

المجلس العالمي للبصمة الكربونية  
GLOBAL CARBON COUNCIL



# Project Submission Form

V3.2 - 202

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<b>COVER PAGE- Project Submission Form (PSF)</b>	
<i>Complete this form in accordance with the instructions attached at the end of this form.</i>	
<b>BASIC INFORMATION</b>	
<b>Title of the Project Activity</b>	<b>Sazılar Solar Power Plant Bundle</b>
<b>PSF version number</b>	3.0
<b>Date of completion of this form</b>	12/01/2022
<b>Project Owner(s)</b> <small>(Shall be consistent with De-registered CDM Type B Projects)</small>	1. Tunç Grup İnşaat Turizm Ve Ticaret A.Ş. 2. Desilyon Danışmanlık Ticaret A.Ş. (Focal point to act on behalf of all Project Owners)
<b>Country where the Project Activity is located</b>	Turkey
<b>GPS coordinates of the project site(s)</b>	39°41'58.82" N, 31°54'51.96" E
<b>Eligible GCC Project Type as per the Project Standard</b> <small>(Tick applicable project type)</small>	<input checked="" type="checkbox"/> <b>Type A:</b> <input type="checkbox"/> Type A1 <input checked="" type="checkbox"/> Type A2  <input type="checkbox"/> <b>Type B – De-registered CDM Projects:<sup>1</sup></b> <input type="checkbox"/> Type B1 <input type="checkbox"/> Type B2
<b>Minimum compliance requirements</b>	<input checked="" type="checkbox"/> Real and Measurable GHG Reductions <input checked="" type="checkbox"/> National Sustainable Development Criteria (if any) <input checked="" type="checkbox"/> Apply credible baseline and monitoring methodologies <input checked="" type="checkbox"/> Additionality <input checked="" type="checkbox"/> Local Stakeholder Consultation Process <input checked="" type="checkbox"/> Global Stakeholder Consultation Process <input checked="" type="checkbox"/> No GHG Double Counting <input checked="" type="checkbox"/> Contributes to United Nations Sustainable Development Goal 13 (Climate Action)

<sup>1</sup> Owners of Type B projects shall fill in the form provided in Appendix 7.

<b>Choose optional and additional requirements</b> (Tick applicable label categories)	<input checked="" type="checkbox"/> Do-no-net-harm Safeguards to address Environmental Impacts <input checked="" type="checkbox"/> Do-no-net-harm Safeguards to address Social Impacts <input checked="" type="checkbox"/> Contributes to United Nations Sustainable Development Goals (in addition to Goal 13)																																								
<b>Applied methodologies</b> (Shall be approved by the GCC or the CDM)	AMS-I.D: Grid connected renewable electricity generation – Version 18.0																																								
<b>GHG Sectoral scope(s) linked to the applied methodology(ies)</b>	GHG Sectoral Scope	GHG Sectoral Scope Title																																							
	GHG-SS #1	Energy (renewable/nonrenewable sources)																																							
<b>Applicable Rules and Requirements for Project Owners</b> (Tick applicable Rules and Requirements)	<table border="1"> <thead> <tr> <th data-bbox="505 709 1143 751">Rules and Requirements</th> <th data-bbox="1143 709 1312 751">Reference</th> <th data-bbox="1312 709 1442 751">Version</th> </tr> </thead> <tbody> <tr> <td data-bbox="505 751 1143 814"><input checked="" type="checkbox"/> ISO 14064-2</td> <td data-bbox="1143 751 1312 814"></td> <td data-bbox="1312 751 1442 814"></td> </tr> <tr> <td data-bbox="505 814 1143 898"><input checked="" type="checkbox"/> Applicable host country legal requirements /rules</td> <td data-bbox="1143 814 1312 898"></td> <td data-bbox="1312 814 1442 898"></td> </tr> <tr> <td data-bbox="505 898 792 1371" rowspan="6"><input checked="" type="checkbox"/> GCC Rules and Requirements<sup>2</sup></td> <td data-bbox="792 898 1143 951"><input checked="" type="checkbox"/> Project Standard</td> <td data-bbox="1143 898 1312 951"></td> <td data-bbox="1312 898 1442 951">V3.1</td> </tr> <tr> <td data-bbox="792 951 1143 1035"><input checked="" type="checkbox"/> Approved GCC Methodology (XXXXX)</td> <td data-bbox="1143 951 1312 1035"></td> <td data-bbox="1312 951 1442 1035">V1.0</td> </tr> <tr> <td data-bbox="792 1035 1143 1098"><input checked="" type="checkbox"/> Program Definitions</td> <td data-bbox="1143 1035 1312 1098"></td> <td data-bbox="1312 1035 1442 1098">V3.1</td> </tr> <tr> <td data-bbox="792 1098 1143 1171"><input checked="" type="checkbox"/> Environment and Social Safeguards Standard</td> <td data-bbox="1143 1098 1312 1171"></td> <td data-bbox="1312 1098 1442 1171">V2.0</td> </tr> <tr> <td data-bbox="792 1171 1143 1255"><input checked="" type="checkbox"/> Project Sustainability Standard</td> <td data-bbox="1143 1171 1312 1255"></td> <td data-bbox="1312 1171 1442 1255">V2.1</td> </tr> <tr> <td data-bbox="792 1255 1143 1371"><input checked="" type="checkbox"/> Instructions in Project Submission Form (PSF)-template</td> <td data-bbox="1143 1255 1312 1371"></td> <td data-bbox="1312 1255 1442 1371">V3.2</td> </tr> <tr> <td data-bbox="505 1371 792 1759" rowspan="3"><input checked="" type="checkbox"/> CDM Rules<sup>3</sup></td> <td data-bbox="792 1371 1143 1570"><input checked="" type="checkbox"/> Approved CDM Methodology (XXXXX)</td> <td data-bbox="1143 1371 1312 1570">AMS-I.D: Grid connected renewable electricity generation</td> <td data-bbox="1312 1371 1442 1570">V18.0</td> </tr> <tr> <td data-bbox="792 1570 1143 1686"><input type="checkbox"/> Tool for the demonstration and assessment of additionality</td> <td data-bbox="1143 1570 1312 1686">TOOL 01</td> <td data-bbox="1312 1570 1442 1686"></td> </tr> <tr> <td data-bbox="792 1686 1143 1759"><input type="checkbox"/> Combined tool to identify the baseline</td> <td data-bbox="1143 1686 1312 1759">TOOL 02</td> <td data-bbox="1312 1686 1442 1759"></td> </tr> </tbody> </table>			Rules and Requirements	Reference	Version	<input checked="" type="checkbox"/> ISO 14064-2			<input checked="" type="checkbox"/> Applicable host country legal requirements /rules			<input checked="" type="checkbox"/> GCC Rules and Requirements <sup>2</sup>	<input checked="" type="checkbox"/> Project Standard		V3.1	<input checked="" type="checkbox"/> Approved GCC Methodology (XXXXX)		V1.0	<input checked="" type="checkbox"/> Program Definitions		V3.1	<input checked="" type="checkbox"/> Environment and Social Safeguards Standard		V2.0	<input checked="" type="checkbox"/> Project Sustainability Standard		V2.1	<input checked="" type="checkbox"/> Instructions in Project Submission Form (PSF)-template		V3.2	<input checked="" type="checkbox"/> CDM Rules <sup>3</sup>	<input checked="" type="checkbox"/> Approved CDM Methodology (XXXXX)	AMS-I.D: Grid connected renewable electricity generation	V18.0	<input type="checkbox"/> Tool for the demonstration and assessment of additionality	TOOL 01		<input type="checkbox"/> Combined tool to identify the baseline	TOOL 02	
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<sup>2</sup> GCC Program rules and requirements: <https://www.globalcarboncouncil.com/resource-centre.html>

<sup>3</sup> CDM Program rules: <https://cdm.unfccc.int/Reference/index.html>

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	scenario and demonstrate additionality		
	<input checked="" type="checkbox"/> Tool to calculate the emission factor for an electricity system	TOOL 07	V07.0
	<input type="checkbox"/> Demonstration of additionality of microscale project activities	TOOL 19	
	<input type="checkbox"/> Demonstration of additionality of small-scale project activities	TOOL 21	
	<input type="checkbox"/> Additionality of first-of-its-kind project activities	TOOL 23	
	<input type="checkbox"/> Common practice	TOOL 24	
	<input type="checkbox"/> Investment analysis	TOOL 27	
	<input checked="" type="checkbox"/> Positive lists of technologies	TOOL 32	V03.0
	<input type="checkbox"/> Guidelines for objective demonstration and assessment of barriers		
<p><b>Choose Third Party External Project Verification by approved GCC Verifiers<sup>4</sup></b> (Tick applicable verification categories)</p>	<input checked="" type="checkbox"/> GHG emission reductions (i.e., Approved Carbon Credits <b>(ACCs)</b> ) <input checked="" type="checkbox"/> Environmental No-net-harm Label <b>(E<sup>+</sup>)</b> <input checked="" type="checkbox"/> Social No-net-harm Label <b>(S<sup>+</sup>)</b>		
	<input checked="" type="checkbox"/> United Nations Sustainable Development Goals <b>(SDG<sup>+</sup>)</b> <input type="checkbox"/> Bronze SDG Label <input type="checkbox"/> Silver SDG Label <input type="checkbox"/> Gold SDG Label <input checked="" type="checkbox"/> Platinum SDG Label <input type="checkbox"/> Diamond SDG Label  <input checked="" type="checkbox"/> CORSIA requirements <b>(C<sup>+</sup>)</b> <input type="checkbox"/> Host Country Attestation on Double counting		

<sup>4</sup> **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.

<p><b>Declaration to be made by the Project Owner(s)<sup>5</sup></b> (Tick all applicable statements)</p>	<p>The Project Owner(s) declares that:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The Project Activity complies with the eligibility of the applicable project type (A1, A2, B1 or B2) as stipulated by the Project Standard.</li> <li><input checked="" type="checkbox"/> The Project Activity shall start operations, and start generating emission reductions, on or after 1 January 2016.</li> <li><input checked="" type="checkbox"/> The Project Activity is eligible to be registered under the GCC program.</li> <li><input checked="" type="checkbox"/> 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.</li> <li><input checked="" type="checkbox"/> 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.</li> <li><input checked="" type="checkbox"/> 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.</li> <li><input checked="" type="checkbox"/> 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.</li> </ul>
	<p><input checked="" type="checkbox"/> 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:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Confirms the avoidance of double counting as required by CORSIA;</li> <li><input checked="" type="checkbox"/> Shall be made publicly available prior to the use of units from the host country under CORSIA; and</li> <li><input checked="" type="checkbox"/> 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.</li> </ul> <p>Provide details below for the boxes ticked above</p>
	<p>The Project Owner(s) declares that:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 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;</li> <li><input checked="" type="checkbox"/> They understand that a failure by them to provide accurate information or data, or concealing facts and information, can be considered as negligence,</li> </ul>

<sup>5</sup> The "Project Owner" means the legal entity or organization that has overall control and responsibility for the Project Activity.

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	<p>fraud or willful misconduct. Therefore, they are aware that they are fully responsible for any liability that arises as a result of such actions.</p> <p>Provide details below for the boxes ticked above</p>
<b>Appendixes 1-7</b>	<p>Details about the Project Activity are provided in Appendixes 1 through 7 to this document.</p>
<b>Name, designation, date and signature of the Project Owner(s)</b>	<p>On behalf of Tunç Grup İnşaat Turizm Ve Ticaret A.Ş.</p> <p>Serkan KORKMAZ</p>
	<p><b>12/01/2022</b></p>
	



## 1. PROJECT SUBMISSION FORM

### Section A. Description of the Project Activity

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

Sazılar Solar Power Plant Bundle Project consists of 6 individual Unlicensed Polycrystalline Silicon Solar Power Plants with a capacity of 6.243 MWp / 6 MWe in total, which is formed according to the Law no: 6446 on Electricity Market Law. Solar panels, inverters and power transmission lines were intended to be built on an area of 100,000 m<sup>2</sup> in Polatlı Region of Ankara Province. The purpose of the project is to generate clean energy by using the solar power and providing the energy to the Turkish national grid. By implementing the project, investors also aim to reduce dependency to the fossil fuels thereby reducing the sources of environmental pollution. This project consists of the Solar Power Plants which is shown below.

**Table 1. List of SPPs in Sazılar Solar Power Plant Bundle**

	Name of Bundle	Name of SPP	Date of Commissioning	Installed Capacity (MWe)	Installed Capacity (MWp)
1	SMK SPP Bundle	SMK-2 SPP	13.11.2017	1.00	1.0764
2		SMK-3 SPP	13.11.2017	1.00	1.0046
3		SMK-4 SPP	13.11.2017	1.00	1.0046
4		SMK-5 SPP	13.11.2017	1.00	1.0046
5	VEPA SPP Bundle	VEPA-1 SPP	13.11.2017	1.00	1.0764
6		VEPA-2 SPP	13.11.2017	1.00	1.0764
<b>Total</b>			-	6.00	6.243

The project activity will generate greenhouse gas (GHG) emission reductions by avoiding CO<sub>2</sub> emission from electricity generation by fossil fuel power plants connected to Turkish National Power Grid. Total installed capacity is 6.00 MWe. The average annual generated energy is expected to be 11,000 MWh and the project will be able to deliver a reduction in emissions of around 6,611 tCO<sub>2</sub>e (tons of carbon dioxide equivalent) per annual. For the entire crediting period, 66,110 tonnes of CO<sub>2</sub> are expected to be reduced.

The project complies with the relevant regulations and laws in Turkey. According to Article 45 of Annex-I of the Environmental Impact Assessment (EIA) Regulation, solar power plants with an installed capacity of 1-10 MWe are evaluated outside the scope of the EIA Regulation when they are under capacity and are exempt from the EIA document. an "Environmental Impact Assessment (EIA) clearance" was approved by the Ministry of Environment, Urbanization and Climate Change in 24/04/2015. Since the project has a power of 6 MWe.

