Gold Standard
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TEMPLATE

KEY PROJECT INFORMATION & PROJECT DESIGN DOCUMENT (PDD)

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VERSION **v. 1.2**

RELATED SUPPORT

- **TEMPLATE GUIDE Key Project Information & Project Design Document v.1.2**

This document contains the following Sections

KEY PROJECT INFORMATION

GS ID of Project	7800
Title of Project	Antalya Solar Power Plant
Time of First Submission Date	24/09/2021
Date of Design Certification	31/03/2023
Version number of the PDD	05
Completion date of version	18/09/2023
Project Developer	GTE Karbon Sürdürülebilir Enerji Eğitim Danışmanlık ve Ticaret A.Ş.
Project Representative	Gün Güneş Enerjisi Elektrik Üretim Sanayi ve Ticaret A. Ş.
Project Participants and any communities involved	GTE Karbon Sürdürülebilir Enerji Eğitim Danışmanlık ve Ticaret A.Ş. (Project developer) Gün Güneş Enerjisi Elektrik Üretim Sanayi ve Ticaret A.Ş. (Project owner)
Host Country (ies)	Turkey
Activity Requirements applied	☐ Community Services Activities ☒ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Scale of the project activity	☐ Micro scale ☐ Small Scale ☒ Large Scale
Other Requirements applied	N/A
Methodology (ies) applied and version number	ACM0002 - "Grid connected electricity generation from renewable sources" - Version 21.0
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A
Project Cycle:	☒ Regular ☐ Retroactive

Table 1 – Estimated Sustainable Development Contributions

Sustainable Development Goals Targeted	SDG Impact (defined in B.6.)	Estimated Annual Average	Units or Products
13 Climate Action (mandatory)	Reduction in GHGs emissions	30,323 tonnes of CO_2e	tCO_2e
7 Affordable and Clean Energy	Renewable energy generation	46,736,532 kWh	kWh/yr
8 Decent Work and Economic Growth	Increased employment opportunities	The project creates job opportunity for at least 10 people.	Number of recruited staff

SECTION A. DESCRIPTION OF PROJECT

A.1 Purpose and general description of project

Antalya SPP will be developed by Gün Güneş Enerjisi Elektrik Üretim Sanayi ve Ticaret A.Ş. The project is reducing national energy deficit and development of local industries as it allows the use of local sources for energy generation to meet the increasing demands.

The purpose of the project is to generate clean energy by harnessing 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.

In this scope, Gün Güneş Enerjisi Elektrik Üretim Sanayi ve Ticaret A.Ş plans to install PV panels having a module area of 182,153 m^2 in Akseki District of Antalya with the purpose of contributing to the national economy the meeting the increased electricity demand[1]. Total output of the plant will be limited at 23.40 MWe as per the capacity allowed in generation license with the help of software installation.

The project activity will generate greenhouse gas (GHG) emission reductions by avoiding CO2 emissions from electricity generation by fossil fuel power plants connected to Turkish National

[1] Antalya SPP Yield Report

Power Grid. The average annual generated energy of 46,736,532 kWh will be able to deliver a reduction in emissions of around 30,323 tCO_2e (tons of carbon dioxide equivalent) per annum.

Main goals of the Antalya SPP include:

• Utilization of the solar potential of Turkey to meet increasing electricity demand and maintain energy security. In total, the solar energy capacity of Turkey is lower than 7% of the total installed capacity[2].

• 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.

In terms of local benefits, the project mainly contributes to the reduction of local air pollutants and local employment.

Table 2 - Milestones for Antalya SPP

Milestone	Date
Preliminary License	03/11/2016
EIA Stakeholder Meeting	02/2017
Environmental Impact Assessment (Final)	10/2017
Environmental Impact Assessment Approval	29/10/2017
Preliminary Project Approval	31/12/2018
EPC Contract for Phase I Works *	12/10/2020
Construction Start Date	12/10/2020
PV Module Agreement	16/12/2020
First Index Protocol	21/12/2020
Provisional Acceptance No.1 **	31/12/2020
Main Meter Change Protocol	05/04/2021
EPC Contract	13/04/2021
System Usage Agreement	25/08/2021

[2] https://www.enerji.gov.tr/tr-TR/Sayfalar/Elektrik

Connection Agreement	27/08/2021
Provisional Acceptance No.2	03/09/2021
First Submission to GS	24/09/2021
Provisional Acceptance No.3	15/10/2021
Provisional Acceptance No.4	26/11/2021
Provisional Acceptance No.5	24/12/2021

*Project start date
**Project commissioning date

A.1.1. Eligibility of the project under Gold Standard

Project activity involves construction of a 23.40 MWe solar power plant for electricity generation. Project is categorized as "Renewable Energy Supply" according to GS definition whereas it is included in the sectoral scope 1 "Energy Industry – Renewable Sources" according to the UNFCCC definition. Project type is retroactive as per the GS rules.

Project is not registered and also will not benefit from other certification schemes or renewable energy labelling standards. Project meets eligibility criteria as per section 3.1.1 of GS4GG Principles & Requirements, as described below:

i. <u>The project is not pre-identified as eligible.</u>

ii. <u>Gold Standard approval, GS4GG Principles and Requirements:</u>

- Project is a renewable energy (solar) installation activity.
- Project activity includes physical action/implementation on the ground.
- Project is located in Turkey, which is eligible for VER projects.
- Project is a large-scale renewable energy plant with defined boundaries.
- Project contributes to sustainable development goals.
- Project is in compliance with GS safeguarding principles.
- Stakeholders are involved in project implementation and planning during local consultation meetings and feedback rounds.
- Project outcomes are validated/verified by approved bodies.
- Additionality is demonstrated as per the applicable tools and methodologies.

iii. <u>The project meets the General Eligibility Criteria of the applicable Activity Requirements:</u>

Scale of the project activity: The project is a 23.40 MWe solar power project and exceeding the 15 MW limit for small scale project according to UNFCCC regulations, the project is categorized under large scale.

<u>Renewable Energy Activity Requirements:</u>

- 4.1 Principle-1: Contribution to Climate Security & Sustainable Development: Project contributes 3 SDSs including SDG 13. Please see Section B 6.1.
- 4.2 Principle-2: Safeguarding Principles: Please see Section D.
- 4.3 Principle-3: Stakeholder Inclusivity: Please see Section E.
- 4.4 Principle-4: Demonstration of Real Outcomes: Please see Section B 6.4.
- 4.5 Principle-5: Financial Additionality & Ongoing Financial Needs: Please see Section B.5.

iv. The project is not registered with any other voluntary or compliance schemes.

The project doesn't claim Green or White certificates or equivalents that may result in double counting because of carbon dioxide emission reduction purposes. Project is not registered and will not benefit from other certification schemes or renewable energy labelling standards.

v. The activity is NOT located in a host country, region, locality or state that has an emission reduction cap enforced OR has the possibility to trade emissions that include the scope of the proposed project

As Turkey, the host country, has no cap on GHG emissions, the GS VERs don't need to be backed up by allowances or other denominated units resulting in local authorities stating that an equivalent number of allowances will be retired to back up the GS VERs issued. The project will be registered and seek approval from the national registry on GHG emission reduction projects as regulated by Communique on Procedures for Registration of Greenhouse Gas Emission Reduction Projects[3].

vi. There is no potential for double counting of impacts if the Project Area overlaps with that of another Gold Standard or other voluntary or compliance standard programme of a similar nature.

vii. The project is in compliance with Turkey's legal, environmental, ecological and social regulations.

viii. Type of the project activity

The proposed projects fit into 'Renewable Energy Supply' category as defined generation and delivery of energy services from non-fossil and non-depletable sources as solar being one.

ix. Greenhouse Gases

[3] http://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod=9.5.14195&MevzuatIliski=0&sourceXmlSearch=

The project activity complies with Gold Standard and UNFCCC eligibility criteria as reducing carbon dioxide emission that is mainly produced by the Turkish Grid dominated by fossil fuel power plants.

x. Official Development Assistance:

As Turkey being a part of the DAC list of ODA Recipients of OECD[4], a written declaration of non-ODA for the project activity will be submitted.

A.1.2. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

Gün Güneş Enerjisi Elektrik Üretim Sanayi ve Ticaret A.Ş is the legal owner of the products and all legal rights of the project.

A.2 Location of project

A.2.1 Host Country

Turkey.

A.2.2 Region/State/Province etc.

Antalya

A.2.3 City/Town/Community etc.

Akseki district

A.2.4 Physical/Geographical location

The proposed project is located in Büyükalan Neighbourhood in Akseki district of Antalya province in Turkey. The total area of the project is 370,686.94 m^2 [5].

[4] http://www.oecd.org/dataoecd/9/50/48858205.pdf
[5] Antalya SPP EIA, page xi

Figure 1 Project area[6]

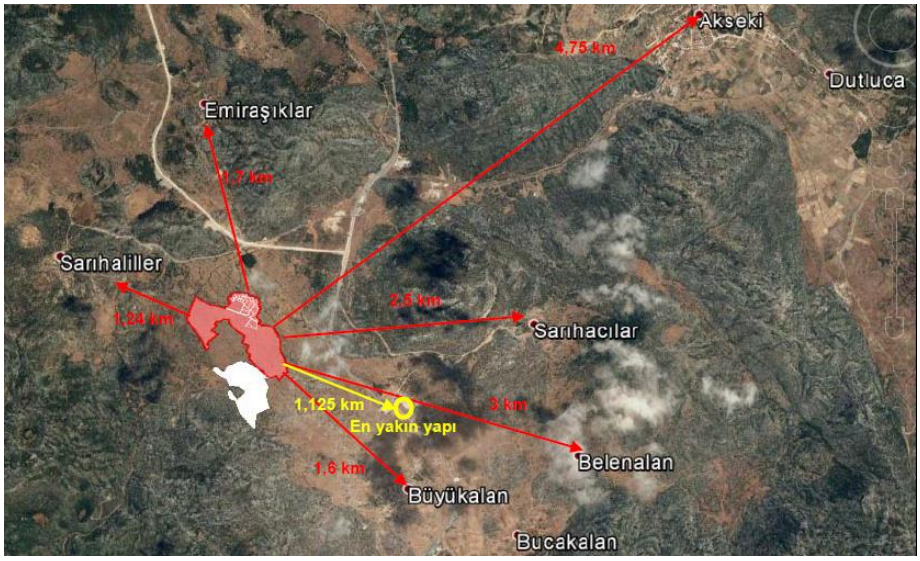

Figure 2 Closest settlements to the project area[4]

A.3 Technologies and/or measures

HT72-156M-BF-400 Bifacial with Transparent Backsheet type PV modules are used in the project. Total number of panels that will be installed in the scope of this project is 82,484[7]. Technical properties of the modules are represented below[8]:

