

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

A – Description of project

B - Application of approved Gold Standard Methodology (ies) and/or demonstration of SDG Contributions

C – Duration and crediting period

D – Summary of Safeguarding Principles and Gender Sensitive Assessment

E – Outcome of Stakeholder Consultations

Appendix 1 – Safeguarding Principles Assessment (mandatory)

Appendix 2 - Contact information of Project participants (mandatory)

Appendix 3 - LUF Additional Information (project specific)

Appendix 4 - Summary of Approved Design Changes (project specific)

Appendix 5 – Baseline Emission factor Information

KEY PROJECT INFORMATION

GS ID of Project	GS872
Title of Project	Cataloluk HEPP
Time of First Submission Date	09/03/2006
Date of Design Certification	09/09/2011
Version number of the PDD	09
Completion date of version	01/09/2023
Project Developer	GTE KARBON SÜRDÜRÜLEBİLİR ENERJİ EĞİTİM DANIŞMANLIK VE TİC. A.Ş
Project Representative	Elestaş Elektrik Üretim A.Ş
Project Participants and any communities involved	GTE KARBON SÜRDÜRÜLEBİLİR ENERJİ EĞİTİM DANIŞMANLIK VE TİC. A.Ş Elestaş Elektrik Üretim A.Ş ¹
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	

¹ Beytek and Elestaş companies are merged under the name of Elestaş Elektrik Üretim Anonim Şirketi on 01/10/2018.

Methodology (ies) applied and version number	AMS-I.D. Grid connected renewable electricity generation, ver 18
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)	13.2.2 Total greenhouse gas emissions per year	14,766 tonnes of CO ₂ e per annum	tCO ₂ e (GS VERs)
7 Ensure access to affordable, reliable, sustainable and modern energy for all	7.2.1 Renewable energy share in the total final energy consumption	31,990 MWh/yr ²	MWh/yr
7 Ensure access to affordable, reliable, sustainable and modern energy for all	Balance of Payments	Approximately consumption of 6,868,141 million m ³ of natural gas is expected to be avoided corresponding to 19,162,114 million TL annually	m ³ and million TL

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7 Ensure access to affordable, reliable, sustainable and modern energy for all	7.2.1 Renewable energy share in the total final energy consumption. : Air Quality	SO2 emission reduction is calculated as 256.06 tons per year. NOx emission reduction is calculated as 81.25 tons per year	
8 Decent Work and Economic Growth	8.5.1 Average hourly earnings of female and male employees, by occupation, age, and persons with disabilities	At least 7 people to be employed	Number of people employed by the project

SECTION A. DESCRIPTION OF PROJECT

A.1 Purpose and general description of project

Cataloluk HEPP has been developed by Elestaş Elektrik Üretim A.Ş. The project is a run-off-river reservoir type project, 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 wind power and providing the energy to the Turkish national grid. In order to achieve the highest possible power output and the emission reductions associated with it; the project owner invested in state-of-the-art turbines and all the necessary assessments were carried out before the implementation.

i. The location of the project activity

Cataloluk Regulator and Hydroelectric Power Plant is located on Tekir Creek at about 55 km north of Kahramanmaraş Province and 40 km south of Göksun District. The project

consists of a hard-fill weir located at 823.5m altitude and 17m height from the thalweg level whereas the powerhouse is located at about 724.5 m altitude.

ii. The technologies/measures to be employed and/or implemented by the project activity

Other project elements include conveying channel (1447.6m) and tunnel (1252.4 m), forebay and penstock, which provide a gross elevation difference of about 114.5m, powerhouse and two horizontal francis type turbines. The energy generated at Cataloluk HEPP is transmitted to the Caglayan 6.3/34.5 kV switchyard station. There are two turbines having capacities of 4.92 MWm / 4.77 MWe. As a result of the project optimization, the maximum amount of 10 m³/s water usage in the turbines is thought to be economical. The total installed capacity of the plant is designed as 9.84 MWm/ 9.54 MWe.

iii. The 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.

iv. The baseline scenario

The project generates electricity by avoiding CO₂ emissions from electricity generation by fossil fuel power plants connected to Turkish National Power Grid. The project, which has an average annual generated energy of 31.99 GWh. In return for annual energy generation, an annual carbon reduction of 14,766 tCO₂ is expected.

Main goals of the Cataloluk HEPP Project include,

- Utilization of the hydroelectric potential of Turkey in order to meet booming electricity demand and guarantee the energy security.
- Preventing flooding risk in the region which has caused significant destruction in the region in recent years

- Increase share of HEPPs in electricity generation mix of Turkey and reduction of GHG emissions.
- Contribute to the national economic development by creating direct and indirect job opportunities during construction and operation phases.
- Reduce import dependency of fossil fuel dominated 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 sustainable development project not only contributes to emission reduction through use of renewable resources and creating job opportunities, but it also contributes to local development by supporting educational and social events in the region. In terms of environmental impact, project is considered to have positive impact on air quality due to avoided NO_x, PM and SO_x emissions whereas no negative impact on water quality other pollutants and biodiversity has been identified. In order to avoid impact on aquatic life in the riverbed, minimum 10% of average flow of last ten years will be continuously released from the weir as required by the State Hydraulic Works Authority (DSI).

Table 2. Milestones for Çataloluk HEPP

Milestone	Date
License Issuance	25/05/2005
Start of Construction	09/03/2006
EM Equipment Purchase Contract	09/08/2007
Transfer of Project Shares to Beytek	10/07/2009
Revised Feasibility Report	01/08/2008
Subcontractor agreement (Transmission Line)	02/10/2009
Water Right Utilization Agreement	18/12/2009
EIA Exemption Letter	30/12/2009
System Connection Approval	15/02/2010
Commissioning Date	07/04/2010
1 st Crediting Period	01/04/2010-31/03/2017

2 nd Crediting Period ³ (The start day of the 2 nd CP is expected)	01/04/2017-31/03/2024
GTE Name Change	06/09/2017
Beytek – Elestaş Name Change	01/10/2018
Revised License	25/10/2018
System Usage Agreement (in the name of Elestaş)	19/11/2018
Connection Agreement (in the name of Elestaş)	19/11/2018
First Index Protocol of previous meters (Main: 391095-Spare: 391097)	25/02/2010
First Index Protocol of Latest Meters (Main: 84051677-Spare:84051678)	07/11/2018

A.1.1. Eligibility of the project under Gold Standard

Project activity involves of a 9.54 MW hydro 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 is not registered and also will not benefit from other certification schemes or renewable energy labelling standards. Project meets eligibility criteria as per the GS4GG principles and requirements;

- Project is a renewable energy (wind) installation activity
- Project activity include physical action/implementation on the ground
- Project is located in Turkey, which is eligible for VER projects
- Project is a small-scale renewable energy plant with defined boundaries
- Project contributes to sustainable development goals
- Project is in compliance with GS safeguarding principles

³Para 5.1.45, <https://globalgoals.goldstandard.org/101-par-principles-requirements/>

- Stakeholders are involved in project implementation and planning during local consultation meetings and feedback round.
- Project outcomes are real validated/verified by approved bodies
- Additionality is demonstrated as per the applicable tools and methodologies

The project meets the General Eligibility Criteria of the applicable Activity Requirements:

Scale of the project activity: The project is a 9.54 MW hydro farm project and not exceeding the 15 MW limit for small scale project according to UNFCCC regulations, the project is categorized under small scale.

Renewable Energy Activity Requirements:

- 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.

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.

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

Elestaş Elektrik Üretim A.Ş is legal owner of the products and all legal rights of the project as per generation license by EPDK (EÜ/8151-1/04112) and revised in

25/10/2018, after the merging of the companies ⁴. GTE Karbon Sürdürülebilir Enerji Eğitim Danışmanlık ve Ticaret A.Ş is also a beneficiary of the carbon credits to be issued.

- i) Project owner is also the license holder of the project. Ownership is not transferred from other beneficiaries. Legal documents (generation license etc, and cover letter, terms and conditions) are submitted to VVB or uploaded to the GS registry.
- ii) Generation license issue by EPDK (EMRA-Energy Market Regulatory Authority) gives the rights to install and operate wind power plant in the defined site to project owner. iii) Legal right for installation of turbines and generating electricity on project site is defined by local regulations and secured by generation license as defined above. Land for the project is leased from the government for the generation license period as per the local regulations.

A.2 Location of project

Project is located within the boundaries of Kahramanmaraş Province of Turkey. Project site located between 37°48"- 37°50" North latitudes and 36°38" - 36°40" East longitude. Mediterranean Region/Kahramanmaraş Province Göksun District of Kahramanmaraş Province

	Longitudes	Latitude
Weir	E 36°38'29.04	N 37°50'42.95
Powerhouse	E 36°39'37.48	N 37°49'19.35"

⁴ Beytek and Elestaş companies are merged under the name of Elestaş Elektrik Üretim Anonim Şirketi on 01/10/2018.



Figure 1. Cataloluk Hepp Location

A.3 Technologies and/or measures

Type I: Renewable Energy Projects
 Category I D: Grid connected renewable electricity generation
 Sectoral scope 1: Energy Industry – Renewable Sources

- i. The project consists of two turbines and generators which are used to transform the potential energy of water to mechanical energy at a first stage and later into electrical energy. Each turbine has an installed capacity of 4.92 MWm / 4.77 MWe. Project activity involves establishing a run-off-river reservoir type HEPP to utilize the running water of Tekir Creek

Technical characteristics of Cataloluk HEPP have been summarized in table below⁵.