Main goals of the Sazılar Solar Power Plant Bundle project include;

- Utilization of the solar potential of Turkey in order to meet increasing electricity demand and maintain energy security.
- Reduction of GHG emissions through increasing share of renewable resources.
- Contribution to economic development by creating direct and indirect job opportunities during construction and operation phases.
- Reduction of import dependency on fossil fuel weighed electricity sector and diversify generation mix through use of local resources.

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- Contribution to sustainable development through supporting local community and local economy.

The project is expected to contribute 6 SDGs which are SDG 7, 8, 9, 11, and 13.

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

**SDG 8 – Decent Work and Economic Growth:** The project creates direct and indirect employment opportunities during construction and operation phases, so it contributes to SDG Target 8.5 “By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities and equal pay for work of equal value”.

**SDG 9 – Industry, Innovation and Infrastructure:** SDG Target 9.4 requires “By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities”. The project helps the Target 9.4 by implementing a clean, reliable and environmental-friendly infrastructure for clean energy production / up-to-date industrialization.

**SDG 11 – Sustainable Cities and Communities:** The project promotes SDG Target 11.6 “By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management” by decreasing particulate matter caused by fossil fuel emissions in the cities.

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

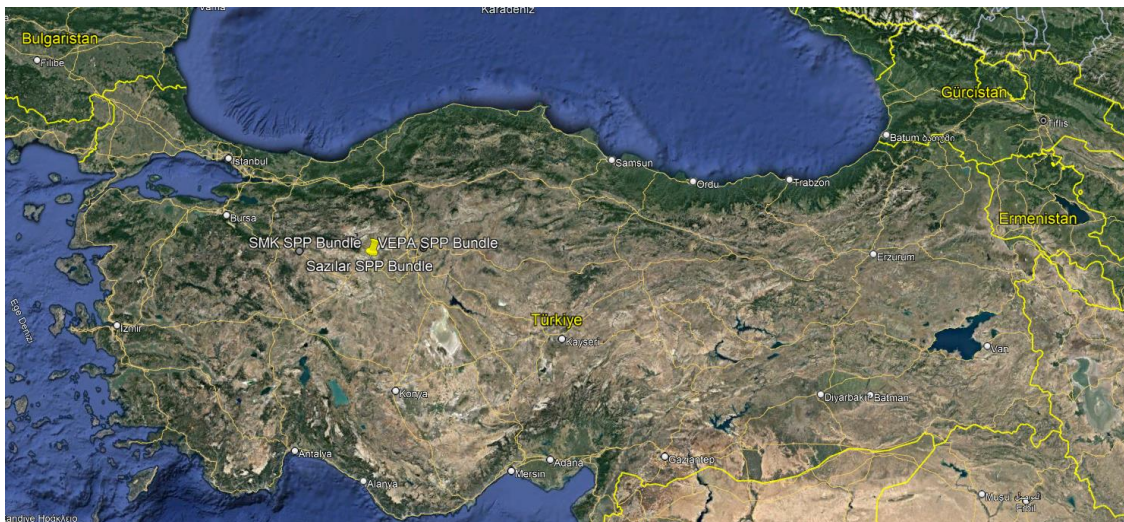
## A.2. Location of the Project Activity

Tunç Grup İnşaat Turizm Ve Ticaret A.Ş. constructed a solar power plant in Polatlı district, Ankara province, Turkey.

Address and geodetic coordinates of the physical site of the Project Activity		
Physical address	Latitude	Longitude
Sazılar Village / Polatlı / Ankara	39°41'58.82" N	31°54'51.96" E



**Figure 1. Location of Sazilar Solar Power Plant Bundle**



**Figure 2. Location of Sazilar Solar Plant Bundle in Turkey Map**

### A.3. Technologies/measures

Polycrystalline silicon solar panels are used in the projects. The total installed capacity is 6 MWe / 6.243 MWp. Total panel area is 100,000 m<sup>2</sup> with 24,012 modules. Technical details of the panels are presented in Table 2. Also, capacities and generations of each solar power plants are presented in Table 3.

**Table 2. Technical Details of panels**

	SMK SPP Bundle				VEPA SPP Bundle	
	SMK-2	SMK-3	SMK-4	SMK-5	VEPA-1	VEPA-2
<b>Type</b>	Poly Crystalline	Poly Crystalline	Poly Crystalline	Poly Crystalline	Poly Crystalline	Poly Crystalline
<b>Dimensions</b>	1,670x1000x 32 mm	1,670x1000x 32 mm	1,670x1000x 32 mm	1,670x1000x 32 mm	1,670x1000x 32 mm	1,670x1000x 32 mm
<b>Panel Area</b>	1.67 m <sup>2</sup>	1.67 m <sup>2</sup>	1.67 m <sup>2</sup>	1.67 m <sup>2</sup>	1.67 m <sup>2</sup>	1.67 m <sup>2</sup>
<b>Maximum Input Voltage (DC)</b>	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V
<b>Maximum Power Current</b>	650 A	650 A	650 A	650 A	650 A	650 A
<b>Maximum Power (AC)</b>	350 kW	350 kW	350 kW	350 kW	350 kW	350 kW

**Table 3. Capacities and generations of each SPP**

	Name of Bundle	Power plant Name	Installed Capacity (MWe)	Installed Capacity (MWp)	Electricity Generation (MWh/yr)
1	SMK SPP Bundle	SMK-2	1.00	1.0764	1,896.7
2		SMK-3	1.00	1.0046	1,770.3
3		SMK-4	1.00	1.0046	1,770.3
4		SMK-5	1.00	1.0046	1,770.3
5	VEPA SPP Bundle	VEPA-1	1.00	1.0764	1,896.7
6		VEPA-2	1.00	1.0764	1,896.7
<b>TOTAL</b>			6.00	6.243	11,000.0

**A.4. Project Owner(s)**

Location/ Country	Project Owner(s)	Where applicable <sup>6</sup> , indicate if the host country has provided approval (Yes/No)
Turkey	1. Tunç Grup İnşaat Turizm Ve Ticaret A.Ş. 2. Desilyon Danışmanlık Ticaret A.Ş. (Focal point to act on behalf of all Project Owners)	N/A

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

<sup>6</sup> 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).



## 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		
01/12/2017	30/11/2027	CORSIA	7,130 tCO <sub>2</sub> e annually

The project owner confirms that the ACC's generated from the project will not be double counted in any other mechanism.

### 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)

The official methodology AMS-I.D version 18.0<sup>7</sup>, Grid-connected renewable electricity generation is used to establish the baseline. This methodology refers to the latest approved versions of the following tools:

- Tool to calculate the emission factor for an electricity system (Version 07.0)<sup>8</sup>
- Positive lists of technologies (Version 3.0)<sup>9</sup>

### B.2. Applicability of methodology(ies)

The official methodology **AMS-I.D version 18.0**, Grid-connected renewable electricity generation is used to establish the baseline under the following conditions.

#### Condition para 4:

This methodology is applicable to grid-connected renewable energy power generation project activities that:

- Install a Greenfield plant;
- Involve a capacity addition in (an) existing plant(s);
- Involve a retrofit of (an) existing plant(s);
- Involve a rehabilitation of (an) existing plant(s)/unit(s); or
- Involve a replacement of (an) existing plant(s).

**Status of project activity:** The project activity involves a new installation of solar power

<sup>7</sup> <https://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTFQQOFQQH4SBK>

<sup>8</sup> <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v7.0.pdf>

<sup>9</sup> <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-32-v3.0.pdf>

generation plant. Hence the methodology is applicable to the project activity.

**Condition para 5:**

Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:

(a) The project activity is implemented in an existing reservoir with no change in the volume of reservoir;

(b) The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m<sup>2</sup>;

(c) The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m<sup>2</sup>.

**Status of project activity:** The project activity is NOT a hydro power project. Hence the condition does not apply.

**Condition para 6:**

If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.

**Status of project activity:** The project does not have non-renewable components. The project has only renewable components which has installed capacity is 6.00 MW. Therefore, the project activity is small scale.

**Condition para 7:**

Combined heat and power (co-generation) systems are not eligible under this category.

**Status of project activity:** The project does not have combined heat and power systems.

**Condition para 8:**

In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.

**Status of project activity:** The project capacity has been increased twice and the total capacity is 6.00 MW. Therefore, the project is still lower than 15 MW.

**Condition para 9:**

In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.

**Status of project activity:** The project does not have a process which includes replacement from fossil fuel to renewable energy, retrofit, or rehabilitation at the site.

**Condition para 10:**

In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as “AMS-I.C.: Thermal energy production with or without electricity” shall be explored.

**Status of project activity:** The project activity is a solar power generation plant, so the condition does not apply.

**Condition para 11:**

In case biomass is sourced from dedicated plantations, the applicability criteria in the tool “Project emissions from cultivation of biomass” shall apply.

**Status of project activity:** The project activity is a solar power generation plant. Hence the condition does not apply.

Additionally, the proposed project activity meets applicability criteria of the following tools:

**TOOL07:** Tool to calculate the emission factor for an electricity system; Version 7.0

“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). “

**Status of project activity:** The emission factor is calculated by using “Tool to calculate the emission factor for an electricity system, ver 07.0”. Hence this tool is applicable.

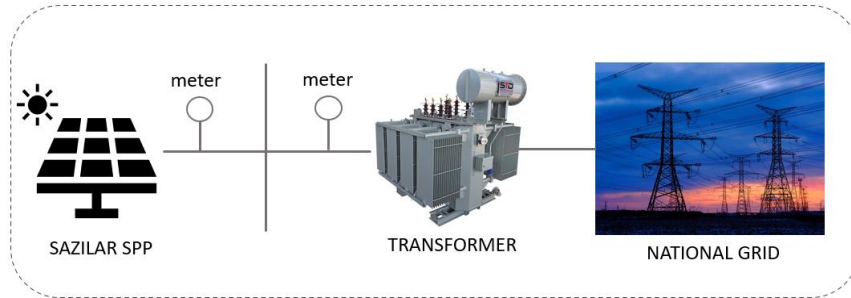
**TOOL32:** Positive lists of technologies (Version 03.0)

“5.2.3. Renewable energy technologies for small-scale grid-connected power generation  
The following grid-connected renewable electricity generation technologies are included in the positive list:  
(a) Solar photovoltaic technologies”

**Status of project activity:** The project is solar photovoltaic technologies, and the project capacity is below 15 MW. That is why, tools of “Positive lists of technologies” is applied.

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

Regarding to applied methodology AMS-I.D; the project boundary is considered as the National Electricity Grid of Turkey. The project boundary covers power plant and the other power plants which connected to the related electricity system.



**Figure 3. Project Boundary**

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

Source		GHG	Included?	Justification/Explanation
Baseline	Electricity Generation	CO <sub>2</sub>	Yes	Main Emission Source
		CH <sub>4</sub>	No	Minor Emission Source. Excluded for simplification
		N <sub>2</sub> O	No	Minor Emission Source. Excluded for simplification
Project Activity	For geothermal power plants, fugitive emissions of CH <sub>4</sub> and CO <sub>2</sub> from non-condensable gases contained in geothermal steam.	CO <sub>2</sub>	No	Not Applicable. Project is not a geothermal power plant.
		CH <sub>4</sub>	No	Not Applicable. Project is not a geothermal power plant.
		N <sub>2</sub> O	No	Not Applicable. Project is not a geothermal power plant.
	CO <sub>2</sub> emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants.	CO <sub>2</sub>	No	Minor emission source. Excluded for simplification
		CH <sub>4</sub>	No	Minor emission source. Excluded for simplification
		N <sub>2</sub> O	No	Minor emission source. Excluded for simplification
	For hydro power plants, emissions of CH <sub>4</sub> from the reservoir.	CO <sub>2</sub>	No	Not Applicable. Project is not a hydro power plant.
		CH <sub>4</sub>	No	Not Applicable. Project is not a hydro power plant.
		N <sub>2</sub> O	No	Not Applicable. Project is not a hydro power plant.

**B.4. Establishment and description of the baseline scenario**

AMS-I.D: Grid connected renewable electricity generation, ver 18.0 is the methodology for small scale project activities. Therefore, Sazılar Solar Power Plant Bundle follows this methodology. Within the scope of this methodology, Selected methodology has been applied together with the “tool to



calculate the emission factor for an electricity system, version 7” and “positive list of technologies, version 02.0”.

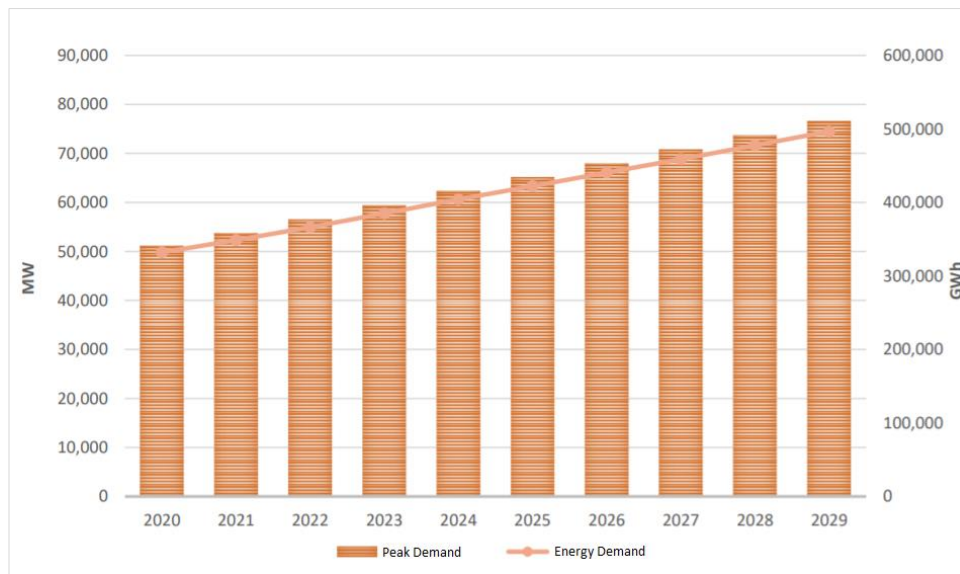
The baseline scenario has been stated as “the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources” with respect to the methodology.