[6] Antalya SPP EIA, page 5
[7] Provisional Acceptances
[8] HT72-156M PV Module Datasheet

• Electrical Characteristics

Module	HT72-156M / HT72-156M(V)				
Maximum Power at STC(Pmax)	380W	385W	390W	395W	400W
Open-Circuit Voltage(Voc)	48.3V	48.4V	48.5V	48.6V	48.7V
Short-Circuit Current(Isc)	10.34A	10.47A	10.55A	10.67A	10.79A
Optimum Operating Voltage (Vmp)	39.9V	40.1V	40.3V	40.5V	40.7V
Optimum Operating Current(Imp)	9.53A	9.61A	9.68A	9.76A	9.84A
Module Efficiency	18.9%	19.1%	19.3%	19.6%	19.9%
Power Tolerance	0 ~ +5W				
Maximum System Voltage	1000V / 1500V DC(UL/IEC)				
Maximum Series Fuse Rating	15/20A				
Operating Temperature	-40 ℃ to + 85 ℃				

• Mechanical Characteristics

Solar Cells	Monocrystalline 158.75 × 158.75mm
No.of Cells	72 (6 × 12)
Dimensions	2008mm×1002mm×35mm
Weight	21.8kg
Front Glass	High transmission tempered glass
Frame	Anodized aluminium alloy
Junction Box	IP68
Cable	4mm² (UL/IEC) Length: 1200mm
Connectors	MC_4 Compatible
Packaging Configuration	30pcs / box, 715pcs / 40'HQ Container

The project will be connected to the National Grid by 154 kV transmission line via Akseki Substation[9]. In addition, plant load factor is the ratio between the actual energy generated by the plant to the maximum possible energy that can be generated with the plant working at its rated power. For a duration of an entire year is calculated as 22.8 %. Calculation is given below:

$$\frac{46{,}736.532\ MWh}{23.4\ MWe} * \frac{1}{365 * 24\ hours} * 100 = \ 22.8\ \%$$

A.4 Scale of the project

For the purpose of applying UNFCCC methodologies for quantification of GHG reductions, '*small scale*' is defined as Renewable Energy Project with installed capacity less than equal to 15 MWe or 45 MWh as per Renewable Energy Activity Requirements ver. 1.4, para. 3.3.2[10]. Therefore, project is considered to be a '*large scale'* project with 23.40 MWe.

A.5 Funding sources of project

Project will be funded by company's own resources.

[9] Antalya SPP EIA, page xi

[10] https://globalgoals.goldstandard.org/202-ar-renewable-energy-activity-requirements/

SECTION B. APPLICATION OF APPROVED GOLD STANDARD METHODOLOGY (IES) AND/OR DEMONSTRATION OF SDG CONTRIBUTIONS

B.1. Reference of approved methodology (ies)

The United Nations approved consolidated baseline methodology applicable to this project is ACM0002 "Large-scale Consolidated Methodology: Grid-connected electricity generation from renewable sources" Version -21[11].

ACM0002 refers to the following tools:

- "Tool for the demonstration and assessment of additionality", Version 7[12] and,
- "Tool to calculate the emission factor for an electricity system", Version 7[13].

B.2. Applicability of methodology (ies)

The choice of methodology ACM0002, is justified as the project activity meets its applicability criteria:

• Antalya SPP is a large-scale solar power type, greenfield, grid connected renewable electricity generation project.
• The project does not involve switching from fossil fuel use to renewable energy at the site of the project activity.
• The geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available.

B.3. Project boundary

The project boundary is considered as the National Electricity Grid of Turkey according to applied tool. The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the power plant is connected to.
The project does not involve any other emissions sources not foreseen by the methodologies. The greenhouse gases and emission sources included in or excluded from the project boundary are shown in table below.

[11] https://cdm.unfccc.int/UserManagement/FileStorage/ZPFJL01OU2RYC6N3HASIXV7K84QBG9

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

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

Table 3 - GHGs Included in the Project Boundary

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity.	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source. Excluded for simplification
		N_2O	No	Minor emission source. Excluded for simplification
Project scenario	Source 1	CO_2	No	N/A. It is a renewable energy (solar) project.
		CH_4	No	N/A. It is a renewable energy (solar) project.
		N_2O	No	N/A. It is a renewable energy (solar) project.

B.4. Establishment and description of baseline scenario

According to the methodology, baseline scenario was identified 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".

Turkish electricity generation is mainly composed of thermal power plants and the share of renewable resources; especially hydroelectric power plants have decreased significantly in recent years whereas share of solar power plants is still very low. Since Turkey is an advanced developing country, there is an increasing demand for electricity which is fully expected to continue in the foreseeable future.

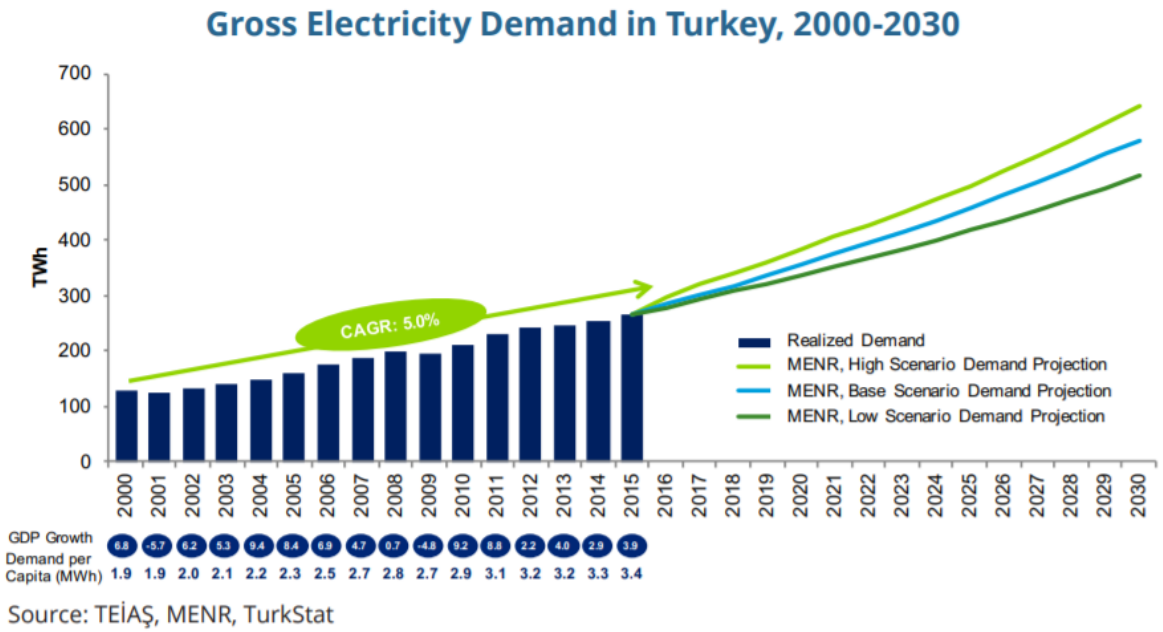

Figure 3 Projection of Turkey's electricity demand[14]

The trend in Turkey to date and given historically slow development of alternative energy resources is to build an increasing number of thermal power plants in the future to satisfy the annual growth in energy consumption demand. Turkey as an advanced developing nation has looked at dealing with energy security by developing and constructing high-capacity coal and natural gas power plants. The development of thermal power plants has been also encouraged by the large natural resource availability in Turkey, especially the abundance of economically accessible lignite.

In the absence of the project activity, the same amount of electricity is required to be supplied via either the current power plants or by increasing the number of thermal power plants thus increasing GHG emissions.

According to the Ministry of Energy and Natural Resources statistics[15], share of SPPs could hardly reach 6.6% in 2019 whereas share of natural gas and coal was around 51% together. When we look at the annual development of Turkey's gross generation in recent years, we see that grid is dominated by thermal power plants and which is boosted by increasing energy demand in parallel to increase population and per capita income. Hence, baseline of Turkey's electricity grid will continue to be dominated by fossil fuel power plants which is seen as the quickest solution in short term to meet the demand and enable energy security in supply side.

[14] https://www.dunyaenerji.org.tr/wp-content/uploads/2017/10/turkish-energy-market-outlook.pdf

[15] https://www.enerji.gov.tr/tr-TR/Sayfalar/Elektrik

B.5. Demonstration of additionality

Specify the methodology, activity requirement or product requirement that establishes deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).	Selected methodology: ACM0002, Version 21.0 "Large-scale consolidated methodology for grid-connected electricity generation from renewable sources" Tools: "tool to calculate the emission factor for an electricity system, version 7" & "tool for assessment and demonstration of additionality, version 7" The baseline scenario for the project has been defined as "generation of equal amount of electricity by the power plants connected to the grid". Emission factor for the baseline scenario has been calculated according to the combined margin approach as defined by the selected methodology.
Describe how the proposed project meets the criteria for deemed additionality.	Within this framework, the project is expected to generate about 46,736,532 kWh electricity and reduce about 30,323 tCO2 emissions through replacing the electricity that would need to be supplied via the national grid in the absence of the project activity. Additionality of the proposed project has been assessed according to the applied tool for demonstration of additionality as shown in following steps.

According to tool for demonstration and additionality the steps listed below are followed in detail:

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

The most realistic and reliable alternatives to the project activity are:

1. Proposed project is not undertaken as a VER project activity
2. Continuation of the current situation-supply of equal amount of electricity by the newly built grid connected power plants

The first alternative, which is the implementation of the project without carbon revenue is not financially attractive as discussed in investment analysis section below. The Second alternative (Scenario 2) is the baseline scenario and implementation of the proposed project as a VER activity would be additional to this scenario. Continuation of the current situation is not considered as a realistic alternative due to increasing electricity demand therefore new power plants should be constructed which includes mainly thermal power plants. Implementation of the project is additional to the baseline scenario which is alternative 2 above and therefore reduces the emissions.

Outcome of Step 1a

Continuation of the current situation is not considered as a realistic alternative due to increasing electricity demand therefore new power plants should be constructed which includes mainly thermal power plants. Implementation of the project is additional to the baseline scenario which is an alternative 2 above and therefore reduces the emissions.

Sub-step 1b. Consistency with mandatory laws and regulation

The following applicable mandatory laws and regulations have been identified:

1. Electricity Market Law[16]
2. Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy[17]
3. Energy Efficiency Law [18]
4. Forest Law[19]
5. Environment Law[20]

The resultant alternatives to the project as outlined in Step (1a) follow the applicable laws and regulations.

Outcome of Step 1b

Mandatory legislation and regulations for each alternative are considered in sub-step 1b. Based on the above analysis, the proposed project activity is not the only alternative amongst the project participants that is in compliance with mandatory regulations. Therefore, the proposed VER project activity is considered as additional.

