

TEMPLATE

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

RELATED SUPPORT – **TEMPLATE GUIDE Monitoring Report v. 1.1**

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KEY PROJECT INFORMATION

Key Project Information

GS ID (s) of Project (s)	GS 1237
Title of the project (s) covered by monitoring report	Sadilli Wind Farm Project, Turkey
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	1.5
Version number of the monitoring report	06
Completion date of the monitoring report	15/12/2022
Date of project design certification	11/09/2013
Date of Last Annual Report	-
Monitoring period number	4 th
Duration of this monitoring period	01/10/2019 to 26/10/2021 (both days are included, 1 st Crediting period, 4 th Monitoring period)
Project Representative	Çanres Elektrik Üretim A.Ş.
Host Country	Turkey
Activity Requirements applied	☐ Community Services Activities ☒ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	ACM0002 Version 13
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
SDG 13 Climate Action	Emissions Reductions	Emission Reduction: 157,892 tCO ₂ NO _x : 394.55 tons SO ₂ : 516.42 tons	VERs
SDG 6 Clean water	Wastewater discharge transfer records are to be provided.	Wastewater discharge transfer records are to be provided. The Project generated 1,589.7 m ³ domestic wastewater. Avoidance around 5,200.8x1000 m ³ cooling wastewater discharge.	Invoices
SDG 8 Decent work and economic growth	The project provides employment. Health&Safety Trainings to be held.	14 employees work at the WPP. There are 9 local employees. All employees at the plant are provided Health&Safety Trainings at least once in two years.	Health&Safety Trainings and SGK records
SDG 7 Affordable and clean energy	MWh of renewable energy generated	127,096 MWh/annually renewable energy. 2,561,393.7 USD natural gas import was avoided by generation of project activity.	MWh/y USD

Table 2 – Product Vintages

		Amount Achieved		
Start Dates	End Dates	VERs	...	...
01/10/2019	31/12/2019	18,647		
01/01/2020	31/12/2020	80,634		
01/01/2021	26/10/2021	58,611		

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

Çanres Elektrik Üretim A.Ş. (hereafter referred to as "Çanres Elektrik"), operated 14 units of Sadilli Wind Farm Project, Turkey (hereafter referred to as "Sadilli WPP") with total installed capacity of 38.5 MWm/33 MWe. The Project consists of the installation of 14 wind turbines that have an installed capacity of 2.75 MW each; totaling 38.5 MWm. Type of the turbines is GE 2.75-100. Project located in Çanakkale and Tekirdağ provinces, in Turkey. Energy Market Regulatory Authority (EMRA) issued the license of the project in February 2012.

The generation license has a limit of 33 MWe, meaning that the total electrical power supply of the Project is limited to 33 MWe. The Project is expected to generate 112,000 MWh per year. The turbines, each equipped with 3 blades, have a hub height of 85 m and a rotor diameter of 100 m. The Project has been connected to the Keşan transformer station via a 154 kV high voltage transmission line.

The mobilisation for construction of the Project had started on 03/09/2012 and the provisional acceptance date of the first three turbines was 26/10/2014. Furthermore, electricity production starts at midnight of that date at 12 am so, operation start date of the first three turbines was 27/10/2014, and it can be considered as the actual start date of the project.

The purpose of the project is to generate electricity and to feed it into the public grid. The Sadilli WPP project shall be registered as a Voluntary Emission Reduction project in order to enable the project implementation by means of financial inflows coming from the credits sale. Because of its significant contribution to climate protection and to sustainable development in the region, this project is expected to fulfil the requirements of the Gold Standard.

The project helped Turkey to stimulate and commercialize the use of grid connected renewable energy technologies and markets. Furthermore, the project demonstrated the viability of grid connected wind farms which can support improved energy security, improved air quality, alternative sustainable energy futures, improved local livelihoods and sustainable renewable energy industry development. The specific goals of the project are to:

- reduce greenhouse gas emissions in Turkey compared to the business-as-usual scenario;
- help to stimulate the growth of the wind power industry in Turkey;
- create local employment during the construction and the operation phase of the wind farm;
- reduce other pollutants resulting from power generation industry in Turkey, compared to a business-as-usual scenario;
- help to reduce Turkey's increasing energy deficit;
- And differentiate the electricity generation mix and reduce import dependency.

As the project developer, Çanres Elektrik believes that efficient utilization of all kinds of natural resources with a harmony coupled with responsible environmental considerations is vital for sustainable development of Turkey and the World. This has been a guiding factor for the shareholders towards the concept of designation and installation of a wind power project. Other than the objective of climate change mitigation through significant reduction in greenhouse gas (GHG) emissions, the project has been carried out to provide social and economic contribution to the region in a sustainable way. The benefits that are gained by the realization of the project compared to the business-as-usual scenario can be summarized under four main indicators which are environmental, economic, social and technological.

The project activities have replaced the grid electricity, which is constituted of different fuel sources causing greenhouse gas emissions. By replacing in the consumption of these fuels, it contributes to conservation of water, soil, flora and faunas and transfers these natural resources and the additional supply of these primary energy sources to the future generations as well. In the absence of the project activity, an equivalent amount of electricity would have been generated from the power plants connected to the grid, majority of which are based on fossil fuels. Thus, the project is replacing the greenhouse gas emissions (CO₂, CH₄) and other pollutants (SO_x, NO_x, particulate matters) occurring from extraction, processing, transportation and burning of fossil-fuels for power generation connected to the national grid.

This project has helped accelerating the growth of the wind power industry and stimulate the designation and production of renewable energy technologies in Turkey. Then, other entrepreneurs irrespective of sector have been encouraged to invest in wind power generations. It has also assisted reducing Turkey's increasing energy deficit and diversify the electricity generation mix while reducing import dependency, especially natural gas. Importantly, rural development have been maintained in the areas around the project site by providing infrastructural investments to these remote villages.

The employment of local people that have necessary technical qualifications for the required post has been the priority and enhanced by all project activities during construction and operation of wind farm. As a result, local poverty and unemployment have been partially eliminated by increased job opportunities and project business activities. Construction materials for the foundations, cables and other auxiliary equipment were preferentially be sourced locally. Moreover, as contribution of the project to welfare of the region, the quality of the electricity consumed in the region has been increased by local electricity production, which also contributes decreasing of distribution losses.

Implementation of the proposed project has made significant contributions to wider deployment of wind power technology in local and national level. It has demonstrated the viability of larger grid connected wind farms, which supports improved energy security, alternative sustainable energy, and renewable energy industry development as well. This also strengthened pillars of Turkish electricity supply based on ecologically sound technology.

During the monitoring period total electricity generation is 263,594.63 MWh and achieved total emission reduction is 157,892 tCO₂.

A.2. Location of project

The Project located near Süleymaniye, Bayramiç, Elmalı villages of Sadilli district in Tekirdağ, Turkey. The coordinates of the turbines are given below. Project license is for 14 turbines with the 2.75 MW output. The coordinates of the turbines are given in Table 3.

Table 3. Geographical Coordinates of the Turbines of Sadilli WWP¹

Turbine Number	Y	X
T1	40° 45' 04"	26° 53' 13"
T2	40° 44' 54"	26° 53' 27"
T3	40° 44' 59"	26° 53' 47"
T4	40° 45' 5"	26° 53' 56"
T5	40° 45' 10"	26° 54' 14"
T6	40° 45' 18"	26° 54' 27"
T7	40° 45' 11"	26° 54' 38"
T8	40° 45' 9"	26° 54' 51"
T9	40° 45' 15 "	26° 55' 5"
T10	40° 45' 19 "	26° 55' 20"
T11	40° 45' 26"	26° 55' 25"
T12	40° 45' 13"	26° 55' 26"
T13	40° 45' 7"	26° 55' 36"
T14	40° 45' 1"	26° 55' 46"

¹ Coordinates given in the generation licence of the project (which are in Standard UTM Coordinates at 35th Zone) are converted to Degress, Minutes and Seconds using this link: <http://www.rcn.montana.edu/Resources/Converter.aspx>

