

المجلس العالمي للبصمة الكربونية
GLOBAL CARBON COUNCIL



Project Submission Form

V3.2 - 202

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COVER PAGE- Project Submission Form (PSF)			
<i>Complete this form in accordance with the instructions attached at the end of this form.</i>			
BASIC INFORMATION			
Title of the Project Activity	Küçükköy Solar Power Plant		
PSF version number	2.0		
Date of completion of this form	06/09/2022		
Project Owner(s) <small>(Shall be consistent with De-registered CDM Type B Projects)</small>	1. Antges Enerji Üretim Anonim Şirketi 2. Desilyon Danışmanlık Ticaret A.Ş. (Focal point to act on behalf of all Project Owners)		
Country where the Project Activity is located	Turkey		
GPS coordinates of the project site(s)	#	Name of SPP	Coordinates (Decimal Degrees)
	1	Küçükköy GES	37.077978° 30.242924°
Eligible GCC Project Type as per the Project Standard <small>(Tick applicable project type)</small>	<input checked="" type="checkbox"/> Type A: <input checked="" type="checkbox"/> Type A1 <input type="checkbox"/> Type A2 <input type="checkbox"/> Type B – De-registered CDM Projects:¹ <input type="checkbox"/> Type B1 <input type="checkbox"/> Type B2		
Minimum compliance requirements	<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		

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

	<input checked="" type="checkbox"/> Contributes to United Nations Sustainable Development Goal 13 (Climate Action)			
Choose optional and additional requirements (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)			
Applied methodologies (Shall be approved by the GCC or the CDM)	CDM approved consolidated Methodology ACM0002 (Version 20.0)			
GHG Sectoral scope(s) linked to the applied methodology(ies)	GHG Sectoral Scope	GHG Sectoral Scope Title		
	GHG-SS #1	Energy (renewable/nonrenewable sources)		
Applicable Rules and Requirements for Project Owners (Tick applicable Rules and Requirements)	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 ²	<input checked="" type="checkbox"/> Project Standard		V3.1
		<input 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 ³	<input checked="" type="checkbox"/> Approved CDM Methodology (XXXXX)	ACM0002	V20.0
<input checked="" type="checkbox"/> Tool for the demonstration and assessment of additionality		TOOL 01	V07.0	
<input checked="" type="checkbox"/> Tool to calculate the emission factor for an electricity system		TOOL 07	V07.0	

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


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

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	<input checked="" type="checkbox"/> Common practice	TOOL 24	V 3.1
	<input checked="" type="checkbox"/> Investment analysis	TOOL 27	V11.0
<p>Choose Third Party External Project Verification by approved GCC Verifiers⁴</p> <p>(Tick applicable verification categories)</p>	<p> <input checked="" type="checkbox"/> GHG emission reductions (i.e., Approved Carbon Credits (ACCs)) <input checked="" type="checkbox"/> Environmental No-net-harm Label (E⁺) <input checked="" type="checkbox"/> Social No-net-harm Label (S⁺) <input checked="" type="checkbox"/> United Nations Sustainable Development Goals (SDG⁺) <input type="checkbox"/> Bronze SDG Label <input type="checkbox"/> Silver SDG Label <input type="checkbox"/> Gold SDG Label <input type="checkbox"/> Platinum SDG Label <input checked="" type="checkbox"/> Diamond SDG Label <input checked="" type="checkbox"/> CORSIA requirements (C⁺) <input type="checkbox"/> Host Country Attestation on Double counting </p>		
<p>Declaration to be made by the Project Owner(s)⁵</p> <p>(Tick all applicable statements)</p>	<p>The Project Owner(s) declares that:</p> <p> <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. <input checked="" type="checkbox"/> The Project Activity shall start operations, and start generating emission reductions, on or after 1 January 2016. <input checked="" type="checkbox"/> The Project Activity is eligible to be registered under the GCC program. <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. <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. <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. <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. <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 </p>		

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

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

	<p>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"> <input checked="" type="checkbox"/> Confirms the avoidance of double counting as required by CORSIA; <input checked="" type="checkbox"/> Shall be made publicly available prior to the use of units from the host country under CORSIA; and <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. <p>Provide details below for the boxes ticked above</p> <hr/> <p>The Project Owner(s) declares that:</p> <ul style="list-style-type: none"> <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; <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, 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>Provide details below for the boxes ticked above</p>
<p>Appendixes 1-7</p>	<p>Details about the Project Activity are provided in Appendixes 1 through 7 to this document.</p>
<p>Name, designation, date and signature of the Project Owner(s)</p>	<p>On behalf of Antges Enerji Üretim Anonim Şirketi Serkan KORKMAZ</p> <hr/> <p>06/09/2022</p> <hr/> 

1. PROJECT SUBMISSION FORM

Section A. Description of the Project Activity

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

Küçükköy Solar Power Plant is a licensed solar power plant facility with a capacity of 31.15 MWm / 18.61 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 in Antalya province, Korkuteli district in Turkey. 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. Information about Küçükköy SPP

#	Name of SPP	Date of Commissioning	Installed Capacity (kWe)	Installed Capacity (kWp)
1	Küçükköy GES	17.12.2020	18,610	31,150
Total (kW)			18,610	31,150
Total (MW)			18.610	31.150

The project activity will generate greenhouse gas (GHG) emission reductions by avoiding CO₂ emission from electricity generation by fossil fuel power plants connected to Turkish National Power Grid. Total installed capacity is 18.610 MWe. The total annual generated energy is 48,456 MWh and the project will be able to deliver a reduction in emissions of around 31,409 tCO₂e (tons of carbon dioxide equivalent) per annual. For the entire crediting period, 314,092 tonnes of CO₂ are expected to be reduced.

Main goals of the Küçükköy Solar Power Plant 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.
- Contribution to sustainable development through supporting local community and local economy.

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

SDG 6 – Clean Water and Sanitation: The project provide contribution to SDG Target 6.4 “By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity” by decreasing the water usage during the generation of electricity.

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

Address and geodetic coordinates of the physical site of the Project Activity				
#	Name of SPP	Physical address	Coordinates (Decimal Degrees)	Coordinates (Degrees, minutes, seconds)
1	Küçükköy GES	Antalya Province Korkutelli District İmrahor Neighbourhood	37.077978° 30.242924°	37° 4'40.72"N 30° 14'34.53"E



Figure 1. Location of Küçükköy GES



Figure 2. Location of Küçükköy SPP in General

A.3. Technologies/measures

The total project installed capacity is 31.15 MWm / 18.61 MWe. Technical details of the monocrystalline modules are presented in Table 2. Also, capacities and generations of the solar power plant is presented in Table 3.

