
Project scenario	Project emission	CO_2	No	The project is a solar power project. Project emissions should not be considered according to ACM0002, v20.
		CH_4	No	
		N_2O	No	

B.4. Establishment and description of baseline scenario

>> (Explain how the baseline scenario is established in accordance with guidelines provided in GS4GG Principles & Requirements and the selected methodology(ies). In case suppressed demand baseline is used then same should be explained and justified.)

As per the approved consolidated Methodology ACM0002 (Version 20) para 22:

"If the project activity is the installation of a Greenfield power plant, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-

connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system", Version 07.0.

The project activity involved setting up of solar power plant to harness the solar energy to produce electricity and supply to the grid. In the absence of the project activity, the equivalent amount of power would have been supplied to the electricity grid by the operation of grid-connected power plants (mainly by fossil fuel fired plants) and by the addition of new generation sources, as reflected in the combined margin (CM) calculations.

Hence, for the project ITA, ITB & ITC projects, the baseline for the project activity is the equivalent amount of power from the Lombok Power Grid and for ITL project, the baseline for the project activity is the equivalent amount of power from the Sulutgo Power Grid.

The combined margin ($EF_{grid,CM,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM). Calculations for this combined margin must be based on data from an official source (where available) and made publicly available.

Directorate General of Electricity (Ministry of Energy and Mineral Resources has calculated and provided the combined margin emission factor for all the grid in Indonesia. The combined margin of the Lombok and Sulutgo Power Grid used for the project activity are as follows:

Parameter	Value	Nomenclature	Source
$EF_{Lombok\ grid,CM,y}$	0.93 tCO_2/MWh	Combined margin CO_2 emission factor for the Lombok grid	Based on the most recent data available now, i.e. data published on 2018 by Directorate General of Electricity (Ministry of Energy and Mineral Resources or DNA Indonesia) for the province Lombok.[7]
$EF_{Sulutgo\ grid,CM,y}$	$0.94tCO_2/MWh$	Combined margin CO_2 emission factor for the Sulutgo grid	

B.5. Demonstration of additionality

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.

[7] https://gatrik.esdm.go.id//frontend/download_index/?kode_category=emisi_pl

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).	As per the applied methodology ACM0002, Version 20, under section 5.3.1 details a Simplified procedure to demonstrate additionality. As per para 29 of the methodology, "*A specific technology in the positive list is defined as automatically additional if at the time of PDD submission any of the following conditions is met:* *(a) The percentage share of total installed capacity of the specific technology in the total installed grid connected power generation capacity in the host country is equal to or less than two per cent; or* *(b) The total installed capacity of the technology in the host country is less than or equal to 50 MW"*

<table>
<tr>
<td>Describe how the proposed project meets the criteria for deemed additionality.</td>
<td>The project technology is solar photovoltaic power generation which is included in the positive list of technology as per para 28 of the methodology.

The total installed capacity of the grid connected power plant in Indonesia as on December 2018 is 62,255.81~~904.54~~ MW[8]

Total installed capacity of the grid connected solar power plant as on December 2018 is 24.42 MW[9].

<table>
<tr><td>Total grid connected power plant capacity in Indonesia (As on December 2018)</td><td>62,255.81 MW</td></tr>
<tr><td>Grid connected solar power plant capacity in Indonesia (As on December 2018)</td><td>24.42 MW</td></tr>
<tr><td>% of solar capacity share (24.42/ 62,255.81)</td><td>0.039%</td></tr>
</table>

From the above data, the total installed capacity of the project technology (Solar PV) is merely 0.039% of total installed grid connected power generation in the host country (Indonesia) which is lesser than 2%. Also, the total installed capacity of the project technology (Solar PV) in the host country (Indonesia) is less than 50 MW. Hence, the project is automatically additional.

Note: The latest data made available by Ministry of Energy and Mineral Resources, Indonesia is up to December 2018 and hence the same is considered for the above analysis.</td>
</tr>
</table>

Serious Consideration of carbon revenue:

Activity	Date
Board decision on investment of the project	02/05/2018
Notice to proceed to EPC Contractor (Start date)	10/08/2018
Appointment of Consultant for securing GS registration status	01/12/2018
Appointment of VVB for validation of project under GS	01/06/2019
Start date of the project	10/08/2018
First submission of PDD to GS	31/07/2019
Stakeholder consultation	20/09/2019, 20/02/2020 & 21/02/2020
Stakeholder feedback round	09/07/2020 to 08/09/2020

From the above chronology, it is clear that PP has taken continuous real actions to secure the carbon revenue for this project. Hence, carbon revenue is seriously considered in this project. From the above table it is clear that the first submission of project is within 1 year from the start date of the project. Hence the prior consideration eligibility requirement is fulfilled

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 .)

SDG Goal	Relevant SDGs Targets	Corresponding Indicator
SDG 3: Ensure healthy lives and promote wellbeing for all at all ages	**3.8** Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.	Health Camps, Knowledge and information dissemination regarding natural disasters

[8] https://www.esdm.go.id/assets/media/content/content-handbook-of-energy-and-economic-statistics-of-indonesia-2018-final-edition.pdf (Table 6.4.1)~~https://www.esdm.go.id/assets/media/content/content-laporan-kinerja-kementerian-esdm-tahun-2018.pdf~~ (Table 32, page 68)

[9] https://www.esdm.go.id/assets/media/content/content-handbook-of-energy-and-economic-statistics-of-indonesia-2018-final-edition.pdf (Table 6.4.1)

SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all	**7.2**: By 2030, increase substantially the share of renewable energy in the global energy mix	Electricity produced and supplied to the grid in MWh
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	**8.5**: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	1) Number of trainings provided to employees 2) Employment generated due to project activity during construction as well as O&M phase.
SDG 13: Take urgent action to combat climate change and its impacts	**Goal**: Integrate climate change measures into national policies, strategies and planning	Emission reductions in tCO_2

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

The company has a Corporate Social Responsibility Policy in place. In sync with the overall policy, the company conducts regular surveys during construction as well as O&M phases in the villages near project locations to check the requirement of facilities by the villages. Based on the surveys, PP identifies and works on several scope(s) of developmental activities such as health camps, distribution of furniture & sports kits in schools, toilet requirements in government schools, drinking water requirements etc. Apart from these activities, some or all of which will be conducted in any given year, following SDGs will be impacted every year:

SDG Goal	Monitoring Plan
SDG 3: Ensure healthy lives and promote wellbeing for all at all ages	Method: Monitored through CSR records and photographic collection Frequency: Annual QA/QC procedures: The CSR activity data is archieved at head office for at least 2 years. Purpose: To record the no. of CSR activities and trainings provided to the stakeholders through the project activity
SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all	Method: Monitored through energy meter. Net electricity will be calculated by DISCOM and O&M operator on monthly basis and provided in the share certificate. Frequency: Monthly QA/QC procedures: Net electricity supplied to the grid by the project activity will be cross checked with invoices submitted to EB. The meter(s) shall be calibrated on a regular basis. Purpose: To measure the electricity produced and supplied to the grid
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Method: Ongoing data collection and storage under HSE records & HR Records. Frequency: Annual QA/QC procedures: Transparent data collection, analysis and reporting. Purpose: To identify and record the no. of trainings provided to the employees as well as employment generated due to project activity
SDG 13: Take urgent action to combat climate change and its impacts	Method: Using processes and equations provided under "Tool to calculate the emission factor for an electricity system", Frequency: Every monitoring period

	QA/QC procedures: Transparent data collection, analysis, calculation and reporting. Purpose: To calculate emissions avoided due to the project activity

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

(Include a compilation of information on the data and parameters that are not monitored during the crediting period but are determined before the design certification and remain fixed throughout the crediting period like IPCC defaults and other methodology defaults. Copy this table for each piece of data and parameter.)