LOCATION: Tekir Creek	Tekir Creek, Goksun District
DESIGN DISCHARGE	10 M3/SEC

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[Document for Turbine Specifications.pdf](#)

LENGTH OF CONVEYANCE CHANNEL	1.45 KM
LENGTH OF CONVEYANCE TUNNEL	1.25 KM
GROSS HEAD	114.5 M
TOTAL INSTALLED CAPACITY	9.54 MWe
NUMBER OF UNITS	2 x 4.92 MWm / 4.77 MWe EACH
TURBINE TYPE:	FRANCIS TYPE – HORIZONTAL AXIS
TURBINE MANUFACTURER	WKV
NUMBER OF PENSTOCKS	1
LENGTH OF PENSTOCKS	193 M
AVERAGE ANNUAL POWER GENERATION	31.99 GWH
GRID CONNECTION	THE GRID CONNECTION WILL BE PROVIDED BY MEANS OF ENERGY TRANSMISSIONLINE TO THE YUKARI CAGLAYAN STATION (6.3/34.5 KV) WHICH IS OWNED BY TEIAS.

- ii. The technical lifetime of turbines is stated as 150,000 hours⁶ in the relevant methodology. Lifetime of turbine is 150,000 hours which corresponds to 45 years of lifetime with the average working hours of 3300 hr of the equipment.
- iii. The electricity delivered to the grid by the project activity is generated using a renewable source by harnessing the hydro-electric power, instead of utilizing GHG emitting sources. Hence, the project contributes to SDG 7 by generating renewable energy and SDG 13 by reducing emissions.

A.4 Scale of the project

It is a small-scale project having 9.54 MWe installed capacity providing 14,766 tonnes CO2 reduction.

A.5 Funding sources of project

No public funding or ODA is used for the Cataloluk HEPP project.

⁶ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-10-v1.pdf>

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

B.1. Reference of approved methodology (ies)

The UNFCCC approved simplified baseline and monitoring methodology AMS I.D., version 18⁷.

- Tool 07, "Tool to calculate the emission factor for an electricity system", Version 07.0⁸
- Tool 20 "Assessment of debundling for small-scale project activities", Version 04.0⁹

B.2. Applicability of methodology (ies)

The selected methodology is in line with the requirements and is therefore justified to be used because of the following reasons:

No.	Applicability Conditions	The Project
1	This methodology is applicable to project activities that: (a) Install a Greenfield plant; (b) Involve a capacity addition in (an) existing plant(s); (c) Involve a retrofit of (an) existing plant(s); (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s).	The project activity is a greenfield, grid connected renewable electricity generation project ¹⁰ .
2	Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: (a) The project activity is implemented in an existing reservoir with no change in the volume of reservoir; (b) The project activity is implemented in an existing reservoir,	The project activity is the installation of a hydro-electric power plant which type is run-off river reservoir ¹¹ . As shown in

⁷ <https://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTXFQQOFQQH4SBK>

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

⁹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-20-v1.pdf>

¹⁰ Generation License

¹¹ Generation License

	where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m ² ; (c) The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m ²	Section B.7., PD is calculated as 41 W/m ² . Hence, the article (c) applies ¹² .
3	If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	The Project is a hydro-electric power plant with renewable components only, with a capacity of less than 15 MWe.
4	Combined heat and power (co-generation) systems are not eligible under this category	The project does not involve combined heat and power generation activity.
5	In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	The Project is a hydro-electric power plant with renewable components only, with a capacity of less than 15 MWe ¹³ . The project does not involve capacity addition.
6	In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.	The project does not involve capacity addition, a retrofit of (an) existing plant(s) or a replacement of (an) existing plant(s).
7	In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are	The project is the installation of hydro-

¹² ER calculation sheet

¹³ Generation License

	eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as “AMS-I.C.: Thermal energy production with or without electricity” shall be explored.	electric power plant. Hence, this condition is N/A ¹⁴ .
8	In case biomass is sourced from dedicated plantations, the applicability criteria in the tool “Project emissions from cultivation of biomass” shall apply.	The project is the installation of hydro-electric power plant. Hence, this condition is N/A ¹⁵ .

Applicability as per “Tool 20: Assessment of debundling for small-scale project activities” ver 04.0.

The project activity is not a debundled component of a larger project activity as explained below.

A proposed small-scale project activity shall be deemed to be a debundled component of a large project activity if there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity:

- a) There are three projects registered to VCS program with the same participants (Elestaş Elektrik Üretim Anonim Şirketi as project owner):
- MURAT HYDROELECTRIC POWER PLANT: Small-scale
 - YAZI 1.13 MW HEPP: Small-scale

¹⁴ Generation License

¹⁵ Generation License

- YAYLABEL 5.2 MW HYDRO POWER PLANT: Small-scale
- b) The projects are hydro-electricity power plant.
- c) The three projects registered in a VCS GHG mechanism within the previous 2 years¹⁶,
¹⁷, ¹⁸.
- d) Three projects are in different provinces, hence the boundaries are not within 1 km of each other's. Moreover, the google earth image shows that there are no PAs that have the same activity implementer as the proposed small-scale PA which also manages a large-scale PA of the same technology/measure and the boundary is within 1 km of the boundary of the proposed small-scale PA, at the closest point¹⁹ (Figure 1 in A.2 above).
- MURAT HYDROELECTRIC POWER PLANT: Ordu Province
- YAZI 1.13 MW HEPP: Çankırı Province
- YAYLABEL 5.2 MW HYDRO POWER PLANT: Isparta Province
- Therefore, PA is eligible to use the simplified modalities and procedures for SSC PAs.

	Determining the occurrence of debundling	
10	If a proposed small-scale project activity is deemed to be a debundled component in accordance with paragraph 2 above, but total size of such an activity combined with the previous registered small-scale CDM project activity does not exceed the limits for small scale CDM project activities as set in paragraph 6 (c) of the decision 17/CP.7, ¹ the project activity can qualify to use simplified modalities and procedures for small-scale CDM project activities.	No. Proposed small-scale project activity is a debundled component, therefore, small-scale CDM project activity limits are not exceeded in any way ²⁰ .
	Transport project activities	

¹⁶ <https://registry.terra.org/app/projectDetail/VCS/1193>

¹⁷ <https://registry.terra.org/app/projectDetail/VCS/583>

¹⁸ <https://registry.terra.org/app/projectDetail/VCS/582>

¹⁹ Figure

²⁰ Generation License

12	A proposed small-scale transport sector project activity involving boundaries/sources that are mobile, shall be deemed to be a debundled component of a large project activity if there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity: (a) With the same project participants; and (b) In the same project category and technology/measure; and (c) Registered within the previous 2 years.	The project is not in the transport sector²¹. The project is a hydroelectricity power plant. Therefore, para 12 and 13 are not applicable to the projects in the bundle and the bundle itself.
13	The above provision excludes the condition to check that the project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point and is also applicable to the guidance for determining the occurrence of debundling under a programme of activities (PoA).	
	Determining the occurrence of debundling for multiple CDM projects involving independent subsystem/measures	
14	If each of the independent subsystems/measures (e.g., biogas digesters, residential solar energy systems, kerosene or incandescent lighting replacements) included in one or more CDM project activities is no greater than 1% of the small scale thresholds defined by the applied methodology and the subsystems/measures are indicated in the PDDs to be each implemented at or in multiple locations (e.g., installed at or in multiple homes) then these CDM	The project does not involve independent subsystem/measures. Therefore, para 14 are not applicable to the projects in the bundle and the bundle itself.

²¹ Generation License, System Use Agreement

	project activities are exempted from performing a de-bundling check, i.e., considered as being not a de-bundled component of a large scale activity.	
	Determining the occurrence of debundling under a programme of activities (PoA)	
15	For the purposes of registration of a Programme of Activities (PoA), a proposed small-scale CPA of a PoA shall be deemed to be a de-bundled component of a large-scale activity if there is already an activity, which satisfies both conditions (a) and (b) below: (a) Has the same activity implementer as the proposed small-scale CPA or has a coordinating or managing entity, which also manages a large scale PoA of the same technology/measure, and; (b) The boundary is within 1 km of the boundary of the proposed small-scale CPA, at the closest point.	N/A
16	If a proposed small-scale CPA of a PoA is deemed to be a debundled component in accordance with paragraph 2 above, but the total size of such a CPA combined with a registered small-scale CPA of a PoA or a registered CDM project activity does not exceed the limits for small-scale CDM and small-scale A/R project activities as set out in Annex II of the decision 4/CMP.14 and 5/CMP.1 respectively, the CPA of a PoA can qualify to use simplified modalities and procedures for small-scale CDM and small-scale A/R CDM project activities.	N/A
17	If each of the independent subsystems/measures (e.g., biogas digester, solar home system) included in the CPA of a PoA is no larger than 1% of the small-	N/A

	scale thresholds defined by the methodology applied, then that CPA of PoA is exempted from performing de-bundling check i.e., considering as not being a de-bundled component of a large-scale activity.	
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Applicability as per “Tool 07: Tool to calculate the emission factor for an electricity system, version 07.0”

No.	Applicability Conditions	The Project
1	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).	The project activity supplies electricity to a grid. Hence, this condition is met ²² .
2	Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa is chosen, the conditions specified in “Appendix 1: Procedures related to off-grid power generation” should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity	CO ₂ emission factor for the displacement of electricity generated by power plants in an electricity system is determined by calculating the “combined margin” emission factor (CM) of the electricity system. Off-grid plants are not

²² Generation License, System Use Agreement

	generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	included in the calculation of EF by Ministry of Energy and Resources as the data set is provided by TEİAŞ which is the governmental body for the distribution of grid-connected output ²³ .
3	In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	The project is not CDM project, it is a voluntary GS project. Hence, this condition is N/A.
4	Under this tool, the value applied to the CO ₂ emission factor of biofuels is zero.	The project does not involve biofuels in any way.

Project meets the applicability criteria defined by the selected methodology, which is AMS-I.D, ver 18.0:

- The project activity is a greenfield, grid connected renewable electricity generation project.
- The project activity is the installation of hydro power plant.
- The project does not involve capacity addition, a retrofit of (an) existing plant(s) or a replacement of (an) existing plant(s).
- The project does not involve combined heat and power generation activity.