Step 2 - Investment analysis

The investment analysis has been done in order to make an economic and financial evaluation of the project. Investment decision date has been determined to be the date of EPC Contract for Phase I, 12/10/2020, and the period of assessment including IRR and equity IRR calculations have been chosen accordingly. No public funding or ODA are available in Turkey for finance of this type of projects.

***Sub-step 2a* - Determine appropriate analysis method**

16 Law number 6446, Published in official gazette No. 28603 on 30/03/2013 http://www.mevzuat.gov.tr/MevzuatMetin/1.5.6446.pdf

17 Law number 5346, Published in official gazette No. 25819 on 18/05/2005 http://www.mevzuat.gov.tr/MevzuatMetin/1.5.5346.pdf

18 Law number 5627, Published in official gazette No. 26510 on 02/05/2007 http://www.mevzuat.gov.tr/MevzuatMetin/1.5.5627.pdf

19 Law number 6831, Published in official gazette No. 9402 on 08/09/1956 http://www.mevzuat.gov.tr/MevzuatMetin/1.3.6831.pdf

20 Law number 2872. Published in official gazette No. 18132 on 11/08/1983 http://www.mevzuat.gov.tr/MevzuatMetin/1.5.2872.pdf

There are three options for the determination of analysis method which are:

- Simple Cost Analysis
- Investment Comparison Analysis and
- Benchmark Analysis

Since project generates economic benefits from sales of electricity, the simple cost analysis is not applicable. Also, since the baseline of the project is generation of electricity by the grid, no alternative investment is considered at issue. So, it has been decided to use benchmark analysis for evaluation of the project investment.

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

For benchmark analysis, figure defined by World Bank for similar project types have been used which has been given as 25% in the "Implementation Completion and Results Report" (Report No: ICR00004069, page 40).[21] Also, the benchmark is based on parameters that are standard in the market. Similar solar projects have been considered when choosing the benchmark.

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

Table 4- Main financial parameters used for investment analysis

Parameters	Unit	Data Value	Date of Reference
Installed Capacity[22]	MWe	23.40	03/11/2016
Grid Connected output[23]	kWh	46,736,532	03/11/2016
Capital Investment	$	~23,377,404	-
Engineering, procurement, and construction[24]	$	~11,324,412	13/04/2021
PV Panels[25]	$	~9,927,774	16/12/2020
Operational Cost		~1,944,741	-
Panel Depreciation[26]	Years	10	30/12/2006

[21] http://documents.worldbank.org/curated/en/799701498842988254/pdf/ICR00004069-06192017.pdf

[22] ANTALYA Solar Power Plant generation license

[23] ANTALYA Solar Power Plant generation license

[24] EPC Contract

[25] Estimated from the unit price in the Panel Sales Contract (please see the IRR Excel Spreadsheet)

[26] https://www.mevzuat.gov.tr/anasayfa/MevzuatFihristDetayIframe?MevzuatTur=9&MevzuatNo=10941&MevzuatTertip=5

Construction Depreciation[27]	Years	40	28/04/2004
Transmission Loss Factor[28]	%	1.93	2018
Exchange Ratio[29]	$/₺	7.7873	16/12/2020
Income tax rate[30]	%	22	2020
Feed in Tariff/Market price after 10th years[31]/[32]	$ Cents/kWh	13.3 (first 10 years) 4.57 (after 10 years)	25/11/2020
Expected VERs price[33]	$/ tCO_2e	3	05/2017

Applied benchmark is defined by World Bank for renewable energy investments in Türkiye. It includes a threshold benchmark for IRR which is the minimum IRR required for financing a project. Hence, it is "commercial lending rate" as described by the tool 27. Benchmark IRR used has been taken from World Bank Loan provided to Turkish Renewable energy sector within the scope of clean technology fund (CTF). The proposed benchmark of CTF were deemed consistent with emission reduction project eligibility criteria (that is, significant potential in emission reductions, demonstration potential, development impact and implementation potential). Threshold IRRs have been determined for each project type which are the minimum IRRs to attract investors.

Internal Rate of Return (IRR) of the proposed project has been calculated as 10.76% based on the parameters given above without considering the carbon revenue. Project does not use any ODA or government incentive. Electricity tariff has been used as $13.3 Cent/kWh for first 10 years and 6.18 $ Cent/kWh after 10 years. Within the scope of the Renewable Energy Resources Support Mechanism, the price specified in the law, which is constant in the first 10 years, has been taken into consideration. After the first 10 years, an average of the market clearing prices of the 3 past years has been taken to estimate the electricity price. The calculation has been provided in the IRR Excel Spreadsheet. Annual generation has been taken as 46,736,532 kWh as indicated in the licence.

Sub-step 2d - Sensitivity Analysis

Sensitivity analysis had been carried out for three main parameters identified for the first phase of the project. However, since the investment cost for extension is based on signed agreements and operating cost is not changed after extension, which is a conservative approach, only impact of change in tariff has been included in sensitivity analysis.

- Investment Cost
- Operating Cost
- Electricity Sales revenue

[27] https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6120&MevzuatTur=9&MevzuatTertip=5
[28] https://www.teias.gov.tr/faaliyet-raporlari
[29] https://www.tcmb.gov.tr/kurlar/kurlar_tr.html
[30] https://www.gib.gov.tr/yardim-ve-kaynaklar/yararli-bilgiler/gecici-vergi-oranlari
[31] Renewable Energy Law #5346
[32] https://rapor.epias.com.tr/rapor/xhtml/ptfSmfListeleme.xhtml
[33] State of Voluntary Carbon Markets Report 2017 (as the average voluntary offset price of 2017)

For a range of ± 15% fluctuations in parameters above, table below has been obtained.

Table 5- Sensitivity analysis for Gun Gunes Solar Power Plant Project (without carbon revenue)

Fluctuation (%)	-15	-10	-5	0	+5	+10	+15
Investment Cost	14.50	13.13	11.89	10.76%	9.73	8.79	7.92
Operating Cost	12.18	11.72	11.25	10.76%	10.26	9.75	9.21
Electricity Income	10.76	8.16	9.46	10.76%	12.06	13.36	14.65

Outcome of Step 2:
The investment and sensitivity analysis shows that the VER revenues will improve the financial indicators of the Project remarkably. Considering that figures above are based on a higher price rather than the government guaranteed floor price, optimistic estimations for yearly generation and that those figures do not reflect the risk for investment, role of carbon income is a most significant number to enable the project to proceed.

Acceptable IRR values for energy investments in Turkey, given the present economic uncertainty, are expected at yields in excess of 25% per annum. Considering the market price risk, it can be concluded the extension will make the investment more feasible however, it will still be below the benchmark IRR.

According to local regulations, electricity price is determined daily according to Energy Market Regulatory Authority (EMRA) as defined in the regulations and there exists three tariffs during day, peak and night hours. Thermal power plants and HEPPs with storage facilities have flexibility to schedule their generation at peak hours when the tariff is high. However, solar power plants do not have storage facility therefore may not be able to benefit from high prices realized at when demand is high. According to EMRA figures, electricity tariff fluctuated between 4.3 $c/kWh and 8.6 $c/kWh between 01/04/2014 and 01/02/2016 whereas the weighted average of the tariff has been calculated as 6.2 $c/kWh in this period (**Figure 4**). The value does not provide any guarantee about the actual selling price as the control on generation period and tariff is limited and it may not be possible to generate and sell electricity during peak tariff periods. Also, considering that fluctuation in solar power exist and fact that a part of the electricity can be sold through bilateral agreements to free consumers with a discount rate over market price, guarantee price has been taken as reference in investment analysis which also provides input for evaluation of financing institutions.

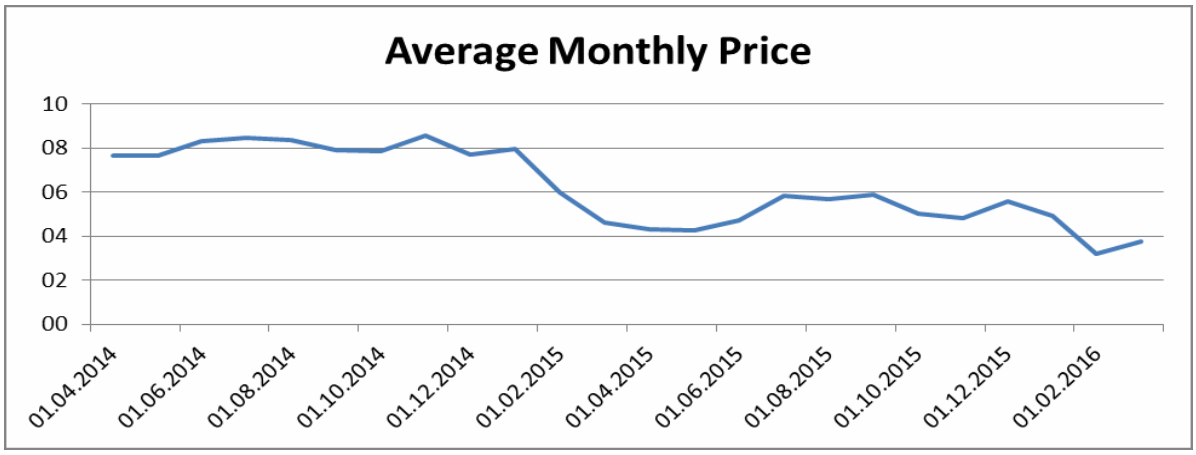

Figure 4 Highest tariffs observed between 01/04/2014-01/02/2016 ($ cents/kWh)

Another important parameter affecting equity IRR is investment cost. However, since the agreements have been made and costs are realized as given in financial model, there is no chance to expect a decrease in the investment cost. Operating costs can also affect the equity IRR however, its impact is not significant and does not cause any significant change in equity IRR and the fluctuation percentage to reach the benchmark is very high and not likely. Based on the above information, it is seen that project is not the most attractive option. Therefore, project is considered as additional to the baseline scenario.

Step 3. Barrier analysis

This step is not applied as per the tool.

Step 4. Common Practice Analysis

According to the "Tool for the demonstration and assessment of additionality", Version 07.0.0", the common practice shall provide an analysis of any other activities that are similar to the Project Activity. Projects are considered similar if they are in the same country/region and/or rely on a broadly similar technology, are of a similar scale, and take place in a comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing etc.

According to latest statistics published by General Directorate of Energy Affairs, there are 286 renewable energy projects both in same and different type technologies has operated until January 2021[34]

Guidelines on Common Practice version 03.1[35] has been followed.