Relevant SDG Indicator	**SDG13 : Take urgent action to combat climate change and its impacts**
Data/Parameter	**$EF_{Lombok,CM,y}$**
Unit	tCO_2/MWh
Description	Combined margin CO_2 emission factor for the Lombok grid in the year y
Source of data	Data published By Directorate General of Electricity (Ministry of Energy and Mineral Resources or DNA Indonesia) https://gatrik.esdm.go.id//frontend/download_index/?kode_category=emisi_pl
Value(s) applied	0.93
Choice of data or measurement methods and procedures	This has been calculated based on Operating Margin (OM) and Build Margin (BM). Since the ITA, ITB & ITC projects are connected to the Lombok power grid, the combined margin emission factor of the Lombok power grid has been considered. The data is published during the year 2018 Which is the latest data available during validation.
Purpose of data	*Calculation of baseline emissions*
Additional comment	The value is fixed ex-ante

Relevant SDG Indicator	**SDG13 : Take urgent action to combat climate change and its impacts**
Data/Parameter	**$EF_{Sulutgo,CM,y}$**
Unit	tCO_2/MWh
Description	Combined margin CO_2 emission factor for the Sulutgo grid in the year y
Source of data	Data published By Directorate General of Electricity (Ministry of Energy and Mineral Resources or DNA Indonesia) https://gatrik.esdm.go.id//frontend/download_index/?kode_category=emisi_pl
Value(s) applied	0.94
Choice of data or measurement methods and procedures	This has been calculated based on Operating Margin (OM) and Build Margin (BM). Since the ITL project is connected to the Sulutgo power grid, the combined margin emission factor of the Lombok power grid has been considered. The data is published during the year 2018. Which is the latest data available during validation.
Purpose of data	*Calculation of baseline emissions*
Additional comment	The value is fixed ex-ante

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

Estimation of SDG 13

Project Emissions:

As per the approved consolidated Methodology ACM0002 (Version 19) para 31:

"For most renewable energy power generation project activities, PEy = 0. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:

$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$ *Equation (1)*

Where:

PE_y	=	*Project emissions in year y (t CO_2e/yr)*
$PE_{FF,y}$	=	*Project emissions from fossil fuel consumption in year y (t CO_2/yr)*
$PE_{GP,y}$	=	*Project emissions from the operation of dry, flash steam or binary geothermal power plants in year y (t CO_2e/yr)*
$PE_{HP,y}$	=	*Project emissions from water reservoirs of hydro power plants in year y (t CO_2e/yr)"*

As the project activity is the installation of a new grid-connected solar power plant/ unit and does not involve any project emissions from fossil fuel, operation of dry, flash steam or binary geothermal power plants, and from water reservoirs of hydro power plants. Therefore $PE_{FF,y}$, $PE_{GP,y}$, $PE_{HP,y}$ are equal to zero and thus, $PE_y = 0$.

Baseline Emissions:

The baseline emission is calculated in line with para 42 of AC0002, Version 19, using equation below

$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$

Where,

BE_y = Baseline emissions in year y (t CO_2/yr)
$EG_{PJ,y}$= Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y (MWh/yr)
$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO_2/MWh)

AS per para 41 of ACM0002, version 20, when the project activity is installation of Greenfield power plant, then:

$EG_{PJ,y} = EG_{facility,y}$

Where,
$EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)
For ex-ante calculation, the net electricity generation is considered are given below:

Project	**$EG_{PJ,y}$**	**Source**
ITA	10,526 MWh	PVsyst Report
ITB	11,047 MWh	PVsyst Report
ITC	11,018 MWh	PVsyst Report
ITL	32,561 MWh	PVsyst Report
Total	65,142 MWh	Calculated

The methodology follows the latest version of "tool to calculate the emission factor of an electricity system" provides following approaches for emission factor calculations:
(a) Combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the approved methodology "Tool to calculate the emission factor for an electricity system". OR
(b) The weighted average emissions (in t CO_2/MWh) of the current generation mix. The data of the year in which project generation occurs must be used.

Option (a) has been considered to calculate the grid emission factor as per the 'Tool to calculate the emission factor for an electricity system' since data is available from an official source.

Greenhouse Gas Emission Factor (GHG) Electricity Interconnection System, 2018 for the Indonesian Power Sector[10], published by Directorate General of Electricity (Ministry of Energy and Mineral Resources or DNA Indonesia) has been used for the calculation of emission reduction.

As per the "Tool to calculate the emission factor for an electricity system" Version 07.0 the following steps have been followed.

STEP 1: Identify the relevant electricity systems;

STEP 2: Choose whether to include off-grid power plants in the project electricity system (optional);

STEP 3: Select a method to determine the operating margin (OM);
STEP 4: Calculate the operating margin emission factor according to the selected method;
STEP 5: Calculate the build margin (BM) emission factor;
STEP 6: Calculate the combined margin (CM) emission factor.

STEP 1: Identify the relevant electricity power systems
The tool defines that "for determining the electricity emission factors, identify the relevant electricity system. Similarly, identify any connected electricity systems". It also states that, "If the DNA of the host country has published a delineation of the project electricity system and connected electricity systems, these delineations should be used". The project chooses following grid based on the projects connected to respective grid:

Project	**Connected Grid**
ITA, ITB & ITC	Lombok grid
ITL	Sulutgo grid

STEP 2: Choose whether to include off-grid power plants in the project electricity system (optional)

Project participants have the option of choosing between the following two options to calculate the operating margin and build margin emission factor:

Option I: Only grid power plants are included in the calculation.
Option II: Both grid power plants and off-grid power plants are included in the calculation.

Option I corresponds to the procedure contained in earlier versions of this tool. Option II allows the inclusion of off-grid power generation in the grid emission factor. Option II aims to reflect that in some countries off-grid power generation is significant and can partially be displaced by CDM project activities, e.g. if off-grid power plants are operated due to an unreliable and unstable electricity grid. Option II requires collecting data on off-grid power generation and can only be used if the conditions outlined therein are met. Option II may be chosen only for the operating margin emission factor or for both the build margin and the operating margin emission factor but not only for the build margin emission factor. If Option II is chosen, off-grid

[10] https://gatrik.esdm.go.id//frontend/download_index/?kode_category=emisi_pl

power plants should be classified in different classes of off-grid power plants. Each off-grid power plant class should be considered as one power plant *j, k, m or n*, as applicable. In case of the project Option I is chosen with only grid power plants included in the calculation.