Table 2. Technical Details of Modules

#	Name of SPP	Modules			Inverters	
		Peak Power (Wp)	Dimension (mm)	Area (m ²)	Maximum Power (AC) (kW)	Number Of Inverters
1	Küçükköy GES	390	1990x1000x40	1.9	2326	8

Table 3. Capacity and generation of SPP

#	Name of SPP	Installed Capacity (kWp)	Installed Capacity (kWe)	Electricity Generation (MWh/yr)
1	Küçükköy GES	31,150	18,610	48,456
Total (kW)		31,150.00	18,610.00	48,455,693

A.4. Project Owner(s)

Location/ Country	Project Owner(s)	Where applicable ⁶ , indicate if the host country has provided approval (Yes/No)
Turkey	1. Antges Enerji Üretim Anonim Şirketi 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 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		
18/12/2020	17/12/2030	CORSIA	31,409 tCO _{2e} 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)

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

B.1. Reference to methodology(ies)

The official methodology ACM0002 version 20.0, Grid-connected electricity generation from renewable sources is used to establish the baseline. This methodology refers to the latest approved versions of the following tools:

- TOOL01: Tool for the demonstration and assessment of additionality; Version 7.0.0⁷
- TOOL07: Tool to calculate the emission factor for an electricity system; Version 7.0⁸
- TOOL24: Common practice; Version 03.1⁹
- TOOL27: Investment analysis; Version 11.0¹⁰

B.2. Applicability of methodology(ies)

The Küçükköy Solar Power Project is a solar power type which has the capacity of 18.610 MWe, greenfield, grid connected renewable electricity generation project. The methodology **ACM0002, Version 20.0** is applicable to the project activity under the following conditions:

Condition para 3:

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

- Install a Greenfield power plant;
- Involve a capacity addition to (an) existing plant(s);
- Involve a retrofit of (an) existing operating plants/units;
- Involve a rehabilitation of (an) existing plant(s)/unit(s); or
- Involve a replacement of (an) existing plant(s)/unit(s).

Status of project activity: The project activity involves a new installation of solar power generation plant. Hence the methodology is applicable to the project activity.

Condition para 4(a):

The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit.

Status of project activity: The project activity is a solar power generation plant and hence meets the applicability condition.

Condition para 4(b):

In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects) the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.

⁷ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

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

⁹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-24-v1.pdf>

¹⁰ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v11.0.pdf>

Status of project activity: The project activity is a greenfield project installation and hence this condition does not apply.

Condition para 5:

In case of hydro power plants, one of the following conditions shall apply:

- (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or
- (b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density, calculated using equation (7), is greater than 4 W/m^2 ; or
- (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (7), is greater than 4 W/m^2 ; or
- (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (7), is lower than or equal to 4 W/m^2 , all of the following conditions shall apply:

The power density calculated using the total installed capacity of the integrated project, as per equation (8), is greater than 4 W/m^2 ;

Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m^2 shall be:

Lower than or equal to 15 MWe; and

Less than 10 per cent of the total installed capacity of integrated hydro power project.

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

Condition para 6: In the case of integrated hydro power projects, project proponent shall:

- a. Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or
- b. Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum of five years prior to the implementation of the CDM project activity.

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

Condition para 7: The methodology is not applicable to: Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site;

Status of project activity: The project activity is NOT a fossil fuel switch project. Hence the condition does not apply.

Condition para 8: In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification

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of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.

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.

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

TOOL01: Tool for the demonstration and assessment of additionality (Version 07.0.0)

Paragraph 8 states “Project activities that apply this tool in context of approved consolidated methodology ACM0002, only need to identify that there is at least one credible and feasible alternative that would be more attractive than the proposed project activity. “

Status of project activity: Since the additionally tool is included in the approved methodology (ACM0002), its application by the project owner is mandatory.

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: According to “Turkey National Network Emission Factor Data Sheet”¹¹ document from Ministry of Energy and Natural Resources, the emission factor coefficient ($EF_{grid,CM,y}$) could be used as 0,6482 tCO₂/MWh. This emission factor is calculated by using “Tool to calculate the emission factor for an electricity system, ver 07.0”. Hence this tool is applicable.

TOOL24: Common practice (Version 3.1)

Paragraph 3 states “This methodological tool is applicable to project activities that apply the methodological tool “Tool for the demonstration and assessment of additionality”, the methodological tool “Combined tool to identify the baseline scenario and demonstrate additionality”, or baseline and monitoring methodologies that use the common practice test for the demonstration of additionality.”

Status of project activity: Since Tool for the demonstration and assessment of additionality I is included. The TOOL24 is used in this project.

TOOL27: Investment analysis

“This methodological tool is applicable to project activities that apply the methodological tool “Tool for the demonstration and assessment of additionality”, the methodological tool “Combined tool to identify the baseline scenario and demonstrate additionality”, the guidelines “Non-binding best practice examples to demonstrate additionality for SSC project activities”, or baseline and monitoring methodologies that use the investment analysis for the demonstration of additionality and/or the identification of the baseline scenario.”

¹¹<https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9Fikli%C4%9Fi/T%C3%BCrkiyeUlusalElektrik%C5%9EebekesiEmisyonFakt%C3%B6r%C3%BC/Belgeler/EK-2.pdf>

Status of project activity: Since the proposed project activity applies the methodological tool “Tool for the demonstration and assessment of additionality”, this methodological tool is applicable to project activity.

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

Regarding to applied methodology ACM0002; 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.

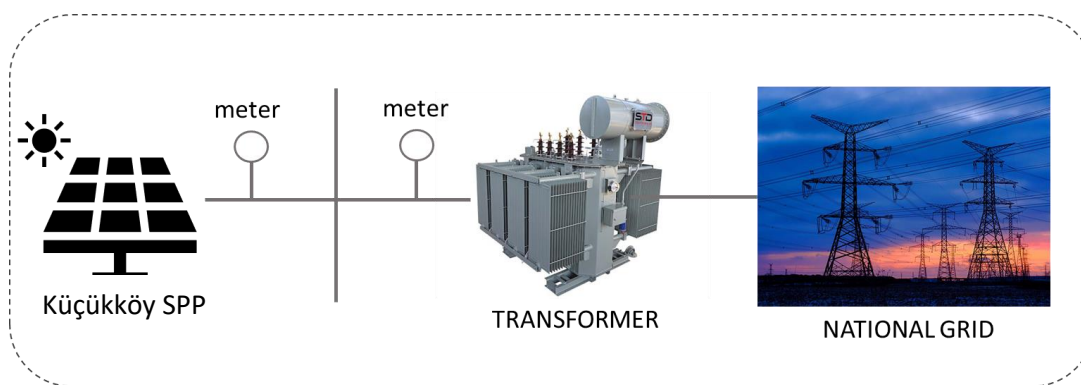


Figure 3. Project Boundary

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 ₂	Yes	Main Emission Source
		CH ₄	No	Minor Emission Source. Excluded for simplification
		N ₂ O	No	Minor Emission Source. Excluded for simplification
Project Activity	For geothermal power plants, fugitive emissions of CH ₄ and CO ₂ from non-condensable gases contained in geothermal steam.	CO ₂	No	Not Applicable. Project is not a geothermal power plant.
		CH ₄	No	Not Applicable. Project is not a geothermal power plant.
		N ₂ O	No	Not Applicable. Project is not a geothermal power plant.
	CO ₂ emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants.	CO ₂	No	Minor emission source. Excluded for simplification
		CH ₄	No	Minor emission source. Excluded for simplification
		N ₂ O	No	Minor emission source. Excluded for simplification

B.4. Establishment and description of the baseline scenario

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ACM0002 version 20.0, Grid-connected electricity generation from renewable sources is the methodology for large scale project activities. Therefore, Küçükköy Solar Power Project 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”.