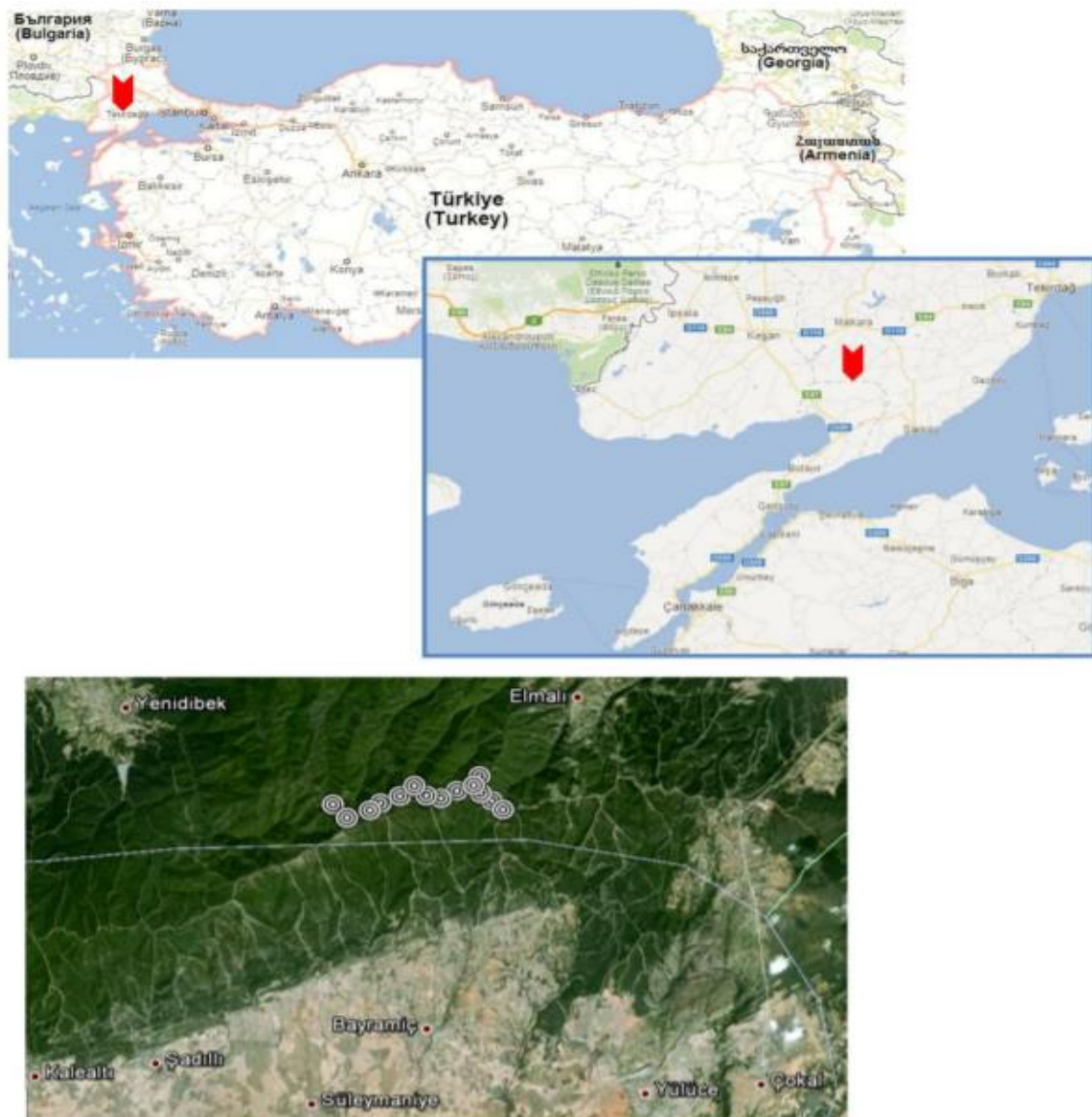


Figure 1. Project Location on Turkey Map

A.3. Reference of applied methodology

The following CDM tools and methodologies are used;

- ACM0002 "Consolidated methodology for grid-connected electricity generation from renewable sources v.13.0.0.
- "Tool to calculate the emission factor for an electricity system", v.02.2.1.
- The CDM methodological additionality tool, "Tool for the demonstration and assessment of additionality", v.06.1.0.

A.4. Crediting period of project

27/10/2014-26/10/2021 both dates are included. (Crediting period of the project is 7 years which is twice renewable.)

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

Table 4. Milestones of the Sadilli WPP

Date	Milestone
01/11/2007	EMRA is applied for the license
15/02/2012	License is issued by EMRA
15/11/2011	Proposals for carbon development are collected (prior consideration)
29/12/2011	Confirmation for going ahead with carbon development services
26/01/2012	EIA exemption permit acquired.
28/02/2012	Equipment order is signed.
06/08/2012	Agreement with the construction company is signed.
03/09/2012	Mobilisation on site is initiated (road construction etc.).
19/12/2012	Loan agreement is signed.
26/12/2012	Final license amendment application is made to EMRA.
01/05/2013	Estimated operational start date (partial).
12/12/2013	EIA exemption permit is amended according to the turbine coordinate change.
27/10/2014	3 turbines with 8.25 MWe capacity are started to operate (start date of the first monitoring period)
14/11/2014	5 turbines with 13.75 MWe capacity are started to operate.
06/12/2014	6 turbines with 16.5 MWe capacity are started to operate.
31/03/2016	End date of the first monitoring period.
01/04/2016	Starting date of the second monitoring period
30/09/2017	End date of the second monitoring period
01/10/2017	Starting date of the third monitoring period
30/09/2019	End date of the third monitoring period
01/10/2019	Starting date of the fourth monitoring period
26/10/2021	End date of the fourth monitoring period

Technology to be employed

The Project activity involves the generation of renewable energy from wind, thereby displacing grid electricity that is partly generated from fossil fuel fired power plants. The wind-driven blades are connected to an electricity generator, which produces electrical energy and supplies it to the grid without storage.

GE Energy, a wind turbine manufacturer, has been selected as equipment provider. The Project includes 14 turbines:

Table 5. Equipment Information

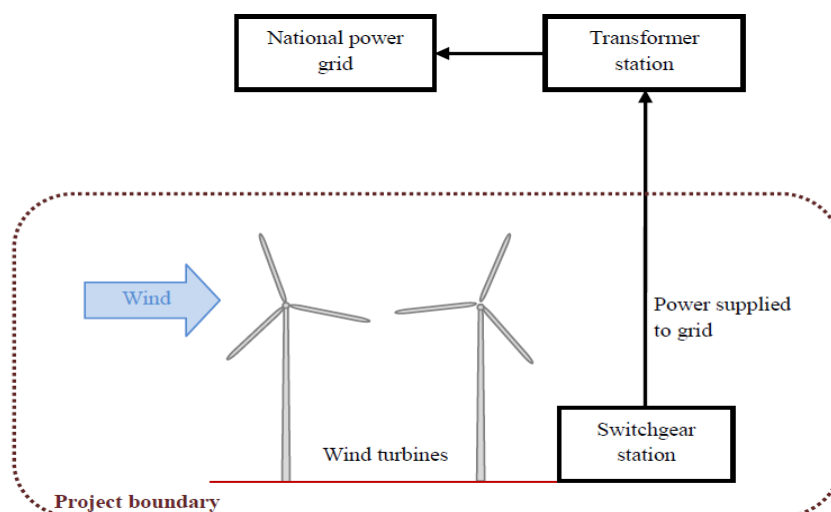
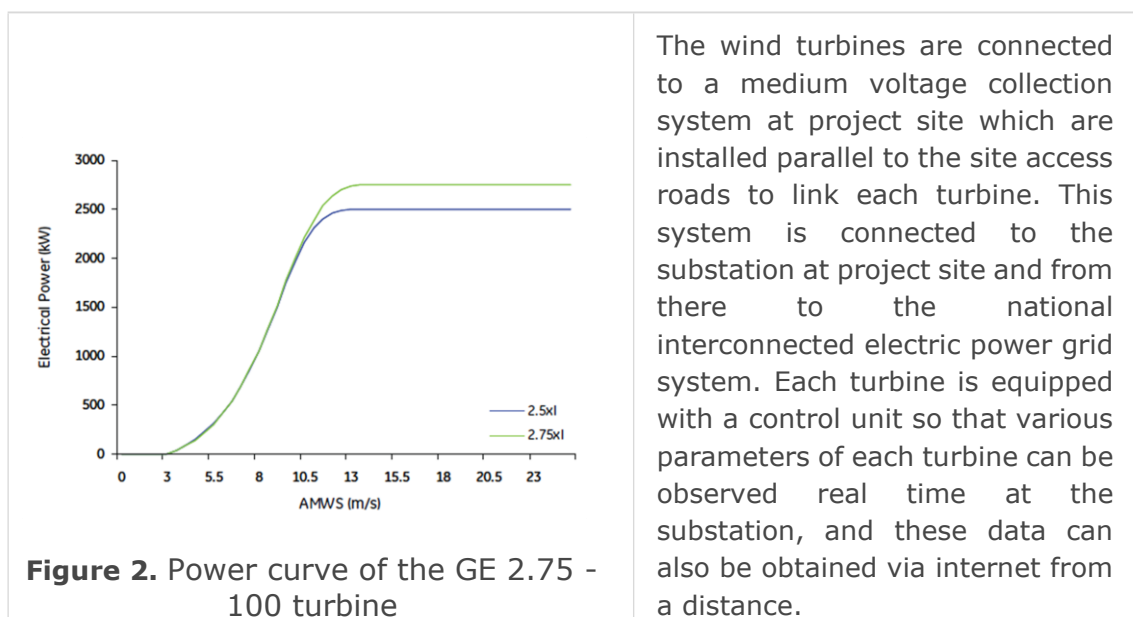
Turbine number	Model of turbines	Explanation
14 x 2.75 MWe	GE 2.75-100 wind Turbine	The turbines are of similar model and the total capacity of the wind farm is 38.5 MWm. The total overall power supply is limited to 33 MWe in order to comply with the generation license.

The turbines consist of the following components: rotor, drive train, gearbox, generator, cooling and filtration, braking system, nacelle, yaw system, tower, control and grid connection and lightning protection. The model of the turbines and their specifications are provided below:

Table 6. Specification of turbine units²

Component	Explanation/Specification
Model	GE 2.75-100
Rated power	2.75 MWe
Rotor diameter	100 m
Tower	85 m

² Please see; GE 2.75MW 100m CI 2-3.pdf document.



B.1.1. Forward Action Requests

FAR-1 from previous verification (3rd verification):

"FAR-1: PP shall conduct an assessment for the impact of project on bird life during reproduction period in 2020 and repeat it every 3 years as recommended by Ornithology Report 2017."

Answer to FAR-1 from previous verification (3rd verification):

The impact of project on bird life during the reproduction period was assessed in Ornithology Report 2020. According to the assessment, no habitat loss has been observed for the species that breed in the area since the last report (2017). For this

reason, it is not expected that any species will change their breeding or feeding area because of Sadilli WWP. Also, no trace of collision was discovered when looking for dead birds under the turbines. No collision was observed in terms of target species (birds of prey and soaring migratory birds) in the carcass inspection conducted in the area. During this period, the results of the carcass inspection regularly carried out by the expert bird watcher appointed by the company were annually submitted to the Directorate of Nature Conservation National Parks.