STEP 3: Select a method to determine the operating margin (OM) method

The calculation of the operating margin emission factor ($EF_{grid,OM,y}$) is based on one of the following methods, which are described under Step 4:

(a) Simple OM, or
(b) Simple adjusted OM, or
(c) Dispatch data analysis OM, or
(d) Average OM.

PP has chosen Option (a) i.e. simple OM, to determine the operating margin. Other available options in the tool were ruled out considering the fact that data required to calculate simple adjusted OM or dispatch data analysis is not available publically. As per the tool, low cost/must run resources typically include hydro, geothermal, wind, low-cost biomass, nuclear and solar generation. Data for the same, as published by Central Electricity Authority, has been presented below which illustrates that low cost/must run resources constitute less than 50% of total Indonesia Power Grid generation, hence, the average OM method could not have been used.

The above data clearly shows that the percentage of total grid generation by low cost/must run plants (on the basis of average of three most recent years) for the Indonesia Power Grid is less than 50 % of the total generation. Thus the average emission rate method cannot be applied, as low cost/must run resources constitute less than 50% of total grid generation.

The "Simple operating margin" has been calculated as per the weighted average emissions (in tCO_2/MWh) of all generating sources serving the system, excluding hydro, geo-thermal, wind, low- cost biomass, nuclear and solar generation;

As per tool to calculate emission factor for an electricity system (Version 06), The simple OM method (option a) can only be used if low-cost/must-run resources constitute less than 50% of total grid generation in: 1) average of the five most recent years, or 2) based on long-term averages for hydroelectricity production. Since the low cost/must run resources constitute less than 50% of total grid generation as seen from the average of five most recent years, the Simple OM method can be used to calculate the Operating Margin Emission factor.

PP has chosen ex ante option, thus, no monitoring and recalculation of the emissions factor during the crediting period is required. PP has considered a data vintage of 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation.

STEP 4: Calculate the operating margin emission factor according to the selected method

The simple OM emission factor is calculated as the generation-weighted average CO_2 emissions per unit net electricity generation (tCO_2/MWh) of all generating power plants serving the system, not including low-cost / must-run power plants / units.

The simple OM may be calculated:

Option A: Based on the net electricity generation and a CO_2 emission factor of each power unit; or
Option B: Based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system.

This database data published By Directorate General of Electricity (Ministry of Energy and Mineral Resources or DNA Indonesia provides information about the Combined Margin Emission Factors of all the regional electricity grids in Indonesia. The Combined Margin in the database is calculated ex ante using the guidelines provided by the UNFCCC in the "Tool to calculate the emission factor for an electricity system,

Version 06". We have, therefore, used the Combined Margin data published for calculating the Baseline Emission Factor.

As per „Tool to calculate the emission factor for an electricity system", Option A ("Based on the net electricity generation and a CO_2 emission factor of each power unit") is used to calculate simple OM emission factor. Where Option A is used, the simple OM emission factor is calculated based on the electricity generation of each power unit and an emission factor for each power unit, as follows:

$$EF_{grid,OMsimple,y} = \Sigma (EG_{m,y} \times EF_{EL,m,y}) / \Sigma EG_{m,y}$$

Where:

$EF_{grid,OMsimple,y}$ Simple operating margin CO_2 emission factor in year y (tCO_2/MWh)

$EG_{m,y}$ Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)

$EF_{EL,m,y}$ CO_2 emission factor of power unit m in year y (tCO_2/MWh)

m All power units serving the grid in year y except low-cost / must-run power units

y the relevant year as per the data vintage chosen in STEP 3

Step 5: Calculate the build margin (BM) emission factor, $EF'_{grid',BM,y}$

The project participants have chosen Option I, i.e. fixing build margin emission factor ex ante based on the most recent information available on units already built for sample group m at the time of CDM PDD submission to the DOE for validation.

The build margin emissions factor is the generation-weighted average emission factor of all power units m during the most recent year y for which power generation data is available, calculated as follows:

$$\mathbf{EFgrid_{BM,y} = \Sigma(EG_{m,y} \times EF_{EL,m,y}) / \Sigma EG_{m,y}}$$

Where:

$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year *y* (t CO_2 e/MWh)
$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit *m* in year *y* (MWh)
$EF_{EL,m,y}$ = CO_2 emission factor of power unit *m* in year *y* (t CO_2 e/MWh)
m = Power units included in the build margin
y = Most recent historical year for which power generation data is available

The CO_2 emission factor of each power unit m ($EF_{EL,m,y}$) is determined as per the procedures given in step 4 (a) for the simple OM, using options A1B1 using for y the most recent historical year for which power generation data is available, and using for m the power units included in the build margin.

Step 6: Calculate the combined margin (CM) emissions factor

The combined margin is the weighted average of the simple operating Margin and the build margin. In particular, for intermittent and non-dispatchable generation types such as wind and solar photovoltaic, the 'Tool to calculate the emission factor for an electricity system', allows to weigh the operating margin and Build margin at 75% and 25%, respectively

$$EF_{grid,y} = (EF_{OM,y} \times w_{OM}) + (EF_{BM,y} \times w_{BM})$$

$= (EF_{OM,y} \times 75\%) + (EF_{,BM,y} \times 25\%)$

Directorate General of Electricity, Ministry of Energy and Mineral Resources, Indonesia published the 2016 - Emission Factor Reference Official Document which is the latest version available now. As per the reference document, the ex-ante emission factor with the 75% & 25% weights for OM & BM are as below: .

Grid	**Combined Margin Factor**
Lombok ($EF_{Lombok,CM,y}$)	0.93 tCO_2/MWh
Sulutgo ($EF_{Sulutgo,CM,y}$)	0.94 CO_2/MWh

Hence, baseline emission is calculated as below:
$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$
Baseline emission for the first year is calculated as below.

Project	**Grid**	**$EG_{PJ,y}$**	**$EF_{grid,CM,y}$**	**BE_y**
ITA	Lombok	10,526 MWh	0.93 tCO_2/MWh	9,789 tCO2
ITB	Lombok	11,047 MWh	0.93 tCO_2/MWh	10,274~~3~~ tCO2
ITC	Lombok	11,018 MWh	0.93 tCO_2/MWh	10,24~~6~~7 tCO2
ITL	Sulutgo	32,561 MWh	0.94 tCO_2/MWh	30,607 tCO2
Total	-	65,142 MWh	-	60,916*~~5~~ tCO2

*rounded down
The baseline emission for the complete crediting period is given in ER Calculation sheet.

