المجلس العالمي للبصمة الكربونية
GLOBAL CARBON COUNCIL

Project Submission Form

V3.2 - 2020

Contents

COVER PAGE- Project Submission Form (PSF)	
Complete this form in accordance with the instructions attached at the end of this form.	
BASIC INFORMATION	
Title of the Project Activity	**Jinchang Xipo 100MW solar power project**
PSF version number	1.0
Date of completion of this form	29/05/2022
Project Owner(s) (Shall be consistent with De-registered CDM Type B Projects)	Gansu ruicarbon Technology Consulting Co., Ltd
Country where the Project Activity is located	P. R. China
GPS coordinates of the project site(s)	38°35'13"N-38°36'45"N，102°08'31"E-102°10'18"E (38.5869N - 38.6125N, 102.1419E - 102.1717E)
Eligible GCC Project Type as per the Project Standard (Tick applicable project type)	☒ **Type A:** ☐ Type A1 ☒ Type A2 ☐ **Type B – De-registered CDM Projects:**[1] ☐ Type B1 ☐ Type B2
Minimum compliance requirements	☒ Real and Measurable GHG Reductions ☒ National Sustainable Development Criteria (if any) ☒ Apply credible baseline and monitoring methodologies ☒ Additionality ☒ Local Stakeholder Consultation Process

[1] Owners of Type B projects shall fill in the form provided in Appendix 7.

<table>
<tr><td></td><td>☒ Global Stakeholder Consultation Process
☒ No GHG Double Counting
☒ Contributes to United Nations Sustainable Development Goal 13 (Climate Action)</td></tr>
<tr><td>Choose optional and additional requirements
(Tick applicable label categories)</td><td>☒ Do-no-net-harm Safeguards to address Environmental Impacts
☒ Do-no-net-harm Safeguards to address Social Impacts
☒ Contributes to United Nations Sustainable Development Goals (in addition to Goal 13)</td></tr>
<tr><td>Applied methodologies
(Shall be approved by the GCC or the CDM)</td><td>ACM0002: Grid-connected electricity generation from renewable sources (Version 20.0);</td></tr>
<tr><td>GHG Sectoral scope(s) linked to the applied methodology(ies)</td><td>GHG-SS#1: Energy industries (renewable - / non-renewable sources)</td></tr>
<tr><td>Applicable Rules and Requirements for Project Owners
(Tick applicable Rules and Requirements)</td><td>
<table>
<tr><th colspan="2">Rules and Requirements</th><th>Reference</th><th>Version</th></tr>
<tr><td colspan="2">☒ ISO 14064-2</td><td></td><td>Second edition dated 2019-04</td></tr>
<tr><td colspan="2">☒ Applicable host country legal requirements /rules</td><td></td><td></td></tr>
<tr><td rowspan="7">☒ GCC Rules and Requirements[2]</td><td>☒ Project Standard</td><td></td><td>V3.1</td></tr>
<tr><td>☐ Approved GCC Methodology (XXXXX)</td><td></td><td></td></tr>
<tr><td>☒ Program Definitions</td><td></td><td>V3.1</td></tr>
<tr><td>☒ Environment and Social Safeguards Standard</td><td></td><td>V2.0</td></tr>
<tr><td>☒ Project Sustainability Standard</td><td></td><td>V2.1</td></tr>
<tr><td>☒ Instructions in Project Submission Form (PSF)-template</td><td></td><td>V3.2</td></tr>
<tr><td>☐ Add rows if required</td><td></td><td></td></tr>
</table>
</td></tr>
</table>

[2] GCC Program rules and requirements: https://www.globalcarboncouncil.com/resource-centre.html

	☒ CDM Rules[3]	☒ Approved CDM Methodology (Grid-connected electricity generation from renewable sources)	ACM0002	V20.0
		☒ Tool for the demonstration and assessment of additionality	TOOL 01	V7.0.0
		☐ Combined tool to identify the baseline scenario and demonstrate additionality		
		☒ Tool to calculate the emission factor for an electricity system	TOOL 07	V7.0
		☐ Demonstration of additionality of microscale project activities	TOOL 19	
		☐ Demonstration of additionality of small-scale project activities	TOOL 21	
		☐ Additionality of first-of-its-kind project activities	TOOL 23	
		☒ Common practice	TOOL 24	V3.1
		☒ Investment analysis	TOOL 27	V11.0
		☐ Positive lists of technologies	TOOL 32	
		☐ Guidelines for objective demonstration and assessment of barriers		
		☐ Add rows if required		
Choose Third Party External Project Verification by approved GCC Verifiers[4]	☒ GHG emission reductions (i.e., Approved Carbon Credits **(ACCs)**) ☒ Environmental No-net-harm Label (**E+**) ☒ Social No-net-harm Label (**S+**)			

[3] CDM Program rules: https://cdm.unfccc.int/Reference/index.html

[4] **Note:** GCC Verifiers under the Individual Track are not eligible to conduct verifications for GCC Project Activities whose owners intend to supply carbon credits (ACCs) for use within CORSIA.

(Tick applicable verification categories)	☒ United Nations Sustainable Development Goals (**SDG+**) ☐ Bronze SDG Label ☒ Silver SDG Label ☐ Gold SDG Label ☐ Platinum SDG Label ☐ Diamond SDG Label ☒ CORSIA requirements (**C+**) ☐ Host Country Attestation on Double counting
Declaration to be made by the Project Owner(s)[5] (Tick all applicable statements)	The Project Owner(s) declares that: ☒ The Project Activity complies with the eligibility of the applicable project type (A1, A2, B1 or B2) as stipulated by the Project Standard. ☒ The Project Activity shall start operations, and start generating emission reductions, on or after 1 January 2016. ☒ The Project Activity is eligible to be registered under the GCC program. ☒ No carbon credits generated by the proposed Project Activity will be claimed as carbon credits in any other GHG program anywhere in the world, either for compliance or voluntary purposes, for the entire 10-year GCC crediting period. ☒ The proposed Project Activity, if Type A, is NOT registered as a GHG Project Activity in any other GHG program or any other voluntary program anywhere in the world. ☒ The proposed Project Activity is NOT included as a component Project Activity (CPA) in a registered GHG Programme of Activities (PoA) under any GHG program (such as the CDM or any other voluntary program) anywhere in the world. ☒ The proposed Project Activity is NOT a CPA that has been excluded from a registered PoA under any GHG program (such as the CDM or any other voluntary program) anywhere in the world. Provide details (if any) below for the boxes ticked above.
	☒ If a GCC project chooses to apply to use ACCs under CORSIA, the Project Owner(s) is required to declare that they are aware that they must obtain and provide to the GCC and its Registry (operated by IHS Markit) a written attestation from the host country's national focal point (e.g., Ministry of

[5] The "Project Owner" means the legal entity or organization that has overall control and responsibility for the Project Activity.

	Environment or Civil Aviation Authority) or focal point's designee, as required by CORSIA Emissions Unit Eligibility Criteria, which: ☒ Confirms the avoidance of double counting as required by CORSIA; ☒ Shall be made publicly available prior to the use of units from the host country under CORSIA; and ☒ Places all responsibility on the Project Owner(s) to replace any and all doubly claimed or counted ACCs by the host country, in the GCC registry operated by IHS Markit. Provide details below for the boxes ticked above
	The Project Owner(s) declares that: ☒ All of the information provided in this document, including any supporting documents submitted to the GCC or its registry operator IHS Markit at any time, is true and correct; ☒ They understand that a failure by them to provide accurate information or data, or concealing facts and information, can be considered as negligence, fraud or willful misconduct. Therefore, they are aware that they are fully responsible for any liability that arises as a result of such actions. Provide details below for the boxes ticked above
Appendixes 1-7	Details about the Project Activity are provided in Appendixes 1 through 7 to this document.
Name, designation, date and signature of the Project Owner(s)	**Authorized representative on behalf of Gansu ruicarbon Technology Consulting Co., Ltd** **Authorized representative:** **Ms. Yating Jin (signature)** **Date:**29/05/2022

1. PROJECT SUBMISSION FORM

Section A. Description of the Project Activity

A.1. Purpose and general description of the Project Activity

>>

Jinchang Xipo 100MW solar power project (hereafter referred to as “the project”) is a newly built solar power project, located in Xipo photoelectric Industrial Park, Jinchang city, Gansu province, China. The project involves installation and operation of 314,655 solar modules, consisting a total actual capacity of 99.8814 MW. The project is invested and developed by Jinchang Zhenxin Xipo Solar Power Co., Ltd.

The purpose of the project is to generate clean energy by utilizing solar power and providing the energy to the Northwest China Power Grid (hereafter refer as NWCPG). The baseline scenario is that Electricity delivered to NWCPG 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. The spatial extent of the project boundary includes the project power plant and all power plants connected physically to NWCPG that the project is connected to.

The project activity will generate greenhouse gas (GHG) emission reductions by avoiding CO_2 emissions from electricity generation by fossil fuel power plants connected to NWCPG.

The project is estimated operating 25 years and average annual electricity fed to NWCPG during whole life time is estimated to be 148,927 MWh. During GCC crediting period, average annual electricity fed to NWCPG is estimated to be 156,908 MWh. Annual average GHG emission reduction is 122,282 tCO_2e during the fixed crediting period.

The project is expected to contribute to 4 SDGs which are SDG 7, 8 and 13.

SDG 7 Energy: The Project contributes SDG Target 7.2 “By 2030, increase substantially the share of renewable energy in the global energy mix” by the utilization of solar power as a renewable energy source.

SDG 8 Economic Growth: The Project creates direct and indirect employment opportunities during construction and operation phases, so it contributes to SDG Target 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”.

SDG 13 Climate Change: The project produces clean renewable energy by diminishing CO2 emissions. Therefore, it contributes SDG Target 13.3 “Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning”.

A.2. Location of the Project Activity

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Address and geodetic coordinates of the physical site of the Project Activity		
Physical address	**Latitude**	**Longitude**
Xipo photoelectric Industrial Park, Jinchang city, Gansu province, China	38° 35'13"N-38° 36'45"N， (38.5869N - 38.6125N)	102° 08'31"E102° 10'18"E (102.1419E - 102.1717E)

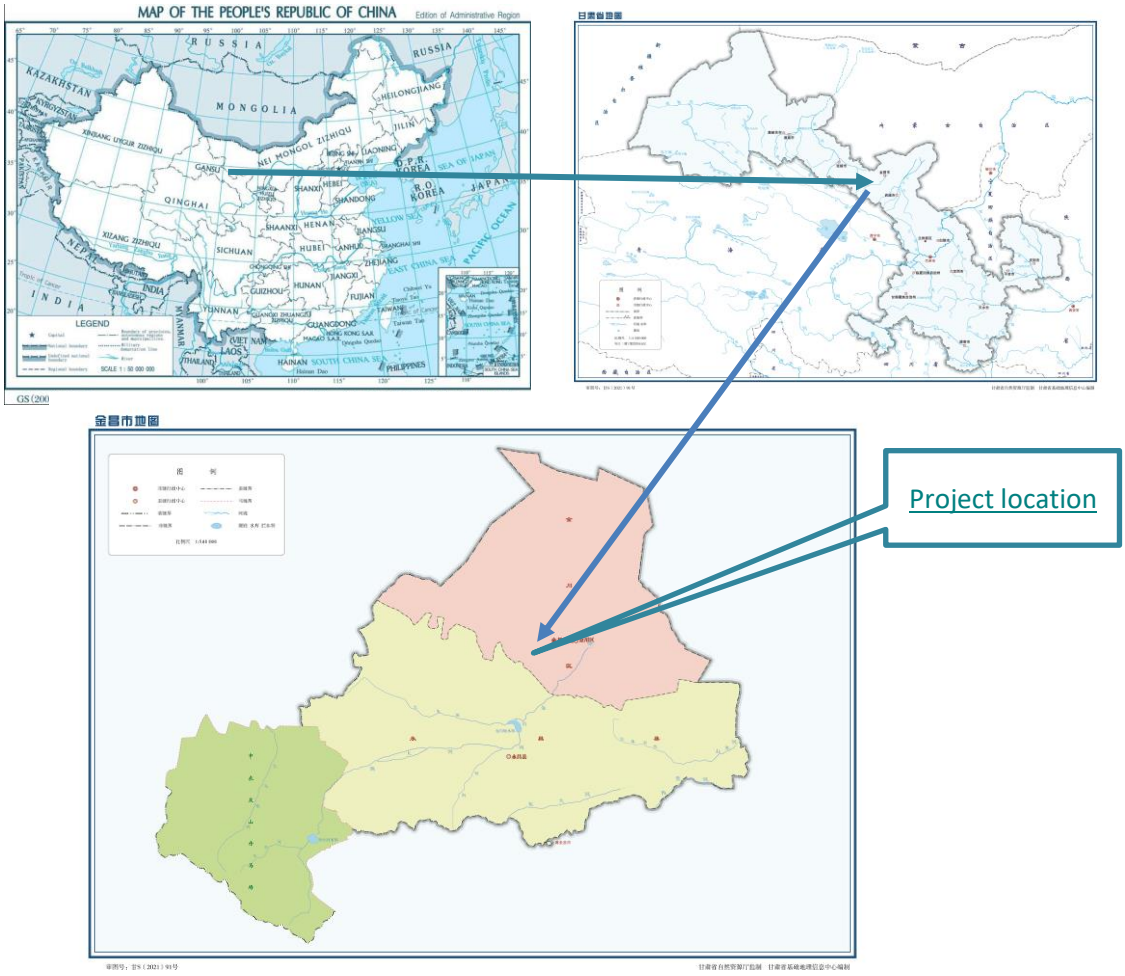

Figure 1: The project location

A.3. Technologies/measures

>>
Grid connected solar PV generation system mainly consists of Solar PV arrays, DC-to-AC converter (inverter) and substation.