As a result, a low level of risk from the WPP has been determined for the birds during the breeding season in the area.

B.2. Post-Design Certification changes

B.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

N/A

B.2.2. Corrections

N/A

B.2.3. Changes to start date of crediting period

The first crediting period start date has been changed as 27/10/2014. Since, operation start date of the first three turbines was 27/10/2014, it can be considered as the actual start date of the project. In registered PDD, generation was expected to start on 01/05/2013 however, due to the fact that generation started on 27/10/2014 start date of the first crediting period is indicated as 27/10/2014. Provisional acceptance date of the first three turbines was 26/10/2014 however, electricity production starts at midnight at 12 am and operation start date can be considered as 27/10/2014. Calibration of the meters was conducted at the same day.

The reason for the delay of expected start date might be a misestimation while presenting PDD since it was an estimated date. Hence, actual start date of the project is operation start date of the first three turbines and date of calibration of the meters that is 27/10/2014.

B.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

N/A

B.2.5. Changes to project design of approved project

N/A

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

Data handling was slightly revised due to innovation in technology that enables TEİAŞ to read meters remotely. Thus, under this process, the meter is read remotely at the end of every month and published through website of TEİAŞ which can be accessed by project owner to check the correctness of the data. Besides, the data that is read by TEİAŞ, project owner carries monthly protocol to cross-check the data. Once the meter data is correct then the amount is also published in TEİAŞ website which is also accessible by project owner. When all data is correct, an invoice (receipt of sale) is prepared by Çanres Elektrik and delivered to TEİAŞ.

As the necessary baseline emission factors are all defined ex ante, the only information to be monitored is the amount of electricity fed into the grid by Sadilli WPP. The data which is base for the invoices and published in TEİAŞ website is used as input for emission reduction calculation.

The collected data is kept by Çanres Elektrik during the crediting period and until two years after the last issuance of VERs for the Sadilli WPP project activity for that crediting period. As of 01/09/2015, EPIAS took over the PMUM procedures from TEİAŞ. Since that date, EPIAS supplies the data.

Potential leakage emissions in the context of power sector projects are emissions arising due to activities such as power plant construction, fuel handling and land inundation. However, according to the methodology, those emission sources are treated as negligible.

The fact that two reliable best practice meters are installed in a redundant manner keeps the uncertainty level of the only parameter for baseline calculation low. High data quality of this parameter is not only in the interest of the emission reduction monitoring, but paramount for the business relation between the plant operator and the electricity buyer. Since the meters are reading electricity supplied to the system and withdrawn from the system separately, the net electricity amount supplied to the grid was calculated by electricity supplied minus electricity withdrawn which was taken from monthly settlement notifications.

Monthly data from EPIAS are stored electronically on EPIAS website and this data can be accessed by login of Project Developer. Çanres Elektrik also stores a hardcopy of the monthly meter reading protocols for back up of systematic storage of data.

Moreover, there are always internal reviews of the meters data that is checked by different parties. First, data of the meters is collected by technicians daily in written forms. The data collected daily is saved in plant manager computer and backed up and shared by headquarter of Çanres Elektrik in Istanbul. Besides the data that can be gotten from meters, production amount can be checked from SCADA system of Nordex. SCADA figures differ a bit with meter data due to internal losses.

Operation and management diagram is presented in Figure 4.

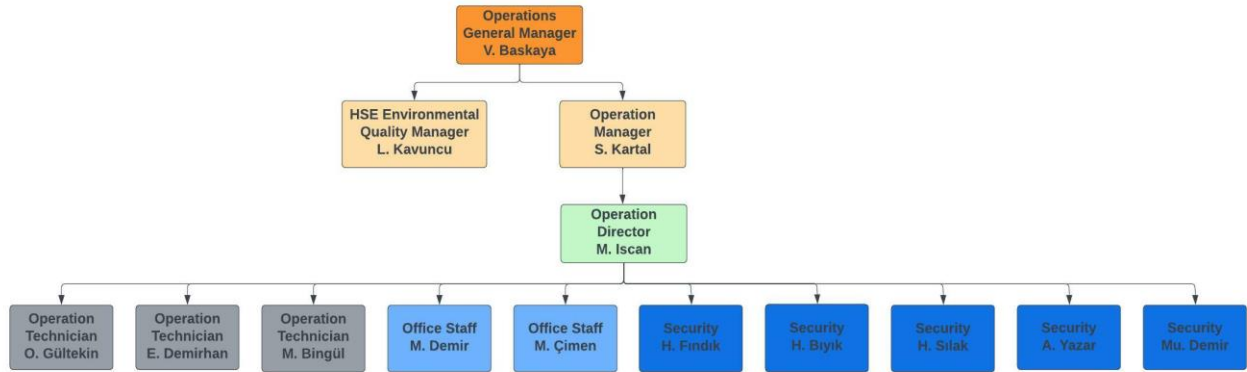


Figure 4. Operation and Management Diagram of the Sadilli WPP

The electrical single line diagram is shown in Figure 5.

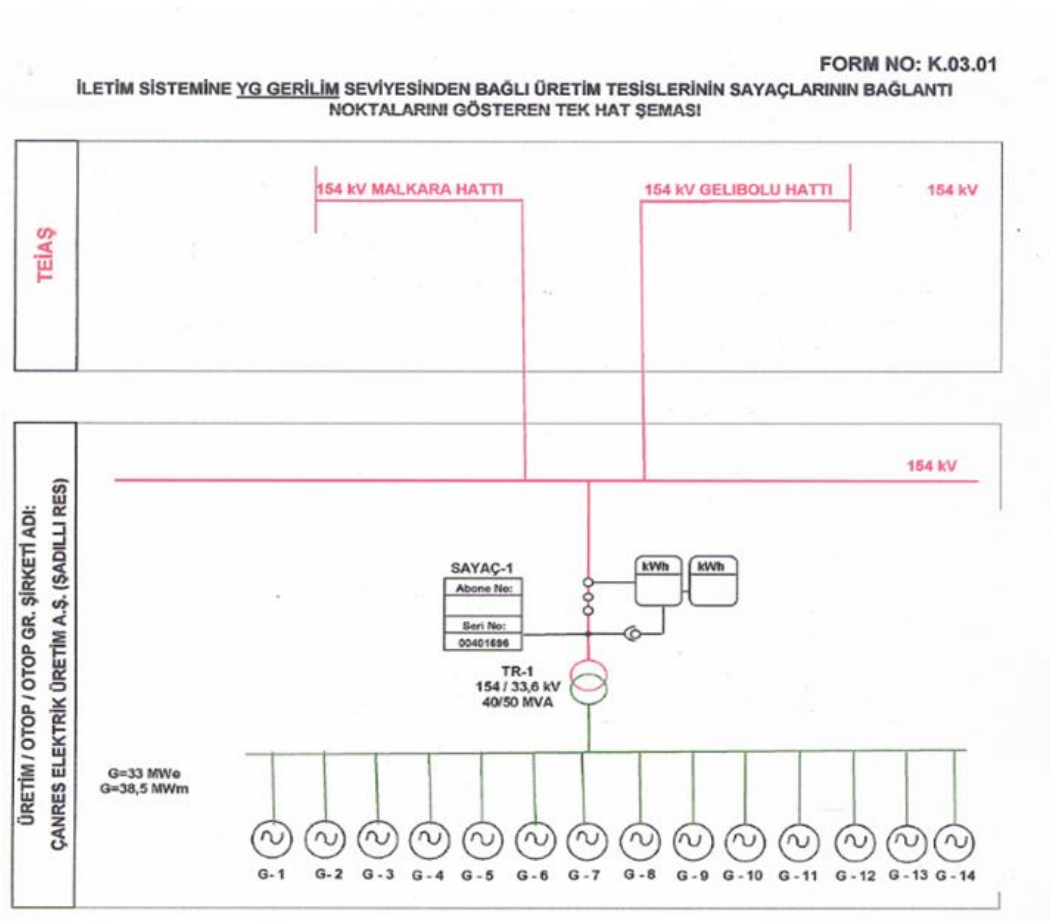


Figure 5. Electrical Single Line Diagram

The calibration of the monitoring equipment was carried out according to the information provided in the GS-VER PDD. The GS-VER PDD mainly includes the following obligation for the calibration of the appropriate meters:

"The Turkish Electricity Market Regulation Agency (EPDK) sets rules on the accuracy of electricity meters that are used by power plants feeding into the grid. The rules are part of the EPDK regulation 25056 from 22 March 2003. The table in Article 11 of the regulation specifies the use of electricity meters of the accuracy class 0.5S for power plants between 10 MW and 100 MW and refers to compliance with International Electro technical Commission's norm EN 60687. TEİAŞ conducts remote reading. In addition, another technician, employee of Çanres Elektrik, conducts reading from the project site and sends to TEİAŞ. By this way, a crosscheck is done. Also, with the readings from project site, continuously these two meters are compared with each other and if any differences are detected the necessary control measures are taken."

As the measuring devices are sealed by TEİAŞ, Çanres Elektrik cannot intervene with the devices. In case of unforeseen problems or failures of the meters or if any differences occur between primary and secondary devices TEİAŞ has to be informed for necessary maintenance and calibration. There is an agreement between Çanres Elektrik and TEİAŞ that in case of problems or failures of the meters TEİAŞ reacts as fast as possible to solve the problem.