Project Emissions:
As per applied methodology only emission associated with the fossil fuel combustion, emission from operation of geo-thermal power plants due to release of non-condensable gases, emission from water reservoir of Hydro should be accounted for the project emission. Since the project activity is a solar power project, hence PE_y= 0.

Leakage Emissions:
As per applied methodology no source of leakage emissions identified under proposed project activity.
Hence, LE_y= 0

Emission reduction (ER_y):
The project activity mainly reduces carbon dioxide through substitution of grid electricity generation with fossil fuel fired power plant by renewable electricity. The emission reduction ER_y by the project activity during a given year y is the difference between Baseline emission and Project emission & Leakage emission.

$ER_y = BE_y - PE_y$

Where,
ER_y = Emission Reduction in tCO_2/year
BE_y = Baseline emission in tCO_2/year
PE_y = Project emissions in tCO_2/year

Estimation of other SDGs

SDGs	**Parameter**	**Baseline estimation**	**Project Estimation**	**Source**
SDG 3	Community Development Activities	No Activities	3 Activities/year	Assumption based on CSR policy
SDG 7	Net Electricity supplied to grid	No electricity generation	64,504 MWh/year	Assumption based on the PVsyst estimation
SDG 8	Trainings provided to employees & O&M staffs	No training provided	2 Training/year	Assumption
	Number of employment	No employment	80 Jobs during	Assumption

	generated	generation	operation	
	Cost spent for O&M	No money spent on O&M	0.5 Million USD /year	Assumption

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

SDG 13: Climate Action (Emission Reduction with 0.5% degradation)

Year	Baseline estimate	Project estimate	Net benefit
Year 1	60,9165 ~~65~~ tCO_2e	0 tCO_2e	60,9165 ~~65~~ tCO_2e
Year 2	60,612 tCO_2e	0 tCO_2e	60,612 tCO_2e
Year 3	60,309 tCO_2e	0 tCO_2e	60,309 tCO_2e
Year 4	60,007 tCO_2e	0 tCO_2e	60,007 tCO_2e
Year 5	59,707 tCO_2e	0 tCO_2e	60,707 tCO_2e
Total	301,551 tCO_2e	0 tCO_2e	304,551 tCO_2e
Total number of crediting years	5		
Annual average over the crediting period	60,310 tCO_2e	0 tCO_2e	60,310 tCO_2e

SDG 3: Good Health and Well-Being (Community Development Activities)

Year	Baseline estimate	Project estimate	Net benefit
Year 1	0 activities	3 Activities/year	3 Activities/year
Year 2	0 activities	3 Activities/year	3 Activities/year
Year 3	0 activities	3 Activities/year	3 Activities/year
Year 4	0 activities	3 Activities/year	3 Activities/year
Year 5	0 activities	3 Activities/year	3 Activities/year
Total	0 activities	15 Activities/year	15 Activities/year
Total number of crediting years	5 Years		
Annual average over the crediting period	0 activities	3 Activities/year	3 Activities/year

SDG 7: Affordable and Clean Energy (Electricity supplied to grid)

Year	Baseline estimate	Project estimate	Net benefit
Year 1	0 MWh	65,152 MWh	65,152 MWh
Year 2	0 MWh	64,826 MWh	64,826 MWh
Year 3	0 MWh	64,502 MWh	64,502 MWh
Year 4	0 MWh	64,180 MWh	64,180 MWh
Year 5	0 MWh	63,859 MWh	63,859 MWh
Total	0 MWh	322,519 MWh	322,519 MWh

Total number of crediting years	5 Years		
Annual average over the crediting period	0 MWh	64,504 MWh	64,504 MWh

SDG 8: Decent Work and Economic Growth (Training Provided to staff, O&M Cost spent & Employment generation)

Year	Baseline estimate	Project estimate	Net benefit
Year 1	0 Training, 0 O&M cost spent & 0 employment	• 2 Training provided to O&M staff/year • 0.5 Million USD spent on O&M/year • 80 Employment generation	• 2 Training provided to O&M staff/year • 0.5 Million USD spent on O&M/year • 80 Employment generation
Year 2	0 Training, 0 O&M cost spent & 0 employment	• 2 Training provided to O&M staff/year • 0.5 Million USD spent on O&M/year • 80 Employment generation	• 2 Training provided to O&M staff/year • 0.5 Million USD spent on O&M/year • 80 Employment generation
Year 3	0 Training, 0 O&M cost spent & 0 employment	• 2 Training provided to O&M staff/year • 0.5 Million USD spent on O&M/year • 80 Employment generation	• 2 Training provided to O&M staff/year • 0.5 Million USD spent on O&M/year • 80 Employment generation
Year 4	0 Training, 0 O&M cost spent & 0 employment	• 2 Training provided to O&M staff/year • 0.5 Million USD spent on O&M/year • 80 Employment generation	• 2 Training provided to O&M staff/year • 0.5 Million USD spent on O&M/year • 80 Employment generation
Year 5	0 Training, 0 O&M cost spent & 0 employment	• 2 Training provided to O&M staff/year • 0.5 Million USD spent on O&M/year • 80 Employment generation	• 2 Training provided to O&M staff/year • 0.5 Million USD spent on O&M/year • 80 Employment generation
Total	0 Training, 0 O&M cost spent & 0 employment	• 10 Training provided to O&M staff • 2.5 Million USD spent on O&M • 80 Employment generation	• 10 Training provided to O&M staff • 2.5 Million USD spent on O&M • 80 Employment generation
Total number of crediting years	5 Years		

Annual average over the crediting period	0 Training, 0 Jobs, 0 O&M spent	• 2 Training provided to O&M staff/year • 0.5 Million USD spent on O&M/year • 80 Employment generation	• 2 Training provided to O&M staff/year • 0.5 Million USD spent on O&M/year • 80 Employment generation

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

Relevant SDG Indicator/Safeguarding Principle	SDG 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all
Data / Parameter	Community development activities undertaken
Unit	-
Description	-
Source of data	Community Development Activity records and photographic evidence
Value(s) applied	PP conducted survey during construction phase of the project in the villages near project locations to check the requirement of facilities by the villages. From the survey, PP has identified several scope of developmental activities such as health camps, furniture, sports kits and toilet requirements in government schools, drinking water requirements etc. PP has started implementing the community development activities. During the monitoring period the community development activities like: • Providing street light to local community • Donation to orphans and mosques • Donation of School Supplies and Essentials • Donation for community events The project has positive impact on this parameter as there were no socially oriented community development activities before the project activity. Thus, the project has positive impact on the indicator.
Measurement methods and procedures	-
Monitoring frequency	Yearly Once
QA/QC procedures	-
Purpose of data	To monitor the contribution to SDG 3 (Ensure healthy lives and promote well-being for all at all ages)
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	SDG 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix
Data / Parameter	$EG_{facility,y}$
Unit	MWh/year
Description	Quantity of net electricity supplied to the grid during the year y
Source of data	Monthly energy generation statement issued by PLN. These are called Meter reading records.