The project involves installation and operation of 314655 PV modules with a total capacity of 100 MWp. 2 main transformers are adopted and electricity will be boosted to 110kV before connected to 110kV Jinyao substation. Electricity will be finally fed into NWCPG through 330kV Shanghewan Substation. The electricity meters are installed at the outlet of the main transformers at the project site to monitor electricity exported and imported by the project.

The expected lifetime of the project is 25 years and is expected to supply an annual average of 148,927 MWh of electricity to NCPG during the 25 years' lifetime. Totally 3,723,169MWh will be supplied during the 25 years' lifetime.

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. Therefore, baseline scenario is the electricity supplied by the power grid connected by the project, i.e., NWCPG.

No technology transfer occurred in the project.

A.4. Project Owner(s)

Location/ Country	Project Owner(s)	Where applicable[6], indicate if the host country has provided approval (Yes/No)
P.R. China	**Gansu ruicarbon Technology Consulting Co., Ltd**	No

A.5. Declaration of intended use of Approved Carbon Credits (ACCs) generated by the Project Activity

>> The Project Activity is expected to generate ACCs for a full 10-year crediting period and supply the credits to offset the following GHG emissions:

ACCs from the Project will be used to create additional income for the project to reduce the financial risks which would enabling the sustainability of the Project. No double counting will occur in the scope of this project since GCC is the only program applied

Period		Name of the Entities	Purpose and Quantity of ACCs to be supplied
From	To		
18/06/2016	17/06/2026	To be determined	To be determined

A.6. Additional requirements for CORSIA

>>
Please refer to section E and section F.

Section B. Application of selected methodology(ies)

B.1. Reference to methodology(ies)

[6] For example, *Project Coordination Form* is to be filled-in by Project Owners for projects located in Qatar. A written attestation from the host country's national focal point or the focal point's designee, as required by CORSIA (Refer section A.5 of the PSF guidelines).

>>
ACM0002-Consolidated baseline methodology for grid connected electricity generation from renewable sources (Version 20.0)

Applied CDM tools:

am-tool-01-v7.0.0 Tool for the demonstration and assessment of additionality.
Am-tool-07-v7.0 Tool to calculate the emission factor for an electricity system.
Am-tool-24-v03.1 methodology tool: Common practice.
Am-tool-27-v11.0 methodology tool: Investment analysis.

Please refer to the following link for applied methodology and tools:
https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG
https://cdm.unfccc.int/Reference/tools/index.html

B.2. Applicability of methodology(ies)

>>
The project is a grid-connected renewable power generation project activity, which meets all the applicability criteria stated in methodology ACM0002 version 20:

Comparison of project activity characteristics and eligibility criteria of version 20.0 of ACM0002

Para No.	Applicability criteria	Justification
1	This methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant. (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plants/units. (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s)/unit(s).	Applicable. The Project is a greenfield solar power plant.
2	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.	Applicable. The Project is a grid connected solar power plant.
3	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, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of	Not applicable as the Project does not involve capacity additions, retrofits, rehabilitations or replacement.

	this minimum historical reference period and the implementation of the project activity.	
4	In case of hydro power plants, one of the following conditions shall apply: (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density, calculated using equation (7), is greater than 4 W/m^2; or I The project activity results in new single or multiple reservoirs and the power density, calculated using equation (7), is greater than 4 W/m^2; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (7), is lower than or equal to 4 W/m^2, all of the following conditions shall apply. (i) The power density calculated using the total installed capacity of the integrated project, as per equation (8), is greater than 4 W/m^2; (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/m^2 shall be a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project.	Not applicable as the Project is not the installation of a hydro power plant.
5	In the case of integrated hydro power projects, project proponent shall: (a) 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 (b) 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 in different 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 of five years prior to the implementation of the CDM project activity.	Not applicable as the project is not the installation of a hydro power plant.
6	The methodology is not applicable to the following:	The Project does not involve any of the

	▪ 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; ▪ Biomass fired power plants/units;	given criteria hence methodology is applicable for the project activity.
7	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".	Not applicable as the project does not involve capacity additions, retrofits, replacement or rehabilitations.

Tool	Applicability criteria	Justification
Tool for the demonstration and assessment of additionality (Version 07.0.0)	The use of the "Tool for the demonstration and assessment of additionality" is not mandatory for project participants when proposing new methodologies. Project participants may propose alternative methods to demonstrate additionality for consideration by the Executive Board. They may also submit revisions to approved methodologies using the additionality tool. Once the additionally tool is included in an approved methodology, its application by project participants using this methodology is mandatory.	Applicable. The methodology selected for the project requires the use of this tool.
Tool to calculate the emission factor for an electricity system (Version 07.0)	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).	Applicable. The project replaces grid power supply and uses this tool to calculate the values of OM, BM and CM of the Project.
	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, two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa is chosen, the conditions specified in "Appendix 1: 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	Applicable The emission factor for the project electricity system was calculated for 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.	
	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.	Not applicable as no part of the power system of this project located in Annex I countries.
	Under this tool, the value applied to the CO_2 emission factor of biofuels is zero.	Not applicable as the project is a solar power project.
Investment analysis (Version 11.0)	This methodological tool is applicable to project activities that apply the methodological tool "Tool for the demonstration and assessment of additionality", the methodological tool "Combined tool to identify the baseline scenario and demonstrate additionality", the guidelines "Non-binding best practice examples to demonstrate additionality for SSC project activities", or baseline and monitoring methodologies that use the investment analysis for the demonstration of additionality and/or the identification of the baseline scenario	Applicable The project apply the methodological tool "Tool for the demonstration and assessment of additionality".
	In case the applied approved baseline and monitoring methodology contains requirements for the investment analysis that are different from those described in this methodological tool, the requirements contained in the methodology shall prevail.	The methodology ACM0002 (Version 20.0) applied in this project requires the use of this tool to demonstrate the investment analysis of this project.
Common practice (Version 03.1)	This methodological tool is applicable to project activities that apply the methodological tool "Tool for the demonstration and assessment of additionality", the methodological tool "Combined tool to identify the baseline scenario and demonstrate additionality", or baseline and monitoring methodologies that use the common practice test for the demonstration of additionality.	Applicable The project apply the methodological tool "Tool for the demonstration and assessment of additionality".
	In case the applied approved baseline and monitoring methodology defines approaches for the conduction of the common practice test that are different from those described in this methodological tool, the requirements contained in the methodology shall prevail.	The methodology ACM0002 (Version 20.0) applied in this project requires the use of this tool to demonstrate the common practice of this project.

B.3. Project boundary, sources and greenhouse gases (GHGs)

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The table below provides an overview of the emissions sources included or excluded from the project boundary for determination of baseline and project emissions.

Source		GHG	Included?	Justification/Explanation
Baseline	CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity	CO_2	Included	Main emission source
		CH_4	Excluded	Excluded for simplification. This is conservative.
		N_2O	Excluded	Excluded for simplification. This is conservative.
Project Activity	For dry or flash steam geothermal power plants, emissions of CH_4 and CO_2 from non-condensable gases contained in geothermal steam	CO_2	Excluded	Not Applicable. Project is not a geothermal power plant.
		CH_4	Excluded	Not Applicable. Project is not a geothermal power plant.
		N_2O	Excluded	Not Applicable. Project is not a geothermal power plant.
	For binary geothermal power plants, fugitive emissions of CH_4 and CO_2 from non-condensable gases contained in geothermal steam	CO_2	Excluded	Not Applicable. Project is not a geothermal power plant.
		CH_4	Excluded	Not Applicable. Project is not a geothermal power plant.
		N_2O	Excluded	Not Applicable. Project is not a geothermal power plant.
	For binary geothermal power plants, fugitive emissions of hydrocarbons such as n-butane and isopentane (working fluid) contained in the heat exchangers	CO_2	Excluded	Not Applicable. Project is not a geothermal power plant.
		CH_4	Excluded	Not Applicable. Project is not a geothermal power plant.
		N_2O	Excluded	Not Applicable. Project is not a geothermal power plant.
	CO2 emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants	CO_2	Excluded	Not Applicable. Project is not a solar thermal power plant.
		CH_4	Excluded	Not Applicable. Project is not a solar thermal power plant.
		N_2O	Excluded	Not Applicable. Project is not a solar thermal power plant.
	For hydro power plants, emissions of CH4 from the reservoir	CO_2	Excluded	Not Applicable. Project is not a hydro power plant.
		CH_4	Excluded	Not Applicable. Project is not a hydro power plant.

		N_2O	Excluded	Not Applicable. Project is not a hydro power plant.

A flow diagram of the project boundary, physically delineating the project activity, based on above stated description is shown in Figure below:

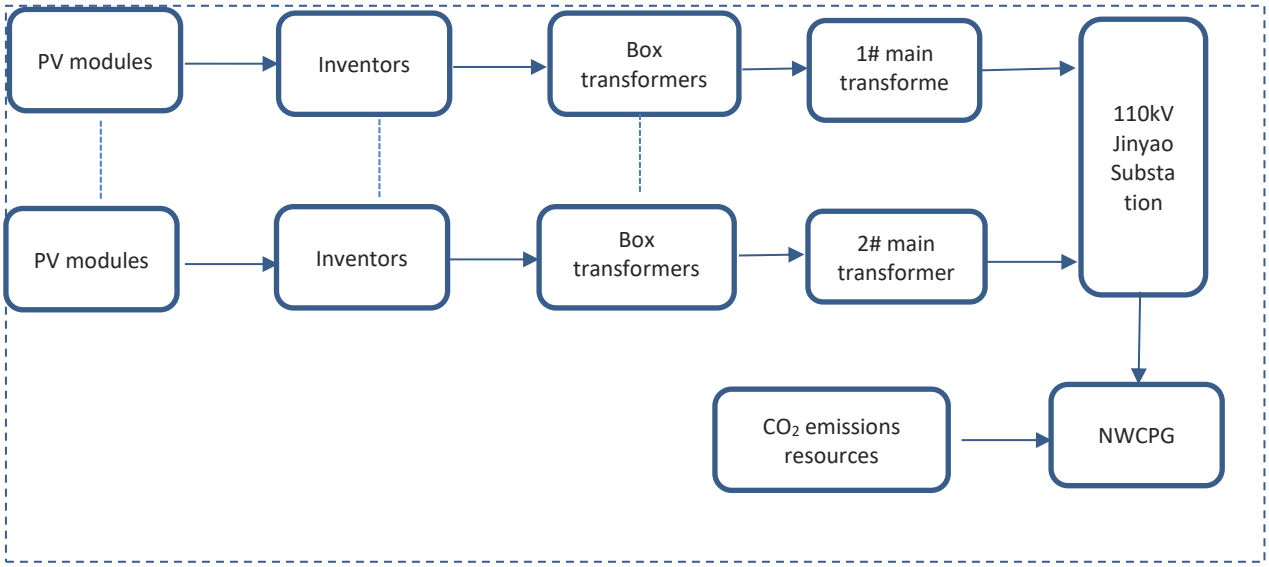

Figure 2: Project boundary

B.4. Establishment and description of the baseline scenario

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The relevant national and/or sectoral policies, regulations and circumstances are taken into account for the implementation of the project activity. Implementation of solar power generation project is not enforced by any laws and regulations in China. There are no enforced laws, statutes, regulations, court orders, environmental-mitigation agreements, permitting conditions of other legally binding mandates requiring its implementation. The project activity is a voluntary action.

The project is newly built greenfield solar power plant, electricity generated by which will be delivered to NWCPG.

According to ACM0002 version 20, the baseline scenario of this project 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 “Tool to calculate the emission factor for an electricity system”.

The project is connected to NWCPG. As per China Electric Power Yearbook of 2020, NWCPG is still dominated by fossil fuels fired power plants.

B.5. Demonstration of additionality

>>
According to Project Standard (V3.1), following approach should be applied for demonstrating additionality:

(a) A Legal Requirement Test; and

(b) An Additionality Test either based on a Positive List test or a projects-specific

additionality test.

The project is not enforced by law. The project passes the legal requirement test since there are no enforced laws, statutes, regulations, court orders, environmental-mitigation agreements, permitting conditions of other legally-binding mandates requiring its implementation. Furthermore, as per para. 46 of Project Standard, voluntary commitments/agreements within a sector or by an entity do not constitute the legal requirement. An Additionality Test is further applied as follows.