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

[34] https://www.epdk.gov.tr/Detay/DownloadDocument?id=4ETVkLvlwO0=

[35] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-24-v1.pdf

The total capacity of the proposed project is 23.40 MWe. Therefore, the applicable output range is from 11.70 MWe to 35.10 MWe.

Step 2: identify similar projects (both CDM and non-CDM) which fulfil all the following conditions:
(a)The projects are located in the applicable geographical area,
(b)The projects apply the same measure as the proposed project activity,
(c)The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity,
(d)The plants in which the projects are implemented produce goods or services with comparable quality, properties, and applications areas (e.g., clinker) as the proposed project plant:
(e)The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1:
(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.

Applicable geographical area has been selected as the whole host country (Turkey) as per paragraph 1 of Guidelines on Common Practice version 03.1. Projects which apply the same measure as the proposed project have been determined and solar energy projects are selected as the same energy source type of projects. All the selected plants deliver the same service which is the electricity generation. Applicable output range has been determined and all of the power plants are taken from the latest available year 2018. General Directorate of Energy Affairs and EMRA Electricity Production Licence Database have been used as a main resource. Therefore, all the compared power plants have been operational before the implementation of the project activity.

Below is a list of operational renewable energy projects started before 01/01/2021 as given by the General Directorate of Energy Affairs indicates that investments (counted as 286):

Table 6- Operational renewable energy projects

PLANT NAME	SOURCE TYPE	INSTALLED CAPACITY (MWe)	ELECTRICITY GENERATION (GWh)
Sırakonaklar HES	Hydropower	18.000	68.93
Şavşat HES	Hydropower	14.520	54.801
Adacami HES	Hydropower	29.304	94.929
Fındık Reg. ve HES	Hydropower	19.750	36.669
Gökkaya Barajı ve HES	Hydropower	28.540	103.34
Himmetli Reg ve HES	Hydropower	26.980	102.19
Feke I HES	Hydropower	29.400	117
Akşar-Nazar HES	Hydropower	30.240	108.2
Akbaş HES	Hydropower	12.502	45.52
Günder HES	Hydropower	28.220	73.583
Onur Reg. ve HES	Hydropower	19.568	42.848
Köprübaşı Reg. Ve HES	Hydropower	14.660	45.351
Kıy HES	Hydropower	23.800	72.294

Uzundere II Regülatörü ve HES	Hydropower	19.687	94.346
Çağlayan Reg. Ve HES	Hydropower	11.934	36.095683
Diyoban HES	Hydropower	19.040	35.79
Avcılar HES	Hydropower	16.743	71
Kale HES	Hydropower	29.250	108.728
Güneşli II HES	Hydropower	12.380	45.73
Esentepe Reg. ve HES	Hydropower	15.880	44.69
Orta Reg. ve HES	Hydropower	15.360	55.24
Çiğdem Reg. Ve HES	Hydropower	16.800	43.806
Ebru Reg. Ve HES	Hydropower	30.620	78.731
Güvercin Reg ve HES	Hydropower	16.372	44.063959
Tuzlaköy-Serge Reg. Ve HES	Hydropower	16.660	49.23
Devecikonağı Barajı ve HES	Hydropower	28.028	43.88
Bükor II HES	Hydropower	12.600	58.11
Sema Reg. Ve HES	Hydropower	17.000	65
Çardaklı Reg. ve HES	Hydropower	14.900	30.335
Ören Regülatörü ve HES	Hydropower	26.576	100.33
Çermikler Barajı ve HES	Hydropower	25.000	80.651
Kalecik HES	Hydropower	27.500	88.04
Alabalık Reg. ve HES	Hydropower	16.320	44.744
Kürce Reg. Ve HES	Hydropower	12.046	47.655
Demirci Reg. ve HES	Hydropower	12.600	59.068
Pirinçli Reg. ve HES	Hydropower	18.680	155.2
Akkent Çalkuyucak HES	Hydropower	13.813	39.89
Serap HES	Hydropower	28.960	74.453
Söğütlü HES	Hydropower	18.320	30.01
Çakmak Reg. ve HES	Hydropower	27.380	43.49
Eğlence II HES	Hydropower	27.200	78.019
Doğançay HES	Hydropower	30.240	171.682
Papart Regülatörü ve HES	Hydropower	26.600	64.32
Pirinçlik Reg. ve HES	Hydropower	21.315	83.54
Kuşaklı HES	Hydropower	20.000	47.705
Kalecik HES	Hydropower	19.109	110.724
Alaköprü Barajı ve HES	Hydropower	31.568	129.47566
Çiğdem Reg. ve HES	Hydropower	17.700	59.31
Boztepe HES	Hydropower	18.150	48.2
Akköy-Espiye HES	Hydropower	13.368	57.506
Umutlu HES	Hydropower	20.340	78.92
Gökbel I-II HES	Hydropower	18.786	83.36
Güce Reg. ve HES	Hydropower	12.710	44.54
Arca HES	Hydropower	16.350	58.174
Çalıkobası reg. Ve HES	Hydropower	17.380	42.33

Çamlıca II HES	Hydropower	17.580	89.558
Avanos Regülatörü ve Cemel HES	Hydropower	20.400	73.95
Kızılcık Reg. ve Çayırözü HES	Hydropower	17.300	40.341
Çobanlı HES	Hydropower	19.030	53.136
Çamlıca HES	Hydropower	22.652	75.509
Sena HES	Hydropower	21.436	67.89
Üçharmanlar Reg. ve HES	Hydropower	16.640	49.16
Çileklitepe HES	Hydropower	23.126	71.673
Güzeloluk HES	Hydropower	13.580	32.07
Yazyurdu Reg. ve HES	Hydropower	14.900	40.515
Ayancık HES	Hydropower	15.600	64.71
Değirmen Reg. ve HES	Hydropower	13.000	26.85
Torlar HES	Hydropower	14.834	34.98
Kandil Reg. ve HES	Hydropower	15.000	62.707
Çenger Reg. Ve HES	Hydropower	20.120	75.805
Kale Reg. ve HES	Hydropower	17.100	61.892
Sayan Regulatörü ve HES	Hydropower	14.896	48.3
Büyükbahçe HES	Hydropower	11.700	33.08
Bağbaşı Reg. ve HES	Hydropower	13.600	37.16
Sebil Reg. ve HES	Hydropower	22.636	116.671
Erik Reg. Ve HES	Hydropower	15.022	40.12
Kızılev Reg. ve HES	Hydropower	14.817	51.316
Köprüyanı Reg. ve HES	Hydropower	11.900	28.42
Gök HES	Hydropower	12.640	52.73
Doğankaya HES	Hydropower	20.550	82.71
Midilli HES	Hydropower	32.548	124.05
Saray HES	Hydropower	13.500	50.324
Cala Reg. ve HES	Hydropower	15.636	38.352
Baran Reg. ve HES	Hydropower	21.275	58.487
Şirvan Barajı ve HES	Hydropower	30.000	83.85
Bangal Reg. ve Kuşluk HES	Hydropower	17.000	55.669
Okkayası Regülatörleri Ve Şehitlik HES	Hydropower	22.708	56.83
Akıncı HES	Hydropower	12.320	48.491
Ortaçağ Regülatörü ve HES	Hydropower	12.944	39.61
Yenihayat HES	Hydropower	13.412	51.93
Ova HES	Hydropower	13.230	55.45
Yedisu HES	Hydropower	22.710	72
Kırıkdağ HES	Hydropower	16.860	58.7
Adıgüzel II HES	Hydropower	30.100	71.18
Arpa HES	Hydropower	32.412	77.66
Koçak Regülatörü ve HES	Hydropower	25.452	74.92

Çaykara HES	Hydropower	25.920	101.889
Çekerek HES	Hydropower	24.018	86.668
Yaprak HES	Hydropower	24.280	71.387
Saf I HES	Hydropower	18.725	42.17
Taşköprü Reg. Ve HES	Hydropower	12.420	37.49
Göksu Reg. Ve HES	Hydropower	17.177	51.634
Sırımtaş HES	Hydropower	27.234	73.53
Kalealtı II HES	Hydropower	13.814	42.55
Angutlu I-II Reg. Ve HES	Hydropower	23.298	99.127
Yakınca Reg. ve HES	Hydropower	19.092	42.789
Kemerçayır Regülatörü ve HES	Hydropower	15.498	52.98
Üçhanlar Regülatörü ve HES	Hydropower	11.939	40.24
Ülkün Reg. ve HES	Hydropower	23.560	107.29
Gökgedik Regülatörü ve HES	Hydropower	24.266	58.9
Haymeana I-II HES	Hydropower	12.100	49.936
Tuğra Reg. ve HES	Hydropower	18.500	53.64
Aksu (Yankol) HES	Hydropower	27.272	86.39
Doruk Reg. ve HES	Hydropower	28.278	75.497
Yeşilırmak I Reg. ve HES	Hydropower	14.250	35.1
Yumrutepe Regülatörü ve HES	Hydropower	15.013	45.05
Omala Barajı ve HES	Hydropower	16.550	54.56
Araklı-I Reg. Ve HES	Hydropower	14.911	39.48
Söke-Çatalbük RES	Wind	30.000	102.59
Akdağ RES	Wind	23.000	75
Akyurt RES	Wind	12.800	44.8
Konakpınar RES	Wind	12.000	54
Kuyulukoyak RES	Wind	16.000	64
Alibey RES	Wind	30.000	105
Korkmaz RES	Wind	24.000	83.0053
Mordoğan RES	Wind	30.750	99.4092
Akbük II RES	Wind	20.000	68.153
Çaypınar RES	Wind	24.000	96
Yeniköy RES	Wind	15.000	45.99
OVARES RES	Wind	15.000	52.5
Karadere RES	Wind	19.200	67
Kürek Dağı RES	Wind	32.500	113.88
Bereketli RES	Wind	30.000	99.864
Karova RES	Wind	30.000	122.5
Karadağ RES	Wind	16.250	68.000422
Andoz RES	Wind	32.000	128
Sarpıncık RES	Wind	32.000	109.84
Sadıllı RES	Wind	33.000	115.5