As above mentioned, the data acquisition and management and quality assurance procedures that are anyway in place, no additional procedures necessarily to be established for the monitoring plan.

Table 7. Specification of the Electricity Meters

Name	Serial Number	Brand&Model	Accuracy Class	Year of Manufacture
Old Main Meter	401696	ELSTER A1500	0.5S	2009
Old Back-up Meter	401727	ELSTER A1500	0.5S	2009
New Main Meter	8088831	EMH – LZQJ-XC	0.5S	2018
New Back-up Meter	8088832	EMH – LZQJ-XC	0.5S	2018

Meter Exchange Protocol dated 03/10/2019³

³ Please see: Meter Exchange Protocol dated 03/10/2019

SECTION D. DATA AND PARAMETERS

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Data/parameter	Fuel heating values
Unit	Tcal
Description	Total energy content of fuels consumed for power generation
Source of data	TEIAS ⁴
Value(s) applied	Table 23
Choice of data or Measurement methods and procedures	These are 2006-2010 official heating value data of fuels used for power generation in Turkey.
Purpose of data	Calculation of combined margin emission factor.
Additional comment	-

Data/parameter	Fuel consumption
Unit	Tons, or 1000 m ³
Description	Amounts of fuels consumed by power generation facilities in Turkey
Source of data	TEIAS ⁵
Value(s) applied	Table 22. Fuel Amounts Consumed for Power Generation
Choice of data or Measurement methods and procedures	These are 2007-2010 official fuel consumption data used for power generation in Turkey.
Purpose of data	Calculation of combined margin emission factor.
Additional comment	-

⁴<http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2010/front%20page%202010-%C3%A7i%C3%A7ek%20kitap/yak%C4%B1t46-49/49.xls>

⁵<http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2010/front%20page%202010-%C3%A7i%C3%A7ek%20kitap/yak%C4%B1t46-49/47.xls>

Data/parameter	Net calorific value
Unit	TJ/kt or TJ/mil m ³
Description	Net calorific value (energy content) of fossil fuel type i in year y
Source of data	Calculation: By dividing the heating value to fuel consumption value
Value(s) applied	Table 24
Choice of data or Measurement methods and procedures	The net calorific values are calculated from fuel heating values and fuel consumption values which are both taken from annually published data of TEIAS.
Purpose of data	Calculation of combined margin emission factor.
Additional comment	-

Data/parameter	GEN _{j,y}
Unit	MWh
Description	The gross electricity generation by fuel type j in year y (2006-2010) by the system
Source of data	TEIAS ⁶
Value(s) applied	Table 12 The sum of GEN _{j,y} for each fuel type in year y gives the System Gross Electricity Generation _y .
Choice of data or Measurement methods and procedures	TEIAS annually publishes official data regarding electricity generation and is the only source that provides information with most details.
Purpose of data	Calculation of combined margin emission factor.
Additional comment	-

Data/parameter	System Net Electricity Generation _y
Unit	MWh

⁶ Source: TEIAS
([http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2010/front%20page%202010-%C3%A7i%C3%A7ek%20kitap/uretim%20tuketim\(22-45\)/35\(75-10\).xls](http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2010/front%20page%202010-%C3%A7i%C3%A7ek%20kitap/uretim%20tuketim(22-45)/35(75-10).xls))

Description	The difference between the total quantity of electricity generated by power plants/units and the auxiliary electricity consumption of power plants/units.
Source of data	TEIAS ⁷
Value(s) applied	Table 12
Choice of data or Measurement methods and procedures	TEIAS annually publishes official data regarding electricity generation and is the only source that provides information with most details.
Purpose of data	Calculation of combined margin emission factor.
Additional comment	-

Data/parameter	Net Delivery Ratio _y
Unit	%
Description	The ratio of the System Net Electricity Generation to the System Gross Electricity Generation in year y.
Source of data	Calculation: By dividing System Net Electricity Generation _y by System Gross Electricity Generation _y
Value(s) applied	Table 12
Choice of data or Measurement methods and procedures	Electricity delivered to the grid by each power plant/unit is unavailable. The Net Delivery Ratio _y is used for approximating the net electricity amount delivered to the grid by power plants/units except lc-mr sources.
Purpose of data	Calculation of combined margin emission factor.
Additional comment	This is a conservative assumption, since in general thermal power plants consume more energy for auxiliaries than e.g. hydro plants.

Data/parameter	GEN _y
Unit	MWh

⁷ Source: TEIAS
([http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2010/front%20page%202010-%C3%A7i%C3%A7ek%20kitap/uretim%20tuketim\(22-45\)/35\(75-10\).xls](http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2010/front%20page%202010-%C3%A7i%C3%A7ek%20kitap/uretim%20tuketim(22-45)/35(75-10).xls))

Description	The system net electricity delivered in year y by the total of all power plants in the grid, excluding lc-mr sources.
Source of data	Calculation: 1. Gross electricity generation excluding lc-mr sources = Total gross electricity generation from all sources - total gross electricity generation from lc-mr sources 2. Net electricity generation excluding lc-mr sources = Gross electricity generation except lc-mr sources * Net Delivery Ratio Net electricity delivered to the grid except lc-mr sources = Net electricity generation except lc-mr sources + Imports
Value(s) applied	Table 12
Choice of data or Measurement methods and procedures	Net electricity delivered to the grid by each power plant/unit or by fuel type is unavailable. Therefore, this parameter is approximated by calculations.
Purpose of data	Calculation of combined margin emission factor.
Additional comment	-

Data/parameter	$EF_{CO_2,i,y}$
Unit	tCO ₂ /TJ
Description	CO ₂ emission factor of fossil fuel type i in year y
Source of data	The lower limits of the 95% confidence interval stated in the "2006 IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2, Chapter 1 (energy) Table 1.4.
Value(s) applied	Table 18
Choice of data or Measurement methods and procedures	This is in line with the "Tool to calculate the emission factor for an electricity system".
Purpose of data	Calculation of operating margin and build margin.
Additional comment	-

Data/parameter	Electricity Import _y
Unit	GWh
Description	Net electricity imports delivered to the grid in year y

Source of data	TEIAS ⁸
Value(s) applied	Table 12
Choice of data or Measurement methods and procedures	-
Purpose of data	Calculation of combined margin emission factor.
Additional comment	This is the total electricity imported and delivered to the national grid from connected electricity systems from neighbour countries.

Data/parameter	$\eta_{m,y}$
Unit	%
Description	Average net energy conversion efficiency of power unit m in year y
Source of data	UNFCCC methodological tool "Tool to calculate the emission factor for an electricity system" Annex I
Value(s) applied	Table 18
Choice of data or Measurement methods and procedures	Default efficiency figures represent best available techniques and should be considered to be conservative.
Purpose of data	Calculation of combined margin emission factor.
Additional comment	There are no official efficiency values available for recent power plants based on each power plant or each fuel type. Therefore, default values are assumed.

D.2. Data and parameters monitored

Relevant SDG Indicator/Safeguarding Principle	SDG 13: Climate action Target: 13.3 by emission reduction Indicator: 13.3.1
Data / Parameter	Air quality

8

([http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2010/front%20page%202010-%C3%A7i%C3%A7ek%20kitap/uretim%20tuketim\(22-45\)/33\(84-10\).xls](http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2010/front%20page%202010-%C3%A7i%C3%A7ek%20kitap/uretim%20tuketim(22-45)/33(84-10).xls))

Unit	tons of CO ₂ e
Description	Amount of CO ₂ emission
Source of data	Monthly meter readings for calculation of emission reduction.
Value(s) applied	The Project generated 263,594.63 MWh during this monitoring period, therefore the Project reduced baseline CO ₂ emissions of: $263,594.63 \text{ MWh} * 0.599 \text{ tCO}_2\text{e/MWh} = 157,892 \text{ tCO}_2\text{e}$
Measurement methods and procedures	Amount of annual net electricity generation, which is calculated by monthly settlement notifications on monthly meter readings, are used to calculate estimated CO ₂ emission reduction by project activity.
Monitoring frequency	Annually.
QA/QC procedures	
Purpose of data	Emission reduction.
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	SDG 13: Climate action Target: 13.3 by emission reduction Indicator: 13.3.1
Data / Parameter	Air quality
Unit	tons
Description	Sulphur oxide emissions prevented
Source of data	Monthly meter readings
Value(s) applied	The Project generated 263,594.63 MWh during this monitoring period, therefore the Project reduced baseline SO ₂ emissions of: $263,595 \text{ GWh} * 1.959 \text{ tons/GWh} = 516.42 \text{ tons SO}_2$
Measurement methods and procedures	By measurement of the net electricity generation and multiplication with the baseline ex-ante SO ₂ intensity of the Turkish grid. Net system electricity generation in this monitoring period is 263,595 GWh, corresponding to 1,959 kg/GWh grid SO ₂ intensity.
Monitoring frequency	Electricity generation data is monitored monthly. SO ₂ intensity data is used ex-ante.
QA/QC procedures	
Purpose of data	Emission reduction.
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	SDG 13: Climate action Target: 13.3 by emission reduction Indicator: 13.3.1
Data / Parameter	Air quality
Unit	tons
Description	Nitrogen oxide emissions prevented.
Source of data	Monthly meter readings
Value(s) applied	The Project generated 263,594.63 MWh during this monitoring period, therefore the Project reduced baseline NO _x emissions of: $263,594.63 \text{ MWh} * 1.497 \text{ tons/GWh} = 394.55 \text{ tons NO}_x$
Measurement methods and procedures	By measurement of the net electricity generation and multiplication with the baseline ex-ante NO _x intensity of the Turkish grid. Net system electricity generation in this monitoring period is 263,594.63 MWh, corresponding to 1.497 kg/MWh grid NO _x intensity.
Monitoring frequency	Electricity generation data is monitored monthly. NO _x intensity data is used ex-ante.
QA/QC procedures	
Purpose of data	Emission reduction.
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	SDG 6: Clean water and sanitation Target: 6.3 by using renewable energy systems Indicator: 6.3.1
Data / Parameter	Water Quality and Quantity
Unit	m ³
Description	Cooling water discharge prevented
Source of data	Monthly meter readings
Value(s) applied	Discharged cooling water reduction of: $19.7 \text{ m}^3/\text{MWh} * 263,594.63 \text{ MWh} = 5,200.8 \text{ (x1000 m}^3\text{)}$
Measurement methods and procedures	The net electricity generation of the Project is multiplied by the cooling water discharge intensity. In 2010, 4.29 billion m ³ cooling water was discharged by thermal power plants in Turkey. Net electricity generation in 2010 was 211,208 GWh, corresponding to 19.7 m ³ /MWh discharged cooling water intensity.
Monitoring frequency	Electricity generation data is monitored monthly. Cooling water discharge intensity is used ex-ante.
QA/QC procedures	
Purpose of data	Avoidance wastewater discharge.

