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	**Alxa League Jilantai 30MW Solar Power Project**
PSF version number	01
Date of completion of this form	21/04/2022
Project Owner(s) (Shall be consistent with De-registered CDM Type B Projects)	Prestige Investment Management (Shanghai) Co. Ltd.
Country where the Project Activity is located	P.R. China
GPS coordinates of the project site(s)	39°38'53''N~39°39'30''N, 105°40'25''E~105°41'35''E (39.64806N~39.65833N, 105.67361E~105.69306E)
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

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

	☒ Local Stakeholder Consultation Process ☒ Global Stakeholder Consultation Process ☒ No GHG Double Counting ☒ Contributes to United Nations Sustainable Development Goal 13 (Climate Action)
Choose optional and additional requirements (Tick applicable label categories)	☒ 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)
Applied methodologies (Shall be approved by the GCC or the CDM)	ACM0002: "Grid-connected electricity generation from renewable sources" (Version 20.0);
GHG Sectoral scope(s) linked to the applied methodology(ies)	GHG-SS#1: Energy industries (renewable - / non-renewable sources)

Applicable Rules and Requirements for Project Owners

(Tick applicable Rules and Requirements)

Rules and Requirements		Reference	Version
☒ ISO 14064-2			
☒ Applicable host country legal requirements /rules			
☒ GCC Rules and Requirements[2]	☒ Project Standard		V3.1
	☐ Approved GCC Methodology (XXXXX)		
	☒ Program Definitions		V3.1
	☒ Environment and Social Safeguards Standard		V2
	☒ Project Sustainability Standard		V2.1
	☒ Instructions in Project Submission Form (PSF)-template		V3.2
	☐ Add rows if required		
☒ CDM Rules[3]	☒ Approved CDM Methodology	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 02	
	☒ Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation	TOOL 05	V3.0
	☒ Tool to calculate the emission factor for an electricity system	TOOL 07	V7.0
	☐ Demonstration of additionality of microscale	TOOL 19	

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

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

		project activities		
		☐ Demonstration of additionality of small-scale project activities	TOOL 21	
		☐ Additionality of first-of-its-kind project activities	TOOL 23	
		☒ Common practice	TOOL 24	V03.1
		☒ Investment analysis	TOOL 27	V11.0
		☐ Positive lists of technologies	TOOL 32	
		☐ Guidelines for objective demonstration and assessment of barriers		

Choose Third Party External Project Verification by approved GCC Verifiers[4] (Tick applicable verification categories)	☒ GHG emission reductions (i.e., Approved Carbon Credits **(ACCs)**) ☒ Environmental No-net-harm Label (**E+**) ☒ Social No-net-harm Label (**S+**) ☒ 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

[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.

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 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

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

	☒ 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)	On behalf of **Prestige Investment Management (Shanghai) Co, Ltd.** Xiaolian Wang, Project Manager 王晓莲 **21/04/2022**

1. PROJECT SUBMISSION FORM

Section A. Description of the Project Activity

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

>>
Alxa League Jilantai 30MW Solar Power Project (hereafter referred to as "the project") is a solar PV power project with installed capacity of 30MWp, which locates in Jilantai Town, Alxa Left Banner, Inner Mongolia Autonomous Region, P.R. China. The project is invested and operated by Alxa Left Banner Guodian Photovoltaic Power Co., Ltd.

The purpose of the project is to utilize the solar energy at the project site to generate and supply electricity to North China Power Grid (NCPG).

The spatial extent of the project boundary includes the project power plants and all power plants connected physically to the NCPG that the project is connected to.

Prior to the implementation of the project, the electricity delivered to the grid by the project activity would be generated by the operation of grid-connected power plants and by the addition of new generation sources into the NCPG.

The project is a renewable energy project and is expected to supply an annual average of 44,573 MWh renewable energy to NCPG during 25 years' lifetime, which will replace power generation of those fossil fuel-fired power plants delivered to the NCPG under the baseline scenario. The project is expected to achieve a green-house gas emission reduction of 39,340 tCO_2e annually. The total emission reductions during the fixed 10-year crediting period will be 393,403 tCO_2e.

The project will create multiple sustainable benefits, including:

- SDG 7.2 Increase substantially the share of renewable energy in the global energy mix. Adopt a clean and environmentally sound technology for energy supply.
- SDG 8.5 Creates direct and indirect employment opportunities during construction and operation phases.
- SDG 13.3 Reduce GHG emission, which helps to mitigate the global climate change impacts.

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**
Jilantai Town, Alxa Left	39°38'53''N~39°39'30''N,	105°40'25''E~105°41'35''E (105.67361E~105.69306E)

Banner, Inner Mongolia Autonomous Region, P.R. China	(39.64806N~39.65833N)	

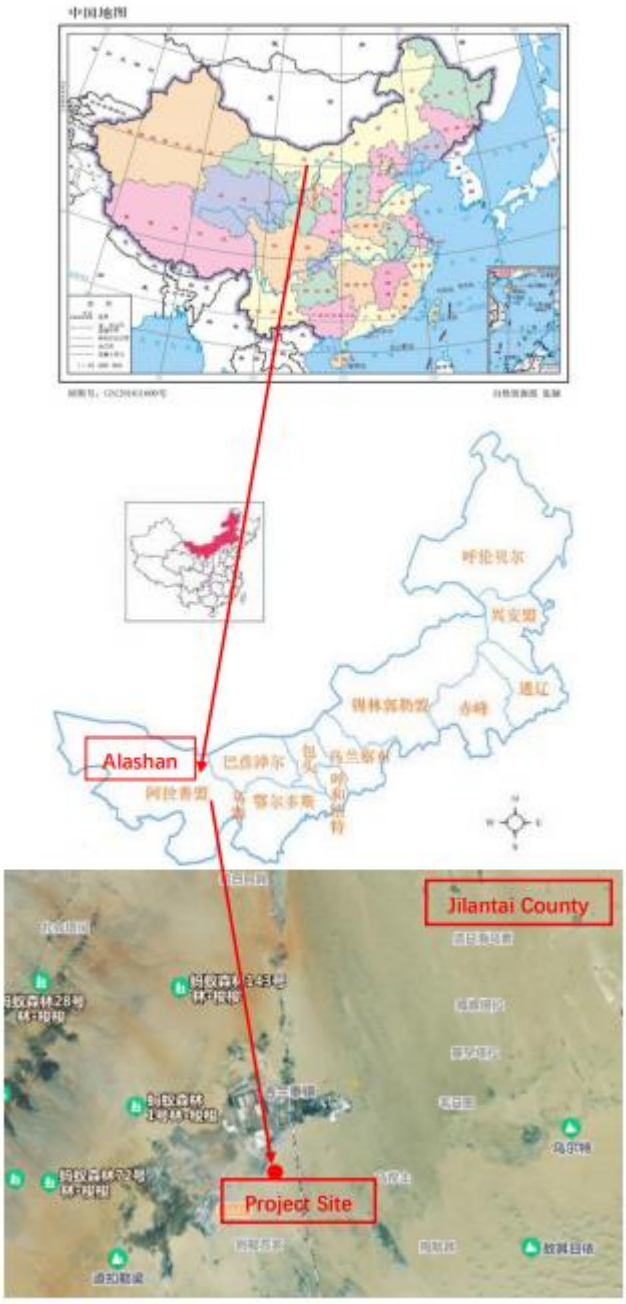

Figure 1 Location of the project

A.3. Technologies/measures

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

The project involves installation and operation of 30 PV power generation arrays with a total capacity of 30.04278 MW, each array unit with a capacity of 1MWp consists of 2 inverters, 2 DC distribution cabinets, and 13 combiner boxes. The project adopts the use of 500kW box inverter. Electricity generated is transmitted to the onsite Jilantai 110kV substation through 35kV power line. The electricity meters (main meter M1 and backup meter M2) are installed at the inlet of the main transformer, which is on the 35kV Aiji line, to monitor electricity supplied to NCPG and electricity imported from NCPG.

The project is expected to supply an annual average of 44,573 MWh renewable energy to NCPG during 25 years' lifetime. The expected lifetime of the project is 25 years and the plant load factor of the project during the 25 years' lifetime is 16.96%. The total attenuation ratio of the solar PV module will be lower than 20% by the end of lifetime.

The technical parameters of the project equipment installed is shown in table 1 below:

Table 1 Technical parameters of Project equipment

Item		Unit	Project
Solar PV module	Mode	-	STP275S-20/Wew STP270S-20/Wew
	Rated Capacity	Wp	275 270
	Lifetime	Year	25
	Quantity	-	91,055 (275W) 18,545 (270W)
Total installed capacity		MW	30.04728
Inverter	Mode	-	SG500MX
	Rated Capacity	kW	500kW
	Lifetime	Year	25
	Quantity	-	60

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	Prestige Investment Management (Shanghai) Co.	No

[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).

	Ltd.	

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:

Period		Name of the Entities	Purpose and Quantity of ACCs to be supplied
From	To		
02/03/2016	01/03/2026	To be confirmed during issuance time	To be confirmed during issuance time

ACCs from the project activity will be used to create additional revenue stream for the investment and for reducing the project financial risks and thus enabling the sustainability of the project. No double counting will occur in the scope of this project since GCC is the only program applied.

A.6. Additional requirements for CORSIA

>>
Please see section E and F.

Section B. Application of selected methodology(ies)

B.1. Reference to methodology(ies)

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Applied approved CDM methodology: ACM002 - 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-05-v3.0 Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation.

am-tool-07-v7.0 Tool to calculate the emission factor for an electricity system.

am-tool-24-v03.1 Common practice.

am-tool-27-v11.0 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 applicability of the applied methodology ACM002 (Version 20.0) is justified below:

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 newly built solar power generation project. It includes activities that install a Greenfield power plant.
2	The methodology is applicable under the following conditions: (a) 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; (b) 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,	Applicable. The project is a newly built solar power generation project, and the project does not include capacity additions, retrofits, rehabilitations or replacements.

	retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	
3	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 (c) 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.	Irrelevant. The project does not include hydro power plants.
4	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	Irrelevant. The project does not include integrated hydro power projects.