The project activity includes solar power plant to benefit power of the solar to produce electricity and supply to the Turkish National Grid.

Thermal power plants are the most used type in electrical energy production in Turkey. However, that is not enough since Turkey is an upper-developing country and there is an increasing demand of electricity. Also, these plants cause a lot of carbon emissions.

Because of the slow development of alternative energy sources, thermal power plants will increase in the future to meet the demand of electricity. Furthermore, because the large natural resource availability in Turkey, thermal power plants has been increased.

In the absence of the proposed project activity, the number of thermal power plants would increase in order to meet the electricity demand. The figure below shows Turkey's maximum electricity demand prediction for the years 2020-2029.



**Figure 4 Maximum peak demand and energy demand prediction for Turkish electricity system between 2020 – 2029**

### B.5. Demonstration of additionality

The GCC applies the following approach for demonstrating additionality, consisting of two components:

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

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

According to the guidance section TOOL32 Positive lists of technologies;

### 5.2.3. Renewable energy technologies for small-scale grid-connected power generation

The following grid-connected renewable electricity generation technologies are included in the positive list:

- a) Solar photovoltaic technologies;
- b) Solar thermal electricity generation including concentrating solar Power (CSP);
- c) Off-shore wind technologies;
- d) Marine wave technologies;
- e) Marine tidal technologies;
- f) Building-integrated wind turbines or household rooftop wind turbines of a size up to 100 kW;
- g) Biomass internal gasification combined cycle (BIGCC).

The capacity of the project is 6 MW which is a small-scale solar photovoltaic technologies (a). Therefore, the project is automatically additional by applying TOOL32, and there is no need to demonstrate of additionality.

## B.6. Estimation of emission reductions

### B.6.1. Explanation of methodological choices

According to the “Tool to calculate the emission factor for an electricity system, ver 07.0”, the calculation of the operating margin emission factor ( $EF_{grid,OM,y}$ ) is based on one of the following methods, which are described under Step 4:

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

Method (d) Average OM method is not considered this project because the share of low-cost / must-run sources is below 50%. Moreover, method (b) Simple adjusted OM, and (c) Dispatch data analysis OM are eliminated due to lack of available data. Therefore, (a) Simple OM method is used in this project calculations.

There are two options to calculate operating margin which are Simple OM\_Option A and Simple OM\_Option B. Also, their equations are given below. Operating margin of this project is calculated by using Simple OM\_Option B because of availability of necessary data.

Simple OM\_Option A, equation:

$$EF_{grid,OMsimple,y} = \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}}$$

Simple OM\_Option B, equation:

$$EF_{grid,OMsimple,y} = \frac{\sum_m FC_{i,m,y} \times NCV_{i,y} \times EF_{CO_2,i,y}}{\sum_m EG_{m,y}}$$

Where:

$EF_{grid,OMsimple,y}$	= Simple operating margin CO <sub>2</sub> emission factor in year y (tCO <sub>2</sub> /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 <sub>2</sub> emission factor of power unit m in year y (tCO <sub>2</sub> /MWh)
m	= All power units serving the grid in year y except low-cost/must-run power units
y	= The relevant year as per the data vintage chosen in Step 3
$FC_{i,m,y}$	= Amount of fuel type i consumed by power unit m 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)
$EF_{CO_2,i,y}$	= CO <sub>2</sub> emission factor of fuel type i in year y (t CO <sub>2</sub> /GJ)

The methodology has been applied in a conservative manner. Tools addressed by the applied methodology have been used to calculate baseline, project and leakage emissions.

#### Emission Factor:

The combined margin emissions factor is 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 CO <sub>2</sub> emission factor in year y (t CO <sub>2</sub> /MWh)
$EF_{grid,OM,y}$	= Operating margin CO <sub>2</sub> emission factor in year y (t CO <sub>2</sub> /MWh)
$EG_{m,y}$	= Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)
Y	= Most recent historical year for which electricity generation data is available
m	= All power units serving the grid in year y except low-cost/must-run power units

Option A2 of Simple OM method is used for calculating emission factor because data of fuel consumption and electricity generation is not available for the Turkey's case. The formulation of emission factor is given below:

$$EF_{EL,m,y} = \frac{EF_{CO_2,m,i,y} \times 3.6}{\eta_{m,y}}$$

Where:

$EF_{EL,m,y}$	= CO <sub>2</sub> emission factor of power unit m in year y (t CO <sub>2</sub> /MWh)
$EF_{CO_2,m,i,y}$	= Average CO <sub>2</sub> emission factor of fuel type i used in power unit m in year y (tCO <sub>2</sub> /GJ)
$\eta_{m,y}$	= Average net energy conversion efficiency of power unit m in year y (%)

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- m = All power units serving the grid in year y except low-cost/must-run power units
- y = Most recent year for which data is available at the time of submission of the PSF to the GCC Verifier

There is no official emission factors for available different fuel types for BM factor calculation. Lower confidence default values of IPCC Guidelines are applied. The combined margin emission factor is calculated as follows:

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

Where:

- $EF_{grid,BM,y}$  = Build margin CO<sub>2</sub> emission factor in year y (t CO<sub>2</sub>/MWh)
- $EF_{grid,OM,y}$  = Operating margin CO<sub>2</sub> emission factor in year y (t CO<sub>2</sub>/MWh)
- $W_{OM}$  = Weighting of operating margin emissions factor (per cent)
- $W_{BM}$  = Weighting of build margin emissions factor (per cent)

## Project Emission:

The project activity involves the generation of electricity by development of a solar plant. The generation of electricity does not result in GHG emissions.

Therefore,

$$PE_y = 0$$

## Leakage Emission:

No leakage is applicable for Sazilar Solar Power Plant Bundle under AMS-I.D methodology.

Therefore,

$$LE_y = 0$$

## Baseline Emission:

The baseline emissions are to be calculated as follows:

$$BE_y = (EG_{facility,y} - EG_{facility,baseline}) \times EF_{grid,CM,y}$$

Where:

- $BE_y$  = Baseline emissions in year y (tCO<sub>2</sub>/yr)
- $EG_{facility,y}$  = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)
- $EF_{grid,CM,y}$  = Combined margin CO<sub>2</sub> emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO<sub>2</sub>/MWh)
- $EG_{facility,baseline}$  = Baseline electricity supplied to the grid in the case of modified or retrofit facilities (MWh). For new power plants this value is taken as zero.

The project activity is the installation of a new grid-connected renewable power plant so,

$$EG_{\text{facility, baseline}} = 0$$

According to the Sazılar Solar Power Plant Bundle,  $EG_{\text{facility,y}} = 11,000$  MWh/yr. Also, According to calculation, the emission factor coefficient ( $EF_{\text{grid,CM,y}}$ ) is calculated as 0.601 tCO<sub>2</sub>/MWh.

Therefore, the baseline emission annually is:

$$BE_y = (11,000) \times (0.601) = 6,611 \text{ tCO}_2\text{e}$$

Based on the data above, the emission reduction value for Sazılar Solar Power Plant Bundle is:

$$ER_y = BE_y = 6,611 \text{ tCO}_2\text{e}$$

## B.6.2 Data and parameters fixed ex ante

**Data / Parameter Table 1.**

Data / Parameter:	EG <sub>y</sub>
Methodology reference	AMS-I.D
Data unit	MWh
Description	Net electricity generated by power plant/unit m, k or n (or in the project electricity system in case of EG <sub>y</sub> ) in year y
Measured/calculated /default	Measured
Data source	For gross generation electricity generated and delivered to the grid by all over sources serving the system, not including low-cost/must run power plants in year y: <u>Annual Development Of Turkey's Electricity Generation By Primary Energy Resources (2000-2017)</u> <sup>10</sup>  For net generation and imported electricity: <u>Annual Development Of Electricity Generation- Consumption And Losses In Turkey (1993-2020)</u> <sup>11</sup>
Value(s) of monitored parameter	176,681.2 GWh in 2016 181,420.7 GWh in 2017 202,733.6 GWh in 2018  560,835.4 GWh between 2016 - 2018
Measurement/ Monitoring equipment (if applicable)	-
Measuring/reading/ recording frequency (if applicable)	Once in the crediting period

<sup>10</sup> <https://webapi.teias.gov.tr/file/cfd34f31-0bfd-4a06-8346-efb33285e44c?download>

<sup>11</sup> <https://webapi.teias.gov.tr/file/e15261ce-c442-4fb6-ae82-25a690d85fd1?download>

Project Submission Form

Calculation method (if applicable)	Calculation of baseline emissions
QA/QC procedures	-
Purpose of data	Data used for emission reduction calculation (for calculation of OM, Netto-Gross electricity ratio and share of low-cost must-run sources)
Additional comments	-

**Data / Parameter Table 2.**

<b>Data / Parameter:</b>	<b>FC<sub>i,y</sub></b>																																			
Methodology reference	AMS-I.D																																			
Data unit	Mass or volume unit																																			
Description	Amount of fuel type i consumed in the project electricity system in year y																																			
Measured/calculated/default	Measured																																			
Data source	TEIAS web page: Annual Development of Fuels Consumed In Thermal Power Plants In Turkey By The Electric Utilities (2006-2017) <sup>12</sup>																																			
Value(s) of monitored parameter	<table border="1"> <thead> <tr> <th>Energy Sources</th> <th>2015</th> <th>2016</th> <th>2017</th> </tr> </thead> <tbody> <tr> <td>Hard Coal + Imported Coal</td> <td>16629.492</td> <td>19642.41</td> <td>21139.104</td> </tr> <tr> <td>Lignite</td> <td>49940.131</td> <td>60213.772</td> <td>64412.257</td> </tr> <tr> <td>Fuel Oil</td> <td>516.912</td> <td>526.674</td> <td>317.724</td> </tr> <tr> <td>Diesel Oil</td> <td>238.388</td> <td>306.393</td> <td>197.219</td> </tr> <tr> <td>LPG</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Naphta</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Natural Gas (million m<sup>3</sup>)</td> <td>20914.868</td> <td>18954.093</td> <td>22954.854</td> </tr> </tbody> </table>				Energy Sources	2015	2016	2017	Hard Coal + Imported Coal	16629.492	19642.41	21139.104	Lignite	49940.131	60213.772	64412.257	Fuel Oil	516.912	526.674	317.724	Diesel Oil	238.388	306.393	197.219	LPG	0	0	0	Naphta	0	0	0	Natural Gas (million m <sup>3</sup> )	20914.868	18954.093	22954.854
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Measurement/Monitoring equipment (if applicable)	-																																			
Measuring/reading/recording frequency (if applicable)	Once (ex-ante)																																			
Calculation method (if applicable)	-																																			
QA/QC procedures	-																																			

<sup>12</sup> <https://webapi.teias.gov.tr/file/69279fb3-a945-4066-a772-26d6a9ee15f9?download>

Purpose of data	Calculation of baseline emissions
Additional comments	-

### Data / Parameter Table 3.

<b>Data / Parameter:</b>	<b>EF<sub>CO<sub>2</sub>, i, y</sub></b>																
Methodology reference	AMS-I.D																
Data unit	tCO <sub>2</sub> /GJ																
Description	CO <sub>2</sub> emission factor of fuel type i used in power unit m in year y																
Measured/calculated/default	Measured																
Data source	For EF of fossil fuels, IPCC values <sup>13</sup> at the lower limit have been used. 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2-Stationary Combustion <sup>14</sup>																
Value(s) of monitored parameter	<table border="1"> <thead> <tr> <th>Energy Sources</th> <th>Emission Factor EFCO<sub>2</sub> (kg/TJ)</th> </tr> </thead> <tbody> <tr> <td>Hard Coal + Imported Coal</td> <td>89500</td> </tr> <tr> <td>Lignite</td> <td>90900</td> </tr> <tr> <td>Fuel Oil</td> <td>75500</td> </tr> <tr> <td>Diesel Oil</td> <td>72600</td> </tr> <tr> <td>LPG</td> <td>61600</td> </tr> <tr> <td>Naphta</td> <td>69300</td> </tr> <tr> <td>Natural Gas</td> <td>54300</td> </tr> </tbody> </table>	Energy Sources	Emission Factor EFCO <sub>2</sub> (kg/TJ)	Hard Coal + Imported Coal	89500	Lignite	90900	Fuel Oil	75500	Diesel Oil	72600	LPG	61600	Naphta	69300	Natural Gas	54300
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Measurement/Monitoring equipment (if applicable)	-																
Measuring/reading/recording frequency (if applicable)	Once in the crediting period																
Calculation method (if applicable)	According to the applied tool, IPCC default values at lower limit of 95% confidence interval can be used. Although, the actual emission reduction is expected to be higher due to high EF of fuels consumed in existing power plants, IPCC values have been used for conservativeness as requested by the methodology.																
QA/QC procedures	-																
Purpose of data	Calculation of baseline emissions																
Additional comments	-																

<sup>13</sup> [https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2\\_Volume2/V2\\_1\\_Ch1\\_Introduction.pdf](https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf)

<sup>14</sup> [https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2\\_Volume2/V2\\_2\\_Ch2\\_Stationary\\_Combustion.pdf](https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf)