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.

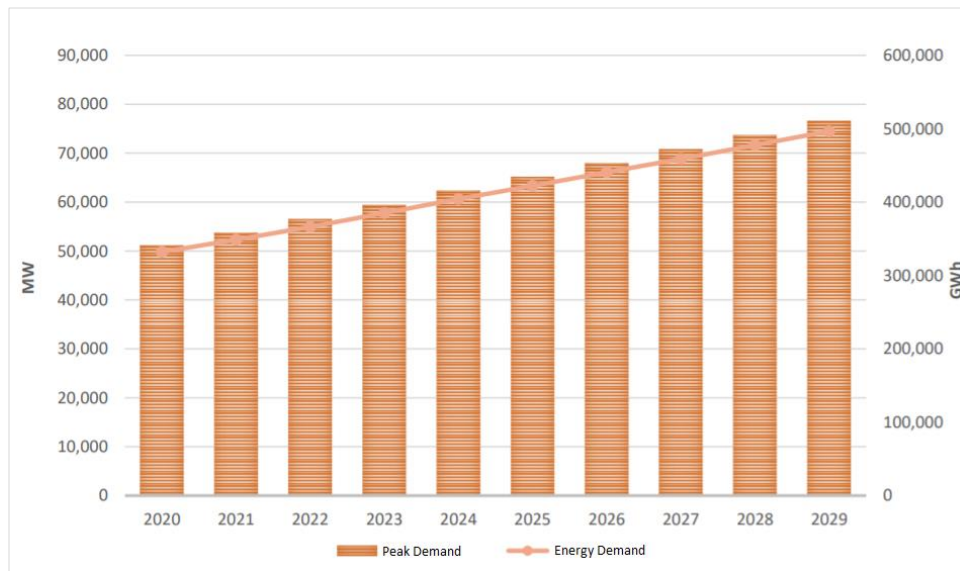


Figure 4. Maximum peak demand and energy demand prediction for Turkish electricity system between 2020 – 2029¹²

B.5. Demonstration of additionality

¹² <https://www.epdk.gov.tr/Detay/DownloadDocument?id=ln7Z9RT85yM=>

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 test¹³.

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.

The proposed project activity meets the criteria for additionality since:

- The project without carbon credits does not provide benefit financially.
- Due to increasing demand of electricity, the proposed project activity is not enough for meeting the demand. Thus, new power plants should be constructed which includes mainly thermal power plants.
- Mandatory laws and regulations are present:
 - Electricity Market Law¹⁴
 - Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy¹⁵
 - Energy Efficiency Law¹⁶
 - Forest Law¹⁷
 - Environment Law¹⁸

According to “Demonstration of additionality of small-scale project activities (Tool 21)”: Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:

- (a) Investment barrier: a financially more viable alternative to the project activity would have led to higher emissions
- (b) Technological barrier: a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertainty or low market share of the new technology adopted for the project activity and so would have led to higher emissions
- (c) Barrier due to prevailing practice: prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions
- (d) Other barriers: without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher.

Option (a) are chosen.

¹³ GCC Project Standard Version 3.1, Section 6.4.8

¹⁴ <https://www.mevzuat.gov.tr/MevzuatMetin/1.5.4628.pdf>

¹⁵ <https://www.mevzuat.gov.tr/MevzuatMetin/1.5.5346.pdf>

¹⁶ <https://www.resmigazete.gov.tr/eskiler/2007/05/20070502-2.htm>

¹⁷ <https://www.mevzuat.gov.tr/MevzuatMetin/1.3.6831.pdf>

¹⁸ <https://www.mevzuat.gov.tr/MevzuatMetin/1.5.2872.pdf>

Project Submission Form

To evaluate economic and financial status of the project activity, the investment analysis is made. There is no public funding in Turkey for finance of this type of projects. Based on the average market sheets signed with banks, loan conditions are identified.

Step 2a – Determine appropriate analysis method

Three options to identify the analysis methods are as follows:

- Simple Cost Analysis
- Investment Comparison Analysis
- Benchmark Analysis

The Simple Cost Analysis is not applicable because the project activity provides economic benefits by selling electricity.

There is no alternative investment because the baseline of the project is generation of electricity by the grid.

Based on the above situations, the benchmark analysis is chosen for evaluation of the project investment.

Step 2b – Apply Benchmark Analysis (Option III)

The data defined by World Bank for similar project types are used for benchmark analysis. It is given as 25%¹⁹ for equity IRR by a report generated in June 2017. For the project, average electricity tariff must be above 7.3 \$/kWh to reach the equity IRR values. In the absence of carbon income and assuming the initial investment figures are assumed, the tariff is set in this way to make the investment reasonable.

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

Investment decision date is 17.12.2020 for this SPP. Details about the IRR calculation explained below.

Table 4 Financial parameters of the Project used for investment analysis²⁰

Parameters	Data Value	Unit
Installed Capacity	18.61	MWe
Grid Connected Output	48,456	MWh
Amount of Equity	10,000,000	\$
Total Principal Payments	15,000,000	\$
Total Capital investment	25,000,000	\$
Total Operation and Maintenance Units	1,000,000	\$
Electromechanical Equipment Rev.	500,000.00	\$

¹⁹ <https://documents1.worldbank.org/curated/en/799701498842988254/pdf/ICR00004069-06192017.pdf>

²⁰ The financial parameters have been assumed taking into account other projects and expense items.