	CDM project activity.	
5	The methodology is not applicable to: (a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants/units.	Applicable. The project is a newly built solar power generation project and does not involve switching from fossil fuels to renewable energy sources at the site of the project activity. And the project does not include biomass fired power plants/units.
6	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".	Irrelevant. The project is a newly built solar power generation project, and does not include retrofits, rehabilitations, replacements, or capacity additions.

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.	Applicable. The methodology selected for the proposed project requires the use of this tool.
	Once the additionally tool is included in an approved methodology, its application by project participants using this methodology is mandatory.	Applicable The methodology applied in this proposed 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 This project replaces grid power supply and uses this tool to calculate the values of OM, BM and CM of this project.
	Under this tool, the emission factor for the project electricity system can be calculated	Applicable

	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 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.	The emission factor for this project electricity system was calculated for grid power plants.
	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. Under this tool, the value applied to the CO_2 emission factor of biofuels is zero	Irrelevant. There is no part of the power system of this project is located in an Annex I country. And the project does not involve biofuels.
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 applies 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	Applicable This project applies the methodological tool "Tool for

	"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.	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.
Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation (Version 3.0)	If emissions are calculated for electricity consumption, the tool is only applicable if one out of the following three scenarios applies to the sources of electricity consumption: (a) Scenario A: Electricity consumption from the grid. The electricity is purchased from the grid only, and either no captive power plant(s) is/are installed at the site of electricity consumption or, if any captive power plant exists on site, it is either not operating or it is not physically able to provide electricity to the electricity consumer; (b) Scenario B: Electricity consumption from (an) off-grid fossil fuel fired captive power plant(s). One or more fossil fuel fired captive power plants are installed at the site of the electricity consumer and supply the consumer with electricity. The captive power plant(s) is/are not connected to the electricity grid; or (c) Scenario C: Electricity consumption from the grid and (a) fossil fuel fired captive power plant(s). One or more fossil fuel fired captive power plants operate at the site of the electricity consumer. The captive power plant(s) can provide electricity to the electricity consumer. The captive power plant(s) is/are also connected to the electricity grid. Hence, the electricity consumer can be provided with electricity from the captive power plant(s) and the grid.	Irrelevant This tool is used to monitor the amount of generated electricity.
	This tool can be referred to in methodologies to provide procedures to monitor amount of electricity generated in the project scenario, only if one out of the following three project scenarios applies to the recipient of the electricity generated:	Applicable This project belongs to scenario I. The electricity generated in the project scenarios is supplied to the grid.

	(a) Scenario I: Electricity is supplied to the grid; (b) Scenario II: Electricity is supplied to consumers/electricity consuming facilities; or (c) Scenario III: Electricity is supplied to the grid and consumers/electricity consuming facilities.	
	This tool is not applicable in cases where captive renewable power generation technologies are installed to provide electricity in the project activity, in the baseline scenario or to sources of leakage. The tool only accounts for CO_2 emissions.	Applicable. There are no captive renewable power generation technologies are installed to provide electricity in the project activity.

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

>>

For the project, the spatial extent of the project boundary includes the proposed project and all power plants connected physically to the NCPG that the proposed project is connected to. According to ACM0002 (version 20.0), the Greenhouse Gases ("GHG") and emission sources included in or excluded from the project boundary are shown in the following table.

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	Yes	The major source of emissions in the baseline
		CH_4	No	Excluded for simplification. This emission source is assumed to be very small
		N_2O	No	Excluded for simplification. This emission source is assumed to be very small
Project	The project activity	CO_2	No	As per ACM0002 (version 20.0), the operation of solar power project will not result in significant greenhouse gas emissions, so the project emissions can be ignored.
		CH_4	No	
		N_2O	No	

The project boundary is shown in the following flow diagram:

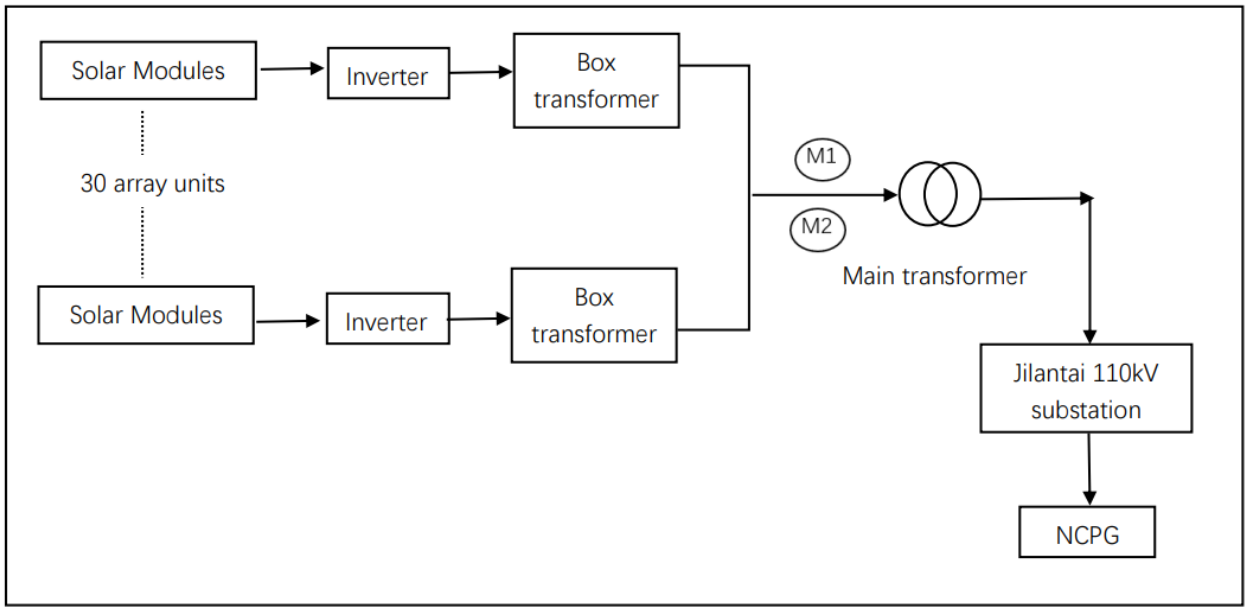

Figure 2 Project boundary of the project

B.4. Establishment and description of the baseline scenario

>>
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 connected to NCPG. As per the latest version of China Electric Power Yearbook, NCPG is still dominated by fossil fuels fired power plant. Despite the gradual increase in renewable energy sources in power sector, NCPG is still a CO_2-intensive power grid.

According to the methodology ACM0002 (version 20.0), as the project is an installation of a Greenfield solar power plant, the baseline scenario of the Project is the following: Electricity delivered to NCPG 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 into NCPG.

B.5. Demonstration of additionality

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As per GCC Project Standard, the GCC applies the following approach for demonstrating additionality, consisting of two components:

(a) A Legal Requirement Test; and

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

The proposed 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.

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

Define realistic and credible alternatives to the project activity(s) through the following Sub-steps.

Sub-step 1a: Define alternatives to the project activity

Alternatives available to the project participant or similar project developers that provide outputs or services comparable with the project activity are identified below:

Alternative (a) The proposed project activity undertaken without being registered as a GCC project activity.

Alternative (b) Continuation of the current situation (no project activity or other alternatives undertaken).

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

Both alternatives (a) and (b) are realistic and credible alternatives to the project which are consistent with mandatory laws and regulations.

Step 2: Investment analysis

Investment analysis is conducted by applying CDM tool am-tool-27-v11.0 Investment analysis.

Sub-step 2a: Determine appropriate analysis method

The project activity generates benefits from sales of electricity, therefore the simple cost analysis (Option I) is not applicable. Since the Project is a grid-connected solar power project, and the

baseline scenario is the provision of equivalent amount of annual electricity by the NCPG, benchmark analysis (Option III) is selected for the Project.

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

According to the "Economical assessment and parameters for construction project, 3rd edition", joint published by National Development and Reform Commission and Ministry of Housing and Urban-Rural Development of China, a project will be financially acceptable when the project Internal Return Rate (project IRR) is higher than the sectoral benchmark IRR.

According to "Interim Rules on Economic Assessment Electrical Engineering Retrofit Projects", for greenfield or retrofit projects in Chinese electric power industry, the financial benchmark is 8% for project IRR (after tax) or 10% for equity IRR (after tax). Since the FSR applies post tax project IRR, the benchmark of 8% is chosen for the project. Based on above benchmark, calculation and comparison of financial indicators are carried out in sub-step 2c.

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

Basic parameters for calculation of financial indicators of the Project are shown in Table 2.

Parameter	Unit	Value
Installed capacity	MW	30
Annual electricity supply (lifetime average)	MWh	44,573
Construction Period	Year	1
Operation period	Year	25
Static investment	10^4 CNY	33,270
Working Capital	10^4 CNY	90
Equity/Loan	-	40%:60%
Tariff	CNY/MWh	900 (year 2-21) 293.7(year 22-26)
VAT rate	%	17%
Income tax rate	%	0% (year 1-3) 12.5% (year 4-6) 25% (year 7-25)
City maintenance and construction tax rate (of VAT)	%	5%
Education tax (of VAT)	%	5%
Depreciation period	Year	20
Annual Depreciation rate	%	4.75%
Residual value ratio (of fixed asset)	%	5%

Long-term loan interest	%	5.15%
Short-term loan interest	%	4.60%
Annual O&M cost (lifetime average)	10^4 CNY	638.11
Maintenance fee rate (of fixed asset)	%	1%
Insurance fee rate (of fixed asset)	%	0.30%
Material fee	CNY/kW	25
Other fees	CNY/kW	30
Staff	Person	8
Average annual salary	CNY/P	65,000
Rate of employee welfare (of annual salary)	%	50%

The input values of all financial analysis are derived from Feasibility Study Report (FSR) for the project. The FSR was completed by qualified third party, Inner Mongolia Green Energy New Energy Co., Ltd, as per Chinese energy industry standards Preparation regulation for cost estimation of photovoltaic power projects (NB/T 32027) and Ration for cost estimation of photovoltaic power projects (NB/T 32035). Inner Mongolia Green Energy New Energy Co., Ltd. has the highest rank of design certificate for power sector, issued by Development and Reform Commission of Inner Mongolia Autonomous Region. The FSR was completed on 01/09/2015, which was also the date of the investment decision taken by the project participant. The input values used in all investment analysis is valid and applicable at the time of the investment decision taken by the project participant.