Yılmaz RES	Wind	12.500	50
Ovacık RES	Wind	18.000	55
Datça RES	Wind	12.000	36.792
Kurtini RES	Wind	14.000	46.6032
Zeliha RES	Wind	15.000	52.5
Kozbeyli RES	Wind	34.550	121.0632
Alaçatı RES	Wind	16.000	49.911487
Urla RES	Wind	13.000	45.5
Mordoğan RES	Wind	13.800	48.3
Seferihisar RES	Wind	16.000	47.4
Maslaktepe RES	Wind	20.000	273.6
Şenköy RES	Wind	29.794	104.279
Çamınbaşı RES	Wind	27.000	94.5
Soğanlı RES	Wind	30.000	120
Fuatres RES	Wind	30.000	105
Gökres-2 RES	Wind	35.000	122.64
Geres RES	Wind	30.000	150
Yahşelli RES	Wind	20.000	70
Gökzirve RES	Wind	25.200	88.2
Atik RES	Wind	30.000	98.1285
Çakıl RES	Wind	31.550	116
Özbek RES	Wind	24.000	84
Elmalı RES	Wind	27.000	94.5
Urla RES	Wind	15.000	57.75
Kocalar RES	Wind	26.000	178.5
Demirciler RES	Wind	23.300	80
Dilek RES	Wind	27.500	70
Kapıdağ RES	Wind	34.850	121.975
Bozyaka RES	Wind	19.700	69
KARLITEPE RES	Wind	30.000	120
Bafa RES	Wind	35.000	137.97
Madranbaba RES	Wind	19.500	69.2
Günaydın RES	Wind	20.000	65.7
Manastır-Esenköy RES	Wind	30.450	106.575
Aliağa RES	Wind	19.200	58.8672
Akça RES	Wind	20.000	69.173
Poyraz RES	Wind	30.000	99.864
Kızılcaterzi RES	Wind	12.000	42
Salman RES	Wind	20.000	83.01195
Örlemiş RES	Wind	23.000	76.15944
Pamukova RES	Wind	20.000	70
Petkim RES	Wind	25.000	133
Zincirli RES	Wind	12.000	47.430144
Meryem RES	Wind	30.000	105
Yamaçtepe-2 RES	Wind	30.000	105.12

Sertavul RES	Wind	30.000	101.9664
Sincik RES	Wind	25.000	82.28746
Akbük RES	Wind	21.600	75.6
İncesu RES	Wind	27.200	95.2
Karatepe RES	Wind	1.000	45.5
Seferihisar RES	Wind	1.000	49
Çeşme RES	Wind	16.000	58.5612
Bergama RES	Wind	25.000	88.2
Barbaros RES	Wind	12.000	42
Karacabey RES	Wind	27.900	97.65
Yaylaköy RES	Wind	15.000	57.518555
Gülpınar RES	Wind	25.000	640
Şenbük RES	Wind	27.000	116.8125
Yenihisar RES	Wind	20.000	75
Adares RES	Wind	22.000	67.452
3S Kale Jes-1	Geothermal	25.000	200
Kubilay JES	Geothermal	24.000	180
PAMUKÖREN JES-5	Geothermal	32.000	256
PAMUKÖREN JES 2	Geothermal	22.510	180.08
Pamukören JES 3	Geothermal	22.510	180.08
Pamukören JES4	Geothermal	32.000	256
Sultanhisar JES-2	Geothermal	22.510	180.08
Çelikler Sultanhisar Jeotermal Elektrik Üretim Tesisi	Geothermal	13.800	114.8436
Enerjeo Kemaliye Santrali	Geothermal	24.900	199.2
Greeneco JES 6	Geothermal	26.000	191.36
Greeneco JES 5	Geothermal	28.050	206.448
Greeneco JES-3	Geothermal	25.600	204.8
Greeneco JES	Geothermal	25.600	204.8
Gümüşköy JES	Geothermal	13.200	104.068
Efe 6 JES	Geothermal	22.600	180.8
Efe-7 JES	Geothermal	25.000	200
Umurlu-2 JES	Geothermal	12.000	92.10702
Karkey Umurlu JES	Geothermal	12.000	92.10702
Ken Kipaş Santrali	Geothermal	24.000	192
KEN 3 JES	Geothermal	24.800	198.4
Buharkent JES	Geothermal	13.770	112.84
Melih JES	Geothermal	33.000	264
Deniz (Maren II) JES	Geothermal	24.000	186
Nezihe Beren JES	Geothermal	20.000	160
MEHMETHAN JES	Geothermal	24.800	194.8
Kerem JES	Geothermal	24.000	192
Ala 2 JES	Geothermal	30.000	240
Dora IV JES	Geothermal	17.000	125

Dora III JES	Geothermal	34.000	220
BAKLACI JES	Geothermal	19.400	155.2
Mis-1	Geothermal	12.300	98.4
RSC-1 Seferihisar JES	Geothermal	12.000	96
Salihli JES-1	Geothermal	15.000	118.45
Salihli JES-2	Geothermal	24.500	196
Salihli JES 3	Geothermal	30.000	240
Özmen-1 JES	Geothermal	23.520	188.15
Özmen-3 JES	Geothermal	18.620	148.96
Kuyucak JES	Geothermal	18.000	144
Türkerler Alaşehir JES	Geothermal	24.000	177.84
Alaşehir JES 2	Geothermal	24.000	177.84
İDA JES	Geothermal	11.750	94
KÜÇÜKKÖY GES	Solar	18.610	37.22
Alibeyhöyüğü GES	Solar	18.000	36
ÖZMEN-1 GES	Solar	14.000	35.316
FERNAS-4 GES	Solar	20.000	40
ALAGES ADİLCEVAZ GES	Solar	16.000	31.95648
Apa GES	Solar	13.100	26.2
CINGILLI GES	Solar	26.000	56.995251
Teksin GES	Solar	33.124	66.24792

However, there is no such a solar power plant which is in the range determined for ANTALYA Solar Power Plant (i.e., 11.70 MW to 35.10 MW). Details are given in common practice analysis submitted to DOE and GS.

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 Nall

N_{all} = 52

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}.

N_{diff} = 49

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.

F=1-N_{diff}/N_{all} =1-(49/52) = 0.06 (≤ 0.20)
N_{all}– N_{diff} = 52 – 49 = 3 (≤ 3)

According to "Tool for Common practice", Version 03.1, if the factor F is greater than 0.2 and Nall-Ndiff is greater than 3, then the proposed project is a "common practice".

Given the fact that all there is no plants like the proposed project and built without carbon revenue, the proposed type of project should not be considered as a common practice in Turkey. Hence, the proposed project is additional.

B.5.1 Prior Consideration

Start date of the project is 12/10/2020, the date of EPC Contract Phase I. First submission date is 24/09/2021, which is within one year of the project start date. Thus, prior consideration is not required.

Table 7- Milestones of Antalya SPP Regarding Prior Consideration

Milestone	Date
Project Start Date (EPC Contract for Phase I)	12/10/2020
Start date of construction	12/10/2020
Panel Agreement	16/12/2020
Commissioning of the Plant (Provisional Acceptance No.1)	31/12/2020
EPC Contract for Phase II	13/04/2021
First Submission to GS	24/09/2021
Full Commissioning of the Plant (Provisional Acceptance No.5)	24/12/2021

B.5.2 Ongoing Financial Need

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B.6. Sustainable Development Goals (SDG) outcomes

Relevant Target/Indicator for each of the three SDGs

Sustainable Development Goals Targeted	Most relevant SDG Target	SDG Impact Indicator (Proposed or SDG Indicator)
7 Affordable and Clean Energy	7.2	By 2030, increase substantially the share of renewable energy in the global energy mix.
8 Decent Work and Economic Growth	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

13 Climate Action	13.2	Integrate climate change measures into national policies, strategies and planning

B.6.1 Explanation of methodological choices/approaches for estimating the SDG Impact

SDG 7: Affordable and Clean Energy (Ensure access to affordable, reliable, sustainable, and modern energy for all)

The baseline for the project is no project, thus leading to generation in the relevant grid which is dominated by fossil fuel, and this is one of the methodological reasons for choosing simple OM method to calculate emission factor. The clean energy generated by the project is calculated based on the amount of electricity generated by the project per annum. The project is expected to generate 46,736,532 kWh of clean energy per annum and contributes to share of low-cost / must-run sources. Hence, contribution of the project could be followed via indicator 7.2.1 "Renewable energy share in the total final energy consumption" and following target: 7.2 ''By 2030, increase substantially the share of renewable energy in the global energy mix". This project increases the renewable energy sharing of global energy mix and contribute to improved air quality by reducing air pollution.

SDG 8: Decent Work and Economic Growth (Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all)

The project is expected to create job opportunity for 20 people during construction and 10 people in operation period. It contributes to decent work and economic growth and quality of employment via providing required trainings. Employment and training record will be used for checking the SDG 8 outcome.

SDG13: Climate Action (Taking urgent action to combat climate change and its impacts):

Emission factor for the baseline scenario which was calculated by the Ministry of Environment and Urbanization has been used. The project leads to mitigation of 30,323 tCO2 per annum.

B.6.2 Data and parameters fixed ex ante

SDG13

Data/parameter	$EF_{CM, y}$
Unit	tCO_2/MWh
Description	Combined margin emission factor
Source of data	Tool 07 Tool to calculate the emission factor for an electricity system

Value(s) applied	0.6488
Choice of data or Measurement methods and procedures	Emission factor for the baseline scenario which was calculated by the Ministry of Energy and Natural Resources has been used.[36]
Purpose of data	To calculate baseline emission
Additional comment	-

B.6.3 Ex ante estimation of SDG Impact

Ex-ante emission reductions (ER_y) are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y = Emission reductions in year y (tCO_2)

BE_y = Baseline emissions in year y (tCO_2)

PE_y = Project Emissions in year y (tCO_2)

LE_y = Leakage emissions in year y (tCO_2)

Baseline emission is calculated according to the formula:

$$BE_y = EG_y \times EF_y$$

Where:

EG_y = Net electricity delivered to the grid by the project activity in year y excluding transmission losses of the grid (data is gathered from energy yield assessment report of the project which is 46,737 MWh)

EF_y = Emission factor calculated according to selected methodology (Combined margin value was calculated by using nationally accepted emission factors. Republic of Turkey Ministry of Energy and Natural Resources released them on 20/09/2022)[37]

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36 https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9Fikli%C4%9Fi/TUESEmisyonFktr/Belgeler/Bform2020.pdf

37 https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klim/%C4%B0klimDe%C4%9Fi%C5%9Fikli%C4%9Fi/TUESEmisyonFktr/Belgeler/Bform2020.pdf

Combined margin is calculated as follows:

CM = (OM x 0.75) + (BM x 0.25)

(0.7424 x 0.75) + (0.3680 x 0.25) = 0.6488 tCO_2/MWh

BE_y = 46,737 MWh × 0.6488 tCO2e/MWh = 30,323 tCO2e

Project emissions

Since the project is classified as a renewable energy project, parameter PE_y is neglected.

Therefore:

PE_y = 0

Leakage

The energy generating equipment is not transferred from or to another activity. Therefore, leakage is also considered as "0".

LE_y = 0

As a result, Total Emission Reduction is:

$ER_y = BE_y$

SDG7

The average annual clean energy generation is expected to be 46,737 MWh.

SDG8

The project creates job opportunity for at least 10 people.