Additional comment	-
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Relevant SDG Indicator/Safeguarding Principle	SDG 6: Clean water and sanitation Target: 6.3 by using renewable energy systems Indicator: 6.3.1
Data / Parameter	Water Quality and Quantity
Unit	m ³
Description	Wastewater disposal
Source of data	Wastewater transfer receipts
Value(s) applied	Water is used only for daily consumption. 14 workers are employed during operation. Daily water usage per worker is 0.15 m ³ . Hence total wastewater production in power plant per year becomes: 14*0.15*365 = 767 m ³ /year. During this monitoring period, (757 days = 2.07 years), 767 m ³ /year * 2.07 years = 1,589.7 m ³ of municipal wastewater is disposed by transferring them through municipality and in accordance with regulations.
Measurement methods and procedures	By checking whether disposal practices comply with legal requirements.
Monitoring frequency	Continuous.
QA/QC procedures	
Purpose of data	Avoidance wastewater discharge.
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	Other Safeguarding Principle:3.9.1 Landscape Modification and Soil
Data / Parameter	Soil Condition
Unit	-
Description	Erosion risk control at new roads
Source of data	Observation
Value(s) applied	Minimal erosion similar to natural patterns.
Measurement methods and procedures	Visual inspection whether the roads have caused significant erosion. The erosion at the newly constructed roads is minimized by limiting the slope and the curvature of the roads and by ensuring high road strength and stability. This target also overlaps with technical needs of the Project Owner, because long and heavy trucks that carry the Project equipment also require the same road quality.
Monitoring frequency	Continuous.

QA/QC procedures	-
Purpose of data	Soil Condition
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	Other Safeguarding Principle: 3.9.2 Vulnerability to Natural Disaster
Data / Parameter	Soil Condition
Unit	-
Description	Earthquake risk
Source of data	EIA study
Value(s) applied	Earthquake risk score is 1, between the scale 1 to 5 (1 being highest).
Measurement methods and procedures	The new powerhouse and turbine towers are subject to earthquake risk. All construction codes are maintained and necessary construction permits are obtained. The construction quality ensures that the Project is sufficiently strong for earthquake risk.
Monitoring frequency	Continuous.
QA/QC procedures	-
Purpose of data	Soil Condition
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	Other Safeguarding Principle: 3.9.5 Hazardous and Non-hazardous Waste
Data / Parameter	Soil Condition
Unit	-
Description	Solid waste
Source of data	EIA study
Value(s) applied	Solid household waste from daily operations (expected amount is 27 kg/day) is disposed of properly. 200 kg of waste oil is disposed by licensed companies according to legal requirements.
Measurement methods and procedures	Solid household waste: By visual inspection. Waste oil: By checking waste oil disposal invoices.
Monitoring frequency	Continuous.

QA/QC procedures	-
Purpose of data	Soil Condition
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	Other Safeguarding Principle: 3.9.4 Release of pollutants
Data/parameter:	Other Pollutants
Unit	-
Description	Noise audible at the nearest settlements.
Source of data	Interview with local people
Value(s) applied)	During the site visit, interview with the local people has been carried out and there is no negative comments both on the project activity and on the audible noise.
Choice of data or measurement methods and procedures	The noise threshold is 65 dBA during day and 55 dBA in the night. The Project does not exceed these thresholds. The noise emission calculations in the EIA PIF suggest that the noise emissions at nearest villages is below legal limits.
Monitoring frequency	Continuous.
Purpose of data	To exhibit there is no need to take precautions regarding noise level that is negligible.
Additional comments	-

Relevant SDG Indicator/Safeguarding Principle	Other
Data/parameter:	Biodiversity Safeguarding Principle:3.9.10 High Conservation Value Areas and Critical Habitats
Unit	-
Description	Impact on bird migration routes
Source of data	Interview with local people and one-time during the first monitoring period for bird observation.
Value(s) applied)	During the site visit, interview with the local people has been carried out and there is no negative comments both on the project activity and on the impact on bird migration routes.

Choice of data or measurement methods and procedures	No bird mortality. The ornithological study states that the project is not expected to have a negative impact on birds. Tips of the turbine blades were colored to prevent bird collisions.
Monitoring frequency	Continuously for interviews and one-time during the first monitoring period for bird observation.
Purpose of data	Preventing bird collisions.
Additional comments	-

Relevant SDG Indicator/Safeguarding Principle	SDG 8: Decent work and economic growth
Data / Parameter	Target: 8.8 by employment and decent work
Unit	-
Description	Fair labour practices, health and safety precautions
Source of data	Health & Safety trainings
Value(s) applied	14 employees work at the WPP. All employees at the plant are provided Health&Safety Trainings at least once in two years.
Measurement methods and procedures	The Project employs local people with fair labor practices without any kind of discrimination. Qualitative assessment of fair labor practices (compensation, social security, proper work safety and health precautions, training etc.).
Monitoring frequency	Continuously
QA/QC procedures	
Purpose of data	Employment and decent work for all.
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	Other Safeguarding Principle: 3.4 Cultural Heritage, Indigenous Peoples, Displacement and Resettlement
Data/parameter:	Livelihood of the Poor
Unit	-
Description	Land acquisition
Source of data	Interviews with land owners.

Value(s) applied)	%100 of land acquisition transactions are completed.
Choice of data or measurement methods and procedures	Interviews to check whether the process is carried out properly according to legal requirements and that land owners are compensated fairly.
Monitoring frequency	Continuously
Purpose of data	Fair land compensation measures
Additional comments	-

Relevant SDG Indicator/Safeguarding Principle	Other Safeguarding Principle: 3.9.9 Animal Husbandry
Data / Parameter	Livelihood of the Poor
Unit	-
Description	Livestock feeding
Source of data	Interview with stakeholders.
Value(s) applied	During the site visit, interview with the local people has been carried out and there is no negative comments both on the project activity and on the livestock feeding.
Measurement methods and procedures	No access limitation at the Project site for livestock.
Monitoring frequency	Continuously.
QA/QC procedures	-
Purpose of data	Livestock feeding
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	SDG 7: Affordable and clean energy Target: 7.2 by using renewable energy systems Indicator: 7.2.1
Data/parameter:	EG_{facility,y}
Unit	kWh
Description	Net electricity supplied to the grid by the Project activity in year y
Measured/calculated/default	Measurement is carried out by accurate electricity meters. The collected data is, once approved by TEIAS, used to calculate the net electricity supplied by the Project.
Source of data	Primary source: EPIAS Secondary source: TEIAS settlement documents

Value(s) of monitored parameter	263,594.63 MWh <table border="1"> <tr> <th>Vintage Break-up</th><th>EG (MWh)</th></tr> <tr> <td>01/10/2019 – 31/12/2019</td><td>31,131.38</td></tr> <tr> <td>01/01/2020 – 31/12/2020</td><td>134,614.60</td></tr> <tr> <td>01/01/2021 – 26/10/2021</td><td>97,848.65</td></tr> <tr> <td>Total</td><td>263,594.63</td></tr> </table>	Vintage Break-up	EG (MWh)	01/10/2019 – 31/12/2019	31,131.38	01/01/2020 – 31/12/2020	134,614.60	01/01/2021 – 26/10/2021	97,848.65	Total	263,594.63
Vintage Break-up	EG (MWh)										
01/10/2019 – 31/12/2019	31,131.38										
01/01/2020 – 31/12/2020	134,614.60										
01/01/2021 – 26/10/2021	97,848.65										
Total	263,594.63										
Monitoring equipment	Regarding the electricity meters: two meters were placed (one main and one reserve). The fact that two meters are installed in a redundant manner keeps the uncertainty level of the only parameter for baseline calculation low. High data quality of this parameter is in the interest of not only the emission reduction monitoring, but also paramount for the business relation between the plant operator and the electricity buyer. On the last day of each month, the production index is taken from the main as well as the reserve meter by EPIAŞ (a state institution responsible for electricity market settlement operations) via Automatic Meter Reading System (OSOS). In following month, EPIAŞ issue electricity generation records for each generation unit that can be accessed by plant operators via logging to secured website. These records are used to monitor net monthly generation of the power plant. For each month, the net electricity amount supplied to the grid is calculated by electricity fed into grid minus electricity withdrawn from the grid available in EPIAŞ records. However, as of 01/09/2015, EPIAS took over the PMUM procedures from TEIAS. After that date, EPIAS supply the PMUM data. This means that the main source is the EPIAS data. TEIAS notices are used to crosscheck the EPIAŞ records. TEIAS sends an electronic spreadsheet that includes daily and monthly electricity generation and withdrawn amounts for each power plant. Thus, crosscheck source is the TEIAS meter readings. Since the meters are reading electricity supplied to the system and withdrawn from the system separately, the net electricity amount supplied to the grid is calculated by electricity supplied minus electricity withdrawn. Thus, with this procedure, monitoring is										