Additionality of the project is demonstrated by using the approved CDM tool am-tool-01-v7.0.0 Tool for the demonstration and assessment of additionality (V7.0).

Step 1. Identification of alternative scenarios

This step serves to identify all alternative scenarios to the project activity which can be the baseline scenario:

Sub-step 1a. Define alternative scenarios to the project activity:

There are 2 realistic and credible baseline scenarios identified for the project:

Alternative 1: The project activity not undertaken as GCC project activity;

Alternative 2: Equivalent annual electricity supplied by NWCPG.

Outcome of Sub-step 1a:

2 alternative scenarios above are not forbidden by law, both of which are possible choices.

Sub-step 1b. Consistency with mandatory applicable laws and regulations:

Scenario 1: The project activity not undertaken as GCC project activity

Alternative 1 is in compliance with Chinese legal and regulatory requirements. Therefore, the alternative 1 is a possible baseline scenario.

Scenario 2: Equivalent annual electricity supplied by NWCPG

Alternative 2 is in compliance with Chinese legal and regulatory requirements. To meet the increase of the electricity demand in Gansu province, the power grid company can either increase the output generation from operating units or build some new power plants. Therefore, continuation of the current situation, the electricity generated by the operation of grid-connected power plants and by the addition of new generation plants on NWCPG can be taken as a realistic alternative for the proposed project activity. So the scenario 2 is realistic and credible choice.

Outcome of Sub-step 1b:

Mandatory legislation and regulations to each alternative are taken into account in sub-step 1b. Based on the above analysis, the project activity is not the only alternative amongst the project participants that is in compliance with mandatory regulations with which there is general compliance. Therefore, the GCC project activity may be additional.

Step 2. Investment analysis

The objective of investment analysis is to compare the economic or financial attractiveness of the alternative scenarios.

Sub-step 2a: Determine appropriate analysis method

According to "Tool for the demonstration and assessment of additionality", there are three analysis methods recommended, including simple cost analysis (Option I), investment comparison analysis (Option II) and benchmark analysis (Option III).

For the project, the simple cost analysis method (Option I) is not applicable because the project activity will produce economic benefit (from electricity sale) other than GCC related income. The investment comparison analysis method (Option II) is also not applicable because the baseline scenario is the NWCPG rather than a new investment project.

Therefore the project will use the benchmark analysis method (Option III) based on investment IRR to identify whether the financial indicators of the proposed project is better than relevant benchmark value.

Sub-step 2b. –Option III. Apply benchmark analysis

According to "Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects", issued by former State Power Corporation of China, the financial internal rate of return of total investment (after tax) as benchmark in China's power generation industry is 8%. Project is considered to be financial attractive in case the IRR is higher than 8%. Nowadays this is widely used in China.

Calculation and comparison of financial indicators will be carried out base on the benchmark in sub-step 2c.

Sub-step 2c. Calculation and comparison of financial indicators

The main assumptions for the investment analysis are shown in Table 1 below:

Table 1 Basic parameters for financial evaluation

Parameter	Unit	Value
Installed capacity	MW	100
Net electricity supplied	MWh	156,908[7]
Static investment	10,000 Yuan	102,786
Electricity tariff (VAT Incl.), Y1-Y20	Yuan/kWh	0.9

[7] Average electricity supplied to the grid during crediting period.

Electricity tariff (VAT Incl.), Y21-Y25	Yuan/kWh	0.3343
Annual O&M costs	10,000 Yuan/yr	2557
VAT rate	/	17%
Project lifetime	Year	25

All the data adopted for IRR calculation is from Feasibility Study Report (short for FSR), which was compiled by a qualified design institute. The project was approved by Development and Reform Commission of Gansu province on 13/12/2013.

According to the data in Table 1, IRR of the project is calculated as 6.82% without income from carbon credits, which is lower than benchmark IRR of 8%. The project is not financially attractive.

Sub-step 2d. Sensitivity analysis

The sensitivity analysis is used to show whether the conclusion regarding the financial attractiveness is robust to reasonable variations in the critical assumptions according to the requirement of "Tool for the demonstration and assessment of additionality". For the project, four parameters could influence the IRR of the project, therefore they are selected as variables to check out the financial attractiveness.

- Fixed assets investment
- Annual electricity delivered to grid or Electricity tariff
- Annual O&M costs

The sensitivity analysis is shown in Table 2 below:

Table 2 Sensitivity analysis

Variation / Parameter	-10%	0%	+10%
Fixed asset investment	8.35%	6.82%	5.52%
Annual average O&M cost	7.14%	6.82%	6.49%
Ttariff (including VAT)	5.28%	6.82%	8.30%
Annual electricity delivered to the grid	5.28%	6.82%	8.30%

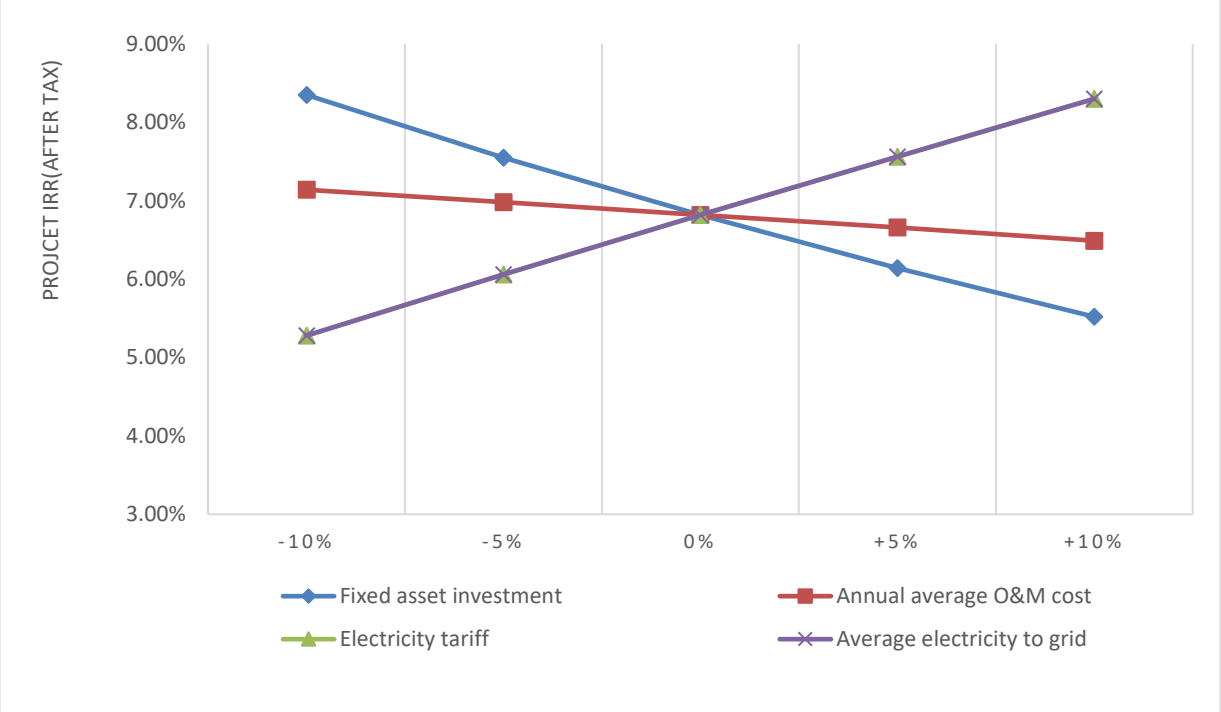

Figure 3 Sensitivity analysis chart

As shown in Figure 3, when fixed asset management decrease 8.02%, IRR will reach the bench mark.

From 2010 to 2012, price of PV modules decreased sharply which makes solar energy much cheap than before. However, when the project started to make investment decision in middle of 2013, price of PV modules has increased 4% in global market[8] and so as in China[9]. In general, the price of PV modules consists of over 85% total investment. At the investment decision point, project owner can't expect the price could be decrease for 8.02% to reach the benchmark.

When OM cost decrease for 39%, IRR will reach the benchmark. OM cost is mainly consisted of staff salary, repair and maintenance cost, insurance cost etc., which is impossible to fluctuate for over 10% during short time.

Generally tariff will be approved by local government before commission of the project. Tariff of solar power projects is declining slowly due to technology matures since 2011. Therefore, it's impossible to hit the benchmark by increasing tariff.

Electricity to the grid is estimated by qualified design institute base on the average sunlight condition over 20 years. It's a scientific estimation base on reliable light intensity data issued by local authority. Therefore it's unlikely to reach the benchmark by increasing electricity deliver to the grid.

Step 3. Barrier analysis

The project does not employ the barrier analysis. Then proceed to Step 4.

[8] https://news.solarbe.com/201304/26/235595.html
9 https://news.solarbe.com/201310/25/227572.html

Step 4: Common practice analysis
According to "Tool for the demonstration and assessment of additionality" (version 07.0), common practice should be applied to demonstrate the additionality.

Step 4a: The proposed project activity(s) applies measure(s) that are listed in the definitions section above
According to the requirement of "Tool for the demonstration and assessment of additionality" (version 07.0), "methodology tool: common practice" (version 03.1) should be applied following the steps below:

Step 4a-1*: calculate applicable capacity or output range as +/-50% of the total design capacity or output of the proposed project activity*

Installed capacity of this project is 100MW and projects ranging from 50MW to 150MW should be chosen for the common practice analysis.

Step 4a-2: identify similar projects (both CDM and non-CDM) which fulfil all of the following conditions

(a) The projects are located in the applicable geographical area;

(b) The projects apply the same measure as the proposed project activity;

(c) The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity;

(d) The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g. clinker) as the proposed project plant;

(e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 4a-1;

(f) The projects started commercial operation before the project submission form (PSF) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity.

Base on the conditions above, projects that meet the criteria below should be chosen for step 4a-2:

(a) Solar power project who generated electricity only;

(b) Located in Gansu province, China;

(c) Installed capacity from 50MW to 150MW;

(d) Projects whose starting date earlier than 07/2014, when EPC contract was signed.

Projects meet the above criteria are listed in the Table below.

Table 3 Common solar power projects in Gansu province

Project name	Installed capacity	Project owner	Project type
Sino Hydro 50MW solar power project, Liangzhou District	50MW	New energy development company of Sino Hydro	CCER
50 MW grid-connected	50MW	Gaotai County Taike Photovoltaic Power	CCER

photovoltaic power generation project in Gaoyazitan, Gaotai County		Co., Ltd.	
100 MW grid-connected photovoltaic power generation project in Xipo, Jinchuan District	100MW	Jinchang Zhongxinneng Power Co., Ltd.	CCER
Jinchuan District Phase I 50 MW Grid-connected Photovoltaic Power Generation Project	50MW	Jinchang Guoyuan Electric Power Co., Ltd.	CCER
Jinchang Zhenxin 100 MW Photovoltaic Power Generation Project in Jinchuan district	100MW	Jinchang Zhenxin Xipo Solar Power Co., Ltd.	CCER
Gansu Jintai Phase II 50 MW grid-connected photovoltaic power generation project in Jinchuan district	50MW	Jinchang Jintai Photovoltaic Power Co., Ltd.	CCER
Zhongke Jinwu Highway 50 MW grid-connected photovoltaic power generation project in Jinchuan district	50MW	Zhongke Optoelectronics New Energy Group Corporation	CCER
Sunan Guludun 50 MW grid-connected photovoltaic power generation project	50MW	Sunan Yugur Autonomous County Zhongneng Industrial Park Co., Ltd.	CCER
Hongliuwa 50 MW grid-connected photovoltaic power generation project	50MW	Jinta County Yueshui Power New Energy Co., Ltd.	CCER
Gansu Ganzhou District Nantan Phase I 50MWp Solar Photovoltaic Power	50MW	Gansu Heihe Hydropower New Energy Development Co., Ltd.	VCS

Project			
Shandan Dongle Beitan 50MW Solar Power Generation Project	50MW	Shandan Xiehe Solar Power Generation Co., Ltd. (	VCS
Three Gorges New Energy Jiuquan Co., Ltd Guazhou 100MW Solar Power Project	100MW	Three Gorges New Energy Jiuquan Co., Ltd	VCS
Jingyuan County 100MW Solar Power Generation Project	100MW	Gansu Deyou Energy Technology Co., Ltd	VCS
Gansu Dunhuang 50MWp Solar PV Power Station Project	100MW	Dunhuang Chint Solar PV Power Co,. Ltd	CDM
Gansu Ganzhou District Nantan Phase I 50MWp Solar Photovoltaic Power Project	50MW	Gansu Heihe Hydropower New Energy Development Co., Ltd.	CDM

Step 4a-3: Within the projects identified in Step 4a-2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number N_{all}.