B.6.4 Summary of ex ante estimates of each SDG Impact

SDG13

Year	Baseline estimate	Project estimate	Net benefit
2021	30,323	0	30,323
2022	30,323	0	30,323
2023	30,323	0	30,323
2024	30,323	0	30,323

2025	30,323	0	30,323
Total	**151,613**	**0**	**151,613**
Total number of crediting years	5 years		
Annual average over the crediting period	151,613	0	151,613

SDG7

Year	Baseline estimate	Project estimate	Net benefit
2021	0	46,737	46,737
2022	0	46,737	46,737
2023	0	46,737	46,737
2024	0	46,737	46,737
2025	0	46,737	46,737
Total	**0**	**233,683**	**233,683**
Total number of crediting years	5 years		
Annual average over the crediting period	0	233,683	233,683

B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

SDG 7

Data / Parameter	$EG_{facility, y}$
Unit	GWh
Description	Net electricity generated and delivered to the grid by the proposed project in year
Source of data	EPIAS records will be the main source of data and OSF forms will be used for cross-check.
Value(s) applied	Estimated annual generation forming the basis for emission reduction calculation is 46,736,532 kWh

<table>
<tr><td>Measurement methods and procedures</td><td>Generation data is recorded by two metering devices continuously. These records provide the data for the monthly invoicing to TEIAS. Generation is recorded via remote reading system. The quantity of electricity supplied by the project plant/unit to the grid (ISVM) and the quantity of electricity delivered to the project plant/unit from the grid (EUCM) are measured. Net generation is calculated via subtracting energy delivered by the project activity to the grid for internal consumption from electricity fed to the grid.
Properties of the meters are given in the table below.
<table><tr><th></th><th>Main Meter</th><th>Spare Meter</th></tr><tr><td>Serial No.</td><td>80269583</td><td>42595585</td></tr><tr><td>Brand</td><td>MAKEL</td><td>Landis</td></tr><tr><td>Type</td><td>C520.AMT.2556</td><td>ZMG405CR4</td></tr><tr><td>Class</td><td>0.5</td><td>0.05-5(10)</td></tr><tr><td>First Index Date</td><td>05/04/2021</td><td>21/12/2020</td></tr></table></td></tr>
<tr><td>Monitoring frequency</td><td>Continuous measuring, monthly recording</td></tr>
<tr><td>QA/QC procedures</td><td>Two calibrated ammeters backup each other. Maintenance and calibration of the metering devices are made by TEIAS. If there is a significant difference between the readings of two devices, maintenance and tests of the metering devices and the associated equipment are done before waiting for the periodical maintenance. The meters should comply with EPDK regulations which define the accuracy class of the meters as 0.2 or 0.5 depending on the capacity of the circuit as given in document in link (http://www.epdk.gov.tr/web/elektrik-piyasasi-dairesi/44). Generation of the plant is cross checked from TEIAS web site (http://teias.gov.tr) which is accessible using a password provided to electricity generation companies. ISVM (Electricity fed to the grid) and UECM (Electricity consumed from the grid) data given in TEIAS records are used for emission reduction calculations.</td></tr>
<tr><td>Purpose of data</td><td>Emission reduction calculations</td></tr>
<tr><td>Additional comment</td><td>-</td></tr>
</table>

SDG 8

Data / Parameter	Quantitative employment and income generation
Unit	Number of locally recruited staff and their social security records
Description	Ensuring that the staff receives their full salaries on time.
Source of data	Social Security Records to be provided by the Project Owner
Value(s) applied	The project is expected to create job opportunity for 20 people during construction and 10 people in operation period.
Measurement methods and procedures	The project owner is committed to ensuring that the staff receives their full salaries on time. Number of employees and the evidence for their wages being paid will be checked from the social security records, which will be provided by the Project Owner.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	To monitor the contribution to SDG 8 and Principle 3.6.1.
Additional comment	-

SDG 13

Data / Parameter	Emissions Reductions in tCO2
Unit	tCO2
Description	Reduction of CO2 emissions due to implementation of project activity
Source of data	Electricity generated by Antalya Solar Power Plant and calculated combined margin (CM) emission factor will be used as reference in calculation of the emission reduction. EPIAS records will be the main source of electricity generation data and OSF forms will be used for cross-check.
Value(s) applied	Estimated annual emission reduction is 30,323 tonnes of CO2 The applied OM & BM for the project are: Operating Margin: 0.7424 tCO2/MWh Build Margin: 0.3680 tCO2/MWh Therefore, the applied Combined margin for the project is 0.6488 tCO2/MWh.

	Emission factor is calculated by using National electricity grid emission factors and is calculated as 0.6488 tCO2/MWh. Estimated annual emission reduction is 30,323 tonnes of CO2.
Measurement methods and procedures	The net electricity supplied by the Project will be continuously measured and recorded by EPIAS; and will be kept by the Project Owner. In addition to the EPIAS meters which is used for billing purposes, records taken by meters using at project site will be used for comparison.
Monitoring frequency	Once every monitoring period
QA/QC procedures	-
Purpose of data	To calculate the baseline emission value; and, to monitor the contribution to SDG 13 (Take urgent action to combat climate change and its impacts)
Additional comment	-

Data / Parameter	Quality of Employment
Unit	Number of personnel certified/trained during operation phase
Description	Contribution to quality of employment by ensuring that the staff is trained and certified for the required positions
Source of data	Training Records (including H&S) & Other Certificates required by certain professions, if necessary
Value(s) applied	Some of the trainings & workshops that may be given to the respective employees are: • For Construction period • General Health and Safety • Emergency action plan • General work safety and legal responsibility / health and safety signs/danger and risks in working area • Work safety for lifting equipment • For operation period • ISO 9000:2008 Quality Management System • ISO 14001 Environment Management System and OHSAS 18001 Health and Safety Management System • Analysing and Assessment of Risk

	• SPP Rescue Training • First aid • Training of working aloft • Defensive driving • Fire extinguishing
Measurement methods and procedures	All employees will attend trainings on first aid and health & safety. For positions that require specific skills (such as high voltage equipment) staff will either be trained, or certified staff will be recruited.
Monitoring frequency	Annually
QA/QC procedures	The training programmes help increase the efficiency of the workforce and provides employees skilled at their job. This not only helps the company but to self-improvement of individual employees.
Purpose of data	To monitor the contribution to SDG 8 and Principle 3.6.1.
Additional comment	-

Data / Parameter	Principle 9.4 Release of Pollutants - Water Quality and Quantity
Unit	-
Description	Appropriate disposal of wastewater as required by the Law on Water Pollution Control[38]
Source of data	Assessing collection methods during site visits and checking wastewater disposal records.
Value(s) applied	No wastewater production in the baseline scenario
Measurement methods and procedures	Domestic wastewater generated at the project site is handled according to the national regulations on handling domestic waste

[38] Law on Water Pollution Control. Official Gazette Date & No.: 31/12/2004 & 25687. https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=7221&MevzuatTur=7&MevzuatTertip=5

Monitoring frequency	Annually
QA/QC procedures	Operation is in line with national regulations
Purpose of data	To monitor the contribution to Principle 9.4.
Additional comment	-

Data / Parameter	Principle 9.11 Endangered Species - Biodiversity
Unit	-
Description	Ensuring that the project creates no disturbance to the regional habitat
Source of data	Assessments during site visits and ecosystem reports
Value(s) applied	No disturbance to the regional habitat in the baseline scenario
Measurement methods and procedures	Ecosystem reports will be checked.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	To contribute to Principle 9.11
Additional comment	-

Data / Parameter	Principle 9.5 Hazardous and Non-hazardous Waste - Waste Oil
Unit	-
Description	Proper management of waste oil
Source of data	Assessing disposal methods during site visits and checking waste oil disposal records.
Value(s) applied	No waste oil during baseline situation.
Measurement methods and procedures	Project owner committed to proper collection of waste oil from equipment in line with regulation # 26952 on control of waste oils. There is no waste oil generated so far.
Monitoring frequency	Annually
QA/QC procedures	-

Purpose of data	To contribute to Principle 9.5
Additional comment	-

Data / Parameter	Principle 4.2.2 Climate and Energy – Soil Condition
Unit	-
Description	Control of erosion
Source of data	Assessing soil condition during site visits
Value(s) applied	No erosion during baseline situation
Measurement methods and procedures	Soils resistance to erosion will be improved. Soils permeability, water pressure formation and seepage will be monitored.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	To contribute to Principle 4.2.2
Additional comment	-

Data / Parameter	Principle 4.3.4 Release of pollutants – Soil Condition
Unit	-
Description	Proper management of solid wastes
Source of data	Assessing disposal methods during site visits
Value(s) applied	No solid waste during baseline situation
Measurement methods and procedures	Domestic solid wastes will be collected and handled according to the Solid Waste Control Regulation. They will be collected and transferred to the municipality's solid waste storage facility, periodically.
Monitoring frequency	Once every monitoring period
QA/QC procedures	-
Purpose of data	To contribute to Principle 4.3.4
Additional comment	-

Data / Parameter	Principle 3.4.3 Cultural Heritage, Indigenous Peoples, Displacement and Resettlement - Expropriation of the project site

Unit	-
Description	Land acquisition
Source of data	Permit documents will be checked
Value(s) applied	No expropriation during baseline situation
Measurement methods and procedures	Some parcels of the project area belong to Treasury while others are the lands owned by individuals. Permission documents of the project site to be used for purposes other than agriculture. Land acquisition will be done according to the Turkish Expropriation Laws and Electricity Market Law (4628).
Monitoring frequency	Once in the first verification
QA/QC procedures	-
Purpose of data	To contribute to Principle 3.4.3
Additional comment	-

B.7.2 Sampling plan

No sampling plan will be necessary.

B.7.3 Other elements of monitoring plan

Monitoring is a key procedure to verify the real and measurable emission reductions from the proposed project. To guarantee the proposed project's real, measurable, and long-term GHG emission reductions, the monitoring plan is established.

Net electricity generation will be measured and recorded via meters sealed by TEIAS for billing purposes therefore no new additional protocol will be needed for monitoring emission reduction. Power Plant Manager will be responsible for the electricity generated, gathering all relevant data, and keeping the records.

Generation data collected during crediting period will be submitted to GTE who will be responsible for calculating the emission reduction subject to verification. Generation data will be used to prepare monitoring reports which will be used to determine the vintage from the project activity. These reports will be submitted to the duly authorized and appointed Designated Operational Entity 'DOE' before each verification period.

VER Team Members is expected to include the following staff:

Plant Manager: Responsible for running the plant and compliance with VER monitoring plan
Accounting Manager: Responsible for keeping data about generation and consumption.
GTE: Responsible for emission reduction calculations, preparing monitoring report and periodical verification process.