	sufficient and no extra monitoring has to be implemented. The above described measurement method follows Article 81 of the official regulation "Electricity Market Balancing and Settlement Regulation"
	Before 03.10.2019, following meters were being used. The specification of previous electricity meters are provided below: Previous Main Electricity Meter with accuracy class of 0.5S. Manufacturer: ELSTER Brand-Model: A1500 Serial Number: 401696 Year of Manufacture: 2009 Previous Back-up Electricity Meter with accuracy class of 0.5S. Manufacturer: ELSTER Brand-Model: A1500 Serial Number: 401727 Year of Manufacture: 2009 On 03.10.2019, both main and backup meters have been changed as their official seals were expired. After 03.10.2019, following meters are being used. The

	specification of current electricity meters are provided below: Current Main Electricity Meter with accuracy class of 0.5S. Manufacturer: EMH Brand-Model: LZQJ-XC Serial Number: 8088831 Date of installation 03.10.2019 Date of calibration: 03.10.2019 Year of Manufacture: 2018 Current Back-up Electricity Meter with accuracy class of 0.5S. Manufacturer: EMH Brand-Model: LZQJ-XC Serial Number: 8088832 Date of installation: 03.10.2019 Date of calibration: 03.10.2019 Year of Manufacture: 2018 Calibration is done upon any problem or every 10 years per regulation.
Measuring/reading/recording frequency:	Net electricity generation data will be reported monthly.
Calculation method (if applicable):	-
QA/QC procedures:	The calibration of the monitoring equipment was carried out according to the information provided in the GS-VER PDD. The GS-VER PDD mainly includes the following obligation for the calibration of the appropriate meters: The Turkish Electricity Market Regulation Agency (EPDK) sets rules on the accuracy of electricity meters that are used by power plants feeding into the grid. The rules are part of the EPDK regulation 25056 from 22 March 2003. The table in Article 11 of the regulation specifies the use of electricity meters of the accuracy class 0.5S for power plants between 10 MW and 100 MW and refers to compliance with International Electro technical Commission's norm EN 60687. TEİAŞ conducts remote reading. In addition, another technician, employee of Çanres Elektrik, conducts reading from the project site and sends to TEİAŞ. By this way, a crosscheck is done. Also, with the readings

	from project site, continuously these two meters are compared with each other and if any differences are detected the necessary control measures are taken. According to the Article 2 of the Communiqué: 'The meters to be used in the electricity market shall be compliant with the standards of Turkish Standards Institute or IEC and have obtained "Type and System Approval" certificate from the Ministry of Trade and Industry.' Therefore, Ministry of Trade and Industry (Ministry) is responsible from control and calibration of the meters. paragraph b) of the Article 9 of the 'Regulation of Metering and Testing of Metering Systems' 7 (Regulation) of Ministry states that: ' b) Periodic tests of meters of electricity, water, coal gas, natural gas and current and voltage transformers are done every 10 years' . Therefore, periodic calibration of the meters is done every 10 years⁹. As above mentioned, the data acquisition and management and quality assurance procedures that are anyway in place, no additional procedures have to be established for the monitoring plan.
Purpose of data:	Calculation of emission reduction of the project
Additional comments:	This monitoring period is between 01/10/2019 and 26/10/2021, this period represents the electricity generation for 757 days.

Relevant SDG Indicator/Safeguarding Principle	SDG 8: Decent work and economic growth Target: 8.8 by employment and decent work Indicator: 8.8.2
Data / Parameter	Quantitative employment and income generation
Unit	-
Description	Number of local employments
Source of data	Social security records of employees are provided.
Value(s) applied	The Project employs 14 people (9 of them are local) during operation. Social security records of all 14 employees have been provided.

⁹ Please see; http://www.sanayi.gov.tr/download/osgm/olcu_aletleri_muayene_yonetmelik.zip page 2

Measurement methods and procedures	Social security records are checked.
Monitoring frequency	Continuously.
QA/QC procedures	-
Purpose of data	Employment and decent work for all.
Additional comment	-

Relevant SDG Indicator/Safeguarding Principle	SDG 7: Affordable and clean energy Target: 7.2 by using renewable energy systems Indicator: 7.2.1
Data / Parameter	Balance of payments and investment
Unit	-
Description	Savings on natural gas imports
Source of data	Monthly meter readings
Value(s) applied	With 263,594.63 MWh power generation and the Project save= 2,561,393.7 USD in this monitoring period.
Measurement methods and procedures	Most of the natural gas consumed in the host country is imported, therefore a reduction of natural gas consumption results in an improvement of trade balance. Assuming that all natural gas is being imported, the savings are calculated by multiplying avoided natural gas consumption by average international natural gas price.
Monitoring frequency	Continuously.
QA/QC procedures	-
Purpose of data	Ensure access to affordable, reliable, sustainable and modern energy.
Additional comment	-

D.3. Comparison of monitored parameters with last monitoring period

N/A

D.4. Implementation of sampling plan

N/A

SECTION E. CALCULATION OF SDG IMPACTS

E.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

Used Formulas:

FOR SDG 13

CO₂ Emission Avoidance via CM calculation

According to the applied methodology version, the emission reduction is the baseline emissions calculated as the net electricity supplied to the grid multiplied by the grid emission factor. In other saying, the value of "Combined margin CO₂ emission factor for grid connected power generation in year y ($EF_{grid, CM, y}$)" is needed to multiply with the value of Net electricity supplied to the Grid (EG_y) in order to reach Baseline emissions (BE_y). Calculations for reaching $EF_{grid, CM, y}$ and (EG_y) values have already been explained in PDD.

$$BE_y = EG_y \times EF_{grid, CM, y}$$

Where:

BE_y = Baseline emissions in tonnes CO₂e

$EF_{grid, CM, y}$ = Combined margin CO₂e emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" [tCO₂e/MWh].

EG_y = Net electricity supplied to the Grid in MWh

y = Refers to a given period

Emission Reduction for this monitoring period = 263,594.63 MWh * 0.599 tCO₂e/MWh
= 157,892 tCO₂e

NOx Emission Avoidance

In order to calculate NOx emission from the facility, the first step is to calculate a factor showing NOx emission per GWh generated electricity. This factor is derived by dividing "Emission Amount due to Electricity Amount in related year (2007 in this case) with "Net electricity generation in the related year in GWh". Then, the NOx emission in the baseline scenario is reached by multiplying this factor with the estimated electricity generation of the WPP. This output also refers to Avoided NOx Emission Amount. (Please see ER Calculations_08.12.2021 excel file.)

Calculation of NOx emission:

$$\text{NOx Avoidance} = \frac{\text{Emission Amount due to Electricity Amount in related year (2007 in this case)}}{\text{Net electricity generation in the related year in GWh}} \times \text{Electricity Gen. of Sadilli WPP}$$

$$\text{NOx Avoidance} = \frac{316,136 \text{ tons}}{211,207 \text{ GWh}} \times 123.886 \text{ GWh}$$

$$\text{NOx Avoidance} = 190.24 \text{ tons NOx/y}$$

For this monitoring period:

NOx Avoidance = Net Electricity Generation of Project Activity (GWh) × Emission per GWh (tons/GWh)

$$\text{NOx Avoidance} = 263.595 \text{ GWh} \times 1.497 \text{ tons/GWh}$$

$$\text{NOx Avoidance} = 394.55 \text{ tons NOx.}$$

SO₂ Emission Avoidance

In order to calculate SO₂ emission from the facility, the first step is to calculate a factor showing SO₂ emission per GWh generated electricity. This factor is derived by dividing "Emission Amount due to Electricity Amount in related year (2007 in this case) with "Net electricity generation in the related year in GWh". Then, the SO₂ emission in the baseline scenario is reached by multiplying this factor with the estimated electricity generation of the WPP. This output also refers to Avoided SO₂ Emission Amount. (Please see ER Calculations_08.12.2021 excel file.)

Calculation of SO₂ emission:

$$\text{SO2 Avoidance} = \frac{\text{Emission Amount due to Electricity Amount in related year (2007 in this case)}}{\text{Net electricity generation in the related year in GWh}} \times \text{Electricity Gen. of Sadilli WPP}$$

$$\text{SO2 Avoidance} = \frac{413,784 \text{ tons}}{211,207 \text{ GWh}} \times 123.886 \text{ GWh}$$

$$\text{SO}_2 \text{ Avoidance} = 249.00 \text{ tons SO}_2/\text{y}$$

For this monitoring period :

SO₂ Avoidance = Net Electricity Generation of Project Activity (GWh) × Emission per GWh (tons/GWh)

$$\text{SO}_2 \text{ Avoidance} = 263,595 \text{ GWh} \times 1.959 \text{ tons/GWh}$$

$$\text{SO}_2 \text{ Avoidance} = 516.42 \text{ tons SO}_2.$$

FOR SDG 6

Wastewater Avoidance

In order to calculate wastewater avoidance from the facility (by taking cooling water discharge in thermal power plants into account), the first step is to calculate a factor showing estimated wastewater discharge per GWh generated electricity. This factor is derived by dividing "Total Waste Water Discharged by Thermal Power Plants in the related year (2010 in this case)" with "Total Electricity Generation in 2010 (GWh) in the related year in GWh". Then, the wastewater discharge in the baseline scenario is reached by multiplying this factor with the estimated electricity generation of the WPP. This output also refers to Avoided Wastewater Discharge Amount. (Please see ER Calculations_08.12.2021 excel file.)