According to the available statistics[10] and relevant project information on CDM[11], VCS[12], CCER[13], and GS[14] website, all similar projects are seeking for financial support from different voluntary emission reduction mechanism. Therefore, $N_{all} = 0$.

Step 4a-4: Within similar projects identified in Step 4a-3, identify those that apply technologies that are different to the technology applied in the proposed project activity. Note their number N_{diff}.

Since $N_{all} = 0$, also $N_{diff} = 0$, Nall = N_{diff}.

Step 4a-5: Calculate factor F=1-N_{di}ff/N_{al}l representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

[10] China Electric Power Yearbook
[11] http://cdm.unfccc.int/Projects/projsearch.html
[12] http://www.vcsprojectdatabase.org/
[13] http://cdm.ccchina.gov.cn/. As the application of CCER was postponed in 03/2017, website of CCER stopped operation for quite a while Please see below notification from authority as below:
https://www.ndrc.gov.cn/xxgk/zcfb/gg/201703/t20170317_961176.html?code=&state=123
[14] http://www.goldstandard.org/about-us/project-registry

As stated before, $N_{all} = N_{diff}$, $F = 1 - N_{diff}/N_{all} = 1 - 1 = 0<0.2$, therefore the project activity is NOT a "common practice" within a sector in the applicable geographical area, according to the guideline.

B.6. Estimation of emission reductions

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B.6.1. Explanation of methodological choices

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As per ACM0002 and "Notice on 2019 Baseline Emission Factors for Regional Power Grids in China"[15] , following steps will be applied for calculation of emission reductions by this project:

I. Calculating the Baseline Emissions（BE_y）

II. Calculating the Project Emissions（PE_y）

III. Leakage (L_y)

IV. Calculating the Emission Reductions（ER_y）

I. Calculating the Baseline Emissions（BE_y)

The baseline scenario of the project is: electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants and addition of new generation sources. The baseline emissions calculated as follows:

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y} \quad (1)$$

Where:

BE_y :	Baseline emissions in year y (tCO_2e) ;
$EG_{PJ,y}$:	Quantity of net electricity generation that is produced and fed into the grid by the project activity in year y (MWh) ;
$EF_{grid,CM,y}$:	Combined margin CO_2 emission factor for grid connected power generation in year y (tCO_2e/MWh) .

The project activity is the installation of a new grid-connected renewable power plant at a site where no renewable power plant was operated prior to the implementation of the project activity. According to the methodology ACM0002:

$$EG_{PJ,y} = EG_{facility,y} \quad (2)$$

Where:

$EG_{PJ,y}$:	Quantity of net electricity generation that is produced and fed into the grid by the project activity in year y (MWh) ;
$EG_{facility,y}$:	Quantity of net electricity generation supplied by the project plant/unit to the grid in *y* (MWh)

[15] https://www.mee.gov.cn/ywgz/ydqhbh/wsqtkz/202012/t20201229_815386.shtml

$EG_{facility,y}$ is the net electricity generation supplied by the project plant/unit to the grid, which is calculated as export minus import:

$$EG_{facility,y} = EG_{export} - EG_{import} \quad (3)$$

Where:

$EG_{export,y}$:	quantity of electricity supplied by the project plant/unit to the grid in year y (MWh);
$EG_{import,y}$:	quantity of electricity delivered to the project plant/unit from the grid in year *y* (MWh).

According to methodology ACM0002, the calculation of emission factor should use the "Tool to calculate the emission factor for an electricity system" (Version 07.0). The CO_2 emission factor for the displacement of electricity generated by power plants in an electricity system is determined by calculating the "operating margin" (OM) and "build margin" (BM) as well as the "combined margin" (CM). The following 6 steps will be applied for the calculation of CM.

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 ($EF_{grid,OM,y}$);

Step 5 Calculate the build margin emission factor ($EF_{grid,BM,y}$);

Step 6 Calculate the combined margin (CM) emission factor ($EF_{grid,CM,y}$).

Step 1: Identify the relevant electric power system

Electricity displaced by the project should be generated by power plants connected to NWCPG. Therefore, NWCPG is identified as the relevant electric power system. According to "Notice on 2019 Baseline Emission Factors for Regional Power Grids in China" issued by Ministry of Ecology and Environment of China[15], NWCPG consisted of Shaanxi Power Grid, Gansu Power Grid, Qinghai Power Grid, Ningxia Power Grid and Xinjiang Power Grid.

Step 2. Choose whether to include off-grid power plants in the project electricity system

The methodological tool for calculating operating margin and build margin emission factors provides two options:

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.

As this project is grid-connected power plant, Option I is selected to calculate the emission factor.

Step 3. Select a method to determine the Operating Margin (OM)

The calculation of *the operating margin emission factor* ($EF_{grid,OM,y}$) is based on one of the four following methods:

(a) Simple OM, or

(b) Simple adjusted OM, or

(c) Dispatch Data Analysis OM, or

(d) Average OM.

The simple OM method can only be used where 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 normal for hydroelectricity production. Low operating cost and must run resources typically include hydro, geothermal, wind, low-cost biomass, nuclear and solar generation. If coal is obviously used as must-run, it should also be included in this list, i.e. excluded from the set of plants. From 2015 to 2017, the low cost must run resources constitute less than 50% of total amount grid generation output in NWCPG. Therefore, method (a) is applicable for the project.

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

According to the "Tool to calculate the emission factor for an electricity system", the Simple OM emission factor ($EF_{grid,OMsimple,y}$) 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-operating cost and must-run power plants/units, It 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. Option B can only be used if
  - (i) The necessary data for Option A is not available;
  - (ii) Only nuclear and renewable power generation are considered as low-cost/must-run power sources and the quantity of electricity supplied to the grid by these sources is known;
  - (iii) Off-grid power plants are not included in the calculation (i.e. if Option I has been chosen in Step 2).

Option A should be preferred and must be used if fuel consumption data is available for each power plant / unit. If necessary data for Option A is not available, Option B can be used for OM calculation. For this project, Option B is used and the simple OM emission factor is calculated based on the net electricity supplied to the grid by all power plants serving the system, not including low-cost/must-run power plants/units, and based on the fuel types and total fuel consumption of the project electricity system, as follows:

$$EF_{grid,OMsimple,y} = \frac{\sum_i (FC_{i,y} \times NCV_{i,y} \times EF_{CO2,i,y})}{EG_y} \quad (4)$$

Where:

$EF_{grid,OM,simple,y}$:	Simple operating margin CO_2 emission factor in year *y* (tCO_2e/MWh)
$FC_{j,y}$:	Amount of fuel type *i* consumed in NWCPG in year *y* (mass or volume unit)
$NCV_{i,y}$	Net calorific value (energy content) of fuel type *i* in year *y* (GJ/mass or

	volume unit)
$EF_{CO2,i,y}$	CO_2 emission factor of fuel type *i* in year *y* (tCO_2e/GJ)
EG_y	Net electricity generated and delivered to NWCPG by all power sources serving the system, not including low-cost / must-run power plants / units, in year *y* (MWh)
i	All fuel types combusted in power sources in NWCPG in year y
y	The three most recent years for which data is available at the time of submission of the PSF to the GCC verifier for validation (ex ante option)

Therefore, $EF_{grid,OM,y}$ is calculated as: 0.8922 t CO_2/MWh.

Step 5. Calculate the build margin (BM) emission factor

Two options were supplied in "Tool to calculate the emission factor for an electricity system" for the calculation of BM as below:

(a) **Option 1** - for the first crediting period, calculate the 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 PSF submission to the verifier for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the GCC verifier. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period;

(b) **Option 2** - For the first crediting period, the build margin emission factor shall be updated annually, ex post, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available. For the second crediting period, the build margin emissions factor shall be calculated ex ante, as described in Option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

Option 1 is applied to calculate the build margin emission factor ex-ante, which is based on the most recent official published information available on units already built for sample group m at the time of PSF submission. The crediting period of GCC project is fixed 10 years, therefore project owner should calculate the 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 PSF submission to the GCC verifier for validation.

The sample group of power units *m* used to calculate the build margin should be determined as per the following procedure, consistent with the data vintage selected above:

(a) Identify the set of five power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently ($SET_{5\ units}$) and determine their annual electricity generation ($AEG_{SET\text{-}5\text{-}units}$, in MWh);

(b) Determine the annual electricity generation of the project electricity system, excluding power units registered as CDM project activities (AEG_{total}, in MWh). Identify the set of power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently and that comprise 20% of AEG_{total} (if 20% falls on part of the generation of a unit, the generation of that unit is fully included in the calculation) ($SET_{20\ per\ cent}$) and determine their annual electricity generation ($AEG_{SET\text{-}\geq 20\ per\ cent}$, in MWh);

(c) From $SET_{5\text{-}units}$ and $SET_{20\ per\ cent}$ select the set of power units that comprises the larger annual electricity generation (SET_{sample}); Identify the date when the power units in SET_{sample} started to supply electricity to the grid. If none of the power units in SET_{sample} started to supply electricity to the grid more than 10 years ago, then use SET_{sample} to calculate the build margin. In this case ignore following steps.

It is very difficult to obtain the data of the five power units started to supply electricity to the grid most recently because these data are considered as confidential business matter in China. So, $SET_{20\ per\ cent}$ is selected as SET_{sample}. Based on relevant data in *China Electric Power Yearbook,* none of the power units in the selected SET_{sample} started to supply electricity to the grid more than 10 years ago. Hence the selected SET_{sample} is used to calculate the build margin.

Under the current circumstances in China, the power plants consider the Build Margin data as important business secret and impossible to be obtained through public sources. Therefore, it is impossible to obtain the data of five power plants that have been put into operation most recently or the newly installed power plant capacity additions in the electricity system that comprise 20% of the system generation.

According to the instructions of *Office of the National Coordination Committee on Climate Change of Ministry of Ecology and Environment of the People's Republic of China*, for the determination of the set of samples, a sample merging processing in some degree has been adopted due to that the power generation data, energy consumption data or thermal efficiency data of each plant cannot be obtained in the public statistical data. In this calculation, the newly-installed power units in the past years are classified by year, province and power generation technology, and the same type of newly installed power units in the same province and in the same year are bundled as a "newly-installed power units". The power generation of each "newly-installed power units" in the most recent year y is estimated based on its installed capacity and the number of power generation utilization hours in year y. The formula is as follows:

$$EG_{m,y} = CAP_m \times H_{m,y} \quad (5)$$

Where:

$EG_{m,y}$	Net Quantity of electricity generated and delivered to NWCPG by power unit *m* in year *y* (MWh)
CAP_m	Installed capacity of electricity generated and delivered to the grid by power unit *m* in year *y* (MW)
$H_{m,y}$	The number of power utilization hours (h) of electricity generated and delivered to the grid by power unit *m* in year *y*. And it selects the average utilization hours of similar units in the province in which it is located in year *y*
y	Most recent year for which data is available
m	The sample group of power units

The power unit *m* is selected from the "newly-installed power plants" in the most recent year *y* (For the calculation of the grid BM in 2019, the *y* is equal to 2017) to the "newly-installed power plants" in the earlier year, until the cumulative power generation reaches 20% of the total power generation in the year *y* (*y*=2017).

Since the newly-installed power units of the same type (k) in the same province (A) and the same year (t) are bundled into the "newly-installed power units", the CAP_m is equal to the statistical data of recent installed capacity of a given unit type(k) in a given year(t) in a given province (A).

$$CAP_m = CAP_{m|m(A,t,k)} = CAP_{A,t,k} \quad (6)$$

Where:

CAP_m	Installed capacity of electricity generated and delivered to the grid by power unit *m* in year *y* (MW), and *m* is equivalent to an established combination of (A, t, k)
$CAP_{A,t,k}$	Capacity of newly-installed power units of a given province (A), given year (t), and give unit type (k) (MW)
A	It is the various provincial regions covered by the regional power grid in the sampling year of the "newly-installed power units"
t	For the calculation of the grid BM in 2019, it is equal to 2017, 2016 until the units that comprise at least 20 percent of the system generation in 2017
k	It is the power generation technology classification of "newly-installed power units", which is divided into: hydro-power, coal-thermal power, gas-thermal power, oil-thermal power, Waste-thermal power plant, other thermal power, nuclear power, wind power, solar power, and others

As per tool, the CO_2 emission factor of each power unit *m* ($EF_{EL,m,y}$) should be determined as per the tool in Step 4 section 6.4.1 for the simple OM, using Options A1, A2 or A3, using for y the most recent historical year for which electricity generation data is available, and using for *m* the power units included in the build margin.