Installation of meter and data monitoring will be carried out according to the regulations by TEIAS. Two metering devices (one of them used as spare) will be used for monitoring the electricity generated by the power plant. Readings will be done using main metering devices and spare metering device will be used for comparison only. Data from metering devices will be recorded by TEIAS monthly (through remote reading). In addition to the two metering devices, generation of the plant can be cross checked from EPIAS web site (https://www.epias.com.tr/) which is accessible using a password provided to electricity generation companies. EPIAS records will be used for emission reduction calculations.

Main meter with serial number 42595584 was replaced by new meter with serial number 80269583 on 05/04/2021. However, spare meter was not replaced since there was not bi-directional meter in stock at that moment. Properties of metering devices are given in the table below.

Table 8- Properties of metering devices

	Removed Meters		Placed Meters	
	Main Meter	Spare Meter	Main Meter	Spare Meter
Brand	42595584	-	80269583	42595585
Type	Landis	-	MAKEL	Landis
Serial Number	ZMG405	-	C520.AMT.2556	ZMG405
Accuracy Class	0.05-5(10)	-	0.5	0.05-5(10)

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

The calibration and maintenance of the meters will be carried out in line with the by law on Metering and Metering Devices[39].

[39] http://www.mevzuat.adalet.gov.tr/html/21179.html

SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1 Start date of project

Start date of project activity is determined as 12/10/2020 which is the date of EPC Contract for Phase I (as also indicated in the Milestones table).

C.1.2 Expected operational lifetime of project

The operational lifetime of the project is expected about 49 years.

C.2. Crediting period of project

C.2.1 Start date of crediting period

Commissioning of the plant is dated 31/12/2020 which is the date of Provisional Acceptance No.1. First crediting period is between 01/01/2021 and 31/12/2025.

C.2.2 Total length of crediting period

Crediting period will be valid for 5 years and renewed twice. Thus, total length of crediting period will be 15 years.

SECTION D. SUMMARY OF SAFEGUARDING PRINCIPLES AND GENDER SENSITIVE ASSESSMENT

D.1 Safeguarding Principles that will be monitored

A completed Safeguarding Principles Assessment is in Appendix 1, ongoing monitoring is summarized below.

Principles	Mitigation Measures added to the Monitoring Plan
Principle 4.3.4: Release of pollutants **Water Quality and Quantity**	Collection methods and waste disposal records will be checked during site visits. Appropriate disposal of wastewater will be done as required by the Law on Water Pollution Control. Parameter will be checked annually.
Principle 4.3.11: Endangered Species **Biodiversity**	No disturbance to the regional habitat by the project will be ensured. Assessments during site visits will be done and ecosystem reports will be checked. Parameter will be checked annually.
Principle 4.3.5: Hazardous and Non-hazardous Waste	Waste oil from equipment will be collected properly in line with the relevant regulation and disposed via accredited

Other Pollutants (Waste oil)	abatement companies. Waste oil will be disposed in line with regulation # 26952 on control of waste oils[40] .
Principle 4.2.2 Climate and Energy Soil Condition	Erosion control will be set by intensifying local characteristics.[41] Soils resistance to erosion will be improved. Soils permeability, water pressure formation and seepage will be monitored. Site observations will be done during visits. This parameter will be checked annually.
Principle 4.3.4 Release of pollutants Soil Condition	Domestic solid wastes will be collected and handled according to the Solid Waste Control Regulation. They will be collected and transferred to the municipality's solid waste storage facility, periodically. Domestic wastewater generated will be collected in a cesspool and then conveyed to the closest wastewater treatment system. Appropriate disposal of solids waste as required by the Law on Solid Waste Management[42]. This parameter will be checked at every verification.
Principle 3.4.3 Cultural Heritage, Indigenous Peoples, Displacement and Resettlement Expropriation of the project site	Some parcels of the project area belong to Treasury while others are the lands owned by individuals.[43] Permission documents of the project site to be used for purposes other than agriculture. Land acquisition will be done according to the Turkish Expropriation Laws and Electricity Market Law (4628). This parameter will be checked for once in the first verification.

[40] Regulation: *Atık Yağların Kontrolü Yönetmeliği*, numbered 26952, dated 30.07.2008 http://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod=7.5.12290&MevzuatIliski=0&sourceXmlSearch

[41] ANTALYA Solar Power Plant EIA, page 97

[42] https://www.resmigazete.gov.tr/eskiler/2015/04/20150402-2.htm

[43] ANTALYA Solar Power Plant EIA, page 15

D.2. Assessment that project complies with GS4GG Gender Sensitive requirements

Question 1 - Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?	As stated in Gold Standard Gender Policy document, "foundational gender sensitive certification" which is mandatory for every project requires compliance with the gender 'do no harm' safeguard, gender-gap analysis and gender sensitive stakeholder consultations. Although the project is a renewable energy project and does not have negative impacts on men and women, it complies with the criteria mentioned. Moreover, Turkey has ratified ILO convention 100 and 111[44] and discrimination based on gender is illegal in Turkey. The project tries to align with the national gender strategy. So, the project does not involve and is not complicit in any form of discrimination based on gender difference.
Question 2 - Explain how the project aligns with existing country policies, strategies, and best practices	The project aims to create new employment and income opportunities within the scope of SDG 8. While doing this, a gender-equal strategy is implemented by creating employment opportunities for both man and woman without discrimination. According to the Woman Empowerment Strategy Paper and Action Plan prepared by the Ministry of Family and Social Policies (2018), there are 21 targets classified under 5 main fields to enhance participation of women to the

[44] https://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---ilo-ankara/documents/genericdocument/wcms_645630.pdf

	society.[45] In this action plan regarding the years 2018 – 2023, economy and employment-oriented strategies are represented for women since the labour force activity of women is not at desired level compared to the EU countries. According to 2017 statistics tabulated in the report, labour force activity of women is declared as 33.6%[46] and it is aimed that this percentage will be 41% in 2023.[47] Accordingly, the project shows parallelism with the national strategies developed for women.
Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	No, an Expert is not required.
Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	No, an Expert is not required.

SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

The below is a summary of the 2 step GS4GG Consultation for monitoring purposes. Please refer to the separate Stakeholder Consultation Report for a complete report on the initial consultation and stakeholder feedback round.

E.1 Summary of stakeholder mitigation measures

EIA Stakeholder Meeting took place on 09/02/2017 at Toros Dinlenme Tesisleri in Akseki, in city of Antalya.
Participants were among:

- Directorate General of Environmental Impact Assessment, Permit and Inspection,

45 http://www.sp.gov.tr/upload/xSPTemelBelge/files/RySPo+KADININ_GUCLENMESI_STRATEJI_BELGESI_VE_EYLEM_PLANI_2018-2023_.pdf, Page 17

46 http://www.sp.gov.tr/upload/xSPTemelBelge/files/RySPo+KADININ_GUCLENMESI_STRATEJI_BELGESI_VE_EYLEM_PLANI_2018-2023_.pdf, Page 76

47 http://www.sp.gov.tr/upload/xSPTemelBelge/files/RySPo+KADININ_GUCLENMESI_STRATEJI_BELGESI_VE_EYLEM_PLANI_2018-2023_.pdf, Page 79

- Antalya Provincial Directorate of Environment and Urbanisation
- Gün Güneş Enerjisi Elektrik Üretim San. Tic. A.Ş.,
- Almer Proje Ltd. Şti.,
- Village mukhtars and
- Local people.

A presentation was given to the participants on the solar power plant and the planned actions. Participants' questions were answered by Almer Proje Ltd. Şti. ve Gün Güneş Enerjisi Elektrik Üretim San. Tic. A.Ş. representatives and the procedures to be followed were explained in detail.[48]

Feedback received for the LSC report are as follows:

Forward Action Request (FAR#1) - PD shall submit the evidence of project start date for VVB validation. VVB shall confirm the project start date on 16/12/2020.

Project start date is in compliance with the GS rules and evidence document has been submitted to the VVB.

E.2 Final continuous input / grievance mechanism

Method	Include all details of Chosen Method (s) so that they may be understood and, where relevant, used by readers.
Continuous Input / Grievance Expression Process Book (mandatory)	A grievance notebook is placed at Mukhtar's in the Village. They can fill in whenever there is a complaint or a request which is regularly checked by the project manager. Stakeholders are also welcomed to directly contact the power plant staff in case they have an input. Gün Güneş Enerjisi Elektrik Üretim Sanayi ve Ticaret A.Ş Tel: +90 212 267 42 06 E-mail: alpay.beyla@boydakenerji.com
GS Contact (mandatory)	help@goldstandard.org
Other	

[48] ANTALYA Solar Power Plant EIA, page 116

APPENDIX 1 - SAFEGUARDING PRINCIPLES ASSESSMENT

Complete the Assessment below and copy all Mitigation Measures for each Principle into SECTION D above. Please refer to the instructions in the Guide to Completing this Form.

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management, or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Principle 1. Human Rights			
1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights 2. The Project shall not discriminate with regards to participation and inclusion	1. No 2. No	1. Turkey has ratified European Convention on Human Right on 10/03/1954[49]. Therefore, the project is not expected to violate the rules regarding human rights. 2. The Project does not involve and is not complicit in any form of discrimination with regards to participation	1.No mitigation measure is required for this indicator. 2.No mitigation measure is required for this indicator.

[49] https://www.echr.coe.int/Documents/CP_Turkey_ENG.pdf

		and inclusion. Turkey has ratified ILO convention 100, 111, 122 and 142, which provides gender equality and promotes women's employment[50].	
Principle 2. Gender Equality			
1. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women 2. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work 3. The Project shall refer to the country's national gender strategy or	1.No 2.No 3.No 4.No	The Project shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work. The Project activities do not involve and is not complicit in any form of discrimination based on gender. Turkey has ratified ILO convention 100, 111, 122 and 142, which provides gender equality and promotes women's employment[51]; and also, has ratified European Convention on Human Right in 10/03/1954[52],	1.No mitigation measure is required for this indicator. 2.No mitigation measure is required for this indicator. 3.No mitigation measure is required for this indicator. 4.No mitigation measure is required for this indicator.