Based on the data above, without the revenue from carbon credit sales, the project IRR is 6.40%, which is lower than the benchmark (8%). The Project is not financially attractive.

Sub-step 2d: Sensitivity analysis

As per CDM tool am-tool-27-v11.0 Investment analysis, variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation. For the Project, the following financial parameters were taken as uncertain factors for sensitive analysis of financial attractiveness:

- Total static investment
- Annual OM cost
- Annual electricity supply
- Tariff

The variation range of -10%~10% which was employed in the approved FSR and prevailing in China was used. The results of sensitivity analysis of the four parameters of the proposed project are shown in the following table and figure:

Table 3 Sensitivity analysis (without carbon credit revenues)

Item	Project				
	-10%	-5%	0	5%	10%
Total static investment	7.81%	7.07%	6.40%	5.78%	5.22%
Annual electricity supply	4.99%	5.70%	6.40%	7.09%	7.77%
Annual OM cost	6.66%	6.53%	6.40%	6.27%	6.13%
Tariff	4.99%	5.70%	6.40%	7.09%	7.77%

In conclusion, the investment analysis and sensitivity analysis show that the project undertaken without carbon credit revenue is not financially attractive and the ACC revenue will improve the financial indicators of the Project.

Step 3: Barrier analysis

The proposed project does not employ the barrier analysis.

Step 4: Common practice analysis

Common practice analysis is carried out as per CDM tool am-tool-24-v03.1 Common practice based on the total installed capacity of 30MW for the project activity.

Sub-step 4a: The proposed project activity(ies) applies measure(s) that are listed in the definitions section above

The project is a renewable solar power project, which adopts type (ii) measure listed in the Methodological tool: Tool for the demonstration and assessment of additionality. As per additionality tool, am-tool-24-v03.1 Common practice is applied as below:

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

Since the installed capacity of the project is 30MW, therefore the applicable capacity range is 15 MW to 45 MW.

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

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

Considering the vast territory of China and the geographical differences (e.g., access to natural resources, climate, terrain) as well as social-economic differences (e.g., regulatory framework, infrastructure, economic development levels, economic structure, access to technology, access to financing, tariff levels) between the provinces, the applicable geographical area is defined as Inner Mongolia Autonomous Region.

According to National Standard "Solar Resource Measurement - Global Radiation" (GB/T 31156)[7], solar energy resources vary greatly at different latitudes, especially in countries with large latitudes such as China. China is divided into three solar energy resource regions. Class I has the best solar energy resources, while Class III has the least solar energy resources. Therefore, solar energy resources shall be the key elements for determination of applicable geographical area.

According to the applicable tariff policy[8] by National Development and Reform Commission, Tariff for solar power project is established by different solar energy resources regions. Tariff for solar power project consists of Renewable Energy Subsidy and Benchmark tariff for desulfurization coal-fired power plants. Benchmark tariff for desulfurization coal-fired power plants varies in different provinces across China[9]. Therefore, the applicable geographical area shall be limited to Inner Mongolia Autonomous Region.

Furthermore, the administrative division of China is based on the provincial level. Regulatory framework and infrastructure vary among provinces. Also, the level of economic development is quite different among provinces across China as demonstrated in China Statistical Yearbook[10], as well as the economic structure and access to financing.

Based on the analysis above, the applicable geographical area for common practice analysis for the proposed project is defined as Inner Mongolia Autonomous Region.

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

The project adopts type (ii) measure, therefore only type (ii) measure is included.

(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;

The project is a solar PV power project, therefore only solar PV power projects are included.

(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;

The project is a solar PV power project, which supply electricity to NCPG, therefore only grid-connected solar PV power projects are included.

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

Projects with installed capacity within the range of 15 MW to 45 MW are included.

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

Projects started commercial operation before the start date of the project are included. As per Clarification No. 1 issued by GCC, the start date in common practice analysis shall be as per CDM definition. The EPC contract of Project A was signed on 01/10/2015, which is the earliest date on which the project participant's expenditures incurred for the construction of both project A and project B. Therefore, the start date of the project applied in the common practice analysis as defined in the am-tool-24-v03.1 is 01/10/2015.

[7] http://www.jianbiaoku.com/webarbs/book/122513/3712330.shtml
[8] https://www.ndrc.gov.cn/xxgk/zcfb/tz/201512/t20151224_963536.html
[9] https://www.ndrc.gov.cn/xxgk/zcfb/tz/201504/t20150417_963801.html?code=&state=123
[10] http://www.stats.gov.cn/tjsj/ndsj/2020/indexeh.htm

In conclusion, grid-connected solar PV power projects started operation before 01/10/2015 with installed capacity between 15 MW to 45 MW in Inner Mongolia Autonomous Region are selected for common practice analysis.

According to publicly available information, all similar projects which fulfil all of the conditions above are listed below:

No.	Project title	Installed capacity (MW)	GHG program	Reference Number
1	Inner Mongolia Chayouhouqi Hongmu Phase I 20MWp Solar Power Project	20	CDM	9955
2	CGN Damao Bailingmiao Photovoltaic Farm 20MWp Phase I Project	20	CDM	8721
3	SEC Northern Energy Holding Co., Ltd. Xilinguole Xianghuangqi 20MWp Solar PV Power Generation Project	20	CDM	9817
4	Inner Mongolia Alashanzuoqi Bayanhaote 20MWp Solar Power Project	20	CDM	7960
5	Inner Mongolia Alashan 20 MWp Solar Power Project	20	CDM	8098
6	Beijing Jingneng New Energy Co., Ltd. Sunite Youqi Saihan Wind Farm Wind Power and Solar Power Integration 20MWp Solar Power Generation Project	20	CCER	695
7	Guodian Power Inner Mongolia New Energy Development Co., Ltd. Tuyouqi 20MWp Solar PV Power Generation Project	20	CCER	677
8	Guodian Power Inner Mongolia New Energy Development Co., Ltd. Azuoqi Barun Bieli 40MWp PV Power Generation Project	40	CCER	617
9	Inner Mongolia Dayouguang Energy Co., Ltd. 30 MW PV large-scale grid-connected Power Generation Project	30	CCER	132
10	20 MW Facility Agricultural Photovoltaic Power Generation Project in Dengkou County, Bayannaoer	20	CCER	667
11	20 MW Photovoltaic Power Generation Project in Wuhai Economic Development Zone Low Carbon Industrial Park	20	CCER	668
12	Guohua Bayannaoer City Wulate Zhongqi 20 MW Wind and Solar PV power	20	CCER	670

	generation project			
13	Beijing Jingneng New Energy Co., Ltd. Xilin Gol League Xianghuangqi Wengongwula 20 MW Wind and Solar Photovoltaic Power Generation Project	20	CCER	207

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

As per the project list identified above, all grid-connected solar PV power projects started operation before 01/10/2015 with installed capacity between 15MW to 45MW in Inner Mongolia Autonomous Region have been registered under CDM/CCER and other GHG program, therefore N_{all}=0.

Sub-Step 4a-4: within similar projects identified in Sub-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, N_{diff}=0.

Sub-Step 4a-5: calculate factor $F=1-N_{diff}/N_{all}$ 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.

Since both N_{all} and N_{diff} equal to 0, N_{all} -N_{diff}=0. As per am-tool-24-v03.1 Common practice, the project is not the common practice in Inner Mongolia Autonomous Region.

In conclusion, the project activity is not financially feasible and not a common practice, therefore the project is additional.

B.6. Estimation of emission reductions

B.6.1. Explanation of methodological choices

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Baseline emissions

The GHG emission reduction calculation of the project was based on the applied methodology ACM0002 (version 20.0).

Baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

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

Where:

BE_y = Baseline emissions in year *y* (t CO_2)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the GCC project activity in project year y (MWh)

$EF_{grid,CM,y}$ = CO_2 emission factor for grid connected power generation in year y (tCO_2/MWh)

The project is a Greenfield solar power plant, then:

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

Where:

$EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr).

Following ACM0002 (version 20.0), the baseline emission factor *(EF_y)* is calculated as a combined margin emission factor of NCPG ($EF_{grid,CM,y}$), consisting of the combination of operating margin emission factor of NCPG ($EF_{grid,OM,y}$) and build margin emission factor of NCPG ($EF_{grid,BM,y}$) according to the following six steps defined in the "Tool to calculate the emission factor for an electricity system" (version 7.0). Data for the calculations are based on official national statistics books: China Energy Statistical Yearbook and China Electric Power Yearbook.

According to the latest version of the "Tool to calculate the emission factor for an electricity system", $EF_{grid,CM,y}$ is calculated by following six steps:

- **Step 1:** Identify the relevant electricity systems;
- **Step 2:** Choose whether to include off-grid power plants in the project electricity system (optional);
- **Step 3:** Select a method to determine the operating margin (OM);
- **Step 4:** Calculate the operating margin emission factor according to the selected method;
- **Step 5:** Calculate the build margin (BM) emission factor;
- **Step 6:** Calculate the combined margin (CM) emission factor.