Because current statistics data cannot separate each power plant, for a power unit m, only data on electricity generation and the fuel types used is available. So, the option A2 is selected, the emission factor should be determined based on the CO_2 emission factor of the fuel type used and the efficiency of the power unit, as follows:

The key parameter for BM calculation is CO_2 emission factor of each power unit *m* ($EF_{EL,m,y}$) , which should be calculated according to option A2 in section 6.4.1.1.1 of "Tool to calculate the emission factor for an electricity system" as below:

$$EF_{EL,m,y} = \frac{EF_{CO2,m,i,y} \times 3.6}{\eta_{m,y}} \quad (7)$$

Where:

$EF_{EL,m,y}$	CO_2 emission factor of power unit *m* in year *y* (tCO_2/MWh)
$EF_{CO2,m,i,y,}$	Average CO_2 emission factor of fuel type *i* used in power unit *m* in year *y* (tCO_2/GJ)
$\eta_{m,y}$	Average net energy conversion efficiency of power unit *m* in year *y* (ratio)
3.6	Conversion coefficient of thermal work equivalent of electricity (GJ/MWh)

According to equation (7),the unit electricity emission factor of the hydro-power, nuclear power, wind power, solar power, other thermal power[16], and others power generation technology[17] in the "newly installed power units" samples is zero. The emission factor per unit of electricity for power generation from coal, gas, oil and electricity waste power is calculated based on equation (7). Since the average net energy conversion efficiency of each sample ($\eta_{m,y}$) cannot be obtained, the power supply thermal efficiency of the best commercialized technology of coal, gas, oil and waste power ($\eta_{Best,m,y}$) is better

[16] Other thermal power mainly refers to waste heat and pressure, straw, bagasse and forest power generation.

[17] Others power generation technology mainly refers to geothermal energy, ocean energy and other power generation.

than $\eta_{m,y}$. It is conservative to use $\eta_{Best,m,y}$ for the calculation of $EF_{EL,m,y}$.

The build margin emissions factor is the generation-weighted average emission factor (tCO_2/MWh) of all power units *m* during the most recent year *y* for which power generation data is available, calculated as follows:

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}} \quad (8)$$

Where,

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

Therefore, $EF_{grid,BM,y}$ is calculated as: 0.4407 t CO_2/MWh.

Step 6. Calculate the Combined Margin emission factor

The combined margin emissions factor is calculated as follows:

$$EF_{grid,CM,y} = \omega_{OM} \times EF_{grid,OM,y} + \omega_{BM} \times EF_{grid,BM,y} \quad (9)$$

Where:

$EF_{grid,BM,y}$	Build Margin CO_2 emission factor in year *y* (tCO_2e/MWh)
$EF_{grid,,OM,y}$	Operating margin CO_2 emission factor in year *y* (tCO_2e/MWh)
ω_{OM}	Weighting of operating margin emissions factor (%)
ω_{BM}	Weighting of build margin emissions factor (%)

Default weights of solar power projects are as below:

ω_{OM} = 0.75, ω_{BM} = 0.25

$EF_{grid,CM,y}$ = 0.75×0.8922+0.25×0.4407 = 0.7793 tCO_2/MWh

II. Calculating the Project Emissions（PE_y)

According to ACM0002, there are no expected project emissions for a solar power project.

Therefore, PE_y = 0

III. Leakage (L_y)

According to methodology ACM0002, there is no need for the project to consider leakage (L_y).

IV. Calculating the Emission Reductions(ER_y)

The annual emission reduction (ER_y) of the project is the difference between baseline emission and project activity emission. The final GHG emission reduction is calculated as follows:

$$ER_y = BE_y - PE_y - L_y \quad (10)$$

B.6.2. Data and parameters fixed ex ante

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Data / Parameter Table 1.

Data / Parameter:	$EF_{grid,CM,y}$ ($EF_{grid,y}$)
Methodology reference	ACM0002, V20
Data unit	tCO_2/MWh
Description	Combined margin emission factor of NWCPG
Measured/calculated /default	
Data source	2019 Baseline Emission Factors for Regional Power Grids in China, published by China DNA
Value(s) of monitored parameter	0.7793
Measurement/ Monitoring equipment (if applicable)	NA
Measuring/reading/ recording frequency (if applicable)	Ex-ante determined and fixed for the crediting period.
Calculation method (if applicable)	Calculated as per am-tool-07-v7.0 Tool to calculate the emission factor for an electricity system
QA/QC procedures	official data
Purpose of data	Used for baseline emission calculation
Additional comments	https://www.mee.gov.cn/ywgz/ydqhbh/wsqtkz/202012/t20201229_815386.shtml

B.6.3. Ex-ante calculation of emission reductions

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Project Emissions

According to baseline methodology ACM0002, project emissions, $PE_y = 0$ tCO_2e/yr.

Baseline Emissions

According to formula in section B.6.1, the calculation results of $EF_{grid,OM,y}$, $EF_{grid,BM,y}$ and $EF_{grid,cm,y}$ are listed in Table 4.

Table 4 EF_{OM} , EF_{BM} and EF_{CM} applied in this project (tCO2e/MWh)

$EF_{grid,OM,y}$	$EF_{grid,BM,y}$	$EF_{grid,CM,y}$
0.8922	0.4407	0.7793

According to baseline methodology ACM0002, *Ly* = 0. Therefore the baseline emission is calculated as below:

Year	$EG_{PJ,y}$ (MWh)	$EG_{grid,y}$ (t CO_2e/MWh)	Baseline Emission (t CO_2e)
18/06/2016-17/06/2017	163,033	0.7793	127,055
18/06/2017-17/06/2018	160,666	0.7793	125,211
18/06/2018-17/06/2019	159,538	0.7793	124,331
18/06/2019-17/06/2020	158,418	0.7793	123,459
18/06/2020-17/06/2021	157,306	0.7793	122,592
18/06/2021-17/06/2022	156,202	0.7793	121,732
18/06/2022-17/06/2023	155,105	0.7793	120,877
18/06/2023-17/06/2024	154,016	0.7793	120,028
18/06/2024-17/06/2025	152,935	0.7793	119,186
18/06/2025-17/06/2026	151,861	0.7793	118,349
Total	**1,569,080**	**/**	**1,222,820**
Average	156,908	/	122,282

Emission Reductions

According to formula in section B.6.1, the annual emission reduction (ER_y) of the project in typical year is calculated as follows:

B.6.4. Summary of ex ante estimates of emission reductions

>>

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)

18/06/2016-17/06/2017	127,055	0	0	127,055
18/06/2017-17/06/2018	125,211	0	0	125,211
18/06/2018-17/06/2019	124,331	0	0	124,331
18/06/2019-17/06/2020	123,459	0	0	123,459
18/06/2020-17/06/2021	122,592	0	0	122,592
18/06/2021-17/06/2022	121,732	0	0	121,732
18/06/2022-17/06/2023	120,877	0	0	120,877
18/06/2023-17/06/2024	120,028	0	0	120,028
18/06/2024-17/06/2025	119,186	0	0	119,186
18/06/2025-17/06/2026	118,349	0	0	118,349
Total	**1,222,820**	**0**	**0**	**1,222,820**
Total number of crediting years	10			
Annual average over the crediting period	122,282	0	0	122,282

B.7. Monitoring plan

>>

B.7.1. Data and parameters to be monitored

>>

Data / Parameter Table 2.

Data / Parameter:	$EG_{facility,y}$ or $EG_{PJ,y}$
Methodology reference	ACM0002
Data unit	MWh
Description	Quantity of electricity generated and supplied by the project power plant to the grid in year y

Measured/calculated /default	calculated
Data source	calculated
Value(s) of monitored parameter	156,908 (average value estimated)
Measurement/ Monitoring equipment	NA
Measuring/reading/ recording frequency	Measured continuously and recorded periodiclly
Calculation method (if applicable)	Calculated based on the electricity delivered to the grid by the project ($EG_{export,y}$) and the electricity consumed by the project which is imported from the grid ($EG_{import,y}$). $EG_{facility,y} = EG_{export,y} – EG_{import,y}$
QA/QC procedures	The calibration of meters, including the frequency of calibration, should be done in accordance with national standards or requirements. The accuracy class of the meters should be in accordance with the stipulation of the meter supplier and/or as per relevant requirements.
Purpose of data	Calculation of emission reduction.
Additional comments	

Data / Parameter:	$EG_{import,y}$
Methodology reference	ACM0002 (Version 20.0)
Data unit	MWh
Description	Quantity of the electricity delivered to the project from the grid in year y
Measured/calculated /default	On-site measurement
Data source	On-site measurement
Value(s) of monitored parameter	0 (ex-anti estimated)

<table>
<tr><td>Measurement/ Monitoring equipment</td><td>
<table>
<tr><td colspan="2">Electricity meter M1 (main meter at 1# transformer)</td></tr>
<tr><td>Type of meter</td><td>2000-6E20-1C31-141</td></tr>
<tr><td>Accuracy</td><td>0.2S</td></tr>
<tr><td>Calibration status</td><td>Calibrated</td></tr>
</table>
<table>
<tr><td colspan="2">Electricity meter M2 (backup meter at 1# transformer)</td></tr>
<tr><td>Type of meter</td><td>2000-6E20-1C31-141</td></tr>
<tr><td>Accuracy</td><td>0.2S</td></tr>
<tr><td>Calibration status</td><td>Calibrated</td></tr>
</table>
<table>
<tr><td colspan="2">Electricity meter M3 (main meter at 2# transformer)</td></tr>
<tr><td>Type of meter</td><td>2000-6E20-1C31-141</td></tr>
<tr><td>Accuracy</td><td>0.2S</td></tr>
<tr><td>Calibration status</td><td>Calibrated</td></tr>
</table>
<table>
<tr><td colspan="2">Electricity meter M4 (backup meter at 2# transformer)</td></tr>
<tr><td>Type of meter</td><td>2000-6E20-1C31-141</td></tr>
<tr><td>Accuracy</td><td>0.2S</td></tr>
<tr><td>Calibration status</td><td>Calibrated</td></tr>
</table>
</td></tr>
<tr><td>Measuring/reading/ recording frequency</td><td>Measured continuously and recorded monthly</td></tr>
<tr><td>Calculation method (if applicable)</td><td>NA</td></tr>
<tr><td>QA/QC procedures</td><td>Cross check measurement results with receipts or invoices.
The measurement will be in compliance with the national guidelines and requirements of the grid company for accuracy and reliability. The calibration will be carried out according to relevant national standards and regulations by qualified organization.</td></tr>
<tr><td>Purpose of data</td><td>Calculation of baseline emissions</td></tr>
<tr><td>Additional comments</td><td></td></tr>
</table>

Data / Parameter:	$EG_{export,y}$
Methodology reference	ACM0002 (Version 20.0)
Data unit	MWh
Description	Quantity of the electricity delivered to the project from the grid in year y
Measured/calculated /default	On-site measurement
Data source	On-site measurement
Value(s) of monitored parameter	Average electricity exported is 17347.54 MWh per year during the crediting period.

<table>
<tr><td>Measurement/ Monitoring equipment</td><td>Electricity exported and imported by the project will be measured by Bi-directional meters installed at 2 main transformers. Each transformer is installed with 2 meters, one of which is main meter and the other one is backup meter.

<table>
<tr><td colspan="2">Electricity meter M1 (main meter at 1# transformer)</td></tr>
<tr><td>Type of meter</td><td>2000-6E20-1C31-141</td></tr>
<tr><td>Accuracy</td><td>0.2S</td></tr>
<tr><td>Calibration status</td><td>Calibrated</td></tr>
</table>

<table>
<tr><td colspan="2">Electricity meter M2 (backup meter at 1# transformer)</td></tr>
<tr><td>Type of meter</td><td>2000-6E20-1C31-141</td></tr>
<tr><td>Accuracy</td><td>0.2S</td></tr>
<tr><td>Calibration status</td><td>Calibrated</td></tr>
</table>

<table>
<tr><td colspan="2">Electricity meter M3 (main meter at 2# transformer)</td></tr>
<tr><td>Type of meter</td><td>2000-6E20-1C31-141</td></tr>
<tr><td>Accuracy</td><td>0.2S</td></tr>
<tr><td>Calibration status</td><td>Calibrated</td></tr>
</table>

<table>
<tr><td colspan="2">Electricity meter M4 (backup meter at 2# transformer)</td></tr>
<tr><td>Type of meter</td><td>2000-6E20-1C31-141</td></tr>
<tr><td>Accuracy</td><td>0.2S</td></tr>
<tr><td>Calibration status</td><td>Calibrated</td></tr>
</table>
</td></tr>
<tr><td>Measuring/reading/ recording frequency</td><td>Measured continuously and recorded monthly</td></tr>
<tr><td>Calculation method (if applicable)</td><td>NA</td></tr>
<tr><td>QA/QC procedures</td><td>Cross check measurement results with receipts or invoices.
The measurement will be in compliance with the national guidelines and requirements of the grid company for accuracy and reliability. The calibration will be carried out according to relevant national standards and regulations by qualified organization.</td></tr>
<tr><td>Purpose of data</td><td>Calculation of baseline emissions</td></tr>
<tr><td>Additional comments</td><td></td></tr>
</table>

Data / Parameter:	**Number of staff**
Methodology reference	NA
Data unit	Person
Description	Number of staff working for the project

Measured/calculated /default	Calculated
Data source	Roster of the project
Value(s) of monitored parameter	30 person estimated in FSR
Measurement/ Monitoring equipment	NA
Measuring/reading/ recording frequency	Annually
Calculation method (if applicable)	Check the roster to confirm staff number employed by the project.
QA/QC procedures	NA
Purpose of data	Evaluate Goal 8 in section F.
Additional comments	NA

Data / Parameter:	Job related training
Methodology reference	-
Data unit	
Description	The job-related training will be provided by the project in year y
Measured/calculated /default	Monitored
Data source	Training records and exam results of relevant trainings
Value(s) of monitored parameter	-
Measurement/ Monitoring equipment	Job related training can be verified from the training records and attendance sheet.
Measuring/reading/ recording frequency	Before operation started, training and related examination should be held at least once; During operation period, training and related examination should be held when new regulations/standards related to the job are issued.
Calculation method (if applicable)	-
QA/QC procedures	Examination should be held, if needed.
Purpose of data	To monitor an environmental impact identified.