[50] http://www.ilo.org/ankara/areas-of-work/equality-discrimination/lang--tr/index.htm

[51] http://www.ilo.org/ankara/areas-of-work/equality-discrimination/lang--tr/index.htm

52 http://www.ihd.org.tr/avrupa-insan-haklari-sozlesmesi-ve-eki-protokollerde-yer-alan-haklar-ve-ozgurlukler/

equivalent national commitment to aid in assessing gender risks 4. (Where required) Summary of opinions and recommendations of an Expert Stakeholder(s)		which includes the right to life as well as prohibition of torture, slavery, discrimination and forced labour.	
Principle 3. Community Health, Safety and Working Conditions			
1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community	No	Turkey has ratified ILO convention 155 and about work safety and precautions[53]	Staff will be trained during construction operation phases, such as general HSE, risk, first aid, etc.
Principle 4.1 Sites of Cultural and Historical Heritage			
Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?	No	No sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture were observed in the project area.[54]	No mitigation is required for this indicator.
Principle 4.2 Forced Eviction and Displacement			

[53] https://www.ilo.org/global/standards/subjects-covered-by-international-labour-standards/occupational-safety-and-health/WCMS_356966/lang--en/index.htm

[54] ANTALYA Solar Power Plant EIA, page 59

Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full, or partial)?	No	For the project resettlement is not required.	No mitigation is required for this indicator.
Principle 4.3 Land Tenure and Other Rights			
a. Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership? b. For Projects involving land use tenure, are there any uncertainties with regards to land tenure, access rights, usage rights or land ownership?	a. No b. No	a. Land acquisition will be done according to the Turkish Expropriation Laws and Electricity Market Law (4628). There will be no action until all permissions are taken. b. Land acquisition will be done according to the Turkish Expropriation Laws and Electricity Market Law (4628). There will be no action until all permissions are taken.	a. No mitigation is needed for this indicator. b. No mitigation is needed for this indicator.
Principle 4.4 - Indigenous people			
Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	No	No indigenous peoples were identified.	No mitigation is required for this indicator.
Principle 5. Corruption			

1. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	No	Turkey has ratified several conventions on bribery and Corruption including OECD and UN conventions.[55]	No mitigation measure is required for this indicator.
Principle 6.1 Labour Rights			
1. The Project Developer shall ensure that all employment is following national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions 2. Workers shall be able to establish and join labour organisations 3. Working agreements with all individual workers shall be documented and implemented and include:	1.No 2.No 3.No 4.No	1.The project activity does not have any restrictions on employees' freedom. Turkey has ratified ILO convention 29 and 105 on forced and compulsory labour.[56] Turkey has also ratified ILO 87 and 98 conventions on establishing and joining labour organisations. All staff recruited are employed according to the national legislations[57]. During the	1.No mitigation measure is required for this indicator. 2.No mitigation measure is required for this indicator. 3.No mitigation measure is required for this indicator.

[55] http://www.masak.gov.tr/en/laundering-proceeds-of-crime/national-combat/4208-on-Prevention-of-Money- Laundering.aspx

56 http://www.ilo.org/public/turkish/region/eurpro/ankara/about/sozlesmeler.htm

57 http://www.ilo.org/public/turkish/region/eurpro/ankara/about/sozlesmeler.htm

a) Working hours (must not exceed 48 hours per week on a regular basis), AND b) Duties and tasks, AND c) Remuneration (must include provision for payment of overtime), AND d) Modalities on health insurance, AND e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave. 4. No child labour is allowed (Exceptions for children working on their families' property requires an		construction and operation phases, local people will have priority in terms recruitment. Turkey has also ratified ILO 182 Convention about Child Labour[58]. All ratified ILO Conventions will be complied with during the Project activities. Plus, the project owner is committed to the safe and healthy working conditions during all phases of the project. All employees will attend trainings on first aid and health & safety. For positions that require specific skills (such as high voltage equipment) staff will either be trained, or certified staff will be recruited. The	

[58] https://www.ilo.org/ankara/conventions-ratified-by-turkey/WCMS_377311/lang--tr/index.htm

Expert Stakeholder opinion) 5. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures		project owner is also committed to ensuring that the staff receives their full salaries on time.	
Principle 6.2 Negative Economic Consequences			
1. Does the project cause negative economic consequences during and after project implementation?	No	The project does not cause any negative consequences after implementation. On the contrary, it will create job opportunities for locals as a positive economic impact.	No mitigation measure is needed.
Principle 7.1 Emissions			
Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	Since it is a solar energy power plant, the project is expected to have a positive impact on Climate Change by eliminating fossil fuels.	No mitigation measure is required for this indicator.
Principle 7.2 Energy Supply			
Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource	No	Project does not use any local fuel resource. It is connected to the national grid and supply	No mitigation measure is required for this indicator.

(such as wood, biomass) that provides for other local users?		46,736,532 kWh additional energy to the grid.	
Principle 8.1 Impact on Natural Water Patterns/Flows			
Will the Project affect the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	The project does not have any expected effects on the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s).	No mitigation measure is required for this indicator.
Principle 8.2 Erosion and/or Water Body Instability			
a. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? b. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	a.b. Potentially	a.b. The project may increase the risk of erosion due to scraping of topsoil.	a.b. Erosion control will be set by intensifying local characteristics.[59] Topsoil will be separated and used in landscaping. [60]
Principle 9.1 Landscape Modification and Soil			

[59] Antalya SPP EIA, page 97

[60] Antalya SPP EIA, page 83

Does the Project involve the use of land and soil for production of crops or other products?	Yes	Some parts of the project is agricultural land owned by individuals.[38]	Required permissions will be taken from relevant ministries.
Principle 9.2 Vulnerability to Natural Disaster			
Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	Possible	Akseki district and the project site are in the 3rd Degree Seismic Zone according to the earthquake zones determined by the General Directorate of Disaster Affairs.	All the design and construction works will be performed in accordance with relevant regulation (Regulation on Buildings Constructed in Earthquake Zones.).[61]
Principle 9.3 Genetic Resources			
Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?	No	The project activity is not relevant to the use of genetically modified organisms or GMOs since it is a renewable energy power plant.	No mitigation measure is required for this indicator.
Principle 9.4 Release of pollutants			

[61] ANTALYA Solar Power Plant EIA, page 44

Could the Project potentially result in the release of pollutants to the environment?	Yes	Solis waste, waste oil and domestic wastewater generation are expected during both construction and operation.	Domestic solid wastes will be collected and handled according to the Solid Waste Control Regulation. They will be collected and transferred to the municipality's solid waste storage facility, periodically. Domestic wastewater generated will be collected in a cesspool and then conveyed to the closest wastewater treatment system. Waste oil will be collected and disposed according to the Regulation on Waste Oil Control. [62]
Principle 9.5 Hazardous and Non-hazardous Waste			
Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	Yes	Project is expected to create solid, and liquid wastes during its construction.	Handling, storage and disposal of these wastes will be done according to the Turkish regulations.
Principle 9.6 Pesticides & Fertilisers			

[62] ANTALYA Solar Power Plant EIA, page 91-92-96

Will the Project involve the application of pesticides and/or fertilisers?	No	The project is not relevant since it is a renewable energy project.	No mitigation is needed for this indicator.
Principle 9.7 Harvesting of Forests			
Will the Project involve the harvesting of forests?	No	The closest forestry area is 400 m distant from the project area.[63]	No mitigation is needed for this indicator.
Principle 9.8 Food			
Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The project is not relevant since it is a renewable energy project.	No mitigation is needed for this indicator.
Principle 9.9 Animal husbandry			
Will the Project involve animal husbandry?	No	It is irrelevant to the Project. As a renewable energy power plant, the Project does not involve any animal husbandry.	No mitigation measure is required for this indicator.
Principle 9.10 High Conservation Value Areas and Critical Habitats			
Does the Project physically affect or alter largely intact or High Conservation Value (HCV)	No	There are no national parks, natural parks, natural protection areas, wildlife protection areas as	No mitigation is needed for this indicator.

[63] ANTALYA Solar Power Plant EIA, page 98

ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?		declared in accordance with the Turkish national legislation.	
Principle 9.11 Endangered Species			
a. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? b. Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	a. No b. No	a. No endemic, endangered and or threatened flora and fauna species were identified in the project site and its vicinity. [64] b. No endemic, endangered and or threatened flora and fauna species were identified in the project site and its vicinity. [65]	a. No mitigation is needed for this indicator. b. No mitigation is needed for this indicator.

[64] Antalya SPP EIA, page 49
[65] Antalya SPP EIA, page 49

APPENDIX 2- CONTACT INFORMATION OF PROJECT PARTICIPANTS

Organization name	Gün Güneş Enerjisi Elektrik Üretim Sanayi ve Ticaret A.Ş.
Registration number with relevant authority	-
Street/P.O. Box	İkitelli Organize Sanayi Bölgesi Ziya Gökalp Mah. Atatürk Bulvarı 8. Cadde No:3 Başakşehir
Building	-
City	İstanbul
State/Region	-
Postcode	-
Country	Turkey
Telephone	+90 212 267 4206
E-mail	-
Website	https://www.enerturk.com/
Contact person	
Title	Project Manager
Salutation	Mr.
Last name	Beyla
Middle name	-
First name	Alpay
Department	Management
Mobile	-
Direct tel.	+90 212 267 4206
Personal e-mail	alpay.beyla@enerturk.com

Organization name	GTE Karbon Sürdürülebilir Enerji Eğitim Danışmanlık ve Ticaret A.Ş.
Registration number with relevant authority	
Street/P.O. Box	Mustafa Kemal Mah 12118. Cad. No:4
Building	C/42
City	Ankara
State/Region	Çankaya
Postcode	06510
Country	Turkey
Telephone	+90 312 514 63 63
E-mail	kemal.demirkol@gte.com.tr
Website	www.gte.com
Contact person	Mehmet Kemal Demirkol
Title	Director
Salutation	Mr.
Last name	Demirkol
Middle name	Kemal
First name	Mehmet
Department	Management
Mobile	+90 530 661 40 88
Direct tel.	+90 312 514 63 63
Personal e-mail	kemal.demirkol@gte.com.tr

APPENDIX 3- LUF ADDITIONAL INFORMATION

Risk of change to the Project Area during Project Certification Period:	
Risk of change to the Project activities during Project Certification Period:	
Land-use history and current status of Project Area:	

Socio-Economic history:	
Forest management applied (past and future)	
Forest characteristics (including main tree species planted)	
Main social impacts (risks and benefits)	
Main environmental impacts (risks and benefits)	
Financial structure	
Infrastructure (roads/houses etc):	
Water bodies:	
Sites with special significance for indigenous people and local communities - resulting from the Stakeholder Consultation:	
Where indigenous people and local communities are situated:	
Where indigenous people and local communities have legal rights, customary rights or sites with special cultural, ecological, economic, religious or spiritual significance:	

APPENDIX 4-SUMMARY OF APPROVED DESIGN CHANGES

Please refer to Design Change Requirements for more information on procedures governing Design Changes

Revision History

Version	Date	Remarks
1.2	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Inclusion criteria table added Gender sensitive requirements added Prior consideration (1 yr rule) and Ongoing Financial Need added Safeguard Principles Assessment as annex and a new section to include applicable safeguards for clarity Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on Stakeholder Consultation information required Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.1	24 August 2017	Updated to include section A.8 on 'gender sensitive' requirements
1.0	10 July 2017	Initial adoption