Value(s) applied	<table><tr><th>Project</th><th>$EG_{PJ,y}$</th></tr><tr><td>ITA</td><td>10,526 MWh</td></tr><tr><td>ITB</td><td>11,047 MWh</td></tr><tr><td>ITC</td><td>11,018 MWh</td></tr><tr><td>ITL</td><td>32,561 MWh</td></tr><tr><td>Total</td><td>65,142 MWh</td></tr></table>
Measurement methods and procedures	Net electricity supplied will be calculated based on the difference between values of "export" and "import" on the energy meter at the sub-station (evacuation point). (Net Electricity = Export – Import) The net electricity will be calculated by PLN and provided in the monthly generation statement. Hence, the net electricity reading will be directly sourced from the monthly generation statement.
Monitoring frequency	Measurement: Continuous Recording: Monthly Monitoring Method: recording in "generation statement" This statement includes, monthly recording of electricity export, import & transmission loss. Energy meters of accuracy class 0.2
QA/QC procedures	Net electricity supplied to the grid by the project activity will be cross checked with invoices. The meter(s) shall be calibrated and maintained by the PLN as per their schedule, and this frequency of meter calibration is not within the control of the Project Proponent. However, the project proponent shall ensure that calibration of electricity meters is carried at least once in 5 year calibration or whenever abnormal difference/inconsistency is observed between main meter and check meter.
Purpose of data	Baseline emission calculation
Additional comment	MWh/year

Relevant SDG Indicator/Safeguarding Principle	SDG 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
Data / Parameter	Training Provided to staff
Unit	Number of Trainings provided to employees & O&M staffs
Description	Trainings provided to employees & O&M staffs
Source of data	Training Records, HSE & HR records

Value(s) applied	Some of the trainings & workshops that are given to the O&M staffs by management or third party are: • Working at height (WAH) Training • Basic site safety Training • PPE Training • Fatigue Management Training • Fire fighting Training • Basic First Aid Training The training programmes help in making the workforce efficient and skilled at their job. This not only helps the company but adds to growth of individual employees. Thus, the project has a positive impact on the parameter.
Measurement methods and procedures	-
Monitoring frequency	Yearly Once
QA/QC procedures	-
Purpose of data	To monitor the contribution to SDG 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all)
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	SDG 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
Data / Parameter	Number of O&M staffs involved in the project & Cost spent for O&M
Unit	No USD
Description	Total employment generated due to the implementation of project activity and the amount spent for O&M activities due to the project.
Source of data	Plant employment records
Value(s) applied	- 80 jobs during operation of the project. (As per actual employment records) - 0.5 Million USD spent on O&M./year (Assumption)
Measurement methods and procedures	Employment records
Monitoring frequency	Yearly Once
QA/QC procedures	-
Purpose of data	To monitor the contribution to SDG 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all)
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	Safeguarding Principle 8.2: Erosion and/or Water Body Instability Safeguarding Principle 9.5 (Hazardous and Non-hazardous Waste))
Data / Parameter	Mitigation Measure for Soil Erosion & contamination
Unit	-

Description	**General soil erosion and sediment control measures would include:** • Keep open areas of excavation to a minimum and construction activities restricted to dry months to avoid heavy rainfalls; • Using existing roads and lanes used by land owner. • Stockpiles of materials placed away from drainage lines and formed with sediment control structures placed immediately down slope; • Construction debris and excavated material were cleared up at regular intervals • Excavated material stock piled and used for backfilling of foundations, platforms etc. • Minimization of traffic in construction zones and use of a dedicated parking area, i.e. site compound; • Re-vegetation taken up as necessary after construction, in order to reduce the risk of soil erosion. **Specific mitigation measures followed in the operational phase of the project:** • Proper drainage controls such as culverts, cut-off trenches shall be used to ensure proper management of surface water runoff to prevent erosion. • Waste oil generated shall be stored separately in containers in a secured location in the maintenance room. The storage location and the containers are properly marked. • The waste / used waste oil from the transformers to be disposed of to a authorized vendor. • A hazardous waste inventory is maintained as per the provisions of appropriate rules. The possibility of soil erosion due to the project operation is negligible to none. Hence, does not involve many mitigation measures.
Source of data	Project O&M HSE logbook, or interview with maintenance staff.
Value(s) applied	-
Measurement methods and procedures	The O&M log book records all the parameters as listed: • Hazardous waste generated, disposed, any spillages • Waste oil generated, disposed, any spillages • Leakage of any diesel or waste oil The same O&M HSE log book is submitted to DOE. This parameter has a neutral (0) impact as there has been no incidence of oil leakage or inappropriate disposal of hazardous or waste oil during the monitoring period.
Monitoring frequency	Yearly Once
QA/QC procedures	-
Purpose of data	To monitor compliance to Safeguarding Principle 8.2 (Erosion and/or Water Body Instability, and 9.5 (Hazardous and Non-hazardous Waste))
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	Safeguarding Principle 9.1: Landscape Modification and Soil
Data / Parameter	Mitigation measure for Landscape visual impact
Unit	Aesthetics

Description	Detailed ESIA study conducted to understand if any of the location needs to be altered. Locals were consulted wherever the solar power plant location or access road was in vicinity to a settlement. Drainage facilities are constructed in the plant in order to reduce the risk of soil erosion.
Source of data	Project Grievance register, or interview with local villagers
Value(s) applied	-
Measurement methods and procedures	-
Monitoring frequency	Yearly Once
QA/QC procedures	-
Purpose of data	To monitor compliance to Safeguarding Principle 4.3.1 (Landscape Modification and Soil)
Additional comment	-

B.7.2. Sampling plan

>> (If data and parameters monitored in section B.7.1 above are to be determined by a sampling approach, provide a description of the sampling plan.)

Not Applicable

B.7.3. Other elements of monitoring plan

>>
Not Applicable

SECTION C. Duration and crediting period

C.1. Duration of project

C.1.1. Start date of project

>> (Specify start date of the project, in the format of DD/MM/YYYY. Describe how this date has been determined as per the definition of start date provided in section 3.4.3 of GS4GG Principles & Requirements document and provide evidence to support this date.)
10/08/2018 (Date of notice to proceed to EPC contractor)

C.1.2. Expected operational lifetime of project

>> (*Specify in years)*
25 years

C.2. Crediting period of project

Renewable crediting period

C.2.1. Start date of crediting period

>> (Specify in dd/mm/yyyy. This can be start of project operation or two years prior to the date of Project Design Certification, whichever is later.)
02/07/2019 (Commissioning date of ITA, ITB & ITC power plants)

C.2.2. Total length of crediting period

>> (Specify the total length of crediting period sought in line with GS4GG Principles & Requirements or relevant activity requirements.)