Additional comments	-

Data / Parameter:	Existence and operation of septic tank
Methodology reference	-
Data unit	-
Description	During operation period, domestic water is managed by septic tank.
Measured/calculated /default	Monitored
Data source	On-site check the existence and operation of septic tank
Value(s) of monitored parameter	-
Measurement/ Monitoring equipment	On-site check by verifier
Measuring/reading/ recording frequency	Check once by verifier when on-site visit, or by photo supplied by project owner.
Calculation method (if applicable)	-
QA/QC procedures	-
Purpose of data	To monitor an environmental impact identified.
Additional comments	-

Data / Parameter:	E-waste management
Methodology reference	-
Data unit	-
Description	By the end of operation period, e-waste produced by the project should be collected and recycled and processed by the qualified company.
Measured/calculated /default	Monitored
Data source	Management service contract with qualified company and relevant management records.
Value(s) of monitored parameter	-
Measurement/ Monitoring equipment	Check the service contract by manufacturer or qualified company.

Measuring/reading/ recording frequency	Check relevant contract and management records by the end of operation period.
Calculation method (if applicable)	-
QA/QC procedures	-
Purpose of data	To monitor an environmental impact identified.
Additional comments	-

B.7.2. Monitoring-program of risk management actions

>>

There is no parameter evaluated as “Harmful” in Section E.

<table>
<tr><td>Data / Parameter:</td><td>CO_2 emission</td></tr>
<tr><td>Objective of the Program of Risk Management Actions</td><td>Program of Risk Management Actions for Noise Pollution (PRMA 01)</td></tr>
<tr><td>Purpose:</td><td>To monitor an environmental impact identified as harmless in the risk assessment and to develop a Program of Risk Management Actions plan to address the risk of PRMA 02.</td></tr>
<tr><td>Describe the environment /social impact risk that need to be mitigated.</td><td>The CO_2 emission produced by the project during operation period.</td></tr>
<tr><td>Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.</td><td>Electricity will be generated by solar panels and no CO_2 emission could be caused. Amount of net electricity supplied to grid will be monitored to calculated total CO_2 emission reduction.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>Action and targets</th><th>Resource Requirement</th><th>Target to be Achieved by (insert date)</th><th>Key Performance Indicators (KPI)</th><th>Targets achieved on (insert date)</th></tr>
<tr><td>monitoring of net electricity to grid</td><td>Electricity meter readings import and export of the project.</td><td>Monitoring and recording electricity import and export of the project during whole operation period.</td><td>Meter readings</td><td>To be monitored during operation period.</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>Amount of electricity imported and exported will be recorded and archived for future verification.</td></tr>
</table>

Describe whether the Project Activity has achieved the targets set out in this Program of Risk Management Actions. If yes, describe the outcome(s).	To be monitored.

Data / Parameter:	Noise pollution
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for Noise Pollution (PRMA 02)**
Purpose:	To monitor an environmental impact identified as harmless in the risk assessment and to develop a Program of Risk Management Actions plan to address the risk of PRMA 01.
Describe the environment /social impact risk that need to be mitigated.	The noise produced by the project during operation period.
Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.	Low noise equipment was recommended and the well maintenance of wind turbines should be performed to make sure equipment in good situation during operating period. The noise is lower than 65 dB(A) and meet the Class 3 standard of the Emission standard of environment noise for boundary of construction site (GB 12523－2011)
Program of Risk Management Actions to achieve the target(s):	

Action and targets	**Resource Requirement**	**Target to be Achieved by***(insert date)*	**Key Performance Indicators (KPI)**	**Targets achieved on** *(insert date)*
monitoring of noise pollution.	Follow industry standard or authority standard.	Meet the class 3 standard of GB12523-2011 during operation period.	Monitor noise level at and around the project site.	To be monitored during operation period.

QA/QC procedures:	The details of noise pollution will be recorded and archived for future verification.
Describe whether the Project Activity has achieved the targets set out in this Program of Risk Management Actions. If yes, describe the outcome(s).	To be monitored.

<table>
<tr><td>Data / Parameter:</td><td>Solid waste pollution from E-wastes</td></tr>
<tr><td>Objective of the Program of Risk Management Actions</td><td>Program of Risk Management Actions for solid waste pollution from plastics (PRMA 03)</td></tr>
<tr><td>Purpose:</td><td>To monitor an environmental impact identified as harmless in the risk assessment and to develop a Program of Risk Management Actions plan to address the risk of PRMA 03.</td></tr>
<tr><td>Describe the environment /social impact risk that need to be mitigated.</td><td>The E-wastes generated during and after operation period are mainly from the waste solar panels.</td></tr>
<tr><td>Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.</td><td>During operation period, damaged solar panels should be replaced and well managed by qualified third party. Replacement records should be well preserved for verifier to check.
After operation period, all wasted solar panel should be recycled and managed by qualified company.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>Action and targets</th><th>Resource Requirement</th><th>Target to be Achieved by (insert date)</th><th>Key Performance Indicators (KPI)</th><th>Targets achieved on (insert date)</th></tr>
<tr><td>The E-wastes will be properly collected and managed</td><td>NA</td><td>After operation period, recycle and management records should be well preserved.</td><td>Management records of E-wastes should be well kept by the end of operation period.</td><td>To be monitored after operation.</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>Management records of E-wastes will be recorded and archived for future verification.</td></tr>
<tr><td>Describe whether the Project Activity has achieved the targets set out in this Program of Risk Management Actions. If yes, describe the outcome(s).</td><td>To be monitored.</td></tr>
</table>

Data / Parameter:	Generation of wastewater
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for Generation of Wastewater (PRMA 04)**
Purpose:	To monitor an environmental impact identified as harmless in the risk assessment and to develop a Program of Risk Management Actions plan to address the risk of PRMA 04.

<table>
<tr><td>Describe the environment /social impact risk that need to be mitigated.</td><td>The wastewater during the operation period mainly from the domestic sewage.</td></tr>
<tr><td>Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.</td><td>The domestic sewage will be treated in sewage treatment facilities (such as septic tank) at project site. Waster water will be reused for greening and road watering to reduce dust after well treatment.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>Action and targets</th><th>Resource Requirement</th><th>Target to be Achieved by (insert date)</th><th>Key Performance Indicators (KPI)</th><th>Targets achieved on (insert date)</th></tr>
<tr><td>The domestic sewage will be treated in the septic tank and reused for greening and road watering to reduce dust after treatment.</td><td>Meet requirements of class III in <Environmental Quality Standard of Surface Water> (GB3838- 2002)</td><td>Domestic sewage should be management during operation period.</td><td>The domestic sewage disposal is recorded by the operation department.</td><td>To be monitored during operation period.</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>The domestic sewage disposal will recorded and archived.</td></tr>
<tr><td>Describe whether the Project Activity has achieved the targets set out in this Program of Risk Management Actions. If yes, describe the outcome(s).</td><td>To be monitored.</td></tr>
</table>

Data / Parameter:	**Replacing fossil fuels with renewable sources of energy**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for Generation of Wastewater (PRMA 05)**
Purpose:	To monitor an environmental impact identified as Harmless in the risk assessment and to develop a Program of Risk Management Actions plan to address the risk of PRMA 05.
Describe the environment /social impact risk that need to be mitigated.	Electricity generated by the project will replace electricity generated by fossil fuels.

<table>
<tr><td>Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.</td><td>Electricity supplied to the grid will be monitored during the project’s life time.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>Action and targets</th><th>Resource Requirement</th><th>Target to be Achieved by (insert date)</th><th>Key Performance Indicators (KPI)</th><th>Targets achieved on (insert date)</th></tr>
<tr><td>Electricity supplied to the grid will be monitored during life time of the project.</td><td>Meters are need to be installed to monitor electricity exported and imported.</td><td>Meter readings should be monitored and recorded during project lifetime.</td><td>Electricity exported and imported records during project life time.</td><td>To be monitored</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>Electricity imported and exported will be recorded by project owner and double check with the grid company.</td></tr>
<tr><td>Describe whether the Project Activity has achieved the targets set out in this Program of Risk Management Actions. If yes, describe the outcome(s).</td><td>To be monitored.</td></tr>
</table>

B.7.3. Sampling plan

>>

NA

B.7.4. Other elements of the monitoring plan

>>

Monitoring and management team will be set up by the project owner aiming to make sure that the net generated electricity monitored and evaluated during the project activity operation period is reliable and accurate. The details are summarized as follows:

1. **Operation and management structure**

Overall responsibility for daily monitoring and reporting lies with the project owner. A monitoring group will be established within the project company to carry out the monitoring work. The detailed structure is as follows:

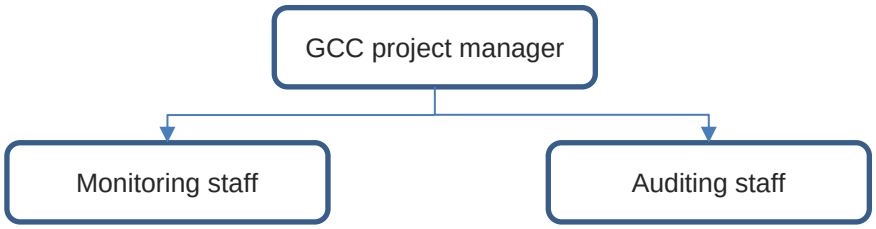

Figure 5 Monitoring and management structure

The responsibilities of each role in the team structure are:

- GCC project manager has the overall management responsibility, especially supervising the implementation of the monitoring plan.
- Monitoring staff measures the electricity imported to and exported from the project and keep relevant evidence related with GCC issues.
- Auditing staff performs internal verification of the measurement and calculates emission reductions.

2. Data to be monitored

Since the baseline emission factor is calculated ex-ante, the main data to be monitored is the electricity exported to the grid by the project ($EG_{export,yy}$) and the electricity imported from the grid to the project ($EG_{import,y}$) and the equation is as below. Net electricity supplied to the grid is used to calculate the ER_y.

$EG_{BL,y} = EG_{export,y} - EG_{import,y}$

3. Monitoring equipment and its installation

The electric energy metering should be equipped according to the requirements of local authority. Electricity generated by the project will be exported via 2 sets of main transformers, each of which is installed by 2 meters to measure electricity imported and exported. Accuracy of the 4 meters is 0.5S or higher which is in line with the requirement of local authority. Readings of the meters should be read and recorded periodically and the value that agreed by both sides (project owner and grid company) will be adopted.

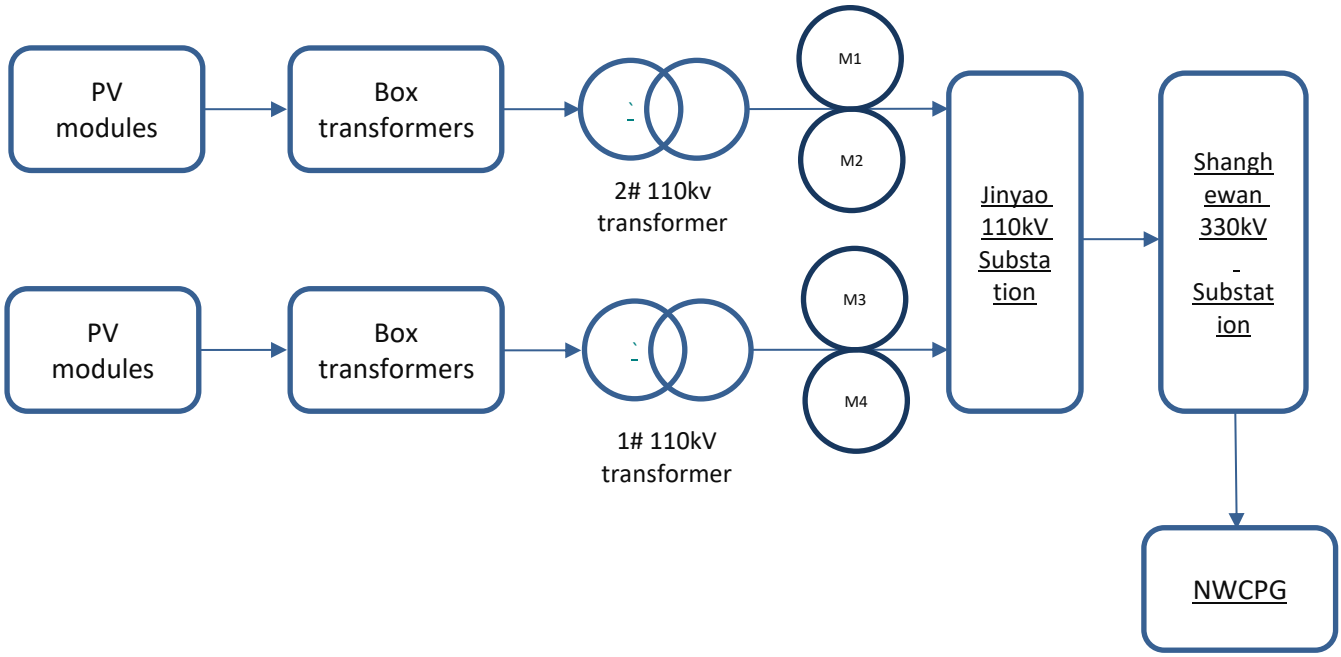

Figure 4 Electric connection flow chart

4. Quality control

The calibration of meters conducted by qualified organization must comply with national standard or sectoral regulations, which is accepted by local authority. Project owner should keep the calibration records for auditors to check on site.