²³

<https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klım/%C4%B0klımDe%C4%9Fi%C5%9Fikli%C4%9Fi/TUESEmisyonFktr/Belgeler/Bform2020.pdf>

- The geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available.

Since there exists no delineation of project electricity system or connected electricity systems by DNA, following criteria has been used to determine the existence of significant transmission constraints:

- In case of electricity systems with spot markets for electricity: there are differences in electricity prices (without transmission and distribution costs) of more than 5 percent between the systems during 60 percent or more of the hours of the year.
- The transmission line is operated at 90% or more of its rated capacity during 90% percent or more of the hours of the year.

Since the project output is fed to the Turkish electricity grid which does not involve any distinct electricity systems that applies different price, first criteria defined above is not applicable. Also, since the transmission line between the project and nearest substation is built within the scope of the project and there exist no information on grid capacity utilization, second criteria is also inapplicable. Based on assessment above, it is difficult to conclude with a significant transmission constraint or grid boundary. Since there is no dispatch grid system in Turkey, the project boundary is considered as the National Electricity Grid of Turkey according to applied tool.

B.3. Project boundary

>>Project boundary is defined as limited to the project activity site according to the applied methodology. For the project activities, project boundary involves, Cataloluk Weir, Penstock, Conveyance line and Powerhouse.

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Electricity	CO ₂	Yes	Major emission source
	Generation by the grid	CH ₄	No	Minor emission source. Excluded for simplification

connected power plants	N ₂ O	No	Minor emission source. Excluded for simplification
Emissions of CH ₄ from the reservoir	CO ₂	No	Minor emission source. Excluded for simplification as per the applied methodology
CO ₂ emissions from combustion of fossil fuels for electricity generation	CH ₄	Yes	Main emission source. Calculated for determining significance.
	N ₂ O	No	Minor emission source. Excluded for simplification

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”.

According to the Tool 11: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, Version 3.0.1, there are some requirements:

No.	Applicability Conditions	The Project
Step 1.1	If the current baseline complies with all relevant mandatory national and/or sectoral policies which have come into effect after the submission of the project activity for validation or the submission of the previous request for renewal of the crediting period and are applicable at the time of requesting renewal of the crediting period, go to Step 1.2.	there is no change in national/sectoral policies affecting project implementation. Hence the Step 1.2. can be evaluated.

	If the current baseline does not comply with relevant mandatory national and/or sectoral policies, then assess based on the examination of current practice in the country or region in which the policies apply, whether those policies are systematically not enforced and that non-compliance with those requirements is widespread in the country or region.	
Step 1.2.	Assess the impact of circumstances existing at the time of requesting renewal of the crediting period on the current baseline emissions, without reassessing the baseline scenario. In the situation where the baseline scenario identified at the validation of the project activity was the continuation of the current practice without any investment, an assessment of the changes in market characteristics is required for the renewal of the crediting period. Evaluate whether the conditions used to determine the baseline emissions in the previous crediting period are still valid. Assess the availability of new fuels or raw materials and the impact of electricity or fuel prices in the identification of the current practice for the baseline emissions.	The combined margin is updated as per OM & BM calculations by Ministry of Energy and Resources ²⁴
Step 1.3	This sub-step should only be applied if the baseline scenario identified at the validation of the project activity was the continuation of use of the current equipment(s) without any investment and, the projects proponents or third party (or parties) would undertake an investment	There is no overdue technology in the project as the lifetime of the technologies used

²⁴

<https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klm/%C4%B0klmDe%C4%9Fi%C5%9Fikli%C4%9Fi/TUESEmisyonFktr/Belgeler/Bform2020.pdf>

	later due, for example, to the end of the technical lifetime of the equipment(s) before the end of the crediting period or the availability of a new technology. Assess whether the remaining technical lifetime of the equipment that would have continued to be used in the absence of the project activity, as determined in the CDM-PDD or CDM-PDD-REN, exceeds the crediting period for which renewal is requested. Take into consideration the market penetration of different technologies. Evaluate the penetration rate of different technologies that are available in the market and evaluate how they could affect the baseline.	was defined as 20 years as equity IRR has been calculated for the validation period²⁵. the ongoing financial need derived from GS is still valid considering that the financial model validated in first crediting period projects 20 years of operation of the project. Hence, the model is still valid for the current crediting period ²⁶.
Step 1.4	Assess whether data and parameters that were only determined at the start of the crediting period and not monitored during the crediting period are still valid or whether they should be updated. Updates should be undertaken in the following cases: Where IPCC default values are used, the values should be updated if any new default values have been adopted and published by the IPCC, for	The combined margin is updated as per OM & BM calculations by Ministry of Energy and Resources ²⁷. Hence the

²⁵ Validation Report Ver 02

²⁶ Financial Model: [Financial Model\Cataloluk Financial Model 21 10 2011 44years.xlsx](#)

²⁷

<https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klm/%C4%B0klmDe%C4%9Fi%C5%9Fikli%C4%9Fi/TUESEmisyonFktr/Belgeler/Bform2020.pdf>

	example, in guidelines for national GHG inventories, IPCC assessment report or special reports by the IPCC; Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values, or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity. <i>If the application of Steps 1.1, 1.2, 1.3 and 1.4 confirmed that the current baseline as well as data and parameters are still valid for the subsequent crediting period, then this baseline, data and parameters can be used for the renewed crediting period. Otherwise, proceed to Step 2.</i>	assessment should proceed to Step 2.
Step 2	Update the current baseline and the data parameters.	The data and the parameters are updated for the second crediting period.

Turkish electricity generation is mainly composed of thermal power plants and the share of renewable resources. Since Turkey is an advanced developing country, there is an increasing demand for electricity which is fully expected to continue in the foreseeable future.

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. The statistics from TEIAS webpage show that the installed capacity that utilize lignite in Turkey has always showed an increasing trend, based on the available information covering the years from 1940 to 2019^{28, 29, 30}.

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.

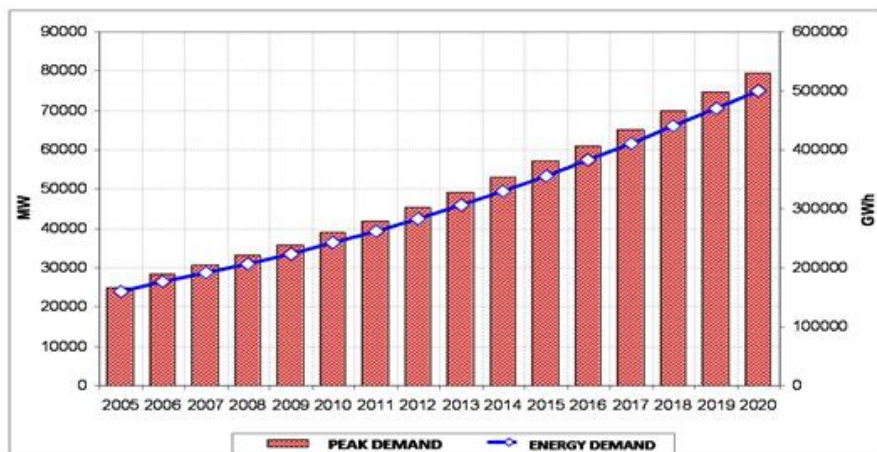


Figure 1. Peak Load and consumption projection for Turkish electricity system between 2005-2020³¹

According to the Ministry of Energy and Natural Resources statistics³², share of WPPs together with geothermal power plants could hardly reach 6.6% in 2019 whereas share of Coal and natural gas are 37.3% and 29.8%, respectively. When we look at the annual

²⁸ <https://webapi.teias.gov.tr/file/18800125-dc32-4c4e-8a3e-c771863e5a49?download>

²⁹ <https://webapi.teias.gov.tr/file/07f76c00-d256-4ccb-b25e-9478c9dedc04?download>

³⁰ <https://webapi.teias.gov.tr/file/163dfadf-80d8-4271-baf8-bc0b76710177?download>

³¹ <http://www.teias.gov.tr/apkuretimplani/veriler.htm>

³² <https://enerji.gov.tr/bilgi-merkezi-enerji-elektrik>

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.

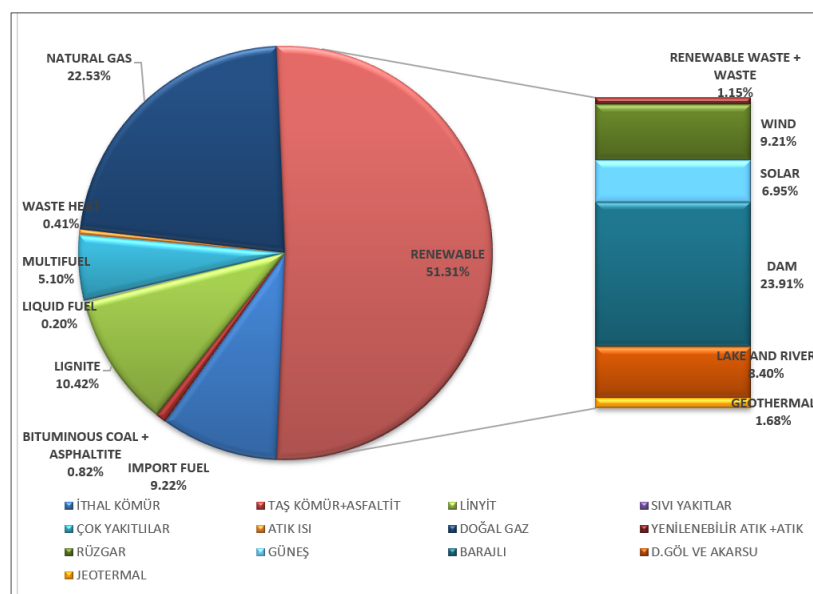


Figure 2. Distribution of installed capacity by primary energy resources³³

B.5. Demonstration of additionality

Selected methodology: AMS-I.D. Grid connected renewable electricity generation, ver 18

- Tool 07 Tool to calculate the emission factor for an electricity system: This tool is applicable and used for the calculation of OM, CM and CM since the project activity includes grid power plants and supplies electricity to the grid

³³ <https://webapi.teias.gov.tr/file/39abb292-4b3e-4e70-9e08-914d0ba9bd43?download>

Emission factor for the baseline scenario which was calculated by the Ministry of Environment and Urbanization has been used³⁴.