As China DNA has published the calculation method for emission factor of grid, the published data and method have been applied for this project to calculate operating margin (OM) and build margin, as following steps:

Step 1: Identify the relevant electricity systems;

This project site is in Inner Mongolia Autonomous Region of China, which belongs to North China Power Grid (NCPG) according to the public delineation of DNA[11], so NCPG is identified as the relevant electric system.

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

For this project, Option I (only grid power plants are included in the calculation) is chosen.

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

Calculation of Operating Margin should be based on one of the four following methods according to the tool:

(a) Simple OM, or

(b) Simple adjusted OM, or

(c) Dispatch Data Analysis OM, or

(d) Average OM.

As the low-cost / must-run resources constituted less than 50% of total electricity generation of NCPG in recent five years (respectively 10.10%, 8.94%, 7.21%,6.39% and 5.92% in 2017, 2016, 2015, 2014 and 2013)[12], the Simple OM (a) method is selected, and the following data vintage is chosen to calculate the emission factor:

Ex ante option: use a 3-year generation-weighted average, based on the most recent data available, without requirement to monitor and recalculate the emissions factor during the crediting period. And according to the tool, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required.

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

The Simple OM emission factor ($EF_{OM,y}$) is calculated as the generation-weighted average emissions per electricity unit (tCO_2e/MWh) of all generating sources serving in the system, excluding low-operating cost and must-run power plants. It may be calculated:

Option A: Based on the net electricity generation and a CO_2 emission factor of each power plant / 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:

[11] http://cdm.ccchina.org.cn/zyDetail.aspx?newsId=46143&TId=161

[12] China Electric Power Yearbook (2014, 2015, 2016, 2017, 2018)

(a) The necessary data for Option A is not available; and

(b) 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; and

(c) Off-grid power plants are not included in the calculation.

In this project, all of the above conditions can be met, so Option B was chosen.

Under this option, 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 type(s) and total fuel consumption of the project electricity system, as follows:

$$EF_{grid,OMsimple,y} = \frac{\sum_i (FC_{i,y} \cdot NCV_{i,y} \cdot EF_{CO_2,i,y})}{EG_y} \quad (3)$$

Where:

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

$FC_{i,y}$ = Amount of fuel type *i* consumed in the project electricity system 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* (t CO_2/GJ)

EG_y = Net electricity generated and delivered to the grid 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 the project electricity system in year *y*

y = The relevant year as per the data vintage chosen in **Step 3**.

Based on the most recent three years (2015-2017) where the data are the latest and available at the time of this PSF submission, the calculation result of $EF_{grid,OM,,y}$ is 0.9419 tCO_2e/MWh. The data is published by Ministry of Ecology and Environment of the People's Republic of China[13].

Step 5: Calculate the build margin (BM) emission factor;

As per Section 6.5 of TOOL07 (version 07.0), in terms of vintage of data, project participants can choose between one of the following two options:

(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

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

CDM-PDD submission to the DOE 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 DOE. 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.

In line with China's Baseline emission factors of regional grids 2019 (BEF_{2019}) published by the Ministry of Ecology and Environment of the People's Republic of China, Option 1 is chosen for the project; the BM emission factor is calculated ex ante based on the most recent information available on units already built for sample group *m* at the time of this project description submission.

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

(b) Determine the annual electricity generation of the proposed 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) ($SET \geq 20\%$) and determine their annual electricity generation ($AEG_{SET \geq 20\%}$, in MWh);

(c) From $SET_{5\text{-}units}$ and $SET \geq 20\%$ 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 Steps (d), (e) and (f).

Otherwise:

(d) Exclude from SET_{sample} the power units which started to supply electricity to the grid more than 10 years ago. Include in that set the power units registered as CDM project activities, starting with power units that started to supply electricity to the grid most recently, until the electricity generation of the new set comprises 20% of the annual electricity generation of the proposed project electricity system (if 20% falls on part of the generation of a unit, the generation of that unit is fully included in the calculation) to the extent is possible. Determine for the resulting set ($SET_{sample\text{-}CDM}$) the annual electricity generation ($AEG_{SET\text{-}sample\text{-}CDM}$, in MWh); If the annual electricity generation of that set

comprises at least 20% of the annual electricity generation of the proposed project electricity system (i.e. $AEG_{SET\text{-}sample\text{-}CDM} \geq 0.2 \times AEG_{total}$), then use the sample group $SET_{sample\text{-}CDM}$ to calculate the build margin. Ignore steps (e) and (f).

Otherwise:

(e) Include in the sample group $SET_{sample\text{-}CDM}$ the power units that started to supply electricity to the grid more than 10 years ago until the electricity generation of the new set comprises 20% of the annual electricity generation of the proposed project electricity system (if 20% falls on part of the generation of a unit, the generation of that unit is fully included in the calculation);

(f) The sample group of power units m used to calculate the build margin is the resulting set ($SET_{sample\text{-}CDM\text{->}10yrs}$).

The BM 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 electricity generation data is available, calculated as follows:

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

where:

$EF_{grid,BM,y}$ = Build margin emission factor of NCPG (tCO_2/MWh)

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

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

m = Power units included in the build margin

y = The most recent year for which the generation data is available

As it is difficult to obtain the detailed data on the power generation, fuel consumption and thermal efficiency of each newly built power unit from public documents, a deviation of TOOL07 (07.0) is adopted following the clarifications[14] given by the CDM EB concerning the BM emission factor calculation:

(1) The CDM EB suggested using the efficiency level of the best technology commercially available in the provincial/regional or national grid of China, as a conservative proxy, for each fuel type in estimating the fuel consumption to estimate the build margin.

(2) The EB agreed the use of capacity additions during last 1 ~ 3 years for estimating the build margin emission factor for grid electricity.

[14] "Request for clarification on use of approved methodology AM0005 for several projects in China", the EB's guidance on DNV deviation request. http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_QEJWJEF3CFBP1OZAK6V5YXPQKK7WYJ

(3) The EB also agreed to use of weights estimated using installed capacity in place of annual electricity generation.

The newly built power plants in the past few years are bundled into "grouped new power plant" according to their construction year, their province and their fuel type. The annual net electricity generation in the year *y* of each "grouped new power plant" $EG_{m,y}$ is estimated according to their total capacity and the average utilization hours, as the following equation:

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

where:

$EG_{m,y}$ = Annual net electricity generation the unit *m* in year *y* (MWh)

CAP_m = Installed capacity of the unit *m* (MW)

$H_{m,y}$ = Utilization hour of the unit m in the year *y* (h), determined according to the average utilization hour of the same type of unit in the same province

y = The most recent year for which the generation data is available. For the calculation of BM in 2019, *y* = 2017

m = grouped new power plant

Since the newly built power plants in the same province (A), in the same year (t) and using the same fuel type (k) are grouped into "a grouped new power plant", CAP_m represents the total installed capacity of fuel type k power plants located in the provinces A and in the year t:

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

where:

CAP_m = Installed capacity of the unit *m* (MW), with *m* representing the specified combination of A, t, and k

$CAP_{A,t,k}$ = Total installed capacity of fuel type *k* power plants located in the province *A* and in the year *t*

A = Provinces covered by the NCPG, namely, Beijing City, Tianjin City, Hebei Province, Shanxi Province, Shandong Province, Inner Mongolia Autonomous Region.

t = Years related to the grouped new power plants, for the 2019 calculation, *t* represents 2017, 2016, 2015…. Until the aggregated electricity generation of the grouped new power plants reaches 20% of the total electricity generation of the NCPG.

k = Fuel type of the grouped new power plants, including hydro, thermal (coal, gas, oil,

waste incineration, other thermal), nuclear, wind, solar and others.

Figure 3 shows the procedure to determine the sample group of power units *m*.