5. Data management

All monitoring data and records should be archived in electronic document and hard copy. The project owners will also keep copies of sales receipts and prepare a monitoring report at the end of each year, which includes the net electricity generation, the calibration records, the emission reductions calculation and other documents need for verification.

6. Monitoring Report

Monitoring report should be prepared and submitted before each verification process. The report should include the monitoring of grid-connected power generation, report on calculation of the emission reductions and records of monitoring instrument repair and calibration, etc.

Section C. Start date, crediting period type and duration

C.1. Start date of the Project Activity

>>

18/06/2016, which is the date of the project started commissioning.

C.2. Expected operational lifetime of the Project Activity

>>

25 years 0 months

C.3. Crediting period of the Project Activity

>>

C.3.1. Fixed crediting period

>>

10 years 0 months

C.3.2. Start date of the crediting period

>>
18/06/2016

C.3.3. Duration of the crediting period

>>
18/06/2016 to 17/06/2026

Section D. Environmental impacts

D.1. Analysis of environmental impacts

>>
Environmental Impact Assessment (EIA) of this project was approved by local authority on 22/08/ 2013. The analysis and measures to be taken to mitigate the impacts are demonstrated in the following:

Waste gas

The waste gas in construction period is mainly tail gas and dust caused by transportation and equipment's operation, e.g. earthwork, material stacking and waste cleaning. According to the requirement of EIA, sprinkling at project was done from time to time to reduce dust during construction. During operation period, no waste gas is produced.

Waste water

Waste water is mainly domestic waste water produced by staff during operation. Domestic waste water will be collected and managed by septic tank at project and no vital environmental impact will be caused.

Noise

During construction period, noise is mainly from construction equipment operation. According to EIA,

project site is far away from residential area and no local residents will be affected by the noise. No noise will be caused during operation period by the PV modules. Noise during operation period is mainly from transformers. After distance attenuation, the noise of the photovoltaic array area boundary of the project is lower than 65dB(A) which can meet the requirements of the class 3 standard of "Environmental Noise Emission Standard of Industrial Enterprise Factory Boundary" (GB12348-2008).

Solid waste

Construction staff will produce domestic waste during construction, which will be transported to domestic disposal station nearby. Besides, soil excavated during construction is refilled while the waste soil will be used for road paving to diminish its impact to the environment.

E-waste

During and after the operation period, solid waste are mainly waste capacitors, PV modules and transformers etc. The waste equipment will be first piled up in a temporary storage warehouse, and then periodically recycled by the manufacturer or qualified company for disposal. The solid waste generated after the expiration of the operation period is waste equipment and waste solar panels, which are recycled and processed by the manufacturer or qualified company.

The environmental impact during the period of project operation will be minor. The Project owner has taken appropriate measures to minimize adverse environmental impacts.

D.2. Environmental impact assessment

>>

EIA was approved by Gansu environmental protection bureau on 22/08/ 2013.

The EIA report has identified all possible environmental impacts by the project and recommended proper measures to minimize adverse environmental impacts, which have been fully described in section D.1 above. The EIA approval from the government official states that all the environmental protection measures recommended in the EIA reports shall be adopted by the project to ensure that all environmental impacts and pollutants emissions comply with national standards and regulations.

Section E. Environmental and social safeguards

>>

E.1. Environmental safeguards

>>

Impact of Project Activity on		**Information on Impacts, Do-No-Harm Risk Assessment and Establishing Safeguards**									**Project Owner's Conclusion**	
		Description of Impact *(both positive and negative)*	**Legal requirement / Limit**	**Do-No-Harm Risk Assessment**			**Risk Mitigation Action Plans**		**Do-No-Harm Residual Risk Assessment**		**Self-Declaration**	
				Not Applicable *(No actions required)*	**Harmless** *(No actions required)*	**Harmful** *(Actions required)*	**Operational Controls**	**Program of Risk Management Actions**	**Re-evaluate Risks**	**Monitoring**	**Explanation of Conclusion**	**The Project Activity will not cause any harm**
Environmental impacts on the identified categories[18] indicated below.	*Indicators for environmental impacts*	*Describe anticipated environmental impacts, both positive and negative from all sources (stationary and mobile), that may result from the Project Activity, within and outside the project boundary, over which the Project Owner(s) has control, and beyond what would reasonably be expected to occur in the absence of the Project Activity.*	*Describe the applicable national regulatory requirements /legal limits related to the identified risks of environmental impacts.*	*If no environmental impacts are anticipated, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as **Not Applicable** (No actions required)*	*If environmental impacts are anticipated, but are expected to be in compliance with applicable national regulatory requirements/ below the legal limits, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as **Harmless** (No actions required)*	*If environmental impacts are anticipated that will not be in compliance with the applicable national regulatory requirements or are likely to exceed legal limits, then the Project Activity is likely to cause harm (may be un-safe) and shall be indicated as **Harmful** (Actions required).*	*Describe the operational controls and best practices, focusing on how to implement and operate the Project Activity, to reduce the risk of impacts that have been identified as **Harmful**.*	*Describe the Program of Risk Management Actions (refer to Table 3), focusing on additional actions (e.g., installation of pollution control equipment) that will be adopted to reduce the risk of impacts that have been identified as **Harmful**.*	*Re-evaluate risks after Risk Mitigation Action Plans have been developed (refer to previous two columns) for impacts that have been identified as Harmful. Indicate whether the risks have been eliminated or reduced and, where appropriate, indicate them as **Harmless** (No actions required)*	*Describe the monitoring approach and the parameters to be monitored for each impact that has been identified as Harmful and described in the PSF (refer to Table 3).*	*Describe how the Project Owner has concluded that the Project Activity is likely to achieve the identified Risk Mitigation Action Plan targets for managing risks to levels that are unlikely to cause any harm.*	*Confirm that the Project Activity risks of negative environmental impacts are expected to be managed to levels that are unlikely to cause any harm (Mark +1 for **Yes** or and -1 for **No**)*
Environmental Safeguards												
Environment *– Air*	*SO_x emissions*	NA	NA	NA	-	-	NA	NA	NA	NA	NA	NA
	NO_x emissions	NA	NA	NA	-	-	NA	NA	NA	NA	NA	NA
	CO_2 emissions	Solar energy is used to generate	No national regulatory requirement	-	This impact is positive and this KPI	-	NA	NA	NA	The electricity generated	This project uses solar power	0

[18] sourced from the CDM SD Tool and the sample reports are available (https://www4.unfccc.int/sites/sdcmicrosite/Pages/SD-Reports.aspx)

		electricity for the project. It could replace electricity generated by fossil power plants connected to NWCPG and reduce GHG, dust, SO_2 etc.	or legal limits related the construction of solar power plant.		can be monitored, thus, it will be deemed as Harmless.					by the project will be monitored and CO_2 emission reductions will be calculated accordingly.	generation to replace the equivalent amount of electricity provided by power grid, thereby reducing CO_2 emissions, which will be regularly monitored and verified ex -post and therefore is eligible to be scored.	
	CO emissions	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Suspended particulate matter (SPM) emissions	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Fly ash emissions	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Non-Methane Volatile Organic Compounds (NMVOCs)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Odor emissions	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Noise Pollution	During operation period, main resource of noise is from the operation of transformers. As the project is located in desert, no residents around the project site within 5km.	The noise is lower than 65 dB(A) and meet the Class 3 standard of the Emission standard of environment noise for boundary of construction site (GB 12523－2011)	-	During operation period, noise caused by transformer can be mitigated by well management and proper allocation. Noise can meet the requirement	-	Proper management and periodically maintenance of transformer and auxiliary equipment could reduce the noise during operation period. Maintaenance standard should meet	NA	NA	Management log prove the periodic maintenance of transformers and other equipment, which will help to keep low noise during operation.	Proper management will mitigate the noise and avoid noise impact.	0

					of GB 12523－2011.		industry standard or national standard.					
	Others	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Add more rows if required											
Environment *– Land*	*Solid waste Pollution from Plastics*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Solid waste Pollution from Hazardous wastes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Solid waste Pollution from Bio-medical wastes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Solid waste Pollution from E-wastes	PV modules that changed during operation period are main E-waste. Waste PV modules will be collected and managed by the special facility and treated by qualified agency.	Measures for the Administration of the Prevention and Control of Environmental Pollution by Electronic Waste is issued by national environment protection bureau on 27th Sep 2007, provides the utilization and dispose method of electronic waste.	NA	Solid waste pollution from E-wastes is properly disposed as per regulations, the impact is within legal limit, and this parameter will be monitored, hence the project is deemed Harmless	NA	NA	NA	NA	The waste photovoltaic modules will be recorded by the operation department, and the waste photovoltaic modules will be collected regularly by special facility and treated by qualified company.	These waste photovoltaic modules will be collected regularly by special facility and treated by qualified company.	0

	Solid waste Pollution from Batteries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Solid waste Pollution from end of life products/ equipment	At the end of project lifetime, main retired equipment is PV modules, PV brackets, transformers, and PV inverters. These equipment should be collected and managed by the qualified agency.	*Measures for the Administration of the Prevention and Control of Environmental Pollution by Electronic Waste* is issued by national environment protection bureau on 27th Sep 2007, provides the utilization and dispose method of electronic waste.	NA	Solid waste from end-of-life equipment will be collected and stored at specific locations, and collected by special facilities and treated by qualified company, the impact is within legal limit, and this parameter will be monitored, hence the project is deemed Harmless.	NA	NA	NA	NA	Monitor the treatment of Solid waste pollution from end-of-life equipment throughout the entire crediting period.	Solid waste from end-of-life equipment will be collected and stored at specific locations and collected by special facilities and treated by qualified company.	0
	Soil Pollution from Chemicals (including Pesticides, heavy metals, lead, mercury)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Soil erosion	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Others	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Add more rows if required											
	Reliability/ accessibility	NA										

Environment – *Water*	*of water supply*											
	Water Consumption from ground and other sources	NA										
	Generation of wastewater	During operation period, waste water mainly produced by domestic sewage.	Class III of <Environmental Quality Standard of Surface Water> (GB3838-2002)	NA	The domestic sewage will be treated in the septic tank during operation. Then it will be used for green irrigation. Therefore waste water produced by the project is deemed Harmless.	NA	NA	NA	NA	The domestic sewage will be managed periodically.	The domestic sewage will be treated during the buried sewage treatment device until it fit the regulation	0
	Wastewater discharge without/with insufficient treatment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pollution of Surface, Ground and/or Bodies of water	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Others	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Add more rows if required	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Environment – *Natural Resources*	*Conserving mineral resources*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Protecting/ enhancing plant life	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

	Protecting/ enhancing species diversity	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Protecting/ enhancing forests	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Protecting/ enhancing other depletable natural resources	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Conserving energy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Replacing fossil fuels with renewable sources of energy	The project is a renewable power plant replacing the usage of fossil fuel.	No legal limit on construction of solar power project.	NA	No fossil fuel will be used during operation period which is positive impact for local environment.	NA	NA	NA	NA	Electricity supplied to the grid will be monitored during life time of the project. Therefore the fossil fuels that replaced by this project could be calculated.	Electricity generated by the project will be supplied to grid, replacing which would otherwise generated by fossil fuel power plants.	0
	Replacing ODS with non-ODS refrigerants	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Others	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Add more rows if required											

Note: If the score is: (a) zero or greater, the overall impact is neutral or positive and there is no net harm; and (b) less than zero, the overall impact is negative and there is net harm to Environment. Score is obtained after adding the individual scores in each of the rows in the last column of the above table.

Net Score:	**0**
Project Owner's Conclusion in PSF:	The Project Owner confirms that the Project Activity will not cause any net harm to the environment.