Within this framework, the project is expected to generate about 31,990 MWh electricity and reduce about 14,766 tCO₂ emissions through replacing the electricity that would need to be supplied via the national grid in the absence of the project activity.

It should be noted that although second crediting period will be valid for seven years, as per Principles and Requirements, 5.1.46, when there is a delay in the completion of re-validation beyond the last date of current certification cycle, it will result in a reduction of any issuance of Certified Products. Hence, The PP will not claim any GS VER for the date 01/04/2017-24/11/2022 which is the date the first validation opinion is submitted by VVB.

Additionality has been demonstrated in the first crediting period. There is no change in project implementation, therefore there is no need to conduct an additionality assessment in the second crediting period.

B.5.1 Prior Consideration

This is the second crediting period. The project has no design changes.

B.5.2 Ongoing Financial Need

Expected annual generation 31,990 MWh whereas actual generation has been almost 30% lower than expected in recent years as can be seen from previous monitoring reports. In terms of contribution of carbon revenues, around 82,994 GS-VER has been issued by February 2017³⁵. Until recent few years, carbon revenues have compensated

³⁴ <https://meslekihizmetler.csb.gov.tr/elektrik-enerjisinin-birincil-enerji-ve-sera-gazi-salimi-katsayilari-2021-yilindan-itibaren-kullanilmak-uzere-guncellenmistir-duyuru-411795>

³⁵ <https://registry.goldstandard.org/projects/details/1237>

most of the staff cost of project and have generated increase in the profit of the project. Considering that project will complete ten-year feed-in-tariff period soon, income will be lower due to lower market sales price of electricity and increasing maintenance costs. Hence, significance of carbon revenues will be higher in the following years.

Most recent carbon sales have provided around 3-3.5³⁶ Euro/ton of carbon certificates. For the current tariff, this means additional 6-6.5 euro/MWh revenue which is almost 8-10% improvement in financial performance of the project.

TABLE 3. MAIN FINANCIAL PARAMETERS USED FOR INVESTMENT ANALYSIS

Parameters	Unit	Data Value
Installed Capacity	MW	9.54
Grid Connected output	GWh	31.99
Capital Investment	Million €	17.871
Corporate tax rate	%	20
Loan	Million €	12.600
Expected Tariff	€ Cents/kWh	5.5
Expected VERs price	€/ tCO ₂ e	9 (Current Price: 5.20 €) ³⁸

According to the investment analysis made for Cataloluk HEPP, Equity IRR for the project has been calculated as 7.63% in the absence of carbon revenue. When carbon revenue (9 €/tCO₂) is included to the project income, project IRR increases to 8.45% and the project becomes more viable. When the current expected VERs price (5.20 €) is taken into consideration for the scenario that carbon revenue is included to the project income, project IRR increases to 8.30%. The benchmark value considered in initial validation PDD is above 16.14%. This value demonstrates and highlights the ongoing financial need of the project. This IRR value represents the most optimistic scenario in terms of capital investment and electricity generation whereas electricity tariff is

³⁶ VERPA submitted to DOE for confirmation of price

³⁷ <https://platform.sustain-cert.com/public-project/1341-GS Validation Report 08.07.2011 ver 02>

³⁸ <https://climatetrade.com/voluntary-carbon-market-value-tops-us2b/>

expected to increase due to increasing electricity demand so that the investment becomes attractive.

Under sensitivity analysis %10 fluctuations has been done for investment and operational costs and %40 fluctuations for electricity tariff and annual production. Since the %60 of the investment already finalized %10 is also a high fluctuation and found conservative by the validation team. Electricity Tariff fluctuation has been done $\pm$ %40 which makes the sales price as 7.7 euro/cent to be conservative. None of the cases pass the benchmark value in the sensitivity analysis

During the first crediting period, the following VERs has been issued in the monitoring periods as follows:

1st monitoring period:

Apr 01, 2010 — May 30, 2012: 8,012 GS VERs (issued)

Apr 01, 2010 — May 30, 2012: 16,955 GS VERs (issued)

Apr 01, 2010 — May 30, 2012: 11,808 GS VERs (issued)

2nd Monitoring Period:

Jun 01, 2012 — Sep 30, 2015: 5,590 GS VERs (issued)

Jun 01, 2012 — Sep 30, 2015: 15,917 GS VERs (issued)

Jun 01, 2012 — Sep 30, 2015: 7,232 GS VERs (issued)

Jun 01, 2012 — Sep 30, 2015: 17,430 GS VERs (issued)

The ongoing financial need derived from GS certification is necessary to reduce unattractiveness of the project and enhance the project's operation in the second crediting period. As stated above, the ongoing financial need derived from GS is still valid considering that the financial model validated in first crediting period projects 20 years of operation of the project. Hence, the model is still valid for the current crediting

period³⁹. This GS finance helps to maintain project activity contributing to the development of local communities in terms of income and employment creation, worker quality increase and emission reductions.

The ongoing financial need is justified for the project in line with GS4GG Principles and Requirements para 4.1.51 and as per Principles & Requirements document paragraph 4.1.52 showed the contribution of GS revenues

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)

13 Climate Action (mandatory)	13.2 Integrate climate change measures into national policies, strategies and planning	13.2.2 Total greenhouse gas emissions per year
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³⁹ Financial Model: [Financial Model\Cataloluk Financial Model 21_10_2011_44years.xlsx](#)

7 Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	7.2.1 Renewable energy share in the total final energy consumption
7 Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix: Balance of Payments	7.2.1 Renewable energy share in the total final energy consumption
7 Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix: Air Quality	7.2.1 Renewable energy share in the total final energy consumption
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	8.5.1 Average hourly earnings of female and male employees, by occupation, age, and persons with disabilities

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

SDG 7

The average annual clean energy generation is expected to be 31,990 MWh. Balance of payment is sustained by the replaced NG which corresponds to approximately consumption of 6,868,141 million m³ of natural gas and avoided corresponding consumption of 19,162,115 million TL annually

Air quality will be sustained by SO₂ emission reduction which is calculated as 256.06 tons per year and NO_x emission reduction as 81.25 tons per year

SDG 8

The project is expected to create job opportunity 7 people which are already employed for the operation.

SDG 13

The project leads to mitigation of 14,766 tCO₂ per annum.

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 (tCO₂)

BE_y = Baseline emissions in year y (tCO₂)

PE_y = Project Emissions in year y (tCO₂)

LE_y = Leakage emissions in year y (tCO₂)

Baseline emissions

Baseline emission is calculated according to the formula:

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

Where:

EG_{PJ, facility, y} = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (data is gathered from energy yield assessment report of the project which is 31,990 MWh)

Emission Factor

EF_{grid, y} = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of TOOL07: Tool to calculate the emission

factor for an electricity system (tCO₂/MWh) (Nationally accepted emission factor has been used⁴⁰.)

Considering this is the second crediting period and the project is a hydro project, combined margin is calculated as follows:

$$CM = (BM \times 0.75) + (OM \times 0.25)$$

As given by the Ministry of Energy and Natural Resources, built margin is 0.3680 and operating margin is 0.7424.

$$(0.3680 \times 0.75) + (0.7424 \times 0.25) = 0.4616 \text{ tCO}_2/\text{MWh}$$

$$BE_y = 31,990 \text{ MWh} \times 0.4616 \text{ tCO}_2\text{e}/\text{MWh} = 14,766 \text{ tCO}_2\text{e}$$

Project emissions

For hydro power project activities that result in new single or multiple reservoirs and hydro power project activities that result in the increase of single or multiple existing reservoirs, project emissions calculations involve CH₄ and CO₂ emissions from the reservoirs, (PE_{HP,y}) and estimated as follows:

If the power density (PD) of the project activities is greater than 10 W/m² ; Project Emissions PE_{HP,y} = 0

Power density is calculated as follows:

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}}$$

Where:

$$PD = \text{Power density of the project activity (W/m}^2\text{)}$$

⁴⁰

<https://enerji.gov.tr//Media/Dizin/EVCED/tr/%C3%87evreVe%C4%B0klm/%C4%B0klmDe%C4%9Fi%C5%9Fikli%C4%9Fi/TUESEmisyonFktr/Belgeler/Bform2020.pdf>

- Cap_{PJ} = Installed capacity of the hydro power plant after the implementation of the project activity (W)
- Cap_{BL} = Installed capacity of the hydro power plant before the implementation of the project activity (W). For new hydro power plants, this value is zero
- A_{PJ} = Area of the single or multiple reservoirs measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m²)
- A_{BL} = Area of the single or multiple reservoirs measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m²). For new reservoirs, this value is zero

Although about half of the reservoir area is already riverbed, A_{BL} has been assumed as zero. A_{PJ} had been estimated as 233,567.93⁴¹m² in the as per the reservoir map.

For project HEPP,

$$Cap_{PJ} = 9,540,000 \text{ W}$$

$$Cap_{BL} = 0.0 \text{ W}$$

$$A_{PJ} = 233,567.93(\text{m}^2)^{42}$$

$$A_{BL} = 0.0 (\text{m}^2)$$

Therefore, PD is calculated as;

$$PD = \frac{9540000 - 0}{233,567.93 - 0}$$

$$PD = 41 \text{ W/m}^2$$

$$PD = 41 \text{ W/m}^2$$

⁴¹ Reservoir Area: Google Earth Measurement

⁴² Reservoir Area: Google Earth Measurement

Since 41 W/m^2 is greater than 10 W/m^2 , project emissions are considered 0.