**Data / Parameter Table 4.**

<b>Data / Parameter:</b>	<b>NCV<sub>i,y</sub></b>																																
Methodology reference	AMS-I.D																																
Data unit	TJ/kton																																
Description	Net Calorific Value of fuel types in the years of 2015, 2016 and 2017																																
Measured/calculated /default	Calculated on CM sheet																																
Data source	TEİAŞ - Annual Development of Fuels Consumed in Thermal Power Plants in Turkey by the Electric utilities (2005-2020) <sup>15</sup> IPCC - Guidelines for National Greenhouse Gas Inventories <sup>16</sup>																																
Value(s) of monitored parameter	<table border="1"> <thead> <tr> <th>Energy Sources</th> <th>NCVi 2015 (TJ/kton)</th> <th>NCVi 2016 (TJ/kton)</th> <th>NCVi 2017 (TJ/kton)</th> </tr> </thead> <tbody> <tr> <td>Hard Coal + Imported Coal</td> <td>24.059</td> <td>24.058</td> <td>23.580</td> </tr> <tr> <td>Lignite</td> <td>7.16</td> <td>7.85</td> <td>6.97</td> </tr> <tr> <td>Fuel Oil</td> <td>44.186</td> <td>42.382</td> <td>44.892</td> </tr> <tr> <td>Diesel Oil</td> <td>43.7552</td> <td>44.176</td> <td>44.594</td> </tr> <tr> <td>LPG</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Naphta</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Natural Gas (million m<sup>3</sup>)</td> <td>37.811</td> <td>37.985</td> <td>36.794</td> </tr> </tbody> </table>	Energy Sources	NCVi 2015 (TJ/kton)	NCVi 2016 (TJ/kton)	NCVi 2017 (TJ/kton)	Hard Coal + Imported Coal	24.059	24.058	23.580	Lignite	7.16	7.85	6.97	Fuel Oil	44.186	42.382	44.892	Diesel Oil	43.7552	44.176	44.594	LPG	0	0	0	Naphta	0	0	0	Natural Gas (million m <sup>3</sup> )	37.811	37.985	36.794
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Measurement/ Monitoring equipment (if applicable)	-																																
Measuring/reading/ recording frequency (if applicable)	Once in the crediting period																																
Calculation method (if applicable)	Data has been calculated from Grid Operator's (TEIAS) statistics																																
QA/QC procedures	-																																
Purpose of data	Calculation of baseline emissions																																
Additional comments	-																																

<sup>15</sup> <https://webapi.teias.gov.tr/file/aae63459-10c2-4269-9140-83311dec4cc6?download>

<sup>16</sup> [http://www.ipccnggip.iges.or.jp/public/2006gl/pdf/2\\_Volume2/V2\\_1\\_Ch1\\_Introduction.pdf](http://www.ipccnggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf)



**Data / Parameter Table 5.**

<b>Data / Parameter:</b>	$\eta_{m,y}$																							
Methodology reference	AMS-I.D																							
Data unit	-																							
Description	Net Calorific Value of fuel types in the years of 2015, 2016 and 2017																							
Measured/calculated/default	Default																							
Data source	Default values provided in the ER calculation sheet. For efficiency rates of Natural Gas, Coal and Lignite Power Plants See Appendix, Table 2 of the Tool (highest rate is applied to be conservative) <sup>17</sup>																							
Value(s) of monitored parameter	<table border="1"> <thead> <tr> <th>Energy Source</th> <th>Effective CO<sub>2</sub> Emission Factor (tCO<sub>2</sub>/GJ)<sup>18</sup></th> <th>Average Efficiency (<math>\eta</math>)<sup>19</sup></th> <th>EF<sub>el</sub> (tCO<sub>2</sub>/MWh)</th> </tr> </thead> <tbody> <tr> <td>Natural Gas</td> <td>0.0543</td> <td>62%</td> <td>0.315</td> </tr> <tr> <td>Lignite</td> <td>0.0909</td> <td>50%</td> <td>0.654</td> </tr> <tr> <td>Coal</td> <td>0.0895</td> <td>50%</td> <td>0.644</td> </tr> <tr> <td>Renewables</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>				Energy Source	Effective CO <sub>2</sub> Emission Factor (tCO <sub>2</sub> /GJ) <sup>18</sup>	Average Efficiency ( $\eta$ ) <sup>19</sup>	EF <sub>el</sub> (tCO <sub>2</sub> /MWh)	Natural Gas	0.0543	62%	0.315	Lignite	0.0909	50%	0.654	Coal	0.0895	50%	0.644	Renewables	0	0	0
	Energy Source	Effective CO <sub>2</sub> Emission Factor (tCO <sub>2</sub> /GJ) <sup>18</sup>	Average Efficiency ( $\eta$ ) <sup>19</sup>	EF <sub>el</sub> (tCO <sub>2</sub> /MWh)																				
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	Coal	0.0895	50%	0.644																				
Renewables	0	0	0																					
Measurement/Monitoring equipment (if applicable)	-																							
Measuring/reading/recording frequency (if applicable)	Once in the crediting period																							
Calculation method (if applicable)	-																							
QA/QC procedures	-																							
Purpose of data	Calculation of baseline emissions																							
Additional comments	-																							

**Data / Parameter Table 6.**

<b>Data / Parameter:</b>	EF <sub>GRID,CM,Y</sub>
Methodology reference	AMS-I.D
Data unit	tCO <sub>2e</sub> /MWh

<sup>17</sup> <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-09-v2.0.pdf>

<sup>18</sup> [https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2\\_Volume2/V2\\_2\\_Ch2\\_Stationary\\_Combustion.pdf](https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf)

<sup>19</sup> <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-09-v2.0.pdf>

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Description	CO <sub>2</sub> emission factor of the grid electricity in year y
Measured/calculated/default	Calculated
Data source	-
Value(s) of monitored parameter	0.601 tCO <sub>2</sub> /MWh
Measurement/Monitoring equipment (if applicable)	As per the requirements in “Tool to calculate the emission factor for an electricity system”
Measuring/reading/recording frequency (if applicable)	Once in the crediting period
Calculation method (if applicable)	Data has been calculated from Grid Operator’s (TEIAS) statistics
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comments	-

### B.6.3. Ex-ante calculation of emission reductions

According to the TOOL07 “Tool to calculate the emission factor for an electricity system”, emission factor has been calculated by following six steps.

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

#### **Step 1: Identify the relevant electricity systems;**

Turkey has only one transmission line system, which is the national transmission system, and only TEIAS is responsible for all activities related to the transmission system. However, there are 21 regional distribution regions in Turkey. The mentioned information is stated in the Turkish legislation (In Article 20 of Electricity Market Licensing Regulation<sup>20</sup>) as follows.

“TEIAS shall be in charge of all transmission activities to be performed over the existing transmission facilities and those to be constructed as well as the activities pertaining to the operation of national

<sup>20</sup> <https://www.mevzuat.gov.tr/File/GeneratePdf?mevzuatNo=18985&mevzuatTur=KurumVeKurulusYonetmeligi&mevzuatTertip=5>

transmission system via the National Load Dispatch Center and the regional load dispatch centers connected to this center and the operation of Market Financial Reconciliation Center.”

Therefore, the national grid is used as the electric power system for the project activity. The national grid of Turkey is connected to the electrical systems of neighboring countries. In accordance with the rules of the vehicle, the emission factor for imports from neighboring countries in determining the OM is considered to be 0 (zero) tCO<sub>2</sub>/MWh. Since TEIAS, which operates the network, does not take into account import-exports for electricity capacity projections, there is no information about transmission capacity investments in the interconnection.

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

Project participants may choose between the following two options to calculate the operating margin and build margin emission factor:

**Option I:** Only grid power plants are included in the calculation.

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

For this project, Option I has been chosen hence only grid power plants are included in calculations.

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

According to the “Tool to calculate the emission factor for an electricity system, ver 07.0”, the calculation of the operating margin emission factor (EF<sub>grid,OM,y</sub>) is based on one of the following methods:

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

Method (d) Average OM method is not considered this project because the share of low-cost / must-run sources is below 50%. Moreover, method (b) Simple adjusted OM, and (c) Dispatch data analysis OM are eliminated due to lack of available data. Therefore, (a) Simple OM method is used in this project calculations.

**Table 4. Share of Low-Cost Resource (LCR) Production (2013 - 2017)**

Low-Cost Resource Production (GWh)					
	2013	2014	2015	2016	2017
<b>Gross Production</b>	240,153.95	251,962.82	261,783.30	274,407.75	297,277.52
<b>Hydro</b>	59,420.47	40,644.70	67,145.83	67,230.88	58,218.46
<b>Renewables and Wastes</b>	1,171.20	1,432.59	1,758.19	2,371.63	2,972.31
<b>Geothermal and Wind</b>	8,921.04	10,884.12	15,076.98	20,335.61	24,031.30
<b>Total LCR Production</b>	69,512.71	52,961.42	83,981.00	89,938.12	85,222.07
<b>Share of LCRs</b>	28.95%	21.02%	32.08%	32.78%	28.67%
<b>Average of 2013-2017</b>	28.70%				

The simple OM method can be used for calculation the operating margin emission factor (EF<sub>grid,OM,y</sub>). Since average share of low cost resources for the last five years is far below 50% (28.70%).

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There are two options for calculation of  $EF_{grid,OM,y}$ , according to the TOOL07.

- **Ex ante option:** A 3-year generation-weighted average, based on the most recent data available at the time of submission of the PSF to the GCC Verifier for verification, or
- **Ex post option:** The year, in which the project activity displaces grid electricity, requiring the emissions factor to be updated annually during monitoring.

The ex-ante approach is chosen for this project. The latest data were used for the baseline calculation originating from the years 2015-2017.

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

The simple OM emission factor is calculated as the generation-weighted average CO<sub>2</sub> emissions per unit net electricity generation (tCO<sub>2</sub>/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants. The simple OM may be calculated by one of the following two options:

**Option A:** Based on the net electricity generation and a CO<sub>2</sub> emission factor of each power unit; or

**Option B:** Based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system.

Option B is selected. Therefore, 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 fuel type(s), and total fuel consumption of the project electricity system, as follows:

$$EF_{grid,OMsimple,y} = \frac{\sum_i FC_{i,y} \times NCV_{i,y} \times EF_{CO_2,i,y}}{\sum_m EG_y}$$

Where:

$EF_{grid,OMsimple,y}$	= Operating margin CO <sub>2</sub> emission factor in year y (t CO <sub>2</sub> /MWh)
$FC_{i,y}$	= Amount of fossil fuel type i consumed in the project electricity system in year y (mass or volume unit)
$NCV_{i,y}$	= Net calorific value (of fossil fuel type i in year y (GJ / mass or volume unit)
$EG_y$	= 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)
$EF_{CO_2,i,y}$	= CO <sub>2</sub> emission factor of fossil fuel type i in year y (tCO <sub>2</sub> /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 fossil fuel types combusted in power sources in the project electricity system in year y
y	= three most recent years for which data is available at the time of submission of the PSF to the GCC Verifier for verification

Heating values of fuels and the amount of fuel consumption ( $FC_{i,y}$ ) are taken from website of TEİAŞ, the official source of related data for the calculation of the Simple OM. All the data needed for the calculation, including the emission factors and net calorific values (NCVs), are provided in excel table that shows OM emission factor, Fossil Fuel Consumption Amounts and Net Calorific Values. The

used data such as fuel consumption, net calorific values (NCV), and  $EF_{CO_2}$  values are given in the below tables for 2015, 2016, and 2017.

**Table 5. Amount of fuels used for electricity generation<sup>21</sup>**

Fuel Type	Fuel Consumption ( $FC_{i,y}$ )		
	2015	2016	2017
	kton		
Hard Coal + Imported Coal	16,629.492	19,642.41	21,139.104
Lignite	49,940.131	60,213.772	64,412.257
Fuel Oil	516.912	526.674	317.724
Diesel Oil	238.388	306.393	197.219
LPG	0	0	0
Naphtha	0	0	0
Natural Gas (million m <sup>3</sup> )	20,914.868	18,954.093	22,954.854

**Table 6. Net Calorific Values of Fuels**

Fuel Type	Net Calorific Values (NCV) (TJ/kton)		
	2015	2016	2017
Hard Coal + Imported Coal	24.059	24.058	23.580
Lignite	7.16	7.85	6.97
Fuel Oil	44.186	42.382	44.892
Diesel Oil	43.7552	44.176	44.594
LPG	0	0	0
Naphtha	0	0	0
Natural Gas (million m <sup>3</sup> )	37.811	37.985	36.794

**Table 7. Emission Factor Values**

Energy Sources	Emission Factor $EF_{CO_2}$ (kg/TJ)
Hard Coal + Imported Coal	89500
Lignite	90900
Fuel Oil	75500
Diesel Oil	72600
LPG	61600
Naphta	69300
Natural Gas	54300

<sup>21</sup> <https://www.teias.gov.tr/tr-TR/turkiye-elektrik-uretim-iletim-istatistikleri>

**Table 8. CO2 Emissions for 2015-2017 (from electricity production)**

	2015	2016	2017
<b>CO2 Emission (ktCO2)</b>	113,718	127,013	132,978

The consumption amount and heating values of the fuels for each source used for the years 2015, 2016 and 2017 for the calculation of the OM is taken from the TEİAŞ annual statics fuel consumption by fuel types data. All information is given in the excel sheet.