E.2. Social Safeguards

>>

Impact of Project Activity on		**Information on Impacts, Do-No-Harm Risk Assessment and Establishing Safeguards**									**Project Owner's Conclusion**	
		Description of Impact (*both positive and negative*)	**Legal requirement /Limit**	**Do-No-Harm Risk Assessment**			**Risk Mitigation Action Plans**		**Do-No-Harm Residual Risk Assessment**		**Self-Declaration**	
				Not Applicable *(No actions required)*	**Harmless** *(No actions required)*	**Harmful** *(Actions required)*	**Operational Controls**	**Program of Risk Management Actions**	**Re-evaluate Risks**	**Monitoring**	**Explanation of Conclusion**	**The Project Activity will not cause any harm**
Social impacts on the identified categories[19] indicated below.	*Indicators for social impacts*	*Describe the impacts on society and stakeholders, both positive and negative, that may result from constructing and operating of the Project Activity.*	*Describe the applicable national regulatory requirements / legal limits related to the identified risks of social impacts.*	*If no social impacts are anticipated, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as* ***Not Applicable*** *(No actions required)*	*If social impacts are anticipated, but are expected to be in compliance with applicable national regulatory requirements/ legal limits, then it the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as* ***Harmless*** *(No actions required)*	*If social impacts are anticipated that will not be in compliance with the applicable national regulatory requirements/ legal limits, then the Project Activity is likely to cause harm (may be unsafe) and shall be indicated as* ***Harmful*** *(Actions required).*	*Describe the operational controls and best practices, focusing on how to implement and operate the Project Activity, to reduce the risk of impacts that have been identified as* ***Harmful****.*	*Describe the Program of Risk Management Actions (refer to Table 3), focusing on additional actions (e.g., construction of crèche for workers) that will be adopted to reduce the risk of impacts that have been identified as* ***Harmful****.*	*Re-evaluate risks after Risk Mitigation Actions plans have been developed (refer to previous two columns) for impacts that have been identified as Harmful. Indicate whether the risks have been eliminated or reduced and, where appropriate, indicate them as* ***Harmless*** *(No actions required)*	*Describe the monitoring approach and the parameters to be monitored for each impact that has been identified as Harmful and to be described in the PSF (refer to Table 3).*	*Describe how the Project Owner has concluded that the Project Activity is likely to achieve the identified Risk Mitigation Action Plan targets for managing risks to levels that are unlikely to cause any harm.*	*Confirm that the Project Activity risks of negative social impacts are expected to be managed to levels that are unlikely to cause any harm (Mark +1 for* ***Yes*** *or and -1 for* ***No****)*
Social Safeguards												
Social – *Jobs*	*Long-term jobs (> 1 year) created/ lost*	According to FSR, 30 long-term jobs will be supplied to local people during operation period.	Salary and relevant welfare will be paid according to national regulations.	-	Long-term working position is benefit to society and no harm will be caused.	NA	NA	NA	NA	Staff number and roster can be monitored.	Roster and relevant evidence could prove the positive impact of the project.	0
	New short-term jobs (<	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[19] sourced from the CDM SD Tool and the sample reports are available (https://www4.unfccc.int/sites/sdcmicrosite/Pages/SD-Reports.aspx)

	1 year) created/ lost											
	Sources of income generation increased / reduced	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Social – *Health & Safety*	*Disease prevention*	*NA*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Reducing / increasing accidents	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Reducing / increasing crime	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Reducing / increasing food wastage	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Reducing / increasing indoor air pollution	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Efficiency of health services	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Sanitation and waste management	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Other health and safety issues	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Add more rows if required											
Social – *Education*	*Job related training imparted or not*	*Project owner provides relevant training courses for the staff before project start operation and during operation*	No legal requirements on training issue of such project. But for some special type of work (e.g. electricians)	-	The training courses will help staff familiar with their jobs and ensure safely operation of the project. No harm will be caused.	-	NA	NA	NA	Training records can be adopted as monitoring indicator.	Project owner confirms that by training the people on new technology it will upgrade their skills	0

		period. At least one major-relevant training course should be supplied to technical staff before operation started. Workers should pass the exam before they start working. During operation period, training and related examination should be held when new regulations/standards related to the job are issued	should get qualified certificate before they start working.								and creates positive impact.	
	Educational services improved or not	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Project-related knowledge disseminatio n effective or not	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Other educational issues	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Add more rows if required											
Social – *Welfare*	*Improving/ deteriorating working conditions*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Community and rural welfare	NA	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

	Poverty alleviation (more people above poverty level)	NA	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Improving / deteriorating wealth distribution/ generation of income and assets	NA	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Increased or / deteriorating municipal revenues	NA	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Women's empowerment	NA	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Reduced / increased traffic congestion	NA	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Other social welfare issues	NA	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Add more rows if required											

Note: If the score is: (a) zero or greater, the overall impact is neutral or positive and there is no net harm; and (b) less than zero, the overall impact is negative and there is net harm to society. Score is obtained after adding the individual scores in each of the rows in the last column of the above table.

Net Score:	0
Project Owner's Conclusion in PSF:	The Project Owner confirms that the Project Activity will not cause any net harm to society.

Section F. United Nations Sustainable Development Goals (SDG)

>>

UN-level SDGs	UN-level Target	Declared Country-level SDG	Defining Project-level SDGs					Project Owner(s)'s Conclusion	
			Project-level SDGs	**Project-level Targets/ Actions**	**Project-level Indicators**	**Contribution of Project-level Actions to SDG Targets**	**Monitoring**	**Explanation of Conclusion**	**Are Goal/ Targets Likely to be Achieved?**
Describe UN SDG targets and indicators *See: https://unstats.un.org/sdgs/indicators/indicators-list/*	*Describe the UN-level target(s) and correspo-nding indicator no(s)*	*Has the host country declared the SDG to be a national priority? Indicate Yes or No*	*Define project-level SDGs by suitably modifying and customizing UN/ Country-level SDGs to the project scope.* ***For guidance see:*** *Integrating the SDGs into Corporate Reporting- A Practical Guide: https://www.unglobalcompact.org/docs/publications/Practical_Guide_SDG_Reporting.pdf* *Case-study from Coca-Cola and other organizations to develop organization-wide SDGs (page 114): https://pub.iges.or.jp/pub/realising-transformative-potential-sdgs*	*Define project-level targets/actions, by suitably modifying and customizing UN/Country-level targets to the project scope. Define the target date by which the Project Activity is expected to achieve the project-level SDG target(s). Refer to the previous column for guidance*	*Define project-level indicators by suitably modifying and customizing UN/Country-level indicators to the project scope or creating a new indicator(s). Refer to the previous column for guidance*	*Describe and justify how actions taken under the Project Activity are likely to result in a direct positive effect that contributes to achieving the defined project-level SDG targets and is additional to what would have occurred in the absence of the Project Activity*	*Describe the monitoring approach and the monitoring parameters to be applied for each project-level SDG target and Indicator*	*Describe how the Project Owner has concluded that the project is likely to achieve the identified Project level SDGs target(s).*	*Describe whether the project-level SDG target(s) is likely to be achieved by the target date (Yes or No)*
Goal 1: End poverty in all its forms everywhere	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	NA	NA	NA	NA	NA	NA	NA	NA	NA

Goal 3. Ensure healthy lives and promote well-being for all at all ages	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 5. Achieve gender equality and empower all women and girls	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 6. Ensure availability and sustainable management of water and sanitation for all	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all	SDG target 7.2	Yes	The project generates electricity from the sustainable and renewable resource and contributes to increase renewable energy supply in Chinese power system. No fossil fuel will be used during operation period and no harmful pollutants will be produced by the operation. Project activity could promotes investment into the cleaner technology-based power generation projects. By installing advanced PV technology project owner also promotes upgraded cleaner technology solutions and infrastructure in the power generation sector in the host country. This will lead to a lower total cost for solar power generation project in the future, which will benefit for local people to access affordable green energy.	Project target to generate and supply clean energy using solar energy at project site for entire lifetime. Totally 407583.47MWh electricity is expected to be fed in to NWCPG. Such contribution started on 18/06/2016 when project started operation.	Enhance the share of installed Electricity generation capacity from renewable energy sources. Project generate and supply solar-based electricity for entire lifetime of the project activity into the Chinese power system.	The project increases the renewable energy share in Chinese energy system, especially in NWCPG which is domined by fossil power plants. It'll be easily for Chinese residents to achieve affordable clean energy, and increase the portion of renewable energy in Chinese grid system.	Project operation team will continuously monitor the quantity of net electricity generation supplied by the project during project life time.	Project has already commissioned to national grid and feeding the renewable power to the grid. Hence complied to the SDG. No 7.	Yes

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	SDG target 8.5	Yes	Amount of long-term positions are created by the project, which will benefit to people who are qualified for the positions. Training courses are offered to the operation team to help them familiar with their work before project started operation.	30 long-term jobs are created by the project. People started working for this project before operation and during operation period. Economic development can be achieved due to the project by creating opportunities to the other allied services and indirect employment.	30 workers are employed for maintenance of the project.	Jobs created by the project can increase the employment and accommodating more labour force. Staff are well trained about new technology on renewable energy. They will be well paid with salary and relevant welfare as per national regulations.	Number of workers employed by the project during operation.	People employed by the project are well trained before operation and well paid according national regulations..	Yes
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 10. Reduce inequality within and among countries	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 12. Ensure sustainable consumption and production patterns	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 13. Take urgent action to combat climate change and its impacts	SDG target 13.3	Yes	Every year, certain amount of clean energy generated by solar power will be supplied to the grid dominated by fossil power	Amount of electricity supplied to the grid.	Amount of GHG emission	GHG emissions can be reduced due to	Electricity generated by the project is	Clean electricity started to supply to the	Yes

			plants, which will reduce GHG emissions.		reduction every year.	construction of this project	monitored by meters of the project.	Grid since operation started in 2016.	
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development									
SUMMARY						**Targeted**		**Likely to be Achieved**	

Total Number of SDGs	**3**	**3**
Certification label (Bronze, Silver, Gold, Platinum, or Diamond) for the ACCs as defined in the PSF	**Silver**	**Silver**

Section G. Local stakeholder consultation

G.1. Modalities for local stakeholder consultation

>>

Local stakeholder consultation (LSC) was conducted to collect comments from local people. A poster was posted at project site to inform local people about this consultation after the project was approved by local authority. Anyone around the project site is welcomed to give their comments.

LSC was initiated on 15/04/2014 around project site by distributing questionnaires. Questionnaires were supplied to nearest residents around project site, local administrative, and staff or the project.

Questionnaire was designed by the project owner aiming to collect the comments that stakeholders may concern the most. The questionnaire including:

1) what is you occupation?
2) Do you know the project?
3) Do you think the project will cause pollution on water, air, noise or soil erosion?
4) Do you think the project will affect local vegetation and animals?
5) Do you think the project will bring long term jobs to local people?
6) Do you believe the project will be positive or negative to local economy?
7) If you have further comments, please write in the blank.

G.2. Summary of comments received

>>

As the project is far from residential area, totally 18 copies were received, 3 of which are workers of the project while the others are local villagers. All responders know about the project. About the impact on local environment, 18 responders believe it's not harmful. About the impact on local vegetation and animals, 14 responders believe it's positive while 4 believe that no impact will be caused. About the employment, 13 responders believe it's positive and the project will bring job opportunities to local area while 5 think there's no impact on local employment market. About the economic, 18 responders believe it's positive.

No negative comment received. Summary of the questionnaires are as below:

questions	Positive	Negative	Neutral
what is you occupation?	3 responders are construction workers nearby, while 15 responders are local villagers.		
Do you know the project?	18	0	0
Do you think the project will cause	18	0	0

pollution on water, air, noise or soil erosion?			
Do you think the project will affect local vegetation and animals?	14	0	4
Do you think the project will bring long term jobs to local people?	13	0	5
Do you believe the project will be positive or negative to local economy?	18	0	0
If you have further comments, please write in the blank.	No comments received.		

G.3. Consideration of comments received

>>

No further comments received.

Section H. Approval and authorization

>>

As per the guideline available in this regard, submission of Host Country Attestation (HCA) on Double Counting as and when required by CORSIA.

Appendix 1. Contact information of project owners

Organization name	**Gansu ruicarbon Technology Consulting Co., Ltd**
Country	P.R.China
Address	Room 201, floor2, building 3, No. 414, PingliangRoad, Chengguan District, Lanzhou City, GansuProvince, China
Telephone	+8618993133496
Fax	-
E-mail	gansuruicarbon@163.com
Website	-
Contact person	YatingJin

Appendix 2. Affirmation regarding public funding

>>
No public funding for the proposed project.

Appendix 3. Applicability of methodology(ies)

>>
Please refer to section b.2.

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

>>
Please refer to section B.6 and no further information is required.

Appendix 5. Further background information on monitoring plan

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Please refer to section B.7 and no further information is required.

Appendix 6. Summary report of comments received from local stakeholders

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Please refer to section G.2 and no further information is required.

Appendix 7. Summary of de-registered CDM project (Type B)

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NA

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