Calculation of Wastewater Avoidance:

$$\frac{\text{Total Waste Water Discharged by Thermal Power Plants in the related year (2010)}}{\text{Total Electricity Generation in 2010 (GWh) in the related year}} \times \text{Electricity Generation of Sadilli WPP}$$

$$\text{Amount of Avoided Wastewater Discharge per year by Project Activity} = \frac{4,167,170.0 \text{ m}^3}{211,207.7 \text{ GWh}} \times 123.8 \text{ GWh}$$

$$\text{Amount of Avoided Wastewater Discharge per year by Project Activity} = 2,507.6 \times 1000 \text{ m}^3/\text{y}$$

Total Amount of Avoided Wastewater Discharge by Project Activity per year = Amount of Avoided Wastewater Discharge per year by Project Activity - Amount of Wastewater Produced by Project Activity per year

$$\text{Total Amount of Avoided Wastewater Discharge by Project Activity per year} = 2,507.6 - 0.77 = 2,506.8 \times 1000 \text{ m}^3/\text{y}$$

For this monitoring period:

$$\text{Amount of Avoided Wastewater Discharge per year by Project Activity} = 5,200.8 \times 1000 \text{ m}^3$$

Total Amount of Avoided Wastewater Discharge by Project Activity = Amount of Avoided Wastewater Discharge by Project Activity - Amount of Wastewater Produced by Project Activity

$$\text{Total Amount of Avoided Wastewater Discharge by Project Activity} = 5,200.8 - 1.59 = 5,199.2 \times 1000 \text{ m}^3$$

FOR SDG 7

Net Electricity Generated:

Quantity of net electricity generation supplied by the project plant to the grid has been calculated by subtracting the value of "Electricity consumption from the grid (MWh)" from "Electricity supplied to the grid (MWh)"

Calculation of Electricity Generation of Sadilli WPP:

Electricity Generation of Sadilli WPP = Electricity supplied to the grid (MWh) - Electricity consumption from the grid (MWh)

Electricity Generation of Sadilli WPP for fourth verification period = 263,857.690 – 263.059 = 263,594.63 MWh

Balance of Payments and Investment:

While calculating amount of avoided natural gas imported for balance of payment and investment indicator, estimated annual electricity generation, estimated avoided natural gas import by generation of project activity, total net electricity generated during this monitoring period, and net annual electricity generated during this monitoring period are used. Annual and total avoided natural gas import are calculated as follows:

According to the approved Transition Annex of the Project, the average natural gas price is 2.5 USD/MMBTU. Considering that 112,000 MWh/y generation corresponds to 443,610 MMBTU, the Project is expected to save:

$443,610 \text{ MMBTU/y} \times 2.5 \text{ USD/MMBTU} = 1,088,323 \text{ USD/y}$

$$\text{Total Avoided Natural Gas Import} = \frac{\text{Estimated Avoided Natural Gas Import}}{\text{Estimated Electricity Generation}} \times \text{Total Net Electricity Generated}$$

$$\text{Annually Avoided Natural Gas Import} = \frac{\text{Estimated Avoided Natural Gas Import}}{\text{Estimated Electricity Generation}} \times \text{Annual Net Electricity Generated}$$

Total Avoided Natural Gas Import = ((1,088,323 USD/y) / (112,000 MWh/y)) * 263,595 MWh = 2,561,393.7 USD

Annually Avoided Natural Gas Import = ((1,088,323 USD/y) / (112,000 MWh/y)) * 127,096 MWh = 1,235,018.1 USD/y

FOR SDG 8

In the baseline scenario, the employment opportunities and hence training opportunities would not have been possible.

E.2. Calculation of project value or estimation of project situation of each SDG Impact

Explained in the registered PDD and Transition Annex.

FOR SDG-13

SDG 13 parameter has been evaluated,

There is no emission therefore CO₂ value is zero for this part.

CO₂ = 0 ton/ y

There is no SO₂ emission therefore this value is zero.

SO₂ = 0 ton/ y

There is no NO_x emission therefore this value is zero.

NO_x = 0 ton/ y

FOR SDG 6

Amount of Domestic Wastewater Produced by Project Activity per year= 766.5 m³/y

For this monitoring period;

Total Amount of Domestic Wastewater Discharge by Project Activity = 1,589.7 m³

FOR SDG 8

The employment of local people that have necessary technical qualifications for the required post has been the priority and enhanced by all project activities during construction and operation of wind farm. As a result, local poverty and unemployment has been partially eliminated by increased job opportunities and project business activities. The number of employees has been reached via the Social Security Institution records. 14 workers are employed and nine of them are locals. All employees at the plant are provided Health&Safety Trainings at least once in two years.

FOR SDG 7

Net Electricity Generated:

Quantity of net electricity generation supplied by the project plant to the grid in the related year has been calculated by subtracting the value of "Electricity consumption from the grid (MWh)" from "Electricity supplied to the grid (MWh)"

Electricity Generation of Sadilli WPP for fourth verification period = 263,594.63 MWh

Balance of Payments and Investment:

There is no natural gas import caused by the Project.

E.3. Calculation of leakage

LE_y is 0, as it is not considered according to ACM0002 (page 17). PE_y is 0 because project is a wind power generation activity (Only for geothermal and hydro project activities, it should be considered according to ACM0002 page 12).

E.4. Calculation of net benefits or direct calculation for each SDG Impact

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
13	CO ₂ Emission Reduction & Air Quality	CO ₂ Emission: 157,892 tCO ₂ Other Emissions: SO ₂ : 516.42 tons NOx: 394.55 tons	CO ₂ Emission: 0 tCO ₂ Other Emissions: SO ₂ : 0 tons NOx: 0 tons	CO ₂ Emission: 157,892 tCO ₂ Other Emissions: SO ₂ : 516.42 tons NOx: 394.55 tons
6	Water Quality	Around 5,200.8 x1000 m ³ cooling wastewater discharge	1,589.7 wastewater discharge	Avoidance around 5,199.2x1000 m ³ cooling wastewater discharge.
8	Quantitative Employment And Income Generation & Qualitative Employment	Quantitative Employment: No employment. Qualitative Employment: No training	Quality of Employment: Training certificates are provided. Health&Safety Trainings have been held at least once in two years and 14 plant employees have attended to those trainings. Quantitative Employment and Income Generation: Current employment records are presented. There are 14 employees working in the plant in	Quality of Employment: Training certificates are provided. Health&Safety Trainings have been held at least once in two years and 14 plant employees have attended to those trainings. Quantitative Employment and Income Generation: Current employment records are presented.

			total and 9 of them are local.	There are 14 employees working in the plant in total and 9 of them are local.
7	Electricity Generation	Access to affordable and clean energy services: 0 MWh Balance of payments and investment: 2,561,393.7 USD natural gas import	Access to affordable and clean energy services: 263,595 MWh Balance of payments and investment: 0 USD natural gas import	Access to affordable and clean energy services: 263,595 MWh Balance of payments and investment: Avoidance of 2,561,393.7 USD natural gas import

E.5. Comparison of actual SDG Impacts with estimates in approved PDD

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values achieved during this monitoring period
13	Emission Reduction: 134,148 tCO₂ Air Quality: SO₂: 219.4 tons/y NO_x: 167.6 tons/y	Emission Reduction: 157,892 tCO₂ Air Quality: SO₂: 516.42 tons NO_x: 394.55 tons
6	Water Quality: Cooling water discharge prevented: Avoidance around 2.3 million m³ /y wastewater discharge. Wastewater disposal: The Project is expected to generate 3 m³/day household type wastewater, which will be stored in a septic tank on site and disposed of in accordance with regulations.	Water Quality: Cooling water discharge prevented: Avoidance around 5,199.2 x 1000 m³ wastewater discharge. Wastewater disposal: The Project generated 2.1 m³/day (14 workers x 0.15 m³/workers.day=2.1 m³/day) household type wastewater, which is stored in a septic tank on site and disposed of in accordance with regulations.

		Wastewater transfer receipts are provided.
	Quality of Employment: All employees at the plant are provided Health&Safety Trainings at least once in two years.	Quality of Employment: All employees at the plant are provided Health&Safety Trainings at least once in two years.
8	Quantitative Employment and Income Generation: More than 20 employee	Quantitative Employment and Income Generation: 14 employee (9 of them are local)
	Access to affordable and clean energy services: 112,000 MWh/yr	Access to affordable and clean energy services: 263,595 MWh
7	Balance of payments and investment: 1,088,323 USD natural gas import was avoided by generation of project activity.	Balance of payments and investment: 2,561,393.7 USD natural gas import was avoided by generation of project activity.