Table 5 Cost of Servicing Debt parameters used for investment analysis

Parameters	Data Value	Unit
Principle Payments	15,000,000	\$
Interest	6.00%	%
Cost of Servicing Debt	15,900,000	\$
Cost of Amount of Interest (\$)	900,000	\$
Cost of Servicing Debt Interest for the first year after operating (\$)	180,000	\$
Cost of Servicing Debt Interest for the second year after operating (\$)	180,000	\$
Cost of Servicing Debt Interest for the third year after operating (\$)	180,000	\$
Cost of Servicing Debt Interest for the fourth year after operating (\$)	180,000	\$
Cost of Servicing Debt Interest for the fifth year after operating (\$)	180,000	\$

Table 6 Financial parameters used for investment analysis

Parameters	Data Value	Unit
Expected Tariff for first 10 year	13.3	¢/kWh
Market Price after 10 years	6	¢/kWh
Expected ACCs price	3	€/tCO ₂

The World Bank has established applied benchmark for renewable energy investments in Turkey. It comprises a minimum IRR requirement for project finance, as well as a threshold benchmark for IRR. As a result, it is a "commercial lending rate," as defined by tool 27. The benchmark IRR was derived from a World Bank loan to Turkey's renewable energy industry as part of the Clean Technology Fund (CTF). The suggested CTF benchmark was found to be compatible with the qualifying requirements for emission reduction projects (that is, significant potential in emission reductions, demonstration potential, development impact and implementation potential). For each project type, threshold IRRs have been calculated, which are the lowest IRRs required to attract investors.

Applied benchmark IRR is conservative and reliable. World Bank EBRD, which is another international finance institution providing loan to Turkish RE and EE projects have published their evaluation report. This report shows that average IRR of 13 projects financed is 25% (Table 6 page 27) which is above the applied benchmark.

According to the investment analysis made for project activity, Equity Internal Rate of Return (IRR) of the Küçükköy Solar Power Project has been calculated and indicated. IRR at time of investment decision has been calculated 18.61 % referring the parameters given above without considering the carbon revenue. The IRR calculation has been made for each province where the solar plants are closest to each other. Regarding this, total IRR has been calculated for all solar power plants. For amortization calculations, electromechanical equipment and expected lifetime of construction are determined as 25 years.

According to the Regulation on Certification and Support of Renewable Energy Resources²¹, the government gave an incentive of 13.3 ¢/kWh for the first 10 years after the facility commissioning because the panels belonging to the facility are domestic production, and is assumed as 6 ¢/kWh after ten years. Annual generation has been taken as 48.456 GWh as indicated in generation liscence.

Sub-step 2d – Sensitivity Analysis

Sensitivity analysis has been carried out for three main parameters identified;

- Investment cost
- Operating Cost
- Electricity Sales Revenue

Table 7 Sensitivity analysis for Makascı-9 Solar Power Plant (except carbon revenue)

With ±5% fluctuation range up to ±15% for the above parameters, this table has been generated.	% Fluctuation						
	-15	-10	-5	0	+5	+10	+15
Investment Cost	22.82	21.27	19.88	18.61	17.46	16.40	15.42
Operating Cost	19.52	19.22	18.92	18.61	11.84	11.48	11.12
Electricity Income	14.00	15.57	17.10	18.61	20.10	21.56	23.01

The ACC income will enhance the project's financial indicators and make it more attractive to investors, according to the investment and sensitivity study. The scenario was examined, and it was discovered that the project is additional in the scenario. Given that the figures above are based on the highest guaranteed price rather than the average price, optimistic estimates for annual generation, and the fact that those figures do not reflect the risk of investment, the role of carbon income is a critical number in allowing the project to move forward and a favorable investment and funding decision to be made. Carbon revenue has a significant effect in this respect in terms of decreasing the period for return on investment and minimizing investment risk.

Investment cost is another key factor that influences equity IRR. However, because the agreements have been signed and the expenses have been realized according to the financial model, there is no way to predict a reduction in the investment cost. Operating expenses have an influence on equity IRR, but it is little and does not result in a substantial change in equity IRR, and the variation percentage required to meet the benchmark is extremely large and unlikely. Based on the above information, it is seen that project is not the most attractive option. Therefore, the project is considered as additional to the baseline scenario.

Common Practice Analysis

The section below provides the analysis as per step 4 of the “Tool for the demonstration and assessment of additionality”, version 7.0.0 and according to “Common Practice” Tool version 03.1.

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

²¹<https://www.mevzuat.gov.tr/anasayfa/MevzuatFihristDetayIframe?MevzuatTur=7&MevzuatNo=18907&MevzuatTertip=5>

The project installed capacity is 18.61 MW. Therefore, total capacity of power plants which will be included in the analysis will be between 9.3 MW – 27.9 MW.

Step 2: Identify similar projects (both CDM and non-CDM) which fulfill all of the following conditions:

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

Applicable geographical area is Turkey.

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

Renewable Energy Projects

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

Solar Power Plants

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

Electricity generation

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

Range in between 9.3 MW – 27.9 MW

- f) The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity.

The commissioning date of the solar power plants is 17/12/2020. Therefore, projects, which have started commercial operation before 17/12/2020, have been considered for analysis.

There are 1 project meeting above criteria.

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

All projects with conditions are listed in a table and 1 project are identified according to geographical locations (Küçükköy SPP in Antalya) of the projects which are essential whether it manages to have certain financial flow to the investment. The project cannot be demonstrated as CDM or voluntary carbon projects (N_{all}).

Therefore, $N_{all} = 1$

Table 8. List of N_{all} Projects

Plant Name	Plant Capacity (MW)	N_{all}
FERNAS-4 GES	26.00	1

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

There is no different to the technology applied in the proposed project activity.

Therefore, $N_{diff}=0$

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

Hence, $F = 1 - (0/1) = 1$

and, $N_{all} - N_{diff} = 1 - 0 = 1$

Since the proposed project activity would be common practice only both of the following conditions apply.

$F > 0.2$ and $N_{all} - N_{diff} > 3$

Therefore, $F = 1$ and $N_{all} - N_{diff} = 1$ the project activity is not common practice and so, the project is additional.

B.6. Estimation of emission reductions

B.6.1. Explanation of methodological choices

According to “Turkey National Network Emission Factor Data Sheet” document from Ministry of Energy and Natural Resources, Operating, Build and Combined Margin Emission Factors have been published. The Ministry has calculated the factors as using the “Tool to calculate the emission factor for an electricity system”. Since it’s the latest available data, published by the ministry, these factors have been considered. In this published document, the Clean Development Mechanism Tool 07-V06.0 method of the Intergovernmental Panel on Climate Change (IPCC) has been used.

The data used for this emission factor are given below.