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 SAFEGUARDING PRINCIPLES				
Principle 1 - Human Rights				
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. 2. The Project shall not discriminate with regards to participation and inclusion.	No	1. During construction and operation of the project the project proponent respected all the human rights. The project is not in any kind of conflict with the livelihood of local people. Project proponent had conducted stakeholder's consultation and sought their opinion. ESIA Report also confirms that the PP complies with local regulations related to labor and working conditions and maintain a human rights policy that is consistent with global standards. 2.The project will not employ any personnel based on gender, race, religion, sexual orientation or any other basis. As the Constitution of the host country prohibits discrimination on the basis of a person's race, sex, religion, place of birth, or social status. The EHS policy of the PP also confirms the same. Indonesia, as the host country of the project, is a party to	Not Required

			Universal Declaration of Human Rights [11] and also ratified ILO Convention 111 on Discrimination (Employment and Occupation)[12].	
Principle 2 – Gender Equality and Women's Rights				
2 Gender Equality and Women's Rights	The Project shall complete the following gender assessment questions in order to inform Requirements, below: 1. Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits? 2. 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)? 3. 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)? 4. 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	No	**1.** The project does not decrease women´s access to or control of resources. **2.** No, there is no possibility of adverse effect. **3.** Yes, the Project does consider gender roles and in fact actively engages both women and men. Community meetings are scheduled considering participation by both Men and Women. The project will aim to ensure gender equality by creating job opportunities for women. (Refer ESIA Report, page 70/94) The project does not discriminate on basis of gender, caste or religion. As	Not Required

[11] http://www.komnasham.go.id/profil

[12] https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11200:0::NO::P11200_COUNTRY_ID:102938

	peoples)? 5. 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? 6. 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? 7. Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and managing environmental goods and services? 8. Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards? The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women. 1. Sexual harassment and/or any forms of violence against women - address the multiple risks of gender-based violence, including sexual exploitation or human trafficking.		per EHS Policy, PP confirms that the workers will be free from all forms of harassment and discrimination based on race, color, religion, national origin, gender (including pregnancy), age, disability, sexual orientation, gender identity, HIV status, marital status, or any other status protected by the laws and regulations in the locations where we operate. (Refer ESIA Report, page 84/14) **4.** No the Project was not designed to increase women´s workload nor add care responsibilities. **5.** There is no place for discrimination against women in this Project. The project does not discriminate on basis of gender, caste or religion. 6. The Project will not limit women´s ability regarding natural resources. The project being solar power project thus does not have any major impact on natural resources of the region.	

	2. Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls. 3. Restriction of women's rights or access to resources (natural or economic). 4. Recognise women's ownership rights regardless of marital status - adopt project measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources. Projects shall apply the principles of nondiscrimination, equal treatment, and equal pay for equal work, specifically: 1. Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities. 2. Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status. 3. Ensure that these conditions		**7.** No the Project will not expose women and girls to further risks or hazards. The project proponent has a grievance cell which would look into compalints. 1. There is no such risk for the project. Participation in the project is 100% voluntary. The project proponent has a grievance cell which would look into compalints. **2.** The project does not involve in slavery, imprisonment or coercion of women and girls. **3.** The Project will not restrict women´s rights or access regarding natural resources. The project proponent does not discriminate on gender, caste, religion etc. **4.** Marital status is completely irrelevant to the Project. The project proponent does not discriminate on gender, caste, religion etc. Yes, the Project has equal opportunity for women and men to contribute both in volunteer and working positions	

	do not limit the access of women or men, as the case may be, to Project participation and benefits. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks.		**1.** The project proponent has a stipulated HR policy that takes into account participation by both men and women. Further, the CSR projects designed are implemented for equal participation of both men and women. **2.** There is no limit on the access to Project participation and benefits from either of these conditions. 3. There are no such conditions that limit the access of women or men for participation. The project is aligned to Indonesia's strategy for elimination of all discrimination. Indonesia is also party to Convention 100 (Equal remuneration) since 1958 and 111 on Discrimination in employment/occupation since 1999 to prevent any form of discrimination[13]	
Principle 3 – Community Health, Safety and Working Conditions				
3 Community Health, Safety and Working Conditions	The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community.	No	The project is in compliance with all relevant local and national laws. The Project does not threaten human health or environment and does not adversely affect the health of the workers and the community.	Not Required
Principle 4 – Cultural Heritage, Indigenous Peoples, Displacement and Resettlement				
4.1 Sites of Cultural and	Does the Project Area include sites, structures, or objects	No	The project does not alter, damage or remove any	Not Required

[13] http://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102938

Historical Heritage	with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, or practices)?		cultural heritage. Refer ESIA report for detailed assessment.	
4.2 Forced Eviction and Displacement	Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The project does not involve and is not complicit in involuntary resettlement of peoples in any way. The Project Developer has also obtained all necessary clearances from nodal agencies and approvals from all relevant authorities for establishing the project. Refer ESIA report for detailed assessment.	Not Required
4.3 Land Tenure and Other Rights	1. The Project Developer shall identify all such sites/matters potentially affected by the Project. For all such sites/matters identified the Project shall respect and safeguard: (a) Legal rights, or (b) Customary rights, or (c) Special cultural, ecological, economic, religious or spiritual significance of people shall be demonstrably promoted/protected. 2. Changes in legal arrangements must be in line with relevant law and regulation and must be carried out in strict adherence with such laws. All legal disputes must be resolved prior to Project being carried out in such areas. All such changes must be demonstrated as having been agreed with free, prior and informed consent. 3. The Project Developer must	No	1. The project has all the legal, customary rights on the land and does not require any change to land tenure arrangements. The ownership of the complete land is with the PP. The proponent has also obtained necessary clearances from nodal agencies and clearances from all the relevant authorities for establishing the plant. 2. This is not applicable as the project does not require any change to land tenure arrangements. During the land procurement process, has been completed in accordance with applicable provisions by involving village and district government. No legal dispute is pending.	Not Required

	hold uncontested land title for the entire Project Boundary to complete Project Design Certification.		3. The project developers holds the land tilte for the all the land covered in the project activity.	
4.4 Indigenous Peoples	Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	No	The project is a solar power project and it is not located on land/territory claimed by any indigenous peoples. Refer ESIA report.	Not Required
Principle 5 – Corruption				
5 Corruption	The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects.	No	The proponent confirms that there is no corruption involved in the project activity. The host country has strict laws and robust arrangements to prevent such activities. Indonesia is a party to United Nation Convention against Corruption since 18 Dec 2003[14]:	Not Required
ECONOMIC SAFEGUARDING GUIDELINES				
Principle 6 – Economic Impacts				
6.1 Labour Rights	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 principles and standards embodied in the International Labour Organization (ILO) fundamental conventions. Where these are	No	1. The proponent assures that there will be no bonded or forced labor during construction and operation of the project activity. Uniform policy will be implemented for all employees. The host country has robust laws in place prohibiting forced and compulsory labor. Refer ESIA report. Indonesia is a party to ILO convention 29 (since 1950) and 105 (since 1999) on	Not Required