Leakage

According to ACM 0002 para 53, no other leakage emissions are considered. The emissions potentially arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport etc.) are neglected. Therefore, leakage is considered as "0".

B.6.2 Data and parameters fixed ex ante

SDG13

Data/parameter	EF _{grid, y}
Unit	tCO ₂ /MWh
Description	Combined margin CO ₂ emission factor for the project electricity system in year y
Source of data	Ministry of Energy and Natural Resources, OM & BM values
Value(s) applied	$CM = (BM \times 0.75) + (OM \times 0.25)$ As given by the Ministry of Energy and Natural Resources, built margin is 0.3680 and operating margin is 0.7424. $(0.3680 \times 0.75) + (0.7424 \times 0.25) = 0.4616 \text{ tCO}_2/\text{MWh}$
Choice of data or Measurement methods and procedures	The coefficients are taken as 0.75 and 0.25 for BM and OM, respectively according to the Tool 07, Tool to calculate the emission factor for an electricity system, ver 07.0
Purpose of data	To calculate baseline emission according to SDG 13

Additional comment

-

B.6.3 Ex ante estimation of SDG Impact

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

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 31,990 MWh of clean energy per annum according to the generation license. 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.

The average annual clean energy generation is expected to be 31,990 MWh. Balance of payment is sustained by the replaced NG which corresponds to approximately consumption of 6,868,141 million m³ of natural gas and avoided corresponding consumption of 19,162,114 million TL annually.

Air quality will be sustained by SO₂ emission reduction which is calculated as 256.06 tons per year and NO_x emission reduction as 81.25 tons per year

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 to create minimum 7 employment opportunities. It contributes to decent work and economic growth by providing long term job opportunities.

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

Emission factor for the baseline scenario which was calculated by the Republic of Turkey Ministry of Energy and Natural Resources has been used. Accordingly, the project leads to mitigation of 14,766 tCO₂ per annum.

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

SDG 13

Year	Baseline estimate (tCO ₂)	Project estimate (tCO ₂)	Net benefit (tCO ₂)
01/04/2017-01/01/2017 (275 Days)	11,125	0	11,125
2018	14,766	0	14,766
2019	14,766	0	14,766
2020	14,766	0	14,766
2021	14,766	0	14,766
2022	14,766	0	14,766
2023	14,766	0	14,766
01/01/2024-30/03/2024 (91 Days)	3,681	0	3,681
Total	103,402	0	103,402

Total number of crediting years	7 years		
Annual average over the crediting period	14,766	0	14,766

* The PO will not claim any GS VER for the date 01/04/2017-24/11/2022.

SDG 7

Year	Baseline estimate	Project estimate	Net benefit
01/04/2017-01/01/2017 (275 Days)	0	24,102	24,102
2018	0	31,990	31,990
2019	0	31,990	31,990
2020	0	31,990	31,990
2021	0	31,990	31,990
2022	0	31,990	31,990
2023	0	31,990	31,990
01/01/2024-30/03/2024 (91 Days)	0	7,976	7,976
Total	0	224,018	224,018
Total number of crediting years	7 years		
Annual average over the crediting period	0	31,990	31,990

Balance of Payments:

Year	Baseline estimate	Project estimate	Net benefit
01/04/2017-01/01/2017 (275 Days)	5,174,627 m3 NG 14,437,209 TL Saving	0	5,174,627 m3 NG 14,437,209 TL Saving
2018	6,868,141 m3 NG 19,162,115 TL Saving	0	6,868,141 m3 NG 19,162,114TL Saving
2019	6,868,141 m3 NG 19,162,114TL Saving	0	6,868,141 m3 NG 19,162,114TL Saving
2020	6,868,141 m3 NG 19,162,114TL Saving	0	6,868,141 m3 NG 19,162,114TL Saving
2021	6,868,141 m3 NG 19,162,114TL Saving	0	6,868,141 m3 NG 19,162,114TL Saving
2022	6,868,141 m3 NG 19,162,114TL Saving	0	6,868,141 m3 NG 19,162,114TL Saving
2023	6,868,141 m3 NG 19,162,114TL Saving	0	6,868,141 m3 NG 19,162,114TL Saving
01/01/2024-30/03/2024 (91 Days)	1,712,331 m3 NG 4,777,403 TL Saving	0	1,712,331 m3 NG 4,777,403 TL Saving
Total	48,095,803 m3 NG 134,187,296 TL Saving	0	48,095,803 m3 NG 134,187,296 TL Saving
Total number of crediting years	7 years		
Annual average over the crediting period	6,868,141 m3 NG 19,162,114TL Saving	0	6,868,141 m3 NG 19,162,114TL Saving

Air Quality:

Year	Baseline estimate	Project estimate	Net benefit
01/04/2017-01/01/2017 (275 Days)	SO2 ER: 192 tons NOx ER: 61 tons	0	SO2 ER: 192 tons NOx ER: 61 tons
2018	SO2 ER: 256 tons NOx ER: 81 tons	0	SO2 ER: 256 tons NOx ER: 81 tons
2019	SO2 ER: 256 tons NOx ER: 81 tons	0	SO2 ER: 256 tons NOx ER: 81 tons
2020	SO2 ER: 256 tons NOx ER: 81 tons.	0	SO2 ER: 256 tons NOx ER: 81 tons.
2021	SO2 ER: 256 tons NOx ER: 81 tons	0	SO2 ER: 256 tons NOx ER: 81 tons
2022	SO2 ER: 256 tons NOx ER: 81 tons	0	SO2 ER: 256 tons NOx ER: 81 tons
2023	SO2 ER: 256 tons NOx ER: 81 tons	0	SO2 ER: 256 tons NOx ER: 81 tons
01/01/2024-30/03/2024 (91 Days)	SO2 ER: 63 tons NOx ER: 20 tons	0	SO2 ER: 63 tons NOx ER: 20 tons
Total	SO2 ER: 1791 tons NOx ER: 569 tons	0	SO2 ER: 1791 tons NOx ER: 569 tons
Total number of crediting years	7 years		
	SO2 ER: 256 tons NOx ER: 81 tons	0	SO2 ER: 256 tons NOx ER: 81 tons

SDG 8

Year	Baseline estimate (number of people employed by the project)	Project estimate (number of people employed by the project)	Net benefit (number of people employed by the project)
2017 - 2024	0	At least 7 people	At least 1 people
Total	0	At least 7 people	At least 1 people
Total number of the crediting years	7 years		

B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

It should be noted that although second crediting period will be valid for seven years, as per Principles and Requirements, 5.1.46, when there is a delay in the completion of re-validation beyond the last date of current certification cycle, it will result in a reduction of any issuance of Certified Products. Hence, The PP will not claim any GS VER for the date 01/04/2017-24/11/2022 which is the date the first validation opinion is submitted by VVB.

SDG 7

Data / Parameter	$EG_{PJ, facility, y}$
Unit	MWh/y
Description	Quantity of net electricity generation supplied by the project plants/units to the grid in year y
Source of data	Electricity Meters

Value(s) applied	31,990 MWh/y														
Measurement methods and procedures	EPIAS records and meter reading records provides the exact electricity generation of the facility and the imports from the grid. The internal consumption of the facility was subtracted from the gross generation. EPIAS data are used for the quantity of net electricity delivered to the grid, and it has been cross checked with the meter reading records. <table border="1"> <tr> <td>Brand</td><td>ITRON</td></tr> <tr> <td>Model</td><td>SL761X</td></tr> <tr> <td>Standard/Class</td><td>0.5s</td></tr> <tr> <td>Serial Number</td><td>Main: 84051677-Spare: 84051678</td></tr> <tr> <td>First Index Protocol</td><td>07/11/2018</td></tr> <tr> <td>Calibration Frequency</td><td>10 years</td></tr> <tr> <td>Calibration Due:</td><td>07/11/2028</td></tr> </table> The meter info is as follows:	Brand	ITRON	Model	SL761X	Standard/Class	0.5s	Serial Number	Main: 84051677-Spare: 84051678	First Index Protocol	07/11/2018	Calibration Frequency	10 years	Calibration Due:	07/11/2028
Brand	ITRON														
Model	SL761X														
Standard/Class	0.5s														
Serial Number	Main: 84051677-Spare: 84051678														
First Index Protocol	07/11/2018														
Calibration Frequency	10 years														
Calibration Due:	07/11/2028														
Monitoring frequency	Continuous measurement / Monthly recording														
QA/QC procedures	Calibration of the meters are valid for 10 years based on related regulation. The meters should also 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. Two calibrated meters act as backup for each other. Maintenance and calibration of the metering devices will be made by AEDAŞ periodically. If the difference between the readings of two devices exceeds 0.5%, maintenance will be done before waiting for periodical														

	maintenance. AEDAŞ does not perform “test” for energy meters unless the PP requires to do so ⁴³ .The first index of the meters is in 25/02/2010. The meters are changed and the latest first index and calibration of the electricity meters are dated on 07/11/2018. The calibration due date will be 07/11/2028.
Purpose of data	ER calculations
Additional comment	7.2.1 Renewable energy share in the total final energy consumption

Data / Parameter	A _{PJ}
Unit	m ²
Description	Area of the single or multiple reservoirs measured in the surface of the water, after the implementation of the project activity, when the reservoir is full
Source of data	Project site
Value(s) applied	233,567.93 m ² ⁴⁴
Measurement methods and procedures	Calculation using topographical surveys or maps
Monitoring frequency	At each monitoring period
QA/QC procedures	-
Purpose of data	To calculate power density

⁴³ [Connection Agreement](#)

⁴⁴ [14. Reservoir Area\RESERVOIR AREA.JPG](#)

Additional comment	-
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Data / Parameter	CapPJ
Unit	W
Description	Installed capacity of the hydro power plant after the implementation of the project activity
Source of data	Generation license
Value(s) applied	9,540,000
Measurement methods and procedures	-
Monitoring frequency	Once at the beginning of each crediting period
QA/QC procedures	-
Purpose of data	To calculate power density
Additional comment	-