- TEİAŞ Turkey electricity generation-consumption and losses statistics,
- Electricity generation (1.A.1.a.i) emission values in the Common Reporting Format (CRF) tables prepared within the scope of Turkey's National Greenhouse Gas Inventory Report,
- Commissioning dates of electricity generation plants in chronological order from TEİAŞ Load Dispatch Department, plant names, fuel types, installed power values, electricity generation amounts for the calculated year,
- Voluntary carbon reduction certificate ownership status from the websites of Gold Standard (GS) and Verified Carbon Standard (VCS),
- Power plant efficiency figures from Clean Development Mechanism (CDM) Tool 009-V2.0.²²

Calculation of the Operating Margin Emission Factor

It's been published as 0.7258 tCO₂/MWh by the Ministry of Energy and Natural Resources.²⁴

Calculation of the Build Margin Emission Factor

It's been published as 0.4153 tCO₂/MWh by the Ministry of Energy and Natural Resources.²⁴

Calculating of the Combined Margin Emission Factor

It's been published as 0.6482 tCO₂/MWh by the Ministry of Energy and Natural Resources.

The combined margin is calculated ex-post and has been fixed for the crediting period.²⁴

Baseline Emission:

According to ACM0002 methodology, emission reductions related to project activities is estimated as follows:

$$ER_y = BE_y - PE_y - LE_y$$

where

ER_y= emission reductions in year y (tCO₂/yr)

BE_y= baseline emissions in year y (tCO₂/yr)

PE_y= project emissions in year y (tCO₂/yr)

LE_y= leakage emissions in year y (tCO₂/yr)

The baseline emissions are to be calculated as follows:

$$BE_y = EG_{\text{facility},y} \times EF_{\text{grid,CM},y}$$

where

BE_y= Baseline emissions in year y (tCO₂/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 CO₂ 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" (tCO₂/MWh)

²²<https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9Fikli%C4%9Fi/T%C3%BCrkiyeUlusalElektrik%C5%9EebekesiEmisyonFakt%C3%B6r%C3%BC/Belgeler/EK-2.pdf>

Project Submission Form

According to the generation license, $EG_{\text{facility},y} = 48,456$ MWh/yr. Also, According to “Turkey National Network Emission Factor Data Sheet” document from Ministry of Energy and Natural Resources, the emission factor coefficient ($EF_{\text{grid,CM},y}$) could be used as 0.6482 tCO₂/MWh.

Therefore, the baseline emission annually is:

$$BE_y = (48,456) \times (0.6482) = 31,409 \text{ tCO}_2\text{e/yr}$$

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 Küçükköy Solar Power Plant under ACM0002 methodology.

Therefore,

$$LE_y = 0$$

Baseline Emission:

The baseline emissions are to be calculated as follows:

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

Where:

BE_y = Baseline emissions in year y (tCO₂/yr)

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

$EF_{\text{grid,CM},y}$ = Combined margin CO₂ 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” (tCO₂/MWh)

$EG_{\text{PJ},\text{facility,baseline}}$ = 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 Küçükköy Solar Power Plant, $EG_{\text{facility},y} = 48,456$ MWh/yr. Also, According to calculation, the emission factor coefficient ($EF_{\text{grid,CM},y}$) is calculated as 0.6482 tCO₂/MWh.

Therefore, the baseline emission annually is:

$$BE_y = (48,456) \times (0.6482) = 31,409 \text{ tCO}_2\text{e/yr}$$

Based on the data above, the emission reduction value for Makascı-9 Solar Power Plant is:

$$ER_y = BE_y = 31,409 \text{ tCO}_2\text{e/yr}$$

Data / Parameter Table 1.

Data / Parameter:	EG _y
Methodology reference	ACM0002
Data unit	t CO ₂ e/MWh
Description	Emission factor of the Turkish grid determined ex-ante. It's been published by the Ministry of Energy for 2019 on 06.10.2021.
Measured/calculated /default	Calculated
Data source	Turkey National Network Emission Factor Data Sheet https://enerji.gov.tr/Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9Fikli%C4%9Fi/T%C3%BCrkiyeUlusalElektrik%C5%9EebekesiEmisyonFakt%C3%B6r%C3%BC/Belgeler/EK-2.pdf
Value(s) of monitored parameter	0.6482
Measurement/Monitoring equipment (if applicable)	N/A
Measuring/reading/recording frequency (if applicable)	Once for each crediting period
Calculation method (if applicable)	-
QA/QC procedures	Official data
Purpose of data	Calculation of the baseline emissions-to demonstrate contribution to SDG Target 13.3.: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
Additional comments	-

B.6.3. Ex-ante calculation of emission reductions

Baseline Emissions

According to “Turkey National Network Emission Factor Data Sheet” document from Ministry of Energy and Natural Resources, Operating, Build and Combined Margin Emission Factors have been published. The Ministry has calculated the factors as using the “Tool to calculate the emission factor for an electricity system”. The emission factor coefficient ($EF_{grid,CM,y}$) could be used as 0.6482 tCO₂/MWh.

Moreover, in accordance with ACM0002, the baseline emissions are calculated as the net electricity generated by the project activity, multiplied with the baseline emission factor of the project grid.

$$BE_y = (48,456) \times (0.6482) = 31,409 \text{ tCO}_2\text{e/yr}$$

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 Küçükköy Solar Power Plant under ACM0002 methodology.

Therefore,

$$LE_y = 0$$

Therefore,

Emission Reductions

$$\begin{aligned} ER_y &= BE_y - PE_y - LE_y \\ ER_y &= BE_y = 31,409 \text{ tCO}_2\text{e/yr} \end{aligned}$$

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

Year	Baseline emissions (t CO ₂ e)	Project emissions (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions (t CO ₂ e)
2020 (18/12/2020-31/12/2020)	1,205	0	0	1,205
2021	31,409	0	0	31,409
2022	31,409	0	0	31,409
2023	31,409	0	0	31,409
2024	31,409	0	0	31,409
2025	31,409	0	0	31,409
2026	31,409	0	0	31,409
2027	31,409	0	0	31,409
2028	31,409	0	0	31,409
2029	31,409	0	0	31,409
2030 (01/01/2030-17/12/2030)	30,204	0	0	30,204
Total	314,092	0	0	314,092
Total number of crediting years	10 years			
Annual average over the crediting period	31,409	0	0	31,409

B.7. Monitoring plan**B.7.1. Data and parameters to be monitored****Data / Parameter Table 1.**

Data / Parameter:	EG _{facility,y}
Methodology reference	ACM0002
Data unit	t CO ₂ e/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 48,456 MWh according to the generation license.

Measurement/ Monitoring equipment		
	Type of meter	<u>MAIN METER:</u> LUNA <u>SPARE METER:</u> MAKEL
	Location of meter	On-site
	Accuracy of meter	0.5S
	Serial number of meter	<u>MAIN METER:</u> 69206269 <u>SPARE METER:</u> 80269680
	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)	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. 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 10 years based on related regulation. ²³ The meters are sealed and the project proponent are not allowed to access the meters. If there is a significant difference between the readings of two devices. EPDK regulations should be followed for the meters to identify the accuracy class of the meters as 0.2 or 0.5.	
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	-	

²³ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>

Data / Parameter Table 2.