[14] https://treaties.un.org/pages/viewdetails.aspx?src=ind&mtdsg_no=xviii-14&chapter=18&lang=en#EndDec

	contradictory and a breach of one or other cannot be avoided, then guidance shall be sought from Gold Standard. 2. Workers shall be able to establish and join labour organisations. 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 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 Provision for annual leave of not less than 10 days per year, not including sick and casual leave. 4. The Project Developer shall justify that the employment model applied is locally and culturally appropriate. 5. Child labour, as defined by the ILO Minimum Age Convention is not allowed.		elimination of forced and compulsory labour[15]. 2. The proponent confirms that all the fundamental rights of the employees will be respected. There is no restrictions for labours to establish and join labour organizations. Indonesia has ratified the ILO convention 87 (freedom of association) in 1998 and 98 (right to collective bargaining) since 1957[16] 3. Working agreements with all individual workers are documented and implemented. As per HR policy the normal working hours shall be 8 hours a day and 40 hours a week, consisting of 5 working days. Refer HR Policy;. 4. The Project Developer ensures that local workers/employees are	

[15] http://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102938
[16] http://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102938

	The Project Developer shall use adequate and verifiable mechanisms for age verification in recruitment procedures. Exceptions are 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 Stakeholder shall be sought and demonstrated as being included in the Project design. 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.		preferred, to the extent possible, for employment during construction as well as operation phase of the project ensuring skill development in the local populace. The employment model executed is locally and culturally appropriate. Refer HR Policy. 5. Child labor is strictly prohibited in the country. The proponent assures that no child labor will be employed during construction and operation of the plant. The project proponent has a set mechanism to ensure the age of all the temporary/ permanent employees during the life time of the project. Refer ESIA report & HR policy. Indonesia is also a party to convention 138 [17] on Minimum Age since 1999 and Convention 182 on Worst Forms of Child Labour since 2000. 6. The Project Developer has an active HSE team which ensures that all employees are given appropriate equipment and training. The same is properly documented and appropriate measures taken in case of emergencies. Refer ESHS Manual .	
6.2 Negative Economic	1. The Project Developer shall demonstrate the financial	No	1. Financial Sustainability of the project	Not Required

[17] http://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102938

Consequences	sustainability of the Projects implemented, also including those that will occur beyond the Project Certification period. 2. The Projects shall consider economic impacts and demonstrate a consideration of potential risks to the local economy and how these have been taken into account in Project design, implementation, operation and after the Project. Particular focus shall be given to vulnerable and marginalised social groups in targeted communities and that benefits are socially-inclusive and sustainable.		has been discussed under Section B.5 of the registered PDD. The calculations are for the entire life of the project. 2. There are no negative economic impacts or potential risks to the local economy due to the project activity.	
ENVIRONMENTAL/ECOLOGICAL SAFEGUARDING GUIDELINES				
Principle 7 – Climate and Energy				
7.1 Emissions	Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The project is a solar power project and does not lead to any greenhouse gas emissions in project scenario.	Not Required
7.2 Energy Supply	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	The project does not use energy from local grid or use power supply that provides for other users.	Not Required
Principle 8 – Water				
8.1 Impact on natural water patterns and flow	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 being a Solar power project will not have any such impacts.	Not Required
8.2 Erosion and/or water	1. Could the Project directly or indirectly cause	potentially	1. During the construction the disturbance in the landscape may lead to	Refer the monitorin

body stability	additional erosion and/or water body instability or disrupt the natural pattern of erosion? If 'Yes' or 'Potentially' proceed to question 2. 2. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?		soil erosion. 2. The project area is not susceptible to excessive erosion or water body instability.	g parameter table
Principle 9 - Environment, ecology and land use				
9.1 Landscape modification and soil	Does the Project involve the use of land and soil for production of crops or other products?	Potentially	The project uses land for installation of solar power plants. It involves modification of landscape during construction and operation of project activity.	Refer the monitoring parameter
9.2 Vulnerability to Natural Disaster	Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	The Project will not be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions.	Not Required
9.3 Genetic Resources	Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development)?	No	The project does not have any impact by used of GMOs.	Not Required
9.4 Release of pollutants	Could the Project potentially result in the release of pollutants to the environment?	No	The project being a solar power project does not lead to release of any pollutants.	Not Required
9.5 Hazardous and Non-hazardous Waste	Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	Potentially	The project during operational phase uses various type of oil/lubricants, grease which are classified as hazaordous. These waste are handled in line with hazardous waste management rules in the host country and are	Refer monitoring parameter table

			disposed off accordingly.	
9.6 Pesticides and fertilizers	Will the Project involve the application of pesticides and/or fertilisers?	No	The Project will not involve the application of pesticides and/or fertilisers.	Not Required
9.7 Harvesting of forests	Will the Project involve the harvesting of forests?	No	The Project does not involve the harvesting of forests.	Not Required
9.8 Food	Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The Project does not have any impact on the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives.	Not Required
9.9 Animal Husbandry	Will the Project involve animal husbandry?	No	The Project will not involve animal husbandry.	Not Required
9.10 High Conservation Value Areas and Critical Habitats	Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	The Project does not affect or alter largely intact or HCV ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified.	Not Required
9.11 Endangered Species	1. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? 2. Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	No	1. There are no endangered species identified as potentially being present within the Project boundary. 2. The Project does not impact other areas where endangered species may be present through transboundary affects.	Not Required

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from stakeholders

The Gold Standard Stakeholder's consultation meeting was held along with the FGD (focus group discussion) with the affected communities in relation to the Community development plan (CDP) on the following dates:

No	Developer	Meeting Date & location
1	PT Infrastruktur Terbarukan Lestari (ITL)	20.09.2019 at 09.00 AM Location: Gardu Induk Likupang, Tim, Wineru, Likupang Tim, Kabupaten Minahasa Utara, Sulawesi Utara, Indonesia

2	PT Infrastruktur Terbarukan Adhiguna (ITA)	20.02.2020 at 11.00 AM Location: Site office, PT Infrastruktur Terbarukan Adhiguna (ITA), Cemporonan sub-village, Pringgabaya Utara village, Pringgabaya district, Lombok Timur regency, Nusa Tenggara Barat province, Indonesia
3	PT Infrastruktur Terbarukan Buana (ITB)	20.02.2020 at 03.00 PM Location: Site office, PT Infrastruktur Terbarukan Buana (ITB), Geres Baret sub-village, Geres village, Labuhan Haji district, Lombok Timur regency, Nusa Tenggara Barat province. Indonesia
4	PT Infrastruktur Terbarukan Cemerlang (ITC)	21.02.2020 at 11.00 AM Location: Site office, PT Infrastruktur Terbarukan Cemerlang (ITC), Sengkol 1 sub-village, Sengkol village, Pujut district, Lombok Tengah regency, Nusa Tenggara Barat province

Meeting was opened with a formal welcome speech followed by the introduction of the attendees. In the welcome address, PP's representative explained the objective of the meeting and requested them to actively participate in the meeting.

Then Focus Group Discussion (FGD) were held, in which stakeholders suggestion on various requirements of communities under Community development plan (CDP) are discussed.