**Table 9. Gross Electricity Production by Fossil Sources (GWh)**

Energy Source	2015	2016	2017
Natural Gas	99,218.7	89,227.1	110,490.0
Lignite	31,335.7	38,569.9	40,694.4
Coal	44,829.9	53,703.2	56,781.9
Fuel Oil	980.4	969.1	520.6
Motor Oil	1,243.6	957.2	679.3
Naphta	0.0	0.0	0.0
LPG	0.0	0.0	0.0
Total	177,608.3	183,426.5	209,166.2

**Table 10. Net/Gross Electricity Production**

	2015	2016	2017
Gross Production	261,783.3	274,407.7	297,277.5
Net Production	249,899.5	261,936.8	284,257.5
Net-to-Gross	0.9546	0.955	0.956

**Table 11. Electricity supplied to the grid (GWh)**

	2015	2016	2017
Net Production of Fossil Fuels	169,545.7	175,090.4	200,005.3
Electricity Import*	7,135.5	6,330.3	2,728.3
Total electricity supplied to the grid	176,681.2	181,420.7	202,733.6

**Table 12. EFgrid,OMsimple,y**

	2015	2016	2017
CO2-Emissions (ktCO2)	113,718	127,013	132,978
Net Electricity Supplied to Grid (GWh)	176681.2	181420.7	202733.6
EFgrid,OMsimple,y(ktCO2/GWh)	0.6436	0.7001	0.6559
Weighted Average EFgrid,OM,y (ktCO2/GWh)	0.667		

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

According to the TOOL07 “Tool to calculate the emission factor for an electricity system” , the project owner has to be choose between one of the following two options;

- **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 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;
- **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 this project, Option 1 is chosen for calculation the build margin emission factor. The sample group of power units m used to calculate the build margin should be determined as per the following procedure, consistent with the data vintage selected above:

**(a)** Identify the set of five power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently (SET5 units) and determine their annual electricity generation (AEGSET-5-units, in MWh);

Five Power Unit started the supply electricity to the grid most recently has been tabulated below:

Name of Plant	Commissioning Date	Generation Capacity (MW)
CENAL TERMİK ENERJİ SANTRALİ	27.12.2017	660
MAVİBAYRAK-1 BİYOKÜTLE ENERJİ SANTRALİ	28.12.2017	9.5
MELİH JES	30.12.2017	26
ÇAMLICA HES	23.12.2017	22.652
KİĞİ BARAJI VE HES	21.12.2017	138
		<b>Total: 856.152</b>

**(b)** Determine the annual electricity generation of the project electricity system, excluding power units registered as GCC project activities (AEGtotal, in MW). Identify the set of power units, excluding power units registered as project activities, that started to supply electricity to the grid most recently and that comprise 20% of AEGtotal (if 20% falls on part of the generation of a unit, the generation of that unit is fully included in the calculation) (SET≥20%) and determine their annual electricity generation (AEGSET-≥20%, in MW);

For determination of plants that comprise 20% of the system's generation, net generation in year 2017 which is 85,200 MW has been taken as reference and its 20% has been determined as about

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17,040 MW. Since 20% of the most recent year's generation does not fall partly on capacity of a plant (AEGSET 20 percent > AEGSET 5 units), total capacity in BM calculation is 17,040 MW.

(c) From SET5-units and SET≥20% select the set of power units that comprises the larger annual electricity generation (SETsample); Identify the date when the power units in SETsample started to supply electricity to the grid. If none of the power units in SETsample started to supply electricity to the grid more than 10 years ago, then use SETsample to calculate the build margin. In this case ignore steps (d), (e) and (f).

SET≥20% is selected as (SETsample) because the set of power units that comprises the larger annual electricity generation. There is no power units in SETsample started to supply electricity to the grid more than 10 years ago. Therefore the steps (d), (e) and (f) are ignored.

The Build Margin emission factor EF<sub>grid, BM, y</sub> is calculated as the generation-weighted average emission factor of a sample of power plants "m" for a specific year, as follows:

$$EF_{grid, BM, y} = \frac{\sum EG_{m, y} \times EF_{EL, m, y}}{\sum EG_{m, y}}$$

Where:

- EF<sub>grid, BM, y</sub> = Build margin CO<sub>2</sub> emission factor in year "y" (tCO<sub>2</sub>/MWh)
- EG<sub>m, y</sub> = Net quantity of electricity generated and delivered to the grid by power unit "m" in year "y" (MWh)
- EF<sub>EL, m, y</sub> = CO<sub>2</sub> emission factor of power unit "m" in year "y" (tCO<sub>2</sub>/MWh)
- m = Power units included in the build margin
- y = Most recent historical year for which power generation data is available

Option A2 of Simple OM method is used for calculating emission factor. Therefore, the formulation of emission factor is given below:

$$EF_{EL, m, y} = \frac{EF_{CO_2, m, i, y} \times 3.6}{\eta_{m, y}}$$

Where:

- EF<sub>EL, m, y</sub> = CO<sub>2</sub> emission factor of power unit m in year y (t CO<sub>2</sub>/MWh) m = Power units included in the build margin
- EF<sub>CO<sub>2</sub>, m, i, y</sub> = Average CO<sub>2</sub> emission factor of fuel type i used in power unit m in year y (tCO<sub>2</sub>/GJ)
- η<sub>m, y</sub> = Average net energy conversion efficiency of power unit m in year y (%)
- m = All power units serving the grid in year y except low-cost/must-run power units
- y = Most recent year for which data is available at the time of submission of the PSF to the GCC Verifier

TOOL07 "Tool to Calculate the Emission Factor for an Electricity System" has been used for plant efficiency data although this approach is very conservative, because this tool does not contain any specific data for plants with LPG, Naphtha etc. all of the plants consuming liquid fuels have been considered as open cycle plants. Plants using lignite and coal have been assumed as using subcritical technology, whereas natural gas plants have been assumed as combined cycle plants. The assumptions have been based on TEIAS statistics which gives heating values of fuels consumed in thermal power plants and corresponding electricity generation which shows that values used are very conservative compared to actual situation.



**Table 13. Calculation of BM emission factor**

Energy Source	Sample Group Total Capacity Addition (MW)	Effective CO2 Emission Factor (tCO2/GJ)*	Average Efficiency (η)**	EFel (tCO2/MWh)	CO2 Emission (MW*tCO2/MWh)
Natural Gas	6,199.8	0.0543	62%	0.315	1,954.7
Lignite	2,332.1	0.0909	50%	0.654	1,526.3
Coal	4,952.3	0.0895	50%	0.644	3,191.3
Renewables	5,292.8	0	0	0	0.0
<b>TOTAL</b>					<b>6,672.33</b>

There is no information available on plant-based annual electricity generation to calculate  $EF_{grid,BM,y}$ . Therefore, it is assumed that every power plant operates with full capacity all around the year. Furthermore, Since this assumption affects both the numerator and the denominator of the equation below, the installed power multiplied by 8760 hours/year will cancel each other out.

$$EF_{grid,BM,y} = \frac{\sum EG_{m,y} \times EF_{EL,m,y}}{\sum EG_{m,y}}$$

The build margin emission factor has been determined by using above data, which is detailed in the excel sheet. The Build margin emission factor has been determined by multiplying each EFel value with the corresponding electricity generation value for that fuel and dividing it by the total generation by the most recent capacity additions.

**Table 14. Data used for calculation  $EF_{grid,BM,y}$**

Data	Value
Sample group total capacity	17,213.77 MW
Net/Gross electricity production for 2017	0.956

$$EF_{grid,BM,y} = \frac{6,672.3}{17,213.77 \times 0,956} = 0.405 \text{ tCO}_2/\text{MWh}$$

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

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

- (a) Weighted average CM; or
- (b) Simplified CM.

The combined margin emission factor is calculated as follows:

$$EF_{grid,CM,y} = (W_{OM} \times EF_{grid,OM,y}) + (W_{OM} \times EF_{grid,OM,y})$$

Where:

- $EF_{grid,BM,y}$  = Build margin CO<sub>2</sub> emission factor in year y (t CO<sub>2</sub>/MWh)
- $EF_{grid,OM,y}$  = Operating margin CO<sub>2</sub> emission factor in year y (t CO<sub>2</sub>/MWh)
- $W_{OM}$  = Weighting of operating margin emissions factor (per cent)

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$w_{OM}$  = Weighting of build margin emissions factor (per cent)

According to the TOOL07 “Tool to Calculate the Emission Factor for an Electricity System”,  $w_{OM}$  is 0.75 and  $w_{OM}$  is 0.25 for solar power generation project activities.

$$EF_{grid,CM,y} = (0.75 \times 0.667) + (0.25 \times 0.405) = 0.601 \text{ tCO}_2/\text{MWh}$$

$$ER_y = BE_y - PE_y - LE_y$$

Where:

$ER_y$  = Emission reductions in year y (tCO<sub>2</sub>/yr)

$BE_y$  = Baseline reductions in year y (tCO<sub>2</sub>/yr)

$PE_y$  = Project reductions in year y (tCO<sub>2</sub>/yr)

$LE_y$  = Project reductions in year y (tCO<sub>2</sub>/yr)

### Project Emission:

The project activity involves the generation of electricity by development of a solar plant. The generation of electricity does not result in GHG emissions.

Therefore,

$$PE_y = 0$$

### Leakage Emission:

No leakage is applicable for Sazilar Solar Power Plant Bundle under AMS-I.D methodology.

Therefore,

$$LE_y = 0$$

### Baseline Emission:

The baseline emissions are to be calculated as follows:

$$BE_y = (EG_{facility,y} - EG_{facility,baseline}) \times EF_{grid,CM,y}$$

Where:

$BE_y$  = Baseline emissions in year y (tCO<sub>2</sub>/yr)

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

$EF_{grid,CM,y}$  = Combined margin CO<sub>2</sub> emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO<sub>2</sub>/MWh)

$EG_{facility,baseline}$  = Baseline electricity supplied to the grid in the case of modified or retrofit facilities (MWh). For new power plants this value is taken as zero.

The project activity is the installation of a new grid-connected renewable power plant,so,

$$EG_{facility,baseline} = 0$$

According to the Sazilar Solar Power Plant Bundle,  $EG_{facility,y} = 11,000$  MWh/yr. Also, According to calculation, the emission factor coefficient ( $EF_{grid,CM,y}$ ) is calculated as 0.601 tCO<sub>2</sub>/MWh.

Therefore, the baseline emission annually is:

$$BE_y = (11,000) \times (0.601) = 6,611 \text{ tCO}_2\text{e}$$

Based on the data above, the emission reduction value for Sazilar Solar Power Plant Bundle is:

$$ER_y = BE_y = 6,611 \text{ tCO}_2\text{e}$$

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

Year	Baseline emissions (t CO <sub>2</sub> e)	Project emissions (t CO <sub>2</sub> e)	Leakage (t CO <sub>2</sub> e)	Emission reductions (t CO <sub>2</sub> e)
2017 (01/12/2017 - 31/12/2017)	551	0	0	551
2018	6,611	0	0	6,611
2019	6,611	0	0	6,611
2020	6,611	0	0	6,611
2021	6,611	0	0	6,611
2022	6,611	0	0	6,611
2023	6,611	0	0	6,611
2024	6,611	0	0	6,611
2025	6,611	0	0	6,611
2026	6,611	0	0	6,611
2027 (01/01/2027 - 30/11/2027)	6,060	0	0	6,060
<b>Total</b>	66,110	0	0	66,110
<b>Total number of crediting years</b>	10 years			
<b>Annual average over the crediting period</b>	6,611	0	0	6,611

#### B.7. Monitoring plan

##### B.7.1. Data and parameters to be monitored

Data / Parameter Table 1.

<b>Data / Parameter:</b>	EG <sub>facility,y</sub>
Methodology reference	AMS-I.D
Data unit	MWh
Description	Net Electricity generated and delivered to the grid by the power plant in year y
Measured/calculated/default	Measured
Data source	Electricity meter readings on-site
Value(s) of monitored parameter	Annual electricity generation is 11,000 MWh as indicated in generation license

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Measurement/ Monitoring equipment		
	Type of meter	<b>Main Meter:</b> Landis+GYR E550 <b>Spare Meter:</b> Luna LUN23
	Location of meter	On-site
	Accuracy of meter	0.5S
	Serial number of meter	<b><u>MAIN METER:</u></b> 40184654 (VEPA-1) 40184658 (VEPA-2) 40184656 (SMK-2) 40184656 (SMK-3) 40184655 (SMK-4) 23096446 (SMK-5)  <b><u>SPARE METER:</u></b> 24107996 (VEPA-1) 24107995 (VEPA-2) 23096447 (SMK-2) 23358245 (SMK-3) 24617267 (SMK-4) 23096446 (SMK-5)
	Calibration frequency	10 years
	Date of Calibration/ validity	-
	Reference No. of Calibration Certificate	-
	Calibration Status	Calibrated
	Measuring/reading/ recording frequency	Monthly
Calculation method (if applicable)	EPIAS records are taken via remote reading system. The values are cross-check with the on-site meter records. Electricity generation data is recorded by two electricity meters. According to them, the invoices of the electricity are provided to TEIAS. The quantity of electricity supplied by the project activity to the grid and the quantity of electricity delivered to the related area from the grid are measured. Internal consumption from electricity is subtracted from the delivered electricity to calculate the net generation.	
QA/QC procedures	Calibration of the meters are valid for 3 years based on related regulation. <sup>22</sup> The meters are sealed by TEIAS and the project proponent are not allowed to access the meters. If there is a significant difference between the readings of two devices, TEIAS is informed about this situation. EPDK regulations should be followed for the meters to identify the accuracy class of the meters as 0.2 or 0.5.	

<sup>22</sup> <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>

Purpose of data	To calculate the emission reductions To evaluate the contribution SDG 9 Infrastructure, Industrialization Target 9.4 “By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.”
Additional comments	-

**Data / Parameter Table 2.**

<b>Data / Parameter:</b>	CO <sub>2</sub> Emissions	
Methodology reference	GCC Environment and Social Safeguards Standard, v2.0	
Data unit	Tons	
Description	Reduction of CO <sub>2</sub> emissions due to implementation of the project activity	
Measured/calculated/default	Calculated	
Data source	Electricity generated by Sazilar Solar Power Plant Bundle and the emission factor coefficient	
Value(s) of monitored parameter	6,611 tons of CO <sub>2</sub> annually	
Measurement/ Monitoring equipment		
	Type of meter	<b>Main Meter:</b> Landis+GYR E550 <b>Spare Meter:</b> Luna LUN23
	Location of meter	On-site
	Accuracy of meter	0.5S
	Serial number of meter	<b><u>MAIN METER:</u></b> 40184654 (VEPA-1) 40184658 (VEPA-2) 40184656 (SMK-2) 40184656 (SMK-3) 40184655 (SMK-4) 23096446 (SMK-5) <b><u>SPARE METER:</u></b> 24107996 (VEPA-1) 24107995 (VEPA-2) 23096447 (SMK-2) 23358245 (SMK-3) 24617267 (SMK-4) 23096446 (SMK-5)
	Calibration frequency	10 years

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	Date of Calibration/ validity	-
	Reference No. of Calibration Certificate	-
	Calibration Status	Calibrated
Measuring/reading/ recording frequency	Continuous reading, monthly recording	
Calculation method (if applicable)	Electricity generation which is measured and recorded by EPIAS.	
QA/QC procedures	-	
Purpose of data	To evaluate the contribution SDG 13 Climate Action, Target 13.3 “Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.”	
Additional comments	-	

**Data / Parameter Table 3.**

<b>Data / Parameter:</b>	Quantitative Employment
Methodology reference	GCC Environment and Social Safeguards Standard, v2.0
Data unit	Number of employed staff during operation
Description	Creating new job opportunities
Measured/calculated /default	Calculated
Data source	Employment records
Value(s) of monitored parameter	At least 10 people to be employed
Measurement/ Monitoring equipment	-
Measuring/reading/ recording frequency	Annually
Calculation method (if applicable)	Checking the employment records to confirm the number of employed staff

QA/QC procedures	-
Purpose of data	To evaluate the contribution SDG 8 Economic Growth, Target 8.5, “By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities and equal pay for work of equal value.”
Additional comments	-

### B.7.2 Monitoring-program of risk management actions

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

### B.7.3. Sampling plan

Not applicable.