Names of Employees:

Name – Surname	Local or Not
E. Demirhan	Not Local
L.Ö. Kavuncu	Not Local
M. Demir	Local
M. Bingül	Not Local
M. İşcan	Local
M. Çimen	Local
O. Gültekin	Local
V. Başkaya	Not Local
S. Kartal	Not Local
H. Fındık	Local
H. Bıyık	Local
H.Şılak	Local
Mu. Demir	Local
A. Yazar	Local

Occupational Health & Safety Training Records of Employees:

Name – Surname	Date			
E. Demirhan	28/06/2019	03/02/2020	03/03/2020	18/05/2021
L.Ö. Kavuncu	28/08/2018	18/09/2018		
M. Demir	05/02/2019	05/03/2019	17/03/2020	
M. Bingül	22/05/2018	16/07/2019	16/01/2021	
M. İşcan	13/08/2019	03/02/2020	24/04/2020	14/04/2021
M. Çimen	05/02/2019	05/03/2019	04/02/2020	18/02/2020
O. Gültekin	09/10/2018	03/02/2020	27/04/2020	26/04/2021
V. Başkaya	28/08/2018	18/09/2018		
S. Kartal	03/06/2021			
H. Fındık	12/08/2020	13/08/2020		
H. Bıyık	12/08/2020	13/08/2020		
H.Şılak	12/08/2020	13/08/2020		
Mu. Demir	12/08/2020	13/08/2020		
A. Yazar	12/08/2020	13/08/2020		

Occupational health and safety trainings have been provided in 2019,2020,2021 and 9 employees are attended to the trainings. For other 2 employees in power plant, occupational health and safety trainings have been provided in September 2018 and these certificates are valid until in September 2020. According to the “Legislation on the Procedures and Principles of Employees' Occupational Health and Safety Training”

of the Republic of Turkey¹⁰, occupational health and safety trainings can be carried out at least once in two years in workplaces that are classified as hazardous. For this reason, these trainings provided in September 2018 are also valid for this monitoring period.

E.5.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

Estimated emission reduction in ex ante calculation of registered PDD is 67,074 tCO₂, which corresponds to 67,074 tCO₂ for 365 days. And actual emission reduction achieved during this monitoring period is 157,892 tCO₂ (for (01/10/2019-26/10/2021), 757 days). In this context, estimated SO₂ reduction calculation of registered PDD is 219.40 tons, and actual emission reduction achieved during this monitoring period is 516.42 tons. NO_x reduction calculation of registered PDD is 167.60 tons, and actual emission reduction achieved during this monitoring period is 394.55 tons.

Estimated electricity generation calculation of registered PDD is 112,000 MWh, which corresponds to 112,000 MWh for 365 days. And actual electricity generated achieved during this monitoring period is 263,595 MWh (for (01/10/2019-26/10/2021), 757 days).

Estimated natural gas import avoided calculation of registered PDD is 1,088,323 USD, which corresponds to 1,088,323 USD for 365 days. And actual natural gas import avoided during this monitoring period is 2,561,393.7 USD (for (01/10/2019-26/10/2021), 757 days).

Amount of avoided wastewater discharge calculation of registered PDD is 2.3 million m³, which corresponds to 2.3 million m³ for 365 days. And actual avoided wastewater discharge achieved during this monitoring period is 5.2 million m³.

The number of employees in registered PDD is determined more than 20 people. And the number of employees is 14 according to the Social Security Institution records.

E.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

Estimated emission reduction in ex ante calculation of registered PDD is 139,110 tCO₂. And actual emission reduction achieved during this monitoring period is 157,892 tCO₂. When they are compared, actual emission reduction achieved during this monitoring period is more than the estimated figure. This situation is arisen from the unexpected wind trend in the project location. Wind potential might have changed. However, when

¹⁰ [Başbakanlık Mevzuatı Geliştirme ve Yayın Genel Müdürlüğü \(resmigazete.gov.tr\)](http://resmigazete.gov.tr)

it is compared, actual emission reduction achieved during this monitoring period is acceptable. Because net difference between estimated and actual emission reduction for the project activity is 13.5 %.

Estimated values for electricity generation, SO₂ reduction, NO_x reduction and natural gas import avoided calculation of registered PDD are 232,285 MWh, 455.03 tSO₂, 347.60 tNO₃ and 2,257,152 USD respectively. Actual values are 263,595 MWh, 516.42 tSO₂, 394.55 tNO₃ and 2,561,393.7 USD respectively. The values such as emission reduction and natural gas import avoided are calculated directly based on electricity generation. Therefore, net difference between estimated and actual values is 13.5% for electricity generation, SO₂, CO₂ and NO_x emission reduction and natural gas import avoided. This difference is also due to the change in wind potential. Amount of avoided wastewater discharge calculation is also related with the electricity generation, and it is also expected that there will be a difference between estimated and actual values because of the wind potential. However, amount of wastewater discharged by the employees should also be considered for the calculation of avoided wastewater discharge. Estimated Amount of avoided wastewater discharge 4.8 million m³ and actual value is 5.2 million m³ during the monitoring period. So, net difference between estimated and actual amount of avoided wastewater discharge for the project activity is 9.0 %.

For number of employees, it was estimated that approximately 20 employees would work at the plant. And actual number of employees are 14 during this monitoring period. Net difference between estimated and actual number of employees for the project activity is 30.0 %.

SECTION F. SAFEGUARDS REPORTING

Principles	Mitigation Measures were added to the Monitoring Plan
3.9.1 Landscape Modification and Soil	Erosion risk control at new roads: The erosion at the newly constructed roads is minimized by limiting the slope and the curvature of the roads and by ensuring high road strength and stability. This target also overlaps with technical needs of the Project Owner, because long and heavy trucks that carry the Project equipment also require the same road quality.
3.9.2 Vulnerability to Natural Disaster	Earthquake Risk: The new powerhouse and turbine towers are subject to earthquake risk. All construction codes are maintained and necessary construction permits are obtained. The construction quality ensures that the Project is sufficiently strong for earthquake risk.
3.9.5 Hazardous and Non-hazardous Waste	Solid Waste: During the operation phase, solid household waste from daily operations is disposed of properly. Since this is a wind power project, not much domestic waste is generated anyway. However, the waste generated is also controlled and collected successfully. Solid household waste is discarded to the Municipal waste container located in the nearest settlement by the personnel because Municipal vehicles providing domestic waste collection services do not provide service to the Sadilli WPP area. Waste oil etc. (gearbox oil waste, oil filters etc.) is collected on site and disposed by licensed companies according to legal requirements. Sadilli WPP performs verification process every two years and now, Sadilli WPP carries out the 4th verification of the 1st crediting period and this process is carried out successfully every two years. During monitoring, required documents (waste collection out-of-area letter and waste oil invoices) are regularly and completely provided.
Principle 9.4 Release of pollutants	Noise: During the monitoring period, regular meetings are held with the muhtar (headman of village), local people and Çanres Elektrik personnel about the occurrence of the noise. During the site visits or remote audits, discussed with local people and their opinions are taken on this issue. Anyway, if they have any complaints during the year other than the site visits or remote audits, they can easily reach the muhtar (head of village) or plant manager. As mentioned before, Sadilli WPP has

been conducted second verification and this parameter is successfully controlled and PO successfully overcome this process. Until this time, no negative feedback has been received from local people regarding noise so far. The project owner has good communication with local people and will take an action if local people have any complaints about noise in the future.

Principle 3.9.10 High Conservation Value Areas and Critical Habitats	Biodiversity: Although the project is not located on a bird migration route and the bird collision risk is very low, the blades were painted by reflecting colour and appropriate lighting of the wind turbines was provided. The project site (around the turbine, etc.) is controlled by one of the project's employees who actively engaged in their controls. It has been concluded that no negative impact has been observed regarding bird mortality due to the project activity until this time. Also, no negative feedback has been received from local people regarding this issue. PO will take an action if local people have any complaints about this issue in the future. Also, required documents (ornithology report) are regularly provided every monitoring period.
Principle 3.4 Cultural Heritage, Indigenous Peoples, Displacement and Resettlement	Land Acquisition: %100 of land acquisition transactions are completed. Interviews to check whether the process is carried out properly according to legal requirements and that land owners are compensated fairly.
Safeguarding Principle: 3.9.9 Animal Husbandry	Livelihood of the Poor: During the site visit, interview with the local people has been carried out and there is no negative comments both on the project activity and on the livestock feeding. No access limitation at the Project site for livestock.

SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

G.1. List all Inputs and Grievances which have been received via the Continuous Input and Grievance Mechanism together with their respective responses/mitigations.

For the Sadilli WPP, stakeholder engagement procedure was conducted with the made man of Elmali village head and the local stakeholders via teleconference on 15/12/2021.

As validated during the remote audit, mukhtar (head of the village) had already taken the contact information of Company Executive of the company so that the local stakeholders will be able to reach company executive whenever they have any complaints, suggestions, or ideas about the project.

Since mukhtar is the head of the village, he is the contact persons between the project owner and the local stakeholders. Muhtar will make sure that there's continuous communication between the two parties. A letter stating that the contact information is available has been signed by the mukhtar on 04/04/2022. During the remote audit, it is validated that there were no negative comments from the stakeholders. Moreover, logbook was delivered to the muhtar of the Elmali village. On-site photos showing that the logbook was sent has been provided. Also, a letter stating that the logbook has been received, and there were no negative comments from the stakeholders during this monitoring period have been provided.

This logbook will be checked in the next verifications to see whether there have been any complaints from the local stakeholders.

Since this project is about the complete its 4th verification of first crediting period and it does not result in different impacts with respect to different vintages, the grievance mechanism does mainly rely on the existed grievance mechanism by use of logbook. There would not requirement to use further grievance tools throughout the project life cycle.

G.2. Report on any stakeholder mitigations that were agreed to be monitored.

There have been no stakeholder mitigations agreed to be monitored.

G.3. Provide details of any legal contest that has arisen with the project during the monitoring period

No legal contest or dispute that has arisen with the project during the monitoring period.

Revision History

Version	Date	Remarks
1.1	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Section for POA monitoring Forward action request section Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on safeguard reporting Clarity on design changes Leakage section added for VER/CER projects Addition of Comparison of monitored parameters with last monitoring period Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.0	10 July 2017	Initial adoption