Data / Parameter	Air Quality
Unit	SO2 emissions by thermal power plants-NOx emissions by thermal power plants
Description	-
Source of data	-
Value(s) applied	SO2 emission reduction corresponding to 31.99 GWh generation is calculated as 256.06 tons per year. NOx emission reduction corresponding to 31.99 GWh generation is calculated as 81.25 tons per year (The 2020 values of emission factors and electricity

	generation of Turkey are used for SOx and NOx calculations) (Please See ER Calculation Sheet) ⁴⁵
Measurement methods and procedures	Electricity generated by Çataloluk HEPP and NOX and SO2 emission data from GHG inventory of Turkey will be used as reference in calculation of the emission reduction.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	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".
Additional comment	-

Data / Parameter	Balance of Payments
Unit	Currency saving due to avoided fuel import
Description	-
Source of data	-
Value(s) applied	Approximately consumption of 6,868,141 million m3 of natural gas is expected to be avoided corresponding to 19,162,114million TL annually ^{46,47}

⁴⁵ [References\turkey-s-irr-2021_tr_20211101034946.pdf](#)

⁴⁶ [References\38-Grafik III.I - 2020 Yılı Türkiye Elektrik Enerjisi Üretiminin Kaynaklara Göre Dağılımı.docx](#)

⁴⁷ [References\71-GRAFİK IV.III- TÜRKİYE TERMİK SANT. DOĞALGAZ TÜKETİLEN YAKIT MİK. \(2013-2020\).docx](#)

Measurement methods and procedures	Calculating NG and currency saving due to avoided NG import corresponding to electricity generation by project.
Monitoring frequency	Annually
QA/QC procedures	The monitoring parameter would be checked by calculating NG and currency saving due to avoided NG import corresponding to electricity generation by project. Validation team has Checked the monitoring parameter and found correct.
Purpose of data	To monitor the contribution to SDG 7 and to 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 Çataloluk HEPP and calculated combined margin (CM) emission factor will be used as reference in calculation of the emission reduction.
Value(s) applied	Estimated annual emission reduction is 14,766 tons of CO2e
Measurement methods and procedures	Data from metering devices will be recorded by AKEDAS monthly (through remote reading and submitted site records data by site employee). The emission reduction calculations are done by AKEDAŞ records. The records of EPIAS are used for cross-check of the AKEDAŞ values.
Monitoring frequency	Once every monitoring period

QA/QC procedures	Two calibrated meters act as backup for each other. Maintenance and calibration of the metering devices will be made by AEDAŞ periodically. If the difference between the readings of two devices exceeds 0.5%, maintenance will be done before waiting for periodical maintenance. AEDAŞ does not perform “test” for energy meters unless the PP requires to do so⁴⁸. It should be noted that although second crediting period will be valid for seven years, as per Principles and Requirements, 5.1.46, when there is a delay in the completion of re-validation beyond the last date of current certification cycle, it will result in a reduction of any issuance of Certified Products. Hence, The PP will not claim any GS VER for the date 01/04/2017-24/11/2022 which is the date the first validation opinion is submitted by VVB.
Purpose of data	To calculate the baseline emission value; and also to monitor the contribution to SDG 13 (Take urgent action to combat climate change and its impacts)
Additional comment	-

SDG 8

Data / Parameter	Quantitative employment and income generation
Unit	Number of locally recruited staff and their social security records

⁴⁸ [Connection Agreement](#)

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 minimum 7 job opportunities.
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. Working hours of the employee will also be checked in order to see whether they are appropriate as stated in GS4GG SG Principles (not exceeding 48 hours per week on a regular basis) ⁴⁹ . National laws and regulations ⁵⁰ are followed by the Project Owner. Overtime compensations, health insurance, annual leaves, contract termination rules are handled according to the laws and regulations mentioned. Both men and women are recruited by the Project Owner and no discrimination is done, as required by law ⁵¹ . Participation and inclusion of all employees will be ensured throughout the lifetime of the project activity. In case of employment, women will have the same opportunities and rights as men do, their employment will be done according to national laws and regulations on employment ⁵² therefore social security records can be

⁴⁹ <https://www.goldstandard.org/project-developers/standard-documents>

⁵⁰ Employment Law (22/07/2003) (no. 4857) <https://www.mevzuat.gov.tr/mevzuatmetin/1.5.4857.pdf>

⁵¹ Commission Of Equal Opportunities For Men And Women (25/02/2009) (no. 5840)

<https://www.mevzuat.gov.tr/MevzuatMetin/1.5.5840.pdf>

⁵² Employment Law (22/07/2003) (no. 4857) <https://www.mevzuat.gov.tr/mevzuatmetin/1.5.4857.pdf>

	checked. No child will be recruited for the project activity by the Project Owner, which will be checked from employment records as well. Employees are able to join labour organisations as there are not any restrictions enforced by the Project Owner. 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. Working hours of the employee will also be checked to see whether they are appropriate as stated in GS4GG SG Principles (not exceeding 48 hours per week on a regular basis) ⁵³
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	To monitor the contribution to SDG 8 and Safeguarding principle 1 & 2
Additional comment	-

Data / Parameter	Principle 6.1 Labour Rights - Quality of Employment
Unit	-
Description	Occupational injury , fair wage and working hours
Source of data	Training attendance list and/or certificates

⁵³ <https://www.goldstandard.org/project-developers/standard-documents>

Value(s) applied	All staff to be trained for health and safety issues
Measurement methods and procedures	All employees will attend trainings on health & safety. Training attendance list and/or certificates will be present for monitoring. Complaints will be monitored in order to sustain an environment where human rights are never violated and to ensure inclusion and participation of all employees. Trainings related to emergency response procedures will also be provided to the employees.
Monitoring frequency	Annually (Once at the end of each monitoring period)
QA/QC procedures	The training programmes help increase the efficiency of the workforce and provides employees skilled at their job. All employees will be trained and certified for the required positions. All employees will attend trainings on first aid and health & safety. Training Records (including H&S) & Other Certificates are required for certain professions. HSE records will be kept in case of any injury happened on-site. For positions that require specific skills (such as high voltage equipment) staff will either be trained, or certified staff will be recruited. HSE records will be kept annually and provided if there is any injury at the site. 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 Principle 3 & 6.1.
Additional comment	The project owner will address human rights violations through complaint procedures and involve all employees in activities. The project proponent will maintain

accident/incident records and HSE records for on-site injuries. They will define emergency response procedures and provide regular training to workers. Training records will be monitored to ensure compliance.

B.7.2 Sampling plan

N/A

B.7.3 Other elements of monitoring plan

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

Net electricity generation is measured and recorded via meters sealed by AEDAS for billing purposes. Therefore, no new additional protocol is needed for monitoring emission reduction. Power Plant Manager is 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 is responsible for calculating the emission reduction subject to verification. Generation data is used to prepare monitoring reports which will be used to determine the vintage from the project activity. These reports are submitted to the duly authorized and appointed Designated Operational Entity 'VVB' 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 Karbon Sürdürülebilir Enerji Eğitim Danışmanlık ve Ticaret A.Ş: Responsible for emission reduction calculations, preparing monitoring report and periodical verification process.

AEDAS: It is the private distribution company which the project has system usage and connection agreement. The company is also responsible for the meter tests, etc.

Installation of meter and data monitoring are carried out according to the regulations by AEDAŞ. Two metering devices (one of them used as spare) are used for monitoring the electricity generated by the power plant. Readings are done using main metering devices and spare metering device will be used for comparison only. Data from metering devices will be recorded by AEDAS monthly (through remote reading and submitted site records data by site employee). The emission reduction calculations are done by AEDAŞ records. The records of EPIAS are used for cross-check of the AEDAŞ values.

First index protocol of the meters below is done on 07/11/2018. Meter info is given below:

Table 4. Meter Info

Brand	ITRON
Model	SL761X
Standard/Class	0.5s
Serial Number	Main: 84051677-Back-up: 84051678
First Index Protocol	07/11/2018
Calibration Frequency	10 years
Calibration Due:	07/11/2028

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.

SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1 Start date of project

>> Starting date of the project activity has been identified as 10/07/2009, date of share transfer of the project.

C.1.2 Expected operational lifetime of project

>> The expected operational lifetime of the project is about 46 years as per the license issued. After this period, project will be delivered to government authority at no cost.

C.2. Crediting period of project

C.2.1 Start date of crediting period

>> The second crediting period will start in 01/04/2017.

C.2.2 Total length of crediting period

>> Second crediting period will be valid for seven years. However, as per Principles and Requirements, 5.1.46, Delay in the completion of re-validation beyond the last date of current certification cycle shall result in a reduction of any issuance of Certified Products and/or Impact Statements available during following certification cycle (for example, a delay of 1 year beyond the first cycle shall mean that no Certified Impact Statements shall be issued for the period of delay). Hence, The PP will not claim any GS VER for the date 01/04/2017-24/11/2022.

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 9.4: Release of Pollutants Water Quality and Quantity	Wastewater will be collected in a septic tank and then transported to a treatment plant where it will be treated to meet standards in accordance with guidelines and national regulations. Waste collection methods during site visits will be assessed and waste disposal records and truck invoices will be maintained for each MP. Verification of these parameters will be carried out once in every monitoring period.
Principle 8.1: Impact on Natural Water Patterns/Flows	Release of minimum flow to protect aquatic life.
Principle 9.10 High Conservation Value Areas and Critical Habitats (Minimum flow of water)	The considered minimal water flow should be assessed for all aspects materially related to the minimal water flow, e.g. natural habitat (riverine and floodplain ecosystems), vertical dysconnectivity (underground water recharging). The verification VVB shall audit the installed stations and assess the correctness of the flow rate measurements as part of the verification report.
Principle 9.5: Hazardous and Non-Hazardous Waste Other Pollutants (waste oil)	Waste oil will be managed properly. Disposal methods will be assessed during site visits and waste oil disposal records will be checked. Waste oil from equipment will be collected properly in line with the relevant regulation and disposed via accredited abatement companies.