### B.7.4. Other elements of the monitoring plan

To calculate emission reductions, monitoring is the main procedure for the project activity. The monitoring plan is prepared for verifying these emissions.

The meters are sealed by TEIAS and the project proponent are not allowed to access the meters. Net electricity generation is measured and recorded by TEIAS monthly (through remote reading). Power Plant Manager is responsible for the electricity generated, gathering all relevant data and keeping the records.

Through the crediting period, the project owner submitted the electricity generation data to Desilyon Danışmanlık Ticaret A.Ş. who is responsible for calculating the emission reduction for the verification. The monitoring report could be prepared based on these data.

Team Members are expected to include the following staff:

**Plant Manager:** Responsibility for running the plant and compliance with ACC monitoring plan

**Accounting Manager:** Responsible for keeping data about generation and consumption

**Desilyon Danışmanlık Ticaret A.Ş.** Responsible for emission reduction calculations, preparing monitoring report and periodical verification process.

The meters (main and spare) are installed with respect to the regulations by TEIAS. Furthermore, data monitoring is carried out with these meters. The reason of using two meters is to compare between measured values recorded. If there is a significant difference between the readings of two devices, TEIAS is informed about this situation. EPDK regulations should be followed for the meters to identify the accuracy class of the meters as 0.2 or 0.5.

The quantity of electricity supplied by the project activity to the grid (ISVM) and the quantity of electricity delivered to the related area from the grid (UEVM) are measured and demonstrated by EPIAS. Internal consumption from electricity is subtracted from the delivered electricity to calculate the net generation.

All data is kept for at least two years after the crediting period for QA/QC purposes.

Before the commissioning of the power plant, calibration of the electricity meters is made and sealed by TEIAS. Then, if there is an inconsistency between the meters, they are calibrated by TEIAS.

## **Section C. Start date, crediting period type and duration**

### **C.1. Start date of the Project Activity**

The commissioning date of the project activity is 13/11/2017.

### **C.2. Expected operational lifetime of the Project Activity**

30 years

### **C.3. Crediting period of the Project Activity**

#### **C3.1. Fixed crediting period**

The crediting period is fixed as 10 years.

#### **C3.2. Start date of the crediting period**

Start date of crediting period is 01/12/2017, after the provisional acceptance approved.

#### **C3.3. Duration of the crediting period**

The crediting period is between 01/12/2017 – 30/11/2027.

## **Section D. Environmental impacts**

### **D.1. Analysis of environmental impacts**

Please see section E.

### **D.2. Environmental impact assessment**

The project complies with the relevant regulations and laws in Turkey. In line with Turkish environmental regulations, an “Environmental Impact Assessment (EIA) clearance” was approved by the Ministry of Environment, Urbanization and Climate Change in 25/11/2014.



## 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
<p><b>Environmental impacts on the identified categories<sup>23</sup> indicated below.</b></p>	<p>Indicators for environmental impacts</p>	<p>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.</p>	<p>Describe the applicable national regulatory requirements / legal limits related to the identified risks of environmental impacts.</p>	<p>If no environmental impacts are anticipated, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as <b>Not Applicable</b> (No actions required)</p>	<p>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 <b>Harmless</b> (No actions required)</p>	<p>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 <b>Harmful</b> (Actions required).</p>	<p>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 <b>Harmful</b>.</p>	<p>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 <b>Harmful</b>.</p>	<p>Re-evaluate risks after Risk Mitigation Action Plans have been developed (refer to previous two columns) for impacts that have been identified as <b>Harmful</b>. Indicate whether the risks have been eliminated or reduced and, where appropriate, indicate them as <b>Harmless</b> (No actions required)</p>	<p>Describe the monitoring approach and the parameters to be monitored for each impact that has been identified as <b>Harmful</b> and described in the PSF (refer to Table 3).</p>	<p>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.</p>	<p>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)</p>
<p><b>Environmental Safeguards</b></p>												
<p><b>Environment - Air</b></p>	<p>SO<sub>2</sub> emissions</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>-</p>	<p>-</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>
	<p>NO<sub>x</sub> emissions</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>-</p>	<p>-</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>
	<p>CO<sub>2</sub> emissions</p>	<p>The project reduces CO<sub>2</sub> emissions since it reduces the amount of fossil fuel used. Thus, air pollution decreases.</p>	<p>N/A</p>	<p>The project reduces CO<sub>2</sub> emissions in the baseline; hence the project will not cause any harm in this regard</p>	<p>-</p>	<p>-</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>The electricity generation will be monitored by using electricity meters. Thus, emission reduction will be</p>	<p>The project is expected to result in lower CO<sub>2</sub> emission than the baseline throughout the crediting period</p>	<p>+1</p>

<sup>23</sup> sourced from the CDM SD Tool and the sample reports are available ( <https://www4.unfccc.int/sites/sdcmicrosite/Pages/SD-Reports.aspx> )

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										calculated accordingly		
	CO emissions	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	
	Fly ash emissions	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	
	Odor emissions	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	
	Solid waste Pollution from Plastics	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	Solid waste Pollution from Hazardous wastes	Damaged solar panels on site can cause adverse environmental impacts if not managed well.	N/A	N/A	Harmless	-	N/A	N/A	N/A	The details of the damaged and returned solar panel modules will be kept in the records for future verifications.	The project owner undertakes to manage the solar panel module waste in an appropriate manner and in accordance with applicable laws and regulations.	+1
	Solid waste Pollution from Bio-medical wastes	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	Solid waste Pollution from E-wastes	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
<b>Environment - Land</b>	Solid waste Pollution from Batteries	There is no battery pollution which is anticipated during the operation of the project. It will be disposed in the future according to "Turkish Waste Management Regulation".	Turkish Waste Management Regulation	-	Harmless	-	N/A	N/A	N/A	Disposal of waste is monitored in case of solid waste pollution caused by batteries in the project site.	The project owner undertakes to manage the battery in compliance to the prevailing laws and regulations.	+1

	<i>Solid waste Pollution from end of life products/ equipment</i>	If the solar panel modules have not been managed well after their end-of-life, they might have negative impact for environment.	Waste Management Regulation <sup>24</sup>	-	Harmless	-	-	Damaged/ defective solar module will be stored and disposed of in accordance with national/local laws.	Harmless	Details of damaged and returned solar modules will be retained for future verification.	The project owner undertakes to manage the solar panel module waste in an appropriate manner and in accordance with applicable laws and regulations.	+1
	<i>Soil Pollution from Chemicals (including Pesticides, heavy metals, lead, mercury)</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	<i>Soil erosion</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
<b>Environment - Water</b>	<i>Reliability/ accessibility of water supply</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	<i>Water Consumption from ground and other sources</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	<i>Generation of wastewater</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	<i>Wastewater discharge without/with insufficient treatment</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	<i>Pollution of Surface, Ground and/or Bodies of water</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
<b>Environment – Natural Resources</b>	<i>Conserving mineral resources</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	<i>Protecting/ enhancing plant life</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	

<sup>24</sup> <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=20644&MevzuatTur=7&MevzuatTertip=5>

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<i>Protecting/enhancing species diversity</i>	N/A	N/A	-	-	-	N/A	N/A	N/A	N/A	N/A	
<i>Protecting/enhancing forests</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
<i>Protecting/enhancing other depletable natural resources</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
<i>Conserving energy</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
<i>Replacing fossil fuels with renewable sources of energy</i>	<i>Replacing fossil fuels with renewable sources of energy</i>	The project replaces fossil fuels with renewable sources of energy since it is a solar power plant.	There is no such legal limit.	N/A	-	-	N/A	N/A	The electricity generated from solar power will be Monitored throughout the crediting period.	The generated electricity by the project activity will be continuously measured and the related CO <sub>2</sub> emission reduction will be calculated according to the applied methodology	+1
<i>Replacing ODS with non-ODS refrigerants</i>	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.

<b>Net Score:</b>	<b>+5</b>
<b>Project Owner's Conclusion in PSF:</b>	The Project Owner confirms that the Project Activity will not cause any net harm to the environment.

## E.2. Social Safeguards

Impact of Project Activity on		Information on Impacts, Do-No-Harm Risk Assessment and Establishing Safeguards									Project Owner's Conclusion	
		Description of Impact (both positive and negative)	Legal requirement /Limit	Do-No-Harm Risk Assessment			Risk Mitigation Action Plans		Do-No-Harm Residual Risk Assessment		Self-Declaration	
				Not Applicable (No actions required)	Harmless (No actions required)	Harmful (Actions required)	Operational Controls	Program of Risk Management Actions	Re-evaluate Risks	Monitoring	Explanation of Conclusion	The Project Activity will not cause any harm
<b>Social impacts on the identified categories<sup>25</sup> indicated below.</b>	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 <b>Not Applicable</b> (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 <b>Harmless</b> (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 <b>Harmful</b> (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 <b>Harmful</b> .	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 <b>Harmful</b> .	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 <b>Harmless</b> (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)
<b>Social Safeguards</b>												
<b>Social Jobs</b>	Long-term jobs (> 1 year) created/ lost	The project creates long-term job opportunities for the operational period. 10 people have been employed as long-term workers.	Employment is made according to national employment regulations.	N/A	-	-	N/A	N/A	N/A	The number of people employed in the project will be monitored through SGK (Social Security Institution) records or payroll records.	N/A	+1
	New short-term jobs (< 1 year) created/ lost	The project creates short term job opportunities during construction.	All employment s are done according to the national employment regulations.	N/A	-	-	N/A	N/A	N/A	Project construction created new short term jobs during construction .	Employment will be monitored and recorded.	+1

<sup>25</sup> sourced from the CDM SD Tool and the sample reports are available ( <https://www4.unfccc.int/sites/sdcmicrosite/Pages/SD-Reports.aspx> )

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	Sources of income generation increased / reduced	The project increases income by creating job opportunities.	All payments and right comply with the Labor Law. <sup>26</sup>	N/A	-	-	N/A	N/A	N/A	The number of people employed in the project will be monitored through payroll records.	When necessary, statement of employment can be provided.	+1
<b>Social - Health &amp; Safety</b>	Disease prevention	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	Reducing / increasing accidents	Occupational accidents at the site may be occurred.	All trainings and precautions are completed according to the HSE Law <sup>27</sup> .	N/A	-	-	N/A	N/A	N/A	Records of trainings will be provided.	Occupational health and safety training has been provided to all employees.	+1
	Reducing / increasing crime	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	
	Reducing / increasing indoor air pollution	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	
	Sanitation and waste management	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
<b>Social - Education</b>	Job related training imparted or not	N/A	-	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	Educational services improved or not	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	Project-related knowledge dissemination effective or not	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	

<sup>26</sup> <https://www.mevzuat.gov.tr/MevzuatMetin/1.5.4857.pdf>

<sup>27</sup> <https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6331.pdf>

<b>Social - Welfare</b>	<i>Improving/ deteriorating working conditions</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	<i>Community and rural welfare</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	<i>Poverty alleviation (more people above poverty level)</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	<i>Improving / deteriorating wealth distribution/ generation of income and assets</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	<i>Increased or / deteriorating municipal revenues</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	<i>Women's empowerme nt</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
	<i>Reduced / increased traffic congestion</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
<b>Note:</b> 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.												
<b>Net Score:</b>		<b>+4</b>										
<b>Project Owner's Conclusion in PSF:</b>		The Project Owner confirms that the Project Activity will not cause any net harm to society.										



## Section F. United Nations Sustainable Development Goals (SDG)

The project is expected to contribute 6 SDGs which are SDG 7, 8, 9, 11 and 13.

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

**Related indicator:** 7.2.1 Renewable energy share in the total final energy consumption

**SDG 8 – Decent Work and Economic Growth:** During the construction and operation phases of the project, direct and indirect job opportunities are created. Therefore, the project contributes to SDG Target 8.5, “By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities and equal pay for work of equal value.”

**Related indicator:** 8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities

**SDG 9 – Industry, Innovation and Infrastructure:** SDG Target 9.4 requires “By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities”. The project helps the Target 9.4 by implementing a clean, reliable and environmental-friendly infrastructure for clean energy production / up-to-date industrialization.

**Related indicator:** 9.4.1 CO<sub>2</sub> emission per unit of value added

**SDG 11 – Sustainable Cities and Communities:** The projects promotes SDG Target 11.6 “By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management” by decreasing particulate matter caused by fossil fuel emissions in the cities.

**Related indicator:** 11.6.2 Annual mean levels of fine particulate matter (e.g. PM<sub>2.5</sub> and PM<sub>10</sub>) in cities (population weighted)

**SDG 13 – Climate Action:** The project produces clean renewable energy by diminishing CO<sub>2</sub> emissions. Therefore, it contributes SDG Target 13.3 “Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning”.