Data / Parameter:	CO ₂ Emissions	
Methodology reference	GCC Environment and Social Safeguards Standard, v2.0	
Data unit	Tons	
Description	Reduction of CO ₂ emissions due to implementation of the project activity	
Measured/calculated /default	Calculated	
Data source	Electricity generated by Küçükköy Solar Power Plant and the emission factor coefficient	
Value(s) of monitored parameter	15,949 tons of CO ₂ annually	
Measurement/ Monitoring equipment		
	Type of meter	<u>MAIN METER:</u> LUNA <u>SPARE METER:</u> MAKEL
	Location of meter	On-site
	Accuracy of meter	0.5S
	Serial number of meter	<u>MAIN METER:</u> 69206269 <u>SPARE METER:</u> 80269680
	Calibration frequency	10 years
	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.	
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.

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

Project Submission Form

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 electricity distribution companies. 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, electricity distribution companies 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 electricity distribution companies. 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 electricity distribution companies. Then, if there is an inconsistency between the meters, they are calibrated by electricity distribution companies.

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 17/12/2020.

C.2. Expected operational lifetime of the Project Activity

25 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 18/12/2020, after the provisional acceptance of all plants are approved.

C3.3. Duration of the crediting period

The crediting period is between 18/12/2020 – 17/12/2030.

Section D. Environmental impacts

D.1. Analysis of environmental impacts

The project reduces CO₂ emissions since it reduces the amount of fossil fuel used. Thus, air pollution decreases. Damaged solar panels on site can cause adverse environmental impacts if not managed well so that the project owner undertakes to manage the solar panel module waste in an appropriate manner and in accordance with applicable laws and regulations. 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. Also, The project replaces fossil fuels with renewable sources of energy since it is a solar power plant.

D.2. Environmental impact assessment

The project complies with the relevant regulations and laws in Turkey. The Küçükköy Solar Power Plant was constructed by Antges Enerji Üretim Anonim Şirketi and "EIA required." decision was made by the Ministry of Environment and Urbanization on 08.06.2017 considering 18.61 MW electricity production.

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>Environmental impacts on the identified categories²⁴ indicated below.</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 Not Applicable (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 Harmless (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 Harmful (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 Harmful.</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 Harmful.</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 Harmful. Indicate whether the risks have been eliminated or reduced and, where appropriate, indicate them as Harmless (No actions required)</p>	<p>Describe the monitoring approach and the parameters to be monitored for each impact that has been identified as Harmful and described in the PSF (refer to Table 3).</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>Environmental Safeguards</p>												
<p>Environment - Air</p>	<p>SO₂ 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_x 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>CO₂ emissions</p>	<p>The project reduces CO₂ emissions since it reduces the amount of fossil fuel used. Thus, air pollution decreases.</p>	<p>N/A</p>	<p>The project reduces CO₂ 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 calculated accordingly</p>	<p>The project is expected to result in lower CO₂ emission than the baseline throughout the crediting period</p>	<p>+1</p>

²⁴ 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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	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	
Environment - Land	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	
	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
	Solid waste Pollution from end of life	If the solar panel modules have not been managed well after their	Waste Management	-	Harmless	-	-	Damaged/defective solar module	Harmless	Details of damaged and returned solar modules will be	The project owner undertakes to manage the solar panel module waste	+1

	<i>products/ equipment</i>	end-of-life, they might have negative impact for environment.	Regulation ²⁵					modules will be stored and disposed of in accordance with national/local laws.		retained for future verification.	in an appropriate manner and in accordance with applicable laws and regulations.	
	<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	
Environment - Water	<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	
Environment – Natural Resources	<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	
	<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	

²⁵ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=20644&MevzuatTur=7&MevzuatTertip=5>

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<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>	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	N/A	The electricity generated from solar power will be monitored throughout the crediting period. You can see the data and monitoring records in B.7.1.	The generated electricity by the project activity will be continuously measured and the related CO ₂ 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.

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

E.2. Social Safeguards

Impact of Project Activity on		Information on Impacts, Do-No-Harm Risk Assessment and Establishing Safeguards									Project Owner's Conclusion	
		Description of Impact (both positive and negative)	Legal requirement /Limit	Do-No-Harm Risk Assessment			Risk Mitigation Action Plans		Do-No-Harm Residual Risk Assessment		Self-Declaration	
				Not Applicable (No actions required)	Harmless (No actions required)	Harmful (Actions required)	Operational Controls	Program of Risk Management Actions	Re-evaluate Risks	Monitoring	Explanation of Conclusion	The Project Activity will not cause any harm
Social impacts on the identified categories²⁶ indicated below.	Indicators for social impacts	Describe the impacts on society and stakeholders, both positive and negative, that may result from constructing and operating of the Project Activity.	Describe the applicable national regulatory requirements / legal limits related to the identified risks of social impacts.	If no social impacts are anticipated, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as Not Applicable (No actions required)	If social impacts are anticipated, but are expected to be in compliance with applicable national regulatory requirements/ legal limits, then it the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as Harmless (No actions required)	If social impacts are anticipated that will not be in compliance with the applicable national regulatory requirements/ legal limits, then the Project Activity is likely to cause harm (may be unsafe) and shall be indicated as Harmful (Actions required).	Describe the operational controls and best practices, focusing on how to implement and operate the Project Activity, to reduce the risk of impacts that have been identified as Harmful .	Describe the Program of Risk Management Actions (refer to Table 3), focusing on additional actions (e.g., construction of crèche for workers) that will be adopted to reduce the risk of impacts that have been identified as Harmful .	Re-evaluate risks after Risk Mitigation Actions plans have been developed (refer to previous two columns) for impacts that have been identified as Harmful . Indicate whether the risks have been eliminated or reduced and, where appropriate, indicate them as Harmless (No actions required)	Describe the monitoring approach and parameters to be monitored for each impact that has been identified as Harmful and to be described in the PSF (refer to Table 3).	Describe how the Project Owner has concluded that the Project Activity is likely to achieve the identified Risk Mitigation Action Plan targets for managing risks to levels that are unlikely to cause any harm.	Confirm that the Project Activity risks of negative social impacts are expected to be managed to levels that are unlikely to cause any harm (Mark +1 for Yes or and -1 for No)
Social Safeguards												
Social Jobs	Long-term jobs (> 1 year) created/ lost	The project 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.	Employment has been recorded. Labor law protects the employees. In addition, there are signed contracts between the project owner and the employees.	+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	The number of people employed in the project will be monitored through SGK (Social	Employment has been recorded. Labor law protects the employees. In addition, there are	+1