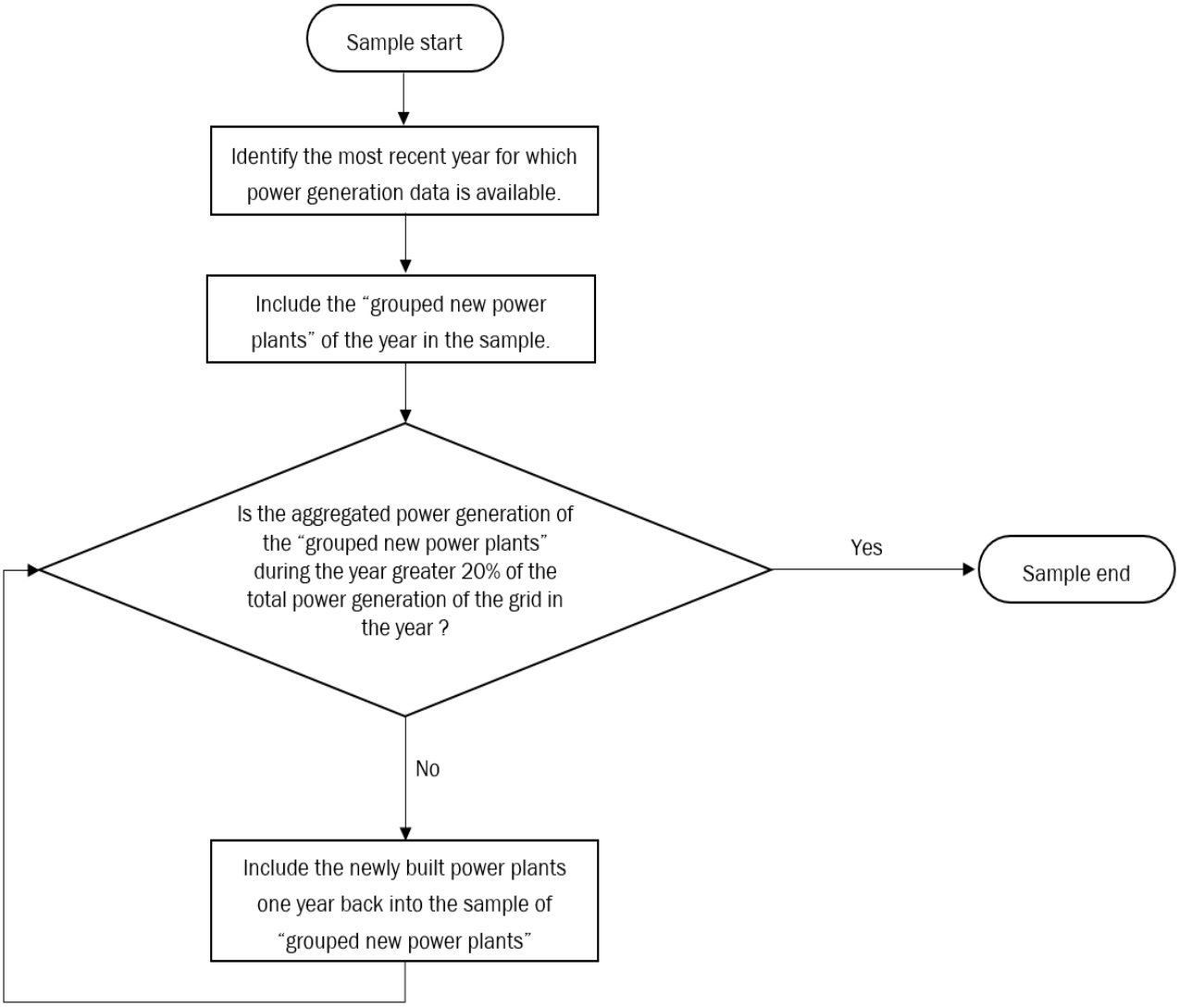

Figure 3 Procedure to determine the sample group of power units *m* used for the BM emission factor calculation

The emission factors of each fuel type $EF_{EL,m,y}$ are determined according to the Option A2 in the TOOL07, as the following equation:

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

where:

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

$EF_{CO2,m,i,y}$ = Average CO_2 emission factor of fuel type *i* used in power unit *m* in year *y* (t CO_2/GJ)

$\eta_{m,y}$ = Average net energy conversion efficiency of power unit *m* in year *y* (ratio**)**

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

3.6 = Conversion factor (GJ/MWh)

Among the fuel types, the emission factors of hydro, nuclear, wind, solar, other thermal and others are 0. Concerning the emission factors of coal, gas, oil and waste incineration, Equation takes the following form due to conservativeness:

$$EF_{best,m,y} = \frac{EF_{CO2,m,i,y} \times 3.6}{\eta_{best,y}} \quad (8)$$

where:

$EF_{best,m,y}$ = Emission factor of power unit *m* with the best technology commercially available in year *y* (t CO_2/MWh)

$\eta_{best,y}$ = Power generation efficiency of the best technology commercially available in year *y*

m = Power units serving the grid with coal, gas, oil or waste incineration in year *y*

According to the latest and available data at the time of this PSF submission, $EF_{grid,BM,y}$ is calculated to be 0.4819tCO_2e/MWh. The data is published by Ministry of Ecology and Environment of the People's Republic of China[15].

Step 6: Calculate the combined margin (CM) emission factor.

The calculation of the combined margin emission factor ($EF_{grid,CM,y}$) is based on one of the following methods:

(a) Weighted average CM; or

(b) Simplified CM.

The weighted average CM method (option A) should be used as the preferred option.

The simplified CM method (option b) can only be used if:

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

a) The project activity is located in: (i) a Least Developed Country (LDC); or in (ii) a country with less than 10 registered CDM projects at the starting date of validation; or (iii) a Small Island Developing States (SIDS); and

b) The data requirements for the application of step 5 above cannot be met.

This PSF choose option A.

The combined margin emissions factor is calculated as follows:

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

Where:

$EF_{grid,OM,y}$ = a) operating margin emission factor of NCPG (tCO_2e/MWh)

$EF_{grid,BM,y}$ = b) build margin CO_2 emission factor of NCPG (tCO_2e/MWh)

w_{OM} = c) the weighting of operating margin emission factor (%)

w_{BM} = d) the weighting of build margin emission factor (%)

According to the tool, as a solar power generation project, w_{OM} = 0.75 and w_{BM} = 0.25 for the fixed 10-years crediting period.

$EF_{grid,CM,,y}$ = 0.9419 * 0.75 + 0.4819 * 0.25 = 0.8269 tCO_2e/MWh

Project emissions

As per ACM0002 (version 20.0), project emission of the project equals to 0.

Leakage emissions

As per ACM0002 (version 20.0), no leakage is considered.

Emission reductions

Emission reductions are calculated as follows:

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

Where:

ER_y = Emission reductions in project year y (t CO_2)

BE_y = Baseline emissions in project year *y* (t CO_2)

PE_y = Project emissions in project year *y* (t CO_2)

LE_y = Leakage emissions in project year *y* (t CO_2)

Since both PE_y and LE_y equals to 0, $ER_y = BE_y$.

B.6.2. Data and parameters fixed ex ante

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Data / Parameter Table 1.

Data / Parameter:	**$EF_{grid,CM,y}$**
Methodology reference	ACM002 (Version 20.0)
Data unit	tCO_2/MWh
Description	CO_2 emission factor of NCPG
Measured/calculated /default	Calculated
Data source	2019 Baseline Emission Factors for Regional Power Grids in China, published by China DNA
Value(s) of monitored parameter	0.8269
Measurement/ Monitoring equipment (if applicable)	-
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 from DNA
Purpose of data	Baseline emission calculation
Additional comments	The detailed calculation process of $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ can be found at the following link: http://www.mee.gov.cn/ywgz/ydqhbh/wsqtkz/202012/t20201229_815386.shtml

B.6.3. Ex-ante calculation of emission reductions

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Based on section B.6.1 above, $ER_y = BE_y = EG_{PJ,y} \times EF_{grid,y}$.

As per FSR of the project, the annual electricity supplied to the grid is shown in the table below. The grid emission factor of NCPG is 0.8269 tCO_2/MWh, therefore baseline emission of the project is calculated as follows:

Year	$EG_{PJ,y}$ (MWh)	$EF_{grid,y}$ (t CO_2e/MWh)	Baseline Emissions (t CO_2e)
02/03/2016~01/03/2017	49,510	0.8269	40,939
02/03/2017~01/03/2018	49,070	0.8269	40,575
02/03/2018~01/03/2019	48,634	0.8269	40,215
02/03/2019~01/03/2020	48,202	0.8269	39,858
02/03/2020~01/03/2021	47,774	0.8269	39,503
02/03/2021~01/03/2022	47,349	0.8269	39,152
02/03/2022~01/03/2023	46,928	0.8269	38,804
02/03/2023~01/03/2024	46,511	0.8269	38,460
02/03/2024~01/03/2025	46,098	0.8269	38,118
02/03/2025~01/03/2026	45,688	0.8269	37,779
Total	475,764	-	393,403

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)
02/03/2016~01/03/2017	40,939	0	0	40,939
02/03/2017~01/03/2018	40,575	0	0	40,575
02/03/2018~01/03/2019	40,215	0	0	40,215
02/03/2019~01/03/2020	39,858	0	0	39,858
02/03/2020~01/03/2021	39,503	0	0	39,503
02/03/2021~01/03/2022	39,152	0	0	39,152
02/03/2022~01/03/2023	38,804	0	0	38,804
02/03/2023~01/03/2024	38,460	0	0	38,460
02/03/2024~01/03/2025	38,118	0	0	38,118
02/03/2025~01/03/2026	37,779	0	0	37,779
Total	393,403	0	0	393,403
Total number of crediting years	10			
Annual average over the crediting period	39,340	0	0	39,340

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

Data / Parameter Table 2.

Data / Parameter:	$EG_{facility,y}$
Methodology reference	As per Tool05 (Version 03.0)
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project plant to the grid in year y
Measured/calculated /default	Measured and calculated
Data source	Bidirectional Electricity meter(s)
Value(s) of monitored parameter	47,576 (ex-ante estimated)
Measurement/ Monitoring equipment	
Measuring/reading/ recording frequency	Continuous measurement and at least monthly recording
Calculation method (if applicable)	This parameter is to be calculated as difference between (a) the quantity of electricity supplied by the project plant to the grid; and (b) the quantity of electricity delivered to the project plant from the grid. Both (a) and (b) are to be measured by bi-directional electricity meters installed at the inlet of the main transformer.
QA/QC procedures	The calibration of meters, including the frequency of calibration, should be done in accordance with national standards or requirements set by the meter supplier or requirements set by the grid operators. The accuracy class of the meters should be in accordance with the stipulation of the meter supplier and/or as per the requirements set by the grid operators or national requirements. The electricity generation (gross or net) shall be cross-checked with records of electricity sale (e.g. sales receipt).
Purpose of data	Baseline emission calculation
Additional comments	-

Type of meter	ZMQ202C.8r4af6
Location of meter	Inlet of the main transformer
Accuracy of meter	0.2S
Serial number of meter	51348711 (main meter M1) 51348712 (backup meter M2)
Calibration frequency	Once a year
Date of Calibration/ validity	
Reference No. of Calibration Certificate	
Calibration Status	Calibrated

B.7.2. Monitoring-program of risk management actions

>>
The monitoring approach and the monitoring parameters corresponding to each impact described in the section E and section F of the PSF have been detailed as follows:

<table>
<tr><td>Data / Parameter:</td><td>CO_2 emissions</td></tr>
<tr><td>Objective of the Program of Risk Management Actions</td><td>Program of Risk Management Actions for CO_2 emissions (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 01</td></tr>
<tr><td>Describe the environment /social impact risk that needs to be mitigated.</td><td>The project reduces the CO_2 emission by power generation using solar power, replacing equivalent electricity generated by the connected power grid</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 on-grid electricity and CO_2 emissions reduction are monitored and calculated</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</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>1</td><td>Monitoring and calculation of CO_2 emission reduction</td><td>Alxa Left Banner Guodian Photovoltaic Power Co., Ltd.</td><td>-</td><td>-</td><td>CO_2 emission reduction</td><td>To be monitored</td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td colspan="4">Through the project lifetime</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>The details of CO_2 emissions reduction will be maintained in records 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:	**Solid waste Pollution from Plastics**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for plastics waste (PRMA 02)**

<table>
<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 needs to be mitigated.</td><td>Plastic solid waste from the equipment packing material or plastic used.</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>Solid waste from plastics will be recycled by waste recycling company. Non-recyclable parts will be collected and sent to Sanitation department for treatment.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</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>1</td><td>Solid waste from plastics will be recycled by waste recycling company. Non-recyclable parts will be collected and sent to Sanitation department for treatment.</td><td>Alxa Left Banner Guodian Photovoltaic Power Co., Ltd.</td><td>-</td><td>-</td><td>Solid waste pollution from plastics will be properly disposed.</td><td>To be monitored</td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td colspan="4">Through the project lifetime</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>The details of Solid waste pollution from plastics will be maintained in records 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:	**Hazardous wastes**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for Hazardous wastes (PRMA 03)**
Purpose:	To monitor an environmental impact identified as Harmless in the risk assessment and make sure this parameter is within the legal range and to develop a Program of Risk Management Actions plan to address the risk of **PRMA 03**

<table>
<tr><td>Describe the environment /social impact risk that needs to be mitigated.</td><td>The solid waste pollution from hazardous wastes comes from waste grease and oily rags.</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>Hazardous wastes will be properly collected, temporarily stored in the specific storage facility at the project site and then transferred to qualified entity for treatment at periodic interval.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</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>1</td><td>Hazardous wastes will be properly disposed</td><td>Alxa Left Banner Guodian Photovoltaic Power Co., Ltd.</td><td>-</td><td>-</td><td>Hazardous wastes treated properly</td><td>To be monitored</td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td colspan="4">Through the project lifetime</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>The details of Hazardous wastes will be maintained in records 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:	**E- wastes**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for E-wastes (PRMA 04)**
Purpose:	To monitor an environmental impact identified as Harmless in the risk assessment and make sure this parameter is within the legal range and to develop a Program of Risk Management Actions plan to address the risk of **PRMA 04**
Describe the environment /social impact risk that needs to be mitigated.	Waste PV modules may be generated during the operation of PV power plants.

<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>PV modules are collected and stored at specific locations and collected by special facilities and treated by qualified company.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</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>1</td><td>The waste photovoltaic modules will be collected and treated.</td><td>Alxa Left Banner Guodian Photovoltaic Power Co., Ltd.</td><td>-</td><td>-</td><td>The collected and treated waste photovoltaic modules will be recorded by the operation department.</td><td>To be monitored</td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td colspan="4">Through the project lifetime</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>The details of E-wastes will be maintained in records 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:	**Solid waste pollution from end-of-life equipment**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for solid waste pollution from end-of-life equipment (PRMA 05)**
Purpose:	To monitor an environmental impact identified as Harmless in the risk assessment and make sure this parameter is within the legal range and to develop a Program of Risk Management Actions plan to address the risk of **PRMA 05**
Describe the environment /social impact risk that needs to be mitigated.	Solid waste pollution from end-of-life equipment may be generated by the project.

<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>Solid waste from end-of-life equipment will be recycled by waste recycling company. Non-recyclable parts will be collected and sent to Sanitation department for treatment</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</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>1</td><td>Solid waste from end-of-life equipment will be recycled by waste recycling company. Non-recyclable parts will be collected and sent to Sanitation department for treatment</td><td>Alxa Left Banner Guodian Photovoltaic Power Co., Ltd.</td><td>-</td><td>-</td><td>The collected and treated waste from end-of-life equipment will be recorded by the operation department.</td><td>To be monitored</td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td colspan="4">Through the project lifetime</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>The details of Solid waste from end-of-life equipment will be maintained in records 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:	**Wastewater**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for the generation of wastewater (PRMA 06)**
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 06**
Describe the environment /social impact risk that needs to be mitigated.	Wastewater may be generated during the operation of PV power plants.

<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>Wastewater from solar panels cleaning will be properly disposed as per regulation, the impact is within legal limits.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</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>1</td><td>Wastewater generate by the project t will be monitored.</td><td>Alxa Left Banner Guodian Photovoltaic Power Co., Ltd.</td><td>-</td><td>-</td><td>The collected and treated wastewater will be recorded by the operation department.</td><td>To be monitored</td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td colspan="4">Through the project lifetime</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>The details of wastewater generation will be maintained in records 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:	**Electricity supplied to the power grid by the project**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for the Replacing fossil fuels with renewable sources of energy (PRMA 07)**
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 07**
Describe the environment /social impact risk that needs to be mitigated.	The project utilizes solar power to generate electricity, which will replace the electricity generated by fossil fuel plants of the power grid
Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.	The electricity supplied to the power grid by this project will be monitored

<table>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</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>1</td><td>Electricity supplied to the power grid by the project will be monitored</td><td>Alxa Left Banner Guodian Photovoltaic Power Co., Ltd.</td><td>-</td><td>-</td><td>Electricity supplied to the power grid by the project.</td><td>To be monitored</td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td colspan="4">Through the project lifetime</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>The details of electricity supplied to the power grid will be maintained in records 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:	**Number of people employed by the project**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for Long-term jobs (PRMA 08)**
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 08**
Describe the environment /social impact risk that needs to be mitigated.	The project is expected to provide long-term job opportunities.
Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.	Employment will be generated due to project activity.

<table>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</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>1</td><td>Long-term Jobs will be provided</td><td>Alxa Left Banner Guodian Photovoltaic Power Co., Ltd.</td><td>-</td><td>-</td><td>Number of people employed by the project</td><td>To be monitored</td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td colspan="4">Through the project lifetime</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>The details of employment records or the social insurance payment records of employees will be maintained in records 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:	**Job related training**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for job related training (PRMA 09)**
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 09**
Describe the environment /social impact risk that needs to be mitigated.	The project provided the job-related training.
Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.	Job related training can be verified from the training records and attendance sheet.

<table>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</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>1</td><td>Job related training to be provided</td><td>Alxa Left Banner Guodian Photovoltaic Power Co., Ltd.</td><td>-</td><td>-</td><td>Job related training provided</td><td>To be monitored</td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td colspan="4">Through the project lifetime</td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>The Job-related Training records will be maintained in records 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>

B.7.3. Sampling plan

>>

Not applicable.

B.7.4. Other elements of the monitoring plan

>>

The monitoring plan presented in this report assures that real, measurable, long-term GHG emission reductions can be monitored, recorded and reported. It is a crucial procedure to identify the final ACC of the project. This monitoring plan will be implemented by the project owner during the project operation. The details of the monitoring plan are specified as follows:

The following two parameters are to be monitored:

(a) the quantity of electricity supplied by the project plant to the grid;

(b) the quantity of electricity delivered to the project plant from the grid.

Both (a) and (b) are to be continuously measured by two bi-directional electricity meters (one main meter M1 and one backup meter M2 of the project) installed at the inlet of main transformer. Meter readings will be at least monthly recorded. The accuracy of electricity meters shall follow the requirements of “DL/T448-2016 Technical Administrative Code of Electric Energy Metering”.

Management Structure

The Project owner organizes a specific monitoring team to be responsible for data collection, supervision and witness the whole process of data measuring and recording. Office manager is

appointed to take full responsibility for the overall monitoring of the project. The monitoring, recording of electricity meters is to be carried out by designated monitoring staff. In addition, the Project developer appoints internal verifiers who is responsible for internal check of the measurement, collection of relevant sales receipts, and the calculation of the emission reductions. The structure of the monitoring group is as follows:

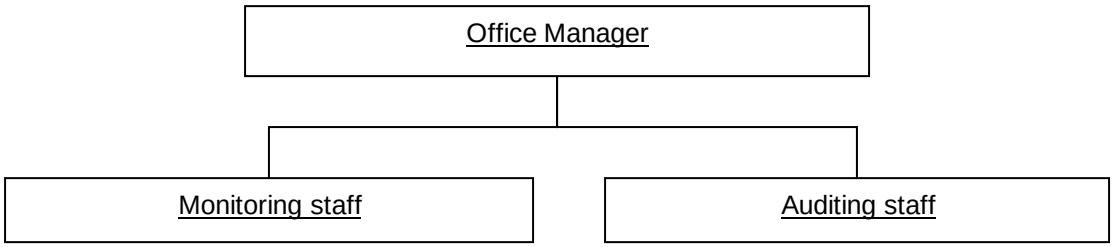

Figure 4: Organization structure of the monitoring team

Data collection

Monitoring staffs of the proposed project are responsible for data collection. Designated teams will read and collect the monitored data regularly and recorded in the meter reading records or operation log. The meter readings are also available to the power grid through remote reading system. Monthly settlement for electricity supplied to the grid will be based on the meter readings. Meter reading records will serve as the main data source for emission reductions calculation, after crosschecking with the sales receipts. All data files, relevant sales receipts will be collected by designated monitoring staff, who will prepare backup in time and archive all documents properly.

Quality assurance

All electricity meters installed shall follow the requirements of national industry standard “DL/T448-2016 Technical administrative Code of Electric Energy Metering” to ensure sufficient accuracy and proper calibration. As per DL/T448-2016, electricity settlement meters installed at transmission lines with voltage between 10kV to 66kV are categorized as Class III meters, and the accuracy of Class III meters shall be no lower than 0.5S and the meters shall be calibrated every year. The electricity meters of the proposed project are installed at the inlet of the main transformer, which is on the 35kV Aiji line, and fall under Class III meters, therefore the accuracy of electricity meters shall be no lower than 0.5S, and the calibration shall be carried out at least once per year.