**Related indicator:** 13.3.2 Number of countries that have communicated the strengthening of institutional, systemic, and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions

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?
<p><b>Describe UN SDG targets and indicators</b> See: <a href="https://unstats.un.org/sdgs/indicators/indicators-list/">https://unstats.un.org/sdgs/indicators/indicators-list/</a></p>	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	<p>Define project-level SDGs by suitably modifying and customizing UN/Country-level SDGs to the project scope. <b>For guidance see:</b> Integrating the SDGs into Corporate Reporting- A Practical Guide: <a href="https://www.unglobalcompact.org/docs/publications/Practical_Guide_SDG_Reporting.pdf">https://www.unglobalcompact.org/docs/publications/Practical_Guide_SDG_Reporting.pdf</a> Case-study from Coca-Cola and other organizations to develop organization-wide SDGs (page 114): <a href="https://pub.iges.or.jp/pub/realising-transformative-potential-sdgs">https://pub.iges.or.jp/pub/realising-transformative-potential-sdgs</a></p>	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 sustainable agriculture	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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

Project Submission Form

<p><b>Goal 4. Ensure inclusive and equitable education and promote lifelong learning opportunities for all</b></p>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<p><b>Goal 5. Achieve gender equality and empower all women and girls</b></p>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<p><b>Goal 6. Ensure availability and sustainable management of water and sanitation for all</b></p>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<p><b>Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all</b></p>	<p>SDG Target 7.2 "By 2030, increase substantially the share of renewable energy in the global energy mix" by the utilization of hydropower as a renewable energy source. Related indicator: 7.2.1 Renewable energy share in the total final energy consumption.</p>	Yes	<p>Increasing the share of renewable energy sources in the total electricity generation delivered to the national grid</p>	<p>Generate 11,000 MWh clean energy annually.</p>	<p>To increase the share of electricity generation capacity installed from renewable energy sources.</p>	<p>The project increases the share of renewable energy in Turkey's energy generation mix by providing clean energy. The plant provides 11,000 MWh of clean energy to the grid annually.</p>	<p>Calculate the share of installed capacity from renewable energy.</p>	<p>The commissioning date of project is 2017. Project continues to produce clean energy without any problems.</p>	Yes

<p><b>Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</b></p>	<p>SDG Target 8.5 "By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities and equal pay for work of equal value". Related indicator: 8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities</p>	<p>Yes</p>	<p>Generating income and job opportunities</p>	<p>Providing employment opportunities for at least 10 people</p>	<p>Recruitment of at least 10 people, including people with disabilities</p>	<p>The project generate employment for both operation and construction period and created long-term employment for the people working at the construction site.</p>	<p>The number of people employed in the project will be monitored through SGK (Social Security Institution) records or payroll records.</p>	<p>Personnel have been employed by the project owner according to the regulations and the social security payments of the personnel are made regularly.</p>	<p>Yes</p>
<p><b>Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</b></p>	<p>SDG Target 9.4 "By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities".</p>	<p>Yes</p>	<p>Provides a clean and resilient power generation facility</p>	<p>The project is a 11,000 MWh resilient energy generation facility.</p>	<p>Providing clean energy</p>	<p>Providing clean energy by avoiding 6,611 tCO<sub>2</sub> annually.</p>	<p>The project has produced clean energy by implementing a hydroelectric power plant and helps the adaptation of clean energy technologies.</p>	<p>Check project implementation continues</p>	<p>Yes</p>

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	Related indicator: 9.4.1 CO2 emission per unit of value added								
<b>Goal 10. Reduce inequality within and among countries</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable</b>	SDG Target 11.6 "By 2030, reduce the adverse per capita environmental impacts of cities, including by paying special attention to air quality and municipal and other waste management." Indicator 11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)	Yes	Decrease the amount of PM2.5 and PM10 emissions in the cities		Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)	As known, fossil fuel emissions are secondary sources of PM2.5 and PM10 in the cities. Since the project reduces the use of fossil fuels, PM2.5 and PM10 formation will be reduced accordingly. Hence, the project helps to improve air quality in cities.		Project Owner operates the plant since 2017 and complies with targeted SDGs so far	Yes
<b>Goal 12. Ensure sustainable consumption and production patterns</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

<p><b>Goal 13. Take urgent action to combat climate change and its impacts</b></p>	<p>SDG Target 13.3 "Improve education, awareness-raising and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning". Related indicator: 13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions</p>	<p>Yes</p>	<p>Eliminate 6,611 tCO<sub>2</sub> annually</p>	<p>Commissioning of 11,000 MWh renewable energy power plant</p>	<p>Reducing greenhouse gas emissions by 6,611 tCO<sub>2</sub> tons annually.</p>	<p>Since hydro energy is used in the project, there is no greenhouse gas emission related to the project activity. Eliminates 6,611 tCO<sub>2</sub> annually.</p>	<p>Calculate avoided GHG emissions every year.</p>	<p>The plant is operated since 2017 by project owner and complied with targeted SDGs so far.</p>	<p>Yes</p>
<p><b>Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development</b></p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>

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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	
<b>SUMMARY</b>							<b>Targeted</b>	<b>Likely to be Achieved</b>		
<b>Total Number of SDGs</b>							<b>5</b>	<b>5</b>		
<b>Certification label (Bronze, Silver, Gold, Platinum, or Diamond) for the ACCs as defined in the PSF</b>							<b>Platinum</b>	<b>Platinum</b>		



## **Section G. Local stakeholder consultation**

### **G.1. Modalities for local stakeholder consultation**

According to the Ministry of Environment, Urbanization and Climate, the facilities where the "EIA is not Required" decision is taken are within the scope of Annex-2 list, and Public Participation Meeting is not held in accordance with the regulation. Within the Sazılar Solar Power Plant Bundle project, the decision of "EIA is not required" has been made, and a public participation meeting has not been held before.

Therefore, the Local Stakeholder meeting organized by Desilyon Danışmanlık Ticaret A.Ş for Sazılar Solar Power Plant Bundle project. It was arranged at 14:00 on 04.10.2021 in Sazılar village Coffee House in Polatlı / Ankara. The meeting was announced orally. Furthermore, announcements were sent to the headmen and coffee houses of the nearby settlements and posted on the board.

#### Agenda

14:00 – 14:15 = Opening and Presentation

14:15 – 14:40 = Project Introduction and Sustainability Evaluation

14:40 – 14:55 = Q&A

14:55 – 15:10 = Evaluation and Feedback

15:10 – 15:25 = Closing

### **G.2. Summary of comments received**

Stakeholders did not make any negative comments about the project during the meeting. In addition, the joint outcome of stakeholder consultation is positive. The local people have been very satisfied with the project so far, and the project has provided job opportunities in the region.

### **G.3. Consideration of comments received**

There were no negative comments in general at the meeting, however the contact information of the facility manager was shared with the stakeholders in order to be able to communicate and comment with the facility manager in the next process, and it was stated that the project owner and the local people would always be in contact. Moreover, feedback from meeting attendees will be reviewed and revised annually (if necessary) during the operational phase, while the grievance mechanism will be reviewed on an ongoing basis.

## **Section H. Approval and authorization**

Not applicable.

### Contact information of project owners

<b>Organization name</b>	Desilyon Danışmanlık Ticaret A.Ş. (Project Consultant)
<b>Country</b>	Turkey
<b>Address</b>	Mustafa Kemal Mah. Dumlupınar Bulv. No:274 B-Blok No:37 Çankaya/Ankara
<b>Telephone</b>	(+90) (312) 473 40 30
<b>Fax</b>	(+90) (312) 473 62 76
<b>E-mail</b>	serkan.korkmaz@desilyon.com.tr
<b>Website</b>	www.desilyon.com.tr
<b>Contact person</b>	Serkan Korkmaz

<b>Organization name</b>	Tunç Grup İnşaat Turizm Ve Ticaret A.Ş.
<b>Country</b>	Turkey
<b>Address</b>	Aziziye mahallesi, Kuşkondu Sk. No: 7/5 Çankaya / Ankara
<b>Telephone</b>	(+90) (312) 438 14 14
<b>Fax</b>	-
<b>E-mail</b>	hasantunc@ceytun.com
<b>Website</b>	https://tuncgroup.com.tr/
<b>Contact person</b>	Hasan Tunç

**Appendix 1. Affirmation regarding public funding**

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**Appendix 2. Applicability of methodology(ies)**

This section has been left blank intentionally.







**Appendix 3. Further background information on ex ante calculation of emission reductions**


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**Appendix 4. Further background information on monitoring plan**

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## Appendix 5. Summary report of comments received from local stakeholders in local vernacular

SAZILAR GES Yerel Paydaş Toplantısı Katılımcı Listesi				
İsim - Soyisim	Kurum / Görev	Adres	Telefon	İmza
Volkan Eten	Özel Güvenlik	Sazlar mahallesi	0543 4692718	
Osman UYSAL	Kahveci	Çocuklar mahallesi	05536620922	
Abdullahman POLAT	Özel Güvenlik	Sazlar mahallesi	0524 593 5078	
Levent Kuba	Piftesi	Sazlar Mah	05378511330	
Zekun ERTEN	Piftesi	Sazlar mah	05455949548	
KORKMAZ KADEMİ OBLU	SAZILAR KÖYÜ MULHTARI	SAZLAR MAH.	0533 490 7187	


Sazılar GES	Ad Soyad	Volkan Erten
	Kurum / Görev	Özel Güvenlik
	Tarih	04.10.2021
	İmza	
Toplantı ile ilgili görüşleriniz nelerdir?		
<p>Çok verimli bir toplantı oldu. Proje ile ilgili bir çok konuda bilgi sahibi olduk.</p>		
Proje ile ilgili <u>olumlu</u> bulduğunuz konular nelerdir?		
<p>Bölgemiz açısından gurur verici bir çalışma çünkü ülkemize elektrik üretimi konusunda büyük katkısı oluyor. Buda bizi sevindiriyor.</p>		
Proje ile ilgili <u>olumsuz</u> bulduğunuz konular nelerdir?		
<p>Şimdiye kadar herhangi bir olumsuzlukla karşılaşmadık bu hizmette emeği geçenlerden rabbim razı olsun.</p>		



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Sazılar GES	Ad Soyad	Abdurrahman POLAT
	Kurum / Görev	Özel Güvenlik
	Tarih	04.10.2021
	İmza	
Toplantı ile ilgili görüşleriniz nelerdir?		
Göney santralleri ile ilgili bilgi ettik.		
Proje ile ilgili <b>olumlu</b> bulduğunuz konular nelerdir?		
Bölgemizdeki elektrik kesintilerinin önüne geçileceğini öğrendik. köyümüzden gençler ise aldılar. köyü kalkınması adına güzel bir proje oldu.		
Proje ile ilgili <b>olumsuz</b> bulduğunuz konular nelerdir?		
Proje ile ilgili olumsuz bir şeyle karşılaşmadım.		

Sazılar GES	Ad Soyad	KOLKMAZ KADEMLİ ÖZEL
	Kurum / Görev	SAZILAR KÖT MÜHTARI
	Tarih	04/10/2021
	İmza	
Toplantı ile ilgili görüşleriniz nelerdir?		
ŞİRKET GÖREVLİLERİNE TESTS HAYKINDA BİLGİ VERİLDİ.		
Proje ile ilgili <b>olumlu</b> bulduğunuz konular nelerdir?		
KÖTÜMÜZ İÇİN YATIRIM YAPILMASI BİZİM İÇİN GÜZEL BİR DURUMDUR.		
Proje ile ilgili <b>olumsuz</b> bulduğunuz konular nelerdir?		
BİH PROJEYLE İLGİLİ OLUMSUZ BİR DURUM YOKTUR.		



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Sazılar GES	Ad Soyad	Selsuk ERZEN
	Kurum / Görev	Çiftçi
	Tarih	04.10-2021
	İmza	

Toplantı ile ilgili görüşleriniz nelerdir?



Tesis hakkında bilgi edindik.

Proje ile ilgili **olumlu** bulduğunuz konular nelerdir?

Köyümüze yatırım yapıldı iş olanakları sağlandı

Proje ile ilgili **olumsuz** bulduğunuz konular nelerdir?

\_\_\_\_\_

Sazılar GES	Ad Soyad	Osman UYSAL
	Kurum / Görev	Kahveci
	Tarih	04-10-2021
	İmza	
Toplantı ile ilgili görüşleriniz nelerdir?		
Elektrik Kesintileri ve Tehsis hakkında Konuşuldu		
Proje ile ilgili <u>olumlu</u> bulduğunuz konular nelerdir?		
Elektrik Üretimi olması ve Köylülerin işe Alınması		
Proje ile ilgili <u>olumsuz</u> bulduğunuz konular nelerdir?		
		

Project Submission Form



Sazılar GES	Ad Soyad	Recep Kula
	Kurum / Görev	Halk
	Tarih	04-10-2021
	İmza	
Toplantı ile ilgili görüşleriniz nelerdir?		
Tesis hakkında bilgim var		
Proje ile ilgili <u>olumlu</u> bulduğunuz konular nelerdir?		
Köyümüze yatırım yapıldığı için genellikle oldu işsizlere iş sokası açıldı		
Proje ile ilgili <u>olumsuz</u> bulduğunuz konular nelerdir?		

**Appendix 6. Summary report of comments received from local stakeholders translated to English**



<b>Sazılar Solar Power Plant Bundle</b>	Name surname	Volkan Erten
	Institution / Mission	Private Security
	Date	04.10.2021
	Signature	
What are your views on the meeting?		
It was a very productive meeting. We learned a lot about the project.		
What are the aspects that you find <b>positive</b> about the project?		
It is a proud work for our region because it makes a great contribution to our country in electricity generation. This also makes us happy.		
What are the issues that you find <b>negative</b> about the project?		
So far, we have not encountered any negativity. God bless those who contributed to this service.		

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<b>Sazılar Solar Power Plant Bundle</b>	Name surname	Abdurrahman Polat
	Institution / Mission	Private Security
	Date	04.10.2021
	Signature	
What are your views on the meeting?		
We learned about solar power plants.		
What are the aspects that you find <b>positive</b> about the project?		
We learned that power cuts in our region will be prevented. They recruited young people from our village. It was a good project for the development of the village.		
What are the issues that you find <b>negative</b> about the project?		
I did not encounter anything negative about the project.		