²⁶ 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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											Security Institution) records or payroll records.	signed contracts between the project owner and the employees.	
	Sources of income generation increased / reduced	The project increases income by crating job opportunities.	All payments and right comply with the Labor Law. ²⁷	N/A	-	-	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
Social - Health & Safety	Disease prevention	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	
	Reducing / increasing accidents	Occupational accidents at the site may be occurred.	All trainings and precautions are completed according to the HSE Law ²⁸ .	N/A	-	-	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	N/A	
	Reducing / increasing food wastage	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	
	Reducing / increasing indoor air pollution	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	
	Efficiency of health services	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	
	Sanitation and waste management	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	N/A	
Social - Education	Job related training imparted or not	N/A	-	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	N/A	

²⁷ <https://www.mevzuat.gov.tr/MevzuatMetin/1.5.4857.pdf>

²⁸ <https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6331.pdf>

	<i>Project-related knowledge dissemination effective or not</i>	N/A	N/A	N/A	-	-	N/A	N/A	N/A	N/A	N/A	
Social - Welfare	<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 empowerment</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	

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

Net Score:	+4
Project Owner's Conclusion in PSF:	The Project Owner confirms that the Project Activity will not cause any net harm to society.

Section F. United Nations Sustainable Development Goals (SDG)

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

SDG 6 – Clean Water and Sanitation: The project provide contribution to SDG Target 6.4 “By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity”.

Related indicator: 6.4.1 Change in water-use efficiency over time

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 CO₂ 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_{2.5} and PM₁₀) in cities (population weighted)

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”.

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>Describe UN SDG targets and indicators See: https://unstats.un.org/sdgs/indicators/indicators-list/</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. For guidance see: Integrating the SDGs into Corporate Reporting- A Practical Guide: https://www.unglobalcompact.org/docs/publications/Practical_Guide_SDG_Reporting.pdf Case-study from Coca-Cola and other organizations to develop organization-wide SDGs (page 114): https://pub.iges.or.jp/pub/realising-transformative-potential-sdgs</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

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<p>Goal 4. Ensure inclusive and equitable education and promote lifelong learning opportunities for all</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>
<p>Goal 5. Achieve gender equality and empower all women and girls</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>
<p>Goal 6. Ensure availability and sustainable management of water and sanitation for all</p>	<p>SDG Target 6.4 “By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity”. Related indicator: 6.4.1 Change in water-use efficiency over time</p>	<p>Yes</p>	<p>Water consumption during the generation of electricity decreases compare with the electricity generation with conventional methods</p>	<p>1,370,363.78 m3/year wastewater discharge avoided by the project activity</p>	<p>Decrease the discharge of wastewater from energy sources by enhancing the use of renewable energy sources.</p>	<p>The project supports the less water consumption and discharge of less water. Total amount of wastewater discharge avoided is 1,370,362.78 m³/year.</p>	<p>Wastewater generation records.</p>	<p>Project Owner operates the plant since 2020 and provide wastewater management and complies with targeted SDGs so far</p>	<p>Yes</p>

<p>Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all</p>	<p>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.</p>	<p>Yes</p>	<p>Increasing the share of renewable energy sources in the total electricity generation delivered to the national grid</p>	<p>Generate average 26,378 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 average 26,378 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 2016. Project continues to produce clean energy without any problems.</p>	<p>Yes</p>
<p>Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</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>

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<p>Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</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". Related indicator: 9.4.1 CO2 emission per unit of value added</p>	<p>Yes</p>	<p>Provides a clean and resilient power generation facility</p>	<p>The project is average 48,456 MWh resilient energy generation facility.</p>	<p>Providing clean energy</p>	<p>Providing clean energy by avoiding 31,409 tCO₂ annually.</p>	<p>The project has produced clean energy by implementing a solar power plant and helps the adaptation of clean energy technologies.</p>	<p>Check project implementation continues</p>	<p>Yes</p>
<p>Goal 10. Reduce inequality within and among countries</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>

<p>Goal 11. Make cities and settlements inclusive, resilient and sustainable</p>	<p>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)</p>	<p>Yes</p>	<p>Decrease the amount of PM2.5 and PM10 emissions in the cities</p>	<p>Reduction of PM2.5 is 0.0196 µg/m³. and reduction of PM10 is 0.0410 µg/m³.</p>	<p>Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)</p>	<p>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.</p>	<p>PM2.5 and PM10 have been recorded by Ministry of Environment Urbanization and Climate Change and you can see the ER calculation sheet excel. PM2.5 and PM10 were measured in implementation of the project activity several times. The measurement will be conducted by project owner after 5 years. Also, General Directorate of Meteorology measures these levels regularly.</p>	<p>Project Owner operates the plant since 2016 and complies with targeted SDGs so far</p>	<p>Yes</p>
<p>Goal 12. Ensure sustainable consumption and production patterns</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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<p>Goal 13. Take urgent action to combat climate change and its impacts</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 31,409 tCO₂ annually</p>	<p>Commissioning of average 48,456 MWh renewable energy power plant</p>	<p>Reducing greenhouse gas emissions by 31,409 tCO₂ tons annually.</p>	<p>Since solar energy is used in the project, there is no greenhouse gas emission related to the project activity. Eliminates 31,409 tCO₂ annually.</p>	<p>Calculate avoided GHG emissions every year.</p>	<p>The plant is operated since 2021 by project owner and complied with targeted SDGs so far.</p>	<p>Yes</p>
<p>Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development</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>

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SUMMARY							Targeted	Likely to be Achieved	
Total Number of SDGs							6	6	
Certification label (Bronze, Silver, Gold, Platinum, or Diamond) for the ACCs as defined in the PSF							Diamond	Diamond	

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 required" decision is taken, and according to the Article 9 of the EIA Regulation a Public Participation Meeting shall be held.

Therefore, the Local Stakeholder meetings were organized by Desilyon Danışmanlık Ticaret A.Ş. for Küçükköy Solar Power Plant project. To enhance the participation of all stakeholders the meeting held in Antalya province Korkuteli district. It was arranged at 14:00 on 17.04.2022. The meetings were announced orally. Furthermore, announcements were sent to the headmen and coffee houses of the nearby settlements several days before the meeting 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.

Appendix 1. Contact information of project owners

Organization name	Desilyon Danışmanlık Ticaret A.Ş.(Focal point to act on behalf of all Project Owners)
Country	Turkey
Address	Mustafa Kemal Mah. Dumlupınar Bulv. No:274 Mahall Ankara B-Blok No:37 Çankaya/Ankara
Telephone	+90 (312) 473 40 30
Fax	+90 (312) 473 62 76
E-mail	serkan.korkmaz@desilyon.com.tr
Website	www.desilyon.com.tr
Contact person	Serkan Korkmaz

Organization name	Antges Enerji Üretim Anonim Şirketi
Country	Turkey
Address	Gümüşsuyu Mahallesi Mete Cad. No: 16/3 Beyoğlu/İstanbul
Telephone	+90 212 252 40 43
E-mail	teknik.enerji@artibirgrup.com
Website	https://www.artibirgrup.com
Contact person	Mehmet Şafii İnan

Appendix 2. Affirmation regarding public funding

This section has been left blank intentionally.