Waste oil will be disposed in line with regulation # 26952 on control of waste oils. Verification of these parameters will be carried out once in every monitoring period.

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 ⁵⁴ 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 in order to enhance participation of women to the society ⁵⁵ . In this

⁵⁴ https://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---ilo-ankara/documents/genericdocument/wcms_645630.pdf

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

	action plan regarding the years 2018 – 2023, economy and employment-oriented strategies are represented for women since the labor force activity of women is not at desired level compared to the EU countries. According to 2017 statistics tabulated in the report, labor force activity of women is declared as 33.6%⁵⁶ and it is aimed that this percentage will be 41% in 2023 ⁵⁷ Accordingly, the project shows parallelism with the national strategies developed for women.
Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	Turkey has ratified ILO convention 100 and 111⁵⁸ 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. Therefore, an Expert is not required for the Gender Safeguarding Principles & Requirements.
Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	An Expert is not required to assist with Gender issues at the Stakeholder Consultation. All stakeholders were invited to the Local Stakeholder Meeting without gender discrimination. Both women and men were invited and participated during Stakeholder Consultation.

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

⁵⁷

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

⁵⁸ https://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---ilo-ankara/documents/genericdocument/wcms_645630.pdf

SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

LSC and Stakeholder Feedback Round for Cataloluk Hydroelectric Power Plant (HEPP) Project was held on the 03/08/2010 in Cataloluk District of Kahramanmaraş Province. The agenda of the meeting was defined considering the GS requirements. A grievance notebook was placed at a secure and easily accessible place, such as the mukhtar's office, in Yenimahalle Neighbourhood, where stakeholders could fill in whenever there was a complaint or request which would be regularly checked by the project manager.

E.1 Summary of stakeholder mitigation measures

>> There is no stakeholder grievance/complaint from the local stakeholders in the beginning of the second crediting period. The comments received during the first crediting period which were all about the construction phase were taken into account and responded accordingly during both project operation and verification periods. Comments received during the first crediting period, PO response and measures are added in the table below. The issues were handled during the first crediting period.

A logbook was placed in Mukhtar's office in Şahinkayaş Neighborhood and villagers were informed about it. Later on, there were no additional comments received through logbook kept in the village and verbal communications.

Both mukhtars in Şahinkayaş Neighborhood and Çataloluk Village are responsible to receive and collect the grievances from the local stakeholders. The mukhtar's regularly comes together with the Plant manager or operator and conveys the grievances. Project proponent acts on the grievances and informs the stakeholder about the process. A grievance box and a logbook serves the same purpose. The box is placed in the village while the adjacent neighborhood has the logbook. In both mechanism, the grievances are regularly checked by the mukhtar and consultation mechanism is being kept alive

TEMPLATE

Received complaints in	PO's response	Measurement
The switchyard area needs better arrangement. There is also a part which we cannot use anymore due to accumulated rocks and soil. We would like this area to be cleaned.	The switchyard area is under the responsibility of the state, legally, we cannot intervene there. This area is planned to become a hub and there will be additional connections from other energy projects in the neighbourhood. Thus, the area will go under change in the next months.	After construction phase, the switchyard was cleaned.
During the construction of the project, the village road was damaged. The current soil road is giving a lot of dust. Will you asphalt it again?	We have agreed with the company which is expanding the main inter-city road now to asphalt the road again.	Roads were re-constructed for public use.
During the construction, one of the canals in the downstream to water our trees was blocked. Will you open it again? (This complaint was vaguely written in the feedback form. We identified it and clarified it with the parties.)	The canal was blocked at the construction before us. We can easily reopen it again. This week, a dipper dredger will come, and we can use it.	The canal was re-opened, and the problems related to canal were solved.

TEMPLATE

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)	Grievance box is placed in Mukhtar's office in Cataloluk Village and A logbook was placed in Mukhtar's office in Şahinkayası Neighborhood for continuous local stakeholder consultation mechanism.
GS Contact (mandatory)	help@goldstandard.org
Other	Hakan Yuksel (Site Manager) +90 507 768 82 15

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	1.Yes 2.Yes	1.Turkey has ratified European Convention on Human Right on 10/03/1954 ⁵⁹ . Therefore, the project is not expected to violate the rules regarding human rights.	1. Project Owner respects and follows human rights and will never be complicit in violence or human rights abuses. If any complaint is received by the Project Owner, they will

⁵⁹ https://www.echr.coe.int/Documents/CP_Turkey_ENG.pdf

kind as defined in the Universal Declaration of Human Rights 2. The Project shall not discriminate with regards to participation and inclusion		2. Participation and inclusion of all employees will be ensured by PO.	act on the issue right away throughout the lifetime of project activity. 2. Participation and inclusion of all employees will be ensured by PO, thought the lifetime of the project activity.
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 nondiscrimination, equal	1.Yes 2.Yes 3.Yes 4.Yes	1. Project will not discriminate employment for women and men and will provide the same opportunities and rights to both gender. 2. Project will pay equal treatment, and proper pay to women also as per national wages act.	1. Project Owner prioritizes inclusion and participation of both men and women. In case of employment, women will have the same opportunities and rights as men do, their employment will be done according to national laws and

treatment, and equal pay for equal work 3. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks 4. (where required) Summary of opinions and recommendations of an Expert Stakeholder(s)		3. Project shall follow to the country's national gender strategy and ILO convention 100, 111, 122 and 142 which Turkey has ratified. 4. Expert Stakeholder opinion is not required	regulations on employment⁶⁰ and equal opportunities for men and women⁶¹. 2.The working conditions as well as the wages of women will be the same as men and will be according to national laws and regulations, as described. Project will pay equal treatment, and proper pay to women also as per national wages act.
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⁶⁰ Employment Law (22/07/2003) (no. 4857) <https://www.mevzuat.gov.tr/mevzuatmetin/1.5.4857.pdf>

⁶¹ Commission Of Equal Opportunities For Men And Women (25/02/2009) (no. 5840) <https://www.mevzuat.gov.tr/MevzuatMetin/1.5.5840.pdf>

			3. Country's national gender strategy or equivalent national commitment to aid in assessing gender risks will be considered. Project shall follow to the country's national gender strategy and ILO convention 100, 111, 122 and 142. It also shows parallelity with national strategies prepared for women employment by creating opportunities for all. 4.Expert Stakeholder opinion is not required.
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	Yes	Turkey has ratified ILO convention 155 and about work safety and precautions ⁶² No dust or noise pollution is expected during operation period since the project is a hydroelectricity power plant. However, for safety and risk elimination in the operation, the plant staff will be trained.	Staff receive relevant trainings. They also were trained during construction operation phases. Trainings given to the staff can be exemplified 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,	No	No sites, structures, or objects with historical, cultural, artistic, traditional or religious	No mitigation is required for this indicator.

⁶² https://www.ilo.org/global/standards/subjects-covered-by-international-labour-standards/occupational-safety-and-health/WCMS_356966/lang--en/index.htm

traditional or religious values or intangible forms of culture?		values or intangible forms of culture were observed in the project area.	
Principle 4.2 Forced Eviction and Displacement			
Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	No relocation needed for the project implementation.	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	No	Project area was not expropriated.	No mitigation is required for this indicator.

uncertainties with regards to land tenure, access rights, usage rights or land ownership?			
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	There is no indigenous people affected by the project implementation.	No mitigation measure 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	The project does not engage in, contribute to or reinforce corruption of any kind.	Turkey has ratified several conventions on bribery and corruption including OECD and UN conventions
Principle 6.1 Labour Rights			

1. The Project Developer shall ensure that all employment is in compliance with 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	1.Yes 2.Yes 3.Yes 4.No 5.Yes	1.Project owner ensures that all employment and HSE activities will be done according to the Law of Health And Safety.⁶³ 2. Workers/employees can join labour organisations. 3.All employee will be recruited according to the national legislations and with Working agreements with workers/employees . 4.No Child labour will be recruited⁶⁴.	1.Social security records will be checked for employment as per law. 2.Workers/employees can join labour organisations, as there are no restrictions from the Project Owner and as per Project Owner's internal procedures. 3.Working agreements with workers/employees specifying working hours, job responsibilities, details of
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⁶³ <https://www.mevzuat.gov.tr/MevzuatMetin/1.5.6331.pdf>

⁶⁴ <http://www.ilo.org/public/turkish/region/eurpro/ankara/about/sozlesmeler.htm>

workers shall be documented and implemented and include: 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		5. Employees will be trained for emergency response and other trainings.	overtime compensations, health insurance details, leave aspects, termination of contract rules. 4.Social security records can be checked for employment of any child labour in site. 5. Staff will be trained during construction and operation phases, such as general HSE, risk, first aid,etc. Accident/incident records, emergency response procures, and trainings given related to it, that are provided to workers/employees.
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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 <u>Expert Stakeholder</u> opinion) 5. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and			
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emergency preparedness and response measures			
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	As a renewable energy power plant, the project contributes to "Emissions Reductions or Removals and/or Adaptation to Climate Change" by reducing CO2 emissions caused by fossil fuel-fired power plants that are	No mitigation measure is required for this indicator.

		displaced due to the project activity, in line with GS4GG principles with the mitigation of an expected amount of 14,766 tonnes of CO2e.	
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 (such as wood, biomass) that provides for other local users?	No	Project does not use any local fuel resource. It is connected to the national grid and supply 31,990 MWh additional energy to the grid. Internal consumption which indicates the usage in the project site will be read from monthly records taken from the meters.	No mitigation measure is required for this indicator.
Principle 8.1 Impact on Natural Water Patterns/Flows			

Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	Since the Project is run-of-river reservoir type without a storage capacity, quality and the quantity of water is not affected by the project activity compared to the baseline scenario.⁶⁵ Project use excess water from the channel and releasing flow from the channel is within the responsibility of the project owner signed a water usage agreement with DSI.⁶⁶	Release of minimum flow to protect aquatic life. The considered minimal water flow will be assessed by an independent expert with relevant background and experience and the expert opinion will be provided to the VVB in view of the verification process. The statement by the expert will refer to relevant analysis methods including fieldwork and observations and based on credible
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⁶⁵ Project Feasibility Report, page-11

⁶⁶ Project Feasibility Report, page-11

			information on the relevant parameters (seasonal variations of water river regime, etc.). It will account for all aspects materially related to the minimal water flow, e.g. natural habitat (riverine and floodplain ecosystems), vertical disconnectivity (underground water recharging), and shall also discuss the adequacy of the location of the gauging stations. The minimal water flow shall be included in the Monitoring Plan with an expert opinion based on fieldwork and observations to be provided as part of the first monitoring report on time for the first
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			verification. In case it proves not to be sufficient, recommendations on available alternatives and compensation measures shall be discussed in the statement provided by the expert. The verification VVB shall audit the installed stations and assess the correctness of the flow rate measurements as part of the verification report.
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?	Potentially	The Project does not have any serious effects on erosion or water body instability since land use is limited. There is only a possibility of erosion in the excavated and slopy	In order to prevent erosion, existing roads used as much as possible. The project avoids constructing new roads for access. Secondly, all staff is informed via trainings, posters

b. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?		areas.⁶⁷ However, there are pre and post measures taken in order to prevent soil loss.	and other elements to determine the borders of limited working area and not to cause any disturbance out of this land. Thirdly, topsoil will be properly managed and re-used for afforestation. Other preventive measures will be: 1. Material cumulants will be left in order to prevent bottom scouring. 2. Surface of the soil will be covered with erosion blankets, if needed. 3. Local and adaptive trees will be used in afforestation.
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⁶⁷ Ecosystem Assessment Report, page 25

			4. Continuous monitoring⁶⁸ Since possible erosion in specific zones on the river bed may cause water turbidity in surrounded water sources, there are several measures taken in order to prevent sedimented water entrance. These measures are sediment preventer, silt fences and hay bales. In addition, temporary structures such as cofferdams will be constructed in order to minimize turbidity.⁶⁹
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⁶⁸ Ecosystem Assessment Report, page 25, 28,32

⁶⁹ Ecosystem Assessment Method, page 37

Principle 9.1 Landscape Modification and Soil			
Does the Project involve the use of land and soil for production of crops or other products?	No	Not relevant. The project area consists of pasture land and forests. However, construction will be done on only the area of turbines and the roads. ⁷⁰	No mitigation measure is required for this indicator.
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	The project is classified under 4th group (out of 5) according to earthquake zone classification ⁷¹ .	All the design and construction works were performed in accordance with relevant regulation. Regulation for the Structures to be Built in Disaster Areas). Circulars:

⁷⁰ 1-Mutluer Proje Tanitim Dosyası - PTD, page 49

⁷¹ Deprem Bölge Haritası

			-Dated 17/08/1987 #1634 ⁷² - Dated 31/05/1989 #4343 ⁷³
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			

⁷² https://www.jmo.org.tr/mevzuat/mevzuat_detay.php?kod=53

⁷³ https://www.jmo.org.tr/mevzuat/mevzuat_detay.php?kod=53

Could the Project potentially result in the release of pollutants to the environment?	Yes	Project will not create any noise or solid & liquid pollutants considering this indicator (except domestic wastes which will be collected appropriately). Some dust may appear during construction.	Wastewater will be collected in a septic tank and then transported to a treatment plant where it will be treated to meet standards in accordance with guidelines and national regulations. Waste collection methods during site visits will be assessed and waste disposal records will be checked. Verification of these parameters will be carried out once in every monitoring period.
Principle 9.5 Hazardous and Non-hazardous Waste			
Will the Project involve the manufacture, trade, release, and/ or use of hazardous and	Yes	Hazardous wastes are expected such as waste oils in the operation period.	Waste oil will be managed properly. Disposal methods will be assessed during site visits and waste oil disposal

non-hazardous chemicals and/or materials?			records will be checked. Waste oil from equipment will be collected properly in line with the relevant regulation and disposed via accredited abatement companies. Waste oil will be disposed in line with regulation # 26952 on control of waste oils. Verification of these parameters will be carried out once in every monitoring period. Handling, storage and disposal of these wastes will be done
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			according to the Turkish regulations. ⁷⁴
Principle 9.6 Pesticides & Fertilisers			
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	Project does not involve any harvesting activity.	No mitigation measure is required for this indicator.
Principle 9.8 Food			
Does the Project modify the quantity or nutritional quality of food available such as through	No	The project is not relevant since it is a renewable energy project.	No mitigation is needed for this indicator

⁷⁴ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=34051&MevzuatTur=7&MevzuatTertip=5>

crop regime alteration or export or economic incentives?			
Principle 9.9 Animal husbandry			
Will the Project involve animal husbandry?	No	The project is not relevant since it is a renewable energy project.	No mitigation is needed 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) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	The project may affect fish habitats, hence the project owner is obliged to build a functional fish passage	Fish passage has been designed by experienced engineering company considering river characteristics and reviewed by Province Directorate of Agriculture's experts. The functionality of the fish passage will also be monitored by the experts after

			commissioning of the plant as seen in letter in Annex 6 The effectiveness of the fish passage design shall be assessed by an independent expert with relevant background and experience and the expert opinion provided to the VVB in view of the verification process. The opinion provided will be supported by references to literature and data relevant to the local conditions. The effectiveness of the fish passage shall be included in the Monitoring Plan with an expert opinion based on fieldwork and observations to be provided as part of the first
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			monitoring report on time for the first verification. In case the design proves not to be effective enough, recommendations on available alternatives and compensation measures shall be discussed in the statement provided by the expert. The fish passage and expert opinion was verified during first CP. Hence no need to monitor in this CP.
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)?	No	There is no endangered species in the project area.	No mitigation is needed for this indicator.

b. Does the Project potentially impact other areas where endangered species may be present through transboundary affects?			
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APPENDIX 2- CONTACT INFORMATION OF PROJECT PARTICIPANTS

Organization name	Elestaş Elektrik Üretim A.Ş
Registration number with relevant authority	-
Street/P.O. Box	Halkalı Merkez Mah. Dereboyu Cad. No.68 Küçükçekmece
Building	-
City	Istanbul
State/Region	-
Postcode	-
Country	Turkey
Telephone	0212 697 67 75
E-mail	info@elestas.com.tr
Website	http://elestas.com.tr/
Contact person	
Title	-
Salutation	Ms.
Last name	UYGUÇ
Middle name	-
First name	Hilal
Department	-
Mobile	-
Direct tel.	-
Personal e-mail	hilal@elestas.com.tr

Organization name	GTE Karbon Sürdürülebilir Enerji Eğitim Danışmanlık ve Ticaret A.Ş.
Registration number with relevant authority	-
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City	Ankara
State/Region	N/A
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Country	Turkey
Telephone	+90 312 514 63 63
E-mail	-
Website	http://www.gte.com.tr/
Contact person	
Title	Director
Salutation	Mr.
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Middle name	Kemal
First name	Mehmet
Department	Management
Mobile	-
Direct tel.	-
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

APPENDIX 5-BASELINE EMISSION FACTOR INFORMATION

 T.C. ENERJİ VE TABİİ KAYNAKLAR BAKANLIĞI	TÜRKİYE ULUSAL ELEKTRİK ŞEBEKESİ EMİSYON FAKTÖRÜ BİLGİ FORMU	Doküman No	ETKB-EVÇED-FRM-039 Rev.02
		Revizyon / Yayın Tarihi	02.09.2022

Hesaplama Dönemi	Hesaplama Yayın Tarihi	Hesaplama Revizyon No
2020	20.09.2022	00

Amaç:

Yıllık olarak hesaplanan Türkiye ulusal elektrik şebekesi emisyon faktörünün bilgilendirilmesi.

Kapsam:

Bu bilgi formunda Faaliyet Temelli Marj (Operating Margin-OM), Gelişim Temelli Marj (Build Margin-BM) ve Birleşik Marj (Combined Margin-CM) Emisyon Faktörlerinin ilgili yıl için hesaplanan değerleri yer almaktadır.

Hesaplama Metodolojisi:

Hükümetler arası İklim Değişikliği Paneli (IPCC)'nin Temiz Kalkınma Mekanizması Tool 07-V07.0 yöntemi kullanılmıştır.

Veri Seti:

- TEİAŞ Türkiye elektrik üretim-tüketim ve kayıpları istatistikleri,
- Türkiye'nin Ulusal Sera Gazı Envanter Raporu kapsamında hazırlanan Ortak Raporlama Formatı- Common Reporting Format (CRF) tablolarında yer alan elektrik üretimi (1.A.1.a.i) emisyon değerleri,
- TEİAŞ Yük Tevzi Daire Başkanlığı'ndan elektrik üretim santrallerinin kronolojik sıra ile devreye alınma tarihleri, santral isimleri, yakıt tipleri, kurulu güç değerleri, hesaplanan yıl için elektrik üretim miktarları,
- Gold Standard (GS), Verified Carbon Standard (VCS) ve Global Carbon Council (GCC) web adreslerinden gönüllü karbon azaltım sertifikası sahiplik durumu ve
- Temiz Kalkınma Mekanizması-Clean Development Mechanism (CDM) Tool 09-V03.0'den santral verim rakamları kullanılmıştır.

Elektrik Şebekesi Emisyon Faktörü:

Faktör Türü	Yılı	Değeri (tCO ₂ /MWh)
Faaliyet temelli marj emisyon faktörü	2020	0,7424
Gelişim temelli marj emisyon faktörü	2020	0,3680

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