<b>Sazılar Solar Power Plant Bundle</b>	Name surname	Korkmaz Kademlioğlu
	Institution / Mission	The Mukhtar of Sazılar Village
	Date	04.10.2021
	Signature	
What are your views on the meeting?		
Company officials gave information about the facility.		
What are the aspects that you find <b>positive</b> about the project?		
Investing in our village is a good thing for us.		
What are the issues that you find <b>negative</b> about the project?		
There is nothing negative about this project.		

Project Submission Form



<b>Sazılar Solar Power Plant Bundle</b>	Name surname	Selçuk Erten
	Institution / Mission	Farmer
	Date	04.10.2021
	Signature	
What are your views on the meeting?		
We learned about plants.		
What are the aspects that you find <b>positive</b> about the project?		
An investment has been made in our village. This project gave us job opportunities.		
What are the issues that you find <b>negative</b> about the project?		
----		



<b>Sazılar Solar Power Plant Bundle</b>	Name surname	Osman Uysal
	Institution / Mission	Coffee house Owner
	Date	04.10.2021
	Signature	
What are your views on the meeting?		
There was talk about electricity production and plants.		
What are the aspects that you find <b>positive</b> about the project?		
Having electricity generation and hiring villagers		
What are the issues that you find <b>negative</b> about the project?		
-----		

Project Submission Form



<b>Sazılar Solar Power Plant Bundle</b>	Name surname	Recai Kula
	Institution / Mission	Citizen
	Date	04.10.2021
	Signature	
What are your views on the meeting?		
I know about the facility.		
What are the aspects that you find <b>positive</b> about the project?		
We are proud that investment has been made in our village. Job opportunities were opened for the unemployed.		
What are the issues that you find <b>negative</b> about the project?		
-----		

**Appendix 7. Photographs from local stakeholders' meetings**



Project Submission Form







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## Appendix 8. Applicability of Clarification No.1

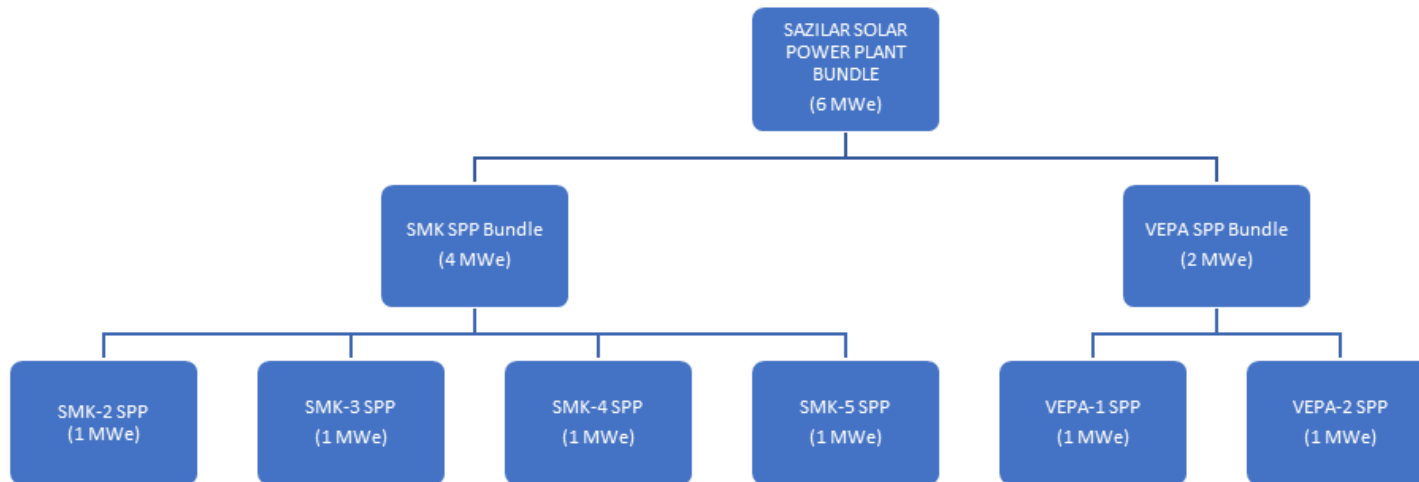


Figure 5 Levels in Bundled Project

**Table 15 Level-1 Analysis**

<b>Level-1 analysis - Consideration of key aspects for developing Homogeneous Bundles:</b>				
<b>Requirements of paragraphs 10-11 of Clarification No.1</b>		<b>Reference</b>	<b>Similar Bundles/Activities (color coded)</b>	
			<b>SMK Solar Power Plant (SPP) Bundle</b>	<b>VEPA Solar Power Plant (SPP) Bundle</b>
<b>Similarity in Technological Considerations</b>	Technology	Paragraph 11 (i)	Solar power	Solar power
	Methodology		AMS-I.D., v18.0	AMS-I.D., v18.0
	Cross-effects exist or not		No cross effects exist	No cross effects exist
	Same output of each activity (e.g., heat or power or cogeneration);	Paragraph 12 (b)	Electricity	Electricity
<b>Similarity in Economic and Policy Considerations</b>	Additionality approach (investment or barrier analysis as stipulated by the applicable methodology)	Paragraph 11 (ii)	NA	NA
	All the activities within the bundle should have same barrier(s).	Paragraph 12 (d) (iii)	Does not apply barrier analysis. Not applicable.	
	Investment analysis method and financial indicator (e.g., post tax project or equity IRR, or pre-tax project or equity IRR, NPV, etc.)	Paragraph 11 (ii)	The project is automatically additional by applying “Tool of positive list of technologies”, and there is no need to demonstrate of additionality.	The project is automatically additional by applying “Tool of positive list of technologies”, and there is no need to demonstrate of additionality.
	Comparable key input values (which constitute more than 20% of total project investment costs and total project revenues, which is applicable as per the specific project situation) (Key differentiating parameter between bundles)		NA	NA
	Same investment decision year		The investment decisions for activities SMK SPP Bundle is within one year of each other.	The investment decisions for activities VEPA SPP Bundle is within one year of each other.
	Same investment benchmark applicable for additionality analysis (e.g., Cost of Equity, weighed average cost of capital).		NA	NA



	Different land costs at two different locations (Key differentiating parameter between bundles)		Same land costs	Same land costs
	Supplying electricity to the different grids/ captive Purposes		Exported to national Grid	Exported to national Grid
	Project capacity		Total project capacity @ 4 MW	Total project capacity @ 2 MW
	Project investors profile		Owned by Tunç Grup İnşaat Turizm ve Ticaret A.Ş.	Owned by Tunç Grup İnşaat Turizm ve Ticaret A.Ş.
	Legal ownership of bundles		The Letter of Authorization states that there is only one legal owner (Tunç Grup İnşaat Turizm ve Ticaret A.Ş.), who has authorized two project owners (Tunç Grup İnşaat Turizm ve Ticaret A.Ş., Desilyon Danışmanlık Tic. A.Ş.) and one of which is authorized to be the only focal point (Desilyon Danışmanlık Tic. A.Ş.) to act on behalf of all the project owners and has authority to manage the project and will have the ownership of ACCs	
<b>Similarity in Environmental or Methodological Considerations</b>	Application of same methodology (or approved combinations where cross effects are addressed)	Paragraph 11 (iii) i	AMS-I.D., v18.0	AMS-I.D., v18.0
	Same baseline approach and the outcome	Paragraph 11 (iii) ii	The baseline for all the activities in the bundle is national electricity grid.	The baseline for all the activities in the bundle is national electricity grid.
	Same monitoring approach and parameters for the part included for GHG	Paragraph 11 (iii) iii	All projects in this category have same monitoring approach and measurement parameters.	All projects in this category have same monitoring approach and measurement parameters.

## Appendix 9. Summary of de-registered CDM project (Type B)

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<i>Complete this form in accordance with the instructions attached at the end of this form.</i>																								
<b>CDM Project registration number</b>																								
<b>Date of registration of CDM Project</b>																								
<b>Title of the Project Activity</b>																								
<b>CDM Project de-registration reference number</b>																								
<b>Date of de-registration of the CDM Project</b>																								
<b>Project Participants</b> <small>(authorized by the host / annex 1 country letter of approval)</small>																								
<b>Country where the project is located</b>																								
<b>Applied CDM methodology(ies)</b> <small>(provide reference and version number(s))</small>																								
<b>Pre-registration changes to the CDM Project Activity</b> <small>(Tick as applicable)</small>	<table border="1"> <thead> <tr> <th><b>CDM Pre-registration Changes</b></th> <th><b>Reference number</b></th> <th><b>Approved</b></th> <th><b>Provide a summary of pre-registration changes</b></th> </tr> </thead> <tbody> <tr> <td>Deviations from the CDM methodology</td> <td></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>Deviations from the CDM Tool</td> <td></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>Deviations from the CDM rules</td> <td></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>Other.....</td> <td></td> <td><input type="checkbox"/></td> <td></td> </tr> </tbody> </table>	<b>CDM Pre-registration Changes</b>	<b>Reference number</b>	<b>Approved</b>	<b>Provide a summary of pre-registration changes</b>	Deviations from the CDM methodology		<input type="checkbox"/>		Deviations from the CDM Tool		<input type="checkbox"/>		Deviations from the CDM rules		<input type="checkbox"/>		Other.....		<input type="checkbox"/>				
	<b>CDM Pre-registration Changes</b>	<b>Reference number</b>	<b>Approved</b>	<b>Provide a summary of pre-registration changes</b>																				
	Deviations from the CDM methodology		<input type="checkbox"/>																					
	Deviations from the CDM Tool		<input type="checkbox"/>																					
	Deviations from the CDM rules		<input type="checkbox"/>																					
Other.....		<input type="checkbox"/>																						

<b>Post-registration changes to the CDM Project Activity</b> (Tick as applicable)	<b>CDM Post registration Changes</b>	<b>Reference number</b>	<b>Approved</b>	<b>Provide a summary of post-registration changes</b>
	Change in project design		<input type="checkbox"/>	
	Request for revision of monitoring plan		<input type="checkbox"/>	
	Request for change in start date of crediting period		<input type="checkbox"/>	
	Renewal of crediting period		<input type="checkbox"/>	
	Temporary deviations		<input type="checkbox"/>	
	Other.....		<input type="checkbox"/>	

Project Submission Form

<b>Crediting Period(s)</b>	<b>Crediting period(s)</b>		<b>Period</b> (start & end dates)	<b>ERs as per registered PDD/MR</b>	<b>CERs issued</b>	
	<b>Crediting Period</b> (shall start on or after 1 Jan 2016)	Fixed 10 year				
		<b>Renewable</b> (7 years, with 2 approved renewals)	1 <sup>st</sup>			
			2 <sup>nd</sup>			
		3 <sup>rd</sup>				
	Period for which CERs have been issued					
	Period for which CERs have been requested but not issued					-
	Period for which CERs have never been requested for issuance (no monitoring reports submitted)					-
Period for which CERs have never been requested for issuance prior to CDM de-registration					-	
Remaining Crediting period, after CDM de-registration, for which CERs have not been issued by the UNFCCC CDM Executive Board, subject to a ceiling of 10 years as allowed under the GCC Program					-	
<b>Details of Previous CDM Issuance Requests</b>	<b>Issuance Request</b>	<b>Period</b> (start & end dates)	<b>ERs as per registered PDD</b>	<b>Quantity of CERs requested to be issued</b>	<b>Quantity of CERs issued</b>	
	1 <sup>st</sup>					
	2 <sup>nd</sup>					
	3 <sup>rd</sup>					
	4 <sup>th</sup>					
	5 <sup>th</sup>					
	Add rows .....					
	<b>Total</b>					
<b>List any open issues in the</b>						

<p><b>Validation and last Verification Report (e.g., FARs, if any) and how they have been addressed</b></p>	
<p><b>Any other relevant information that has not been reported in the registered CDM documents and that may have adverse impacts on the environmental integrity of the Project Activity</b></p>	
<p><b>Provide the list of all the registered documents related to this project, as available on the UNFCCC/CDM website and the corresponding URLs.</b></p>	

## DOCUMENT HISTORY

Version	Date	Comment
V 3.2	31/12/2020	<ul style="list-style-type: none"> <li>▪ The name of GCC Program’s emission units has been changed from “Approved Carbon Reductions” or ACRs to “Approved Carbon Credits” or ACCs.</li> </ul>
V 3.1	17/08/2020	<ul style="list-style-type: none"> <li>▪ Editorial revisions made               <ul style="list-style-type: none"> <li>○ Revised Table in section B.7.2 on Monitoring-program of risk management actions</li> <li>○ Revised Table in section E.1 on Environmental Safeguards</li> <li>○ Revised Table in section E.1 on Social Safeguards</li> <li>○ Revised Table in section F on United Nations Sustainable Development Goals (SDG)</li> </ul> </li> </ul>
V 3.0	05/07/2020	<ul style="list-style-type: none"> <li>▪ Revised version released on approval by Steering Committee as per GCC Program Process;</li> <li>▪ Revised version contains following changes:               <ul style="list-style-type: none"> <li>○ Change of name from Global Carbon Trust (GCT) to Global Carbon Council (GCC);</li> <li>○ Considered and addressed comments raised by Steering Committee:                   <ul style="list-style-type: none"> <li>➤ during physical meeting (SCM 01, dated 29 Oct 2019, Doha Qatar); and</li> <li>➤ electronic consultations EC01-Round 01 (15.09.2019 – 25.09.2019), EC01-Round 02 (27.03.2020 – 27.06.2020).</li> </ul> </li> <li>○ Feedback from Technical Advisory Board (TAB) of ICAO on GCC submission for approval under CORSIA<sup>28</sup>;</li> </ul> </li> </ul>
V 2.0	25/06/2019	<ul style="list-style-type: none"> <li>▪ Revised version released for approval by the GCC Steering Committee.</li> <li>▪ Revised version includes additional details and instructions on the information to be provided, consequent to the latest developments world-wide (e.g., CORSIA EUC).</li> </ul>
V 1.0	01/11/2016	Initial version released under the GCC Program Version 1

<sup>28</sup>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](https://www.icao.int/environmental-protection/CORSIA/Documents/TAB/Excerpt_TAB_Report_Jan_2020_final.pdf)

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