Appendix 3. Applicability of methodology(ies)

This section has been left blank intentionally.

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

This section has been left blank intentionally.

Appendix 5. Further background information on monitoring plan

This section has been left blank intentionally.

Appendix 6. Summary report of comments received from local stakeholders in local vernacular



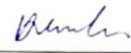
17.04.2022

Küçükköy GES Yerel Paydaş Toplantısı Katılımcı Listesi				
İsim - Soyisim	Kurum / Görev	Adres	Telefon	İmza
Hakan Özmen	Vatandaş / Antalya Köyümleri		0530 968 2662	
Ekrem Aksoy	Vatandaş /	Antalya Köyümleri	0 534 449 2003	

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Küçükköy GES	Ad Soyad	Ekrem Aksoy
	Kurum / Görev	Valerdaş
	Tarih	17-09-2022
	İmza	Ekrem
Toplantı ile ilgili görüşleriniz nelerdir?		
Bilgilendirici bir toplantı.		
Proje ile ilgili <u>olumlu</u> bulduğunuz konular nelerdir?		
Genleşmiş işin iş olanakları artıyor. Havamız kirlenmeyecek ve geleceğe zarar vermeyecek bir proje. olumlu buluyorum		
Proje ile ilgili <u>olumsuz</u> bulduğunuz konular nelerdir?		
Yok.		

Küçüköy GES	Ad Soyad	Hakan Ömen
	Kurum / Görev	Vatandaş
	Tarih	17.04.2022
	İmza	
Toplantı ile ilgili görüşleriniz nelerdir?		
Güneş enerji santralleri hakkında bilgilendik		
Proje ile ilgili <u>olumlu</u> bulduğunuz konular nelerdir?		
Doğal kaynaklardan enerji üretimi Çevreyi kirlenmesi		
Proje ile ilgili <u>olumsuz</u> bulduğunuz konular nelerdir?		
-		

Summary report of comments received from local stakeholders translated to English

Küçükköy SPP	Name Surname	Ekrem Aksoy
	Institution / Mission	Citizen Antalya-Korkuteli
	Date	17.04.2022
What is your opinion about the meeting?		
Informative meeting		
What are the aspects that you find positive about this project?		
Job opportunities for youth reside in our village is increasing. Air is not polluted and this project not harm to the environment. I find project positive.		
What are the issues that you find negative about the project?		
No		

Küçükköy SPP	Name Surname	Hakan Özmen
	Institution / Mission	Citizen Antalya-Korkuteli
	Date	17.04.2022
What is your opinion about the meeting?		
We informed about solar power plants.		
What are the aspects that you find positive about this project?		
Electricity generation by using natural resources. Not harmful to the environment.		
What are the issues that you find negative about the project?		
-		

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

This section has been left blank intentionally.

<i>Complete this form in accordance with the instructions attached at the end of this form.</i>				
CDM Project registration number				
Date of registration of CDM Project				
Title of the Project Activity				
CDM Project de-registration reference number				
Date of de-registration of the CDM Project				
Project Participants <small>(authorized by the host / annex 1 country letter of approval)</small>				
Country where the project is located				
Applied CDM methodology(ies) <small>(provide reference and version number(s))</small>				
Pre-registration changes to the CDM Project Activity <small>(Tick as applicable)</small>	CDM Pre-registration Changes	Reference number	Approved	Provide a summary of pre-registration changes
	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"/>	

Post-registration changes to the CDM Project Activity (Tick as applicable)	CDM Post registration Changes	Reference number	Approved	Provide a summary of post-registration changes
	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

Crediting Period(s)	Crediting period(s)		Period (start & end dates)	ERs as per registered PDD/MR	CERs issued	
	Crediting Period (shall start on or after 1 Jan 2016)	Fixed 10 year				
		Renewable (7 years, with 2 approved renewals)	1 st			
			2 nd			
		3 rd				
	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					-	
Details of Previous CDM Issuance Requests	Issuance Request	Period (start & end dates)	ERs as per registered PDD	Quantity of CERs requested to be issued	Quantity of CERs issued	
	1 st					
	2 nd					
	3 rd					
	4 th					
	5 th					
	Add rows					
	Total					
List any open issues in the						

<p>Validation and last Verification Report (e.g., FARs, if any) and how they have been addressed</p>	
<p>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</p>	
<p>Provide the list of all the registered documents related to this project, as available on the UNFCCC/CDM website and the corresponding URLs.</p>	

DOCUMENT HISTORY

Version	Date	Comment
V 3.2	31/12/2020	<ul style="list-style-type: none"> ▪ The name of GCC Program’s emission units has been changed from “Approved Carbon Reductions” or ACRs to “Approved Carbon Credits” or ACCs.
V 3.1	17/08/2020	<ul style="list-style-type: none"> ▪ Editorial revisions made <ul style="list-style-type: none"> ○ Revised Table in section B.7.2 on Monitoring-program of risk management actions ○ Revised Table in section E.1 on Environmental Safeguards ○ Revised Table in section E.1 on Social Safeguards ○ Revised Table in section F on United Nations Sustainable Development Goals (SDG)
V 3.0	05/07/2020	<ul style="list-style-type: none"> ▪ Revised version released on approval by Steering Committee as per GCC Program Process; ▪ Revised version contains following changes: <ul style="list-style-type: none"> ○ Change of name from Global Carbon Trust (GCT) to Global Carbon Council (GCC); ○ Considered and addressed comments raised by Steering Committee: <ul style="list-style-type: none"> ➤ during physical meeting (SCM 01, dated 29 Oct 2019, Doha Qatar); and ➤ electronic consultations EC01-Round 01 (15.09.2019 – 25.09.2019), EC01-Round 02 (27.03.2020 – 27.06.2020). ○ Feedback from Technical Advisory Board (TAB) of ICAO on GCC submission for approval under CORSIA²⁹;
V 2.0	25/06/2019	<ul style="list-style-type: none"> ▪ Revised version released for approval by the GCC Steering Committee. ▪ Revised version includes additional details and instructions on the information to be provided, consequent to the latest developments world-wide (e.g., CORSIA EUC).
V 1.0	01/11/2016	Initial version released under the GCC Program Version 1

²⁹See ICAO recommendation for conditional approval of GCC at https://www.icao.int/environmental-protection/CORSIA/Documents/TAB/Excerpt_TAB_Report_Jan_2020_final.pdf

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