Error check routines will be established on site and at the point of data storage to detect data measuring/transmission failures as well as malfunctions. In the case of malfunction of the meters, the meter supplier will provide technical support to engage the problem promptly and emission reductions during the corresponding period will be calculated conservatively.

Data file management

All monitoring data will be electronically filed by the end of each month and the electronic data files will be archived in both disk copy and printed hard copy. Other documents in paper e.g., operation logbooks, will be preserved as well. All data collected as part of monitoring will be archived electronically and be kept at least for 2 years after the end of the crediting period.

Section C. Start date, crediting period type and duration

C.1. Start date of the Project Activity

>>

02/03/2016 (Operation start date of the project)

C.2. Expected operational lifetime of the Project Activity

>>

25 years

C.3. Crediting period of the Project Activity

>>

C.3.1. Fixed crediting period

>>

Fixed crediting period.

C.3.2. Start date of the crediting period

>>
02/03/2016 (Operation start date)

C.3.3. Duration of the crediting period

>>
10 years, from 02/03/2016 to 01/03/2026.

Section D. Environmental impacts

D.1. Analysis of environmental impacts

>>

The potential environmental impacts by the project during operation are analyzed below:

Air pollution
Solar power generation converts solar energy into electric energy, and there is no exhaust gas emission during the conversion process.

Water pollution
The wastewater generated during the operation period is solar panels cleaning wastewater. The solar panels cleaning wastewater includes mainly dust, which does not require treatment. After flowing to the ground, it will evaporate naturally.

Noise
The main noise during the operation period is the noise generated by inverters and boosters. After free attenuation, it will have little impact on the surrounding environment. Within 20m of the transformer, it can meet the requirements of the national "Sound "Environmental Quality Standard" Category 2 standard requirements. And the nearest settlement is 12 km away. Therefore, the noise during the operation period has no impact on the surrounding environment.

Solid waste

The solid waste during the operation period mainly includes solid waste generated from the operation and decommissioning of the solar power station. The solid waste generated during the operation period of the solar power station is waste capacitors, reactors, transformers and photovoltaic module, which are first piled up in a temporary storage warehouse, and then periodically recycled by the manufacturer for disposal. The solid waste generated after the decommissioning is waste equipment and waste solar panels, which are recycled and processed by the manufacturer.

In conclusion, the environmental impacts during the project operation are minor. The Project owner has taken appropriate measures to minimize adverse environmental impacts.

D.2. Environmental impact assessment

>>
Environmental impact assessment (EIA) report was conducted by Institute of Environment Sciences of Alashan in 2013. The EIA report dated April 2013 has been evaluated and approved by Environment Protection Bureau of Alashan. The EIA approval (Ahuanshenbiao[2013]No. 28) was issued on 26/08/2013.

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 approvals from the government official state 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. Environment supervision team from the local Environment Protection Bureau will conduct spot check on the project's implementation of environmental protection measures periodically.

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[16] 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*	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	NO_x emissions	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	CO_2 emissions	The project reduces CO_2 emissions since it	N.A.	-	The project reduces CO_2 emissions in the baseline;	-	N.A.	N.A.	N.A.	The electricity generated will be	The project is expected to result in lower CO_2	+1

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

		reduces the amount of fossil fuel used. In case of "no project", stated amount of electricity would be generated from fossil fuels and cause air pollution.			hence the project will not cause any harm in this regard					monitored and CO_2 emission reductions will be calculated accordingly. Please refer to section B.7.2 PRMA01.	emission than the baseline throughout the crediting period	
	CO emissions	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Suspended particulate matter (SPM) emissions	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Fly ash emissions	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Non-Methane Volatile Organic Compounds (NMVOCs)	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Odor emissions	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Noise Pollution	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Environment *- Land*	*Solid waste Pollution from Plastics*	There may be plastic solid waste from the equipment packing material or plastic used.	Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste requires proper treatment of plastics.	-	Solid waste from plastics will be recycled by waste recycling company. Non-recyclable parts will be collected and sent to Sanitation department for treatment. Therefore, harmless.	-	N.A	N.A	N.A	Monitor the treatment of solid waste pollution from plastics throughout the entire crediting period, if any. Please refer to Section B 7.2. PRMA02.	Solid waste Pollution from Plastics Will be properly disposed, therefore it's harmless	+1
	Solid waste Pollution from	Hazardous wastes like	Law of the People's	-	Hazardous wastes will	-	N.A.	N.A.	N.A.	The hazardous	Solid waste Pollution	+1

	Hazardous wastes	Waste grease and oily rags may be generated by the project during operation.	Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste requires proper collection and treatment by qualified entity.		be properly collected, temporarily stored in the specific storage facility at the project site and then transferred to qualified entity for treatment at periodic interval. therefore Harmless					waste transfer sheet will be monitored. Please refer to Section B 7.2. PRMA03	from Hazardous wastes is properly disposed as per regulations; hence the project is deemed Harmless	
	Solid waste Pollution from Bio-medical wastes	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Solid waste Pollution from E-wastes	Waste PV modules may be generated during the operation of PV power plants, these PV modules are collected and stored at specific locations and are regularly collected by the special facility and treated by qualified company.	Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste requires proper treatment of solid waste	N.A.	Solid waste pollution from E-wastes is properly disposed as per regulations, the impact is within legal limit, and this parameter is monitored, hence the project is deemed Harmless	-	N.A.	N.A.	N.A.	The waste photovoltaic modules are recorded by the operation department, and the waste photovoltaic modules is collected regularly by special facility and treated by qualified company. Please refer to Section B 7.2. PRMA04	These waste photovoltaic modules are collected regularly by special facility and treated by qualified company. Therefore, it is harmless.	+1
	Solid waste Pollution from Batteries	No batteries are used by the project	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Solid waste Pollution from end of life products/ equipment	Solid waste pollution from end-of-life equipment may be generated by the project.	Law of the People's Republic of China on the Prevention and Control	-	Solid waste from end-of-life equipment will be recycled by waste	-	N.A.	N.A.	N.A.	Monitor the treatment of Solid waste pollution from end-of-life equipment	Solid waste from end-of-life equipment will be recycled by waste	+1

			of Environmental Pollution by Solid Waste requires proper treatment of solid waste		recycling company. Non-recyclable parts will be collected and sent to Sanitation department for treatment. Therefore harmless					throughout the entire crediting period, if any. Please refer to Section B 7.2. PRMA05	recycling company. Non-recyclable parts will be collected and sent to Sanitation department for treatment, therefore, it is harmless.	
	Soil Pollution from Chemicals (including Pesticides, heavy metals, lead, mercury)	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Soil erosion	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Environment *- Water*	*Reliability/ accessibility of water supply*	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Water Consumption from ground and other sources	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Generation of wastewater	Wastewater may be generated from solar panels cleaning by the project.	Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Water Pollution requires proper treatment of wastewater.	-.	Wastewater from solar panels cleaning includes mainly dust, which does not require treatment. After flowing to the ground, it will evaporate naturally. hence the project is deemed Harmless	-	N.A.	N.A.	N.A.	The generation of wastewater will be monitored throughout the entire crediting period. Please refer to Section B 7.2. PRMA06	Wastewater from solar panels cleaning will be properly disposed as per regulation. Therefore, it is harmless.	+1

	Wastewater discharge without/with insufficient treatment	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Pollution of Surface, Ground and/or Bodies of water	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Environment *– Natural Resources*	*Conserving mineral resources*	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Protecting/ enhancing plant life	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Protecting/ enhancing species diversity	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Protecting/ enhancing forests	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Protecting/ enhancing other depletable natural resources	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Conserving energy	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Replacing fossil fuels with renewable sources of energy	The project utilizes renewable solar energy to generate electricity, which will replace the electricity generated by fossil fuel plants of NCPG	N.A.	-	The project activity causes positive impact on the environment by replacing the fossil fuels with the renewable energy sources of energy	-	N.A.	N.A.	N.A.	The electricity generated will be monitored throughout the crediting period.	The project is expected to supply an average of 44,573 MWh renewable electricity to NCPG annually, hence this parameter will be scored. Please refer to Section B 7.2. PRMA07	+1

	Replacing ODS with non-ODS refrigerants	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
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:		**+7**										
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

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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[17] 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*	The project is expected to create 8 long-term job opportunities	All employments are done according to national employment regulation	-	The social impact is expected to increase employment. This impact is positive and can be monitored hence the project is	-	N.A	N.A	N.A	Number of people employed by the project will be monitored through checking records. Please refer	The social impact is expected to increase employment, which can be confirmed by records.	+1

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

					harmless.					to Section B 7.2. PRMA08		
	New short-term jobs (< 1 year) created/ lost	N.A	N.A	N.A			N.A	N.A	N.A	N.A	N.A	N.A
	Sources of income generation increased / reduced	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Social - *Health & Safety*	*Disease prevention*	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Reducing / increasing accidents	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Reducing / increasing crime	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Reducing / increasing food wastage	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Reducing / increasing indoor air pollution	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Efficiency of health services	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Sanitation and waste management	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Other health and safety issues	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Social - *Education*	*Job related training imparted or not*	The project owner provides job related training for employees	No regulation.	-	The project provides job related training for employees; hence it is harmless	-	N.A	N.A	N.A	The project provided the job-related training, it can be verified from the training records and attendance	Project owner confirms that by training the people on new technology it will	+1

										sheet.	upgrade their skills and creates positive impact. Hence it will be scored. Please refer to Section B 7.2 PRMA08	
	Educational services improved or not	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Project-related knowledge disseminatio n effective or not	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Other educational issues	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Social - *Welfare*	*Improving/ deteriorating working conditions*	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Community and rural welfare	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Poverty alleviation (more people above poverty level)	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Improving / deteriorating wealth distribution/ generation of income and assets	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Increased or / deteriorating municipal revenues	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

