



Monitoring report form for CDM project activity
(Version 07.0)

MONITORING REPORT		
Title of the project activity	Soma III Wind Farm	
UNFCCC reference number of the project activity	GS3253	
Version number of the PDD applicable to this monitoring report	5	
Version number of this monitoring report	2	
Completion date of this monitoring report	24/10/2019	
Monitoring period number	2	
Duration of this monitoring period	01/06/2017 – 30/06/2019	
Monitoring report number for this monitoring period	1	
Project participants	Soma Enerji Elektrik Üretim A.Ş.	
Host Party	Turkey	
Applied methodologies and standardized baselines	ACM0002 “Grid-connected electricity generation from renewable sources” version 15	
Sectoral scopes	Energy industries (renewable - / non-renewable sources)	
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013
	N/A	364,902
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	324,426	

SECTION A. Description of project activity

A.1. General description of project activity

Soma Enerji Elektrik Üretim A.S. (hereafter referred as the project participant) has developed and operate Soma III Wind Farm Project (hereafter referred as the proposed project activity) in Savastepe District of Balıkesir Province and Soma District of Manisa Province in Turkey. The project activity involves installation of 50 wind turbines with a total installed capacity of 100 MW.

The wind farm exports electricity to the national grid system through a high voltage transmission line.

The purpose of the project is to produce renewable electricity using wind as the power source and to contribute to Turkey's growing electricity demand through a sustainable and low carbon technology. The project will displace the same amount of electricity generated by the grid dominated with fossil fired power plants.