After the completion of FGD, PP's representative explained about the key project information including the technical details of the four Solar energy plants, relevant dates of the project and the environmental and social impacts of the project. PP's representative also explained about the importance of clean energy for healthy lifestyle and its significance in combating climate change and limiting its devastating effects. Stakeholders were informed that the project is applied for Gold Standard registration and importance of the meeting for obtaining the GS registration and were requested to share their opinion about the project.
In the next session, stakeholders were requested to ask the questions/clarifications requests they have in this project. Several participants came forward to talk about their experiences and passed on their opinions, suggestions, comments and clarification requests, which were addressed satisfactorily. All the comments are in support of the project activity. Most of the stakeholder praised the project and the summary is given below:

- *The project generates clean electricity*
- *New job opportunities created for local people*
- *Local people income increased.*
- *The project becomes pride of the region as it is one of the first of its kind in the country*
- *New community development activities by the developer under CSR*

Then stakeholders are requested to ask their doubts/clarification requests about the project. All the doubts/clarification requests asked by stakeholders about the project are clarified by the PP's representative. He also explained about how the solar energy technology is environmentally safe and sound. He listed about the CSR activities conducted till date in the surrounding villages of the respective projects. He also promised that their suggestions would be considered for further evaluation and inclusion in their CSR plans.
This was followed by the blind sustainable development exercise. The stakeholders were made aware of the safeguarding principles and all actions pertaining to safeguarding were made clear to help guide them with their assessment as yes, no or potentially relevant. Further, information was provided about the 4 SDG's and their relevant targets that were addressed by the project.
Additionally, a discussion session on the sustainability monitoring plan of the project activity was carried out and based on the stakeholder suggestions appropriate indicators to monitor each of the SDG goals addressed by the project were finalized. Approaches to continuous inputs and grievance mechanisms were discussed. It was agreed that grievance forms would be made available at all the

site offices and the stakeholders can meet the project coordinator's in person or in case of their absence they could be contacted via telephone or email addresses that would be made available. Feedback forms were distributed and the stakeholders were encouraged to state their feedback about the project and the meeting. Once the feedbacks were collected, PP's representative thanked the participants for their presence and their valuable inputs.

Stakeholder Feedback Round:
The stakeholder feedback round was open for 60 days from 09/07/2020 to 08/09/2020. Email with public web link of project documents are sent to all stakeholders who were invited for the initial stakeholder consultation meeting. The link for the project documents are:

GS Registry link	https://registry.goldstandard.org/projects/details/2055
Non-Technical Summary	https://drive.google.com/file/d/1Kxs8d5nNsnOVTtNW1lONBX0AMX_0VQdh/view?usp=sharing
GS4GG PDD	https://drive.google.com/file/d/1Nj1cqwHbC0nkZxMrT3uRrnoHSc-PjJlS/view?usp=sharing
LSC Report	https://drive.google.com/file/d/1TipHj_cC_BqsHwm6dAzIHvJvyNSZW8y7/view?usp=sharing

Also hard copy of project documents are kept at project site for the review of local stakeholders.

E.2. Summary of comments received

During the meeting no negative comments received from stakeholders. The comments provided in the evaluation questionnaire from all the stakeholders are summarised which is given below:

Stakeholder comment	**Was comment taken into account (Yes/ No)?**	**Explanation (Why? How?)**
Will the electricity generated from the project be supplied to local households?	Yes and clarification given	Provided the below clarification: No. The power is generated at high voltage and hence not suitable for households which use low voltage equipments. The power generated will be supplied to grid. However, this will improve the local grid stability which will increase the power availability to the households.
What is the life time of the project? What will happen to modules after the lifetime?	Yes and clarification given	Provided the below clarification: The life time of the solar power plant is about 25 years. After the lifetime, the solar modules will be disposed as per the regulatory requirements.
Does the PV module generate power during the cloudy time?	Yes and clarification given	Provided the below clarification: The power generation from the PV module is based on the solar radiation availability. Hence, during the cloudy days, the power generation will be significantly low based on the solar radiation available at the time.
What are all the village development activities will be undertaken?	Yes and clarification given	Provided the below clarification: Based on the CSR budget, the priority development activities will be undertaken such as free medical camp, installation of street lights, installation of water filters etc. Local people can propose the village requirement to management and the

		management will decide based on the priority and CSR fund availability.
Does the project use water for operation of the power plant?	Yes and clarification given	Provided the below clarification: Operation of the solar power plant does not require water. However, cleaning of the module requires nominal amount of water, particularly during the non-rainy season.
Will the project affect the rainfall in the project area?	Yes and clarification given	Provided the below clarification: No, operation of solar plant does not affect the rainfall. Till now there is no scientific proof available for it.

Comments from SFR:
No comments received during the stakeholder feedback round. Hence, no action is required.

E.3. Report on consideration of comments received

The comments and clarifications requested during the meeting were taken into account and accordingly explained by the PP. There were no comments that led to a requirement to modify the project activity.

Grievance mechanism
The Grievance mechanism is also in place. PP kept a grievance register in each site to record any input or grievances from stakeholders. The following communication details informed to stakeholders during stakeholder consultation meeting for reporting any input or grievances about the project activity:

	Method Chosen (include all known details e.g. location of book, phone, number, identity of mediator)	**Justification**
Continuous Input / Grievance Expression Process Book	Grievance will be placed in the all the site offices to convey grievances regarding the project activity	This will be most appropriate as the site office is accessible to all the stakeholders and the grievance forms received be reviewed monthly and grievances (if any) will be addressed accordingly.
Telephone access	+62 21 5084 7830 The Gold Standard Foundation: +41 (0) 22 788 7080	This is the email ID of Indonesia Corporate office. The issue can be escalated to corporate office in case no action is taken on the grievance at the site level. Stakeholder can contact Gold standard foundation also if their grievances are not resolved.
Internet/email access	Mr. Adi Nataatmadja adi.nataatmadja@venaenergy.com Gold Standard: help@goldstandard.org	Mr. Adi Nataatmadja is the Head of HSSE at Vena Energy Indonesia. The issue can be escalated to Mr. Adi in case no action is taken on the grievance at the site level. Stakeholder can contact Gold standard foundation also if their grievances are not resolved.

Appendix 1. Contact information of project participants

Organization name	Kosher Climate India Private Limited
Registration number with relevant authority	
Street/P.O. Box	27th Main, HSR Layout
Building	#109, 2nd FLoor
City	Bangalore
State/Region	Karnataka
Postcode	560102
Country	India
Telephone	080-25720814
Fax	
E-mail	vamsi@kosherclimate.com
Website	www.kosherclimate.com
Contact person	Mr Vamsi Krishna M
Title	Mr
Salutation	Global Business Head
Last name	Krishna
Middle name	
First name	Vamsi
Department	
Mobile	+91-9945343475
Direct fax	
Direct tel.	
Personal e-mail	vamsi2kris@gmail.com

Appendix 2. Summary of post registration design changes

NA

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