	Women's empowerment	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Reduced / increased traffic congestion	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Other social welfare issues	N.A.	N.A.	N.A.	-	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

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:	**+2**
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)

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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 corresponding 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	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Goal 2: End hunger, achieve food security and improved nutrition and promote	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

sustainable agriculture									
Goal 3. Ensure healthy lives and promote well-being for all at all ages	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Goal 5. Achieve gender equality and empower all women and girls	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Goal 6. Ensure availability and sustainable management of water and sanitation for all	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all	SDG Target 7.2	Yes https://www.cn.undp.org/content/china/en/home.html	The project generates electricity from the sustainable and renewable solar source and contributes to increase the share of renewables in the global energy mix. By installing advanced solar PV technology project owner also promotes upgraded cleaner technology solutions and infrastructure in the power generation sector in the host country.	Commission a 30MW solar power plant since 2016. Project target to generate and supply 44,573MWh of clean energy per year during the fixed crediting period to the national power grid.	Enhance the share of installed electricity generation capacity from renewable energy sources	The project increases the renewable energy share in energy production mix. it provides 44,573MWh /year clean energy to the power grid	Electricity supplied to the power grid by the project to be monitored as per section B.7 of the PSF	The project fully commissioned by 2016. Project implementation goes on without any problem.	Yes
Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive	SDG Target 8.5	Yes https://www.cn.undp.org/conten	Project activity supports creation of long -term job opportunities during the operation of the project activity. Supports	The project is expected to create 8 long-term job opportunities	8 people to be recruited including all levels	The project created job opportunities for both construction	Monitoring parameter: number of employees. Check	Project owner employs people according to	Yes

employment and decent work for all		t/china/en/home.html	economic productivity through technology up gradation and innovation through training of labour in intensive sector.	through the project lifetime		and operation period. It created long term employment for 8 people who are directly working at the site	employment records or social security payment records of employees	the regulations. Social security payments are done regularly	
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Goal 10. Reduce inequality within and among countries	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Goal 12. Ensure sustainable consumption and production patterns	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Goal 13. Take urgent action to combat climate change and its impacts	SDG Target 13.3	Yes https://www.cn.undp.org/content/china/en/home.html	Project activity generates renewable electricity and mitigates the CO_2 emissions which would have been generated from the fossil fuel-based power plants.	Project expects to supply 44,573MWh clean energy to power grid each year	Project provides clean energy avoiding 39,340 tCO_2 emission annually	Since the project uses solar energy, there is no GHG emissions related to the project activity. It avoids 39,340 tCO_2 emission annually	Calculate avoided GHG emissions periodically.	Project owner operates the plant since 2016 and complies with targeted SDGs so far.	Yes
Goal 14. Conserve and sustainably use the oceans, seas	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

and marine resources for sustainable development									
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	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
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	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

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

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Local stakeholder consultation (LSC) was conducted on the 01/05/2015 to introduce the project to the local stakeholders.

The following people are considered as the stakeholders of this project:

- Residents of the nearby villages.
- Relevant administrative staff of the local government.

The project owner invited local stakeholders to participate in the questionnaire survey by posting announcements on the bulletin boards of each village.

The project owner designed a questionnaire to collect the comments of relevant stakeholders. The questionnaire was designed with the following sections:

1) Brief introduction of the project

2) Major environmental impacts of the project

3) Basic information of respondent

4) Major question issues

- Are you aware of the project activity?
- Do you support the implementation of the project?
- What impact do you think the project will cause to the local employment?
- What impact do you think the project will cause to the local economic development?
- What impact do you think the project will cause to the local social community?
- What is the most probable environmental impact by the project, in your opinion? (Multiple choice)
- Any negative impact on your life and work by the project?

30 questionnaires have been handed in total and all of them have been received successfully from the stakeholder representatives, respectively from the local government, and surrounding villages. The representatives covered different ages, different occupations and different education levels.

G.2. Summary of comments received

>>

No.	Questions	Attitude or Opinion	Amount	Percentage
1	Are you aware of the project activity?	Very much	23	77%
		Heard of	5	16%
		No	2	7%
2	Do you support the implementation of the project	Yes	28	93%
		No	0	0
		Indifferent	2	7%
3	What impact do you think the project will cause to the local employment?	Positive	26	87%
		Negative	0	0
		Don't know	4	13%
4	What impact do you think the project will cause to the local economic development?	Positive	26	87%
		Negative	0	0
		Don't know	4	13%
5	What impact do you think the project will cause to the local social community?	Positive	22	73%
		Negative	0	0
		Don't know	8	27%
6	What is the most probable environmental impact by the project, in your opinion? (Multiple choice)	None	24	80%
		Air pollution	0	0
		Water pollution	0	0
		Noise pollution	0	0

		Solid Waste pollution	2	7%
		Don't know	4	13%
7	Any negative impact on your life and work by the project?	Yes	0	0
		No	27	90%
		Indifferent	3	10%

Conclusion:

All local stakeholders are supportive to the implementation of the project, believing that the Project will help improve the life of local people and promote local economic development without adverse environmental impact.

During the consultation, some main issues were raised by local stakeholder and the developer should pay attention and solve these issues which are listed as following:

1. Is there a proper disposal method for waste solar modules?

2. Does the project activity cause any land use problems?

3. The project party should provide job opportunities to local residents and provide professional skills training for employees?

For the first issue, waste solar modules will be recycled by manufacturers and handed over to qualified companies for treatment, so they will not cause pollution to the surrounding environment; for the second issue, the project site is located in the desert 12km south of Jilantai Town, and will not cause any land use problems; for the third issue, project developer provide long-term job for local residents and all the employees will be regularly trained.

G.3. Consideration of comments received

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As described above, most of the stakeholders interviewed expressed this project will benefit the local environment, economy and social development, and no negative impact were raised by stakeholders. The comments raised by local stakeholder have been analysed in section G.2

Section H. Approval and authorization

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As per the guideline available in this regard, submission of Host Country Attestation (HCA) on Double Counting as and when required by CORSIA. For carbon credits generated during 01/01/2016 to 31/12/2020, HCA is not required for CORSIA labeled credits.

Appendix 1. Contact information of project owners

Organization name	Prestige Investment Management (Shanghai) Co. Ltd.
Country	P.R. China
Address	Room 368, Section 302, 211 Fute North Road, Shanghai Pilot Free Trade Zone, P.R. China.
Telephone	-
Fax	
E-mail	Gwtz668@126.com
Website	-
Contact person	Wang Xiaolian

Appendix 2. Affirmation regarding public funding

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No public funding for the proposed project.

Appendix 3. Applicability of methodology(ies)

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Applicability of methodology has been discussed in section B.2. No further information is required.

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

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Not applicable. Ex-ante calculation of emission reductions has been detailed in section B.6. No further information is required.

Appendix 5. Further background information on monitoring plan

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Monitoring plan has been detailed in section B.7. No further information is required.

Appendix 6. Summary report of comments received from local stakeholders

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The information of LSC was discussed in section G, no further information in this part.

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

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Not applicable.

Appendix 8. Avoidance of Double Accounting in regional Emission Trading Schemes

The coverage of Chinese ETS are the facilities generating large amount of GHG during daily operation, including the following manufacturing sectors: power generation, petrochemical, chemical, building materials, steel, non-ferrous metals, paper, and aviation. For power generation sector, only fossil fuel power plants are included. The coverage of Chinese ETS and List of companies included in the national Emission trading system (for 2019-2020) are publicly available as follows:

http://www.mee.gov.cn/xxgk2018/xxgk/xxgk05/202103/t20210330_826728.html

http://www.mee.gov.cn/xxgk2018/xxgk/xxgk03/202012/t20201230_815546.html

Furthermore, the proposed project activity has never been registered under any other GHG program and its environmental attributes have never been requested or issued by any other program or standard.

Therefore, the GCC project activity does not lead to double counting of the ACCs. A Declaration for the same by the project owner has been provided for verification.

Appendix 9. Specific design requirements for Bundled Project

The project is not a bundled project.

DOCUMENT HISTORY

Version	Date	Comment
V 3.2	31/12/2020	▪ The name of GCC Program's emission units has been changed from "Approved Carbon Reductions" or ACRs to "Approved Carbon Credits" or ACCs.
V 3.1	17/08/2020	▪ Editorial revisions made ○ Revised Table in section B.7.2 on Monitoring-program of risk management actions ○ Revised Table in section E.1 on Environmental Safeguards ○ Revised Table in section E.1 on Social Safeguards ○ Revised Table in section F on United Nations Sustainable Development Goals (SDG)
V 3.0	05/07/2020	▪ Revised version released on approval by Steering Committee as per GCC Program Process; ▪ Revised version contains following changes: ○ Change of name from Global Carbon Trust (GCT) to Global Carbon Council (GCC); ○ Considered and addressed comments raised by Steering Committee: ➢ during physical meeting (SCM 01, dated 29 Oct 2019, Doha Qatar); and ➢ electronic consultations EC01-Round 01 (15.09.2019 – 25.09.2019), EC01-Round 02 (27.03.2020 – 27.06.2020). ○ Feedback from Technical Advisory Board (TAB) of ICAO on GCC submission for approval under CORSIA[18];
V 2.0	25/06/2019	▪ Revised version released for approval by the GCC Steering Committee. ▪ Revised version includes additional details and instructions on the information to be provided, consequent to the latest developments world-wide (e.g., CORSIA EUC).
V 1.0	01/11/2016	Initial version released under the GCC Program Version 1

[18]See ICAO recommendation for conditional approval of GCC at https://www.icao.int/environmental-protection/CORSIA/Documents/TAB/Excerpt_TAB_Report_Jan_2020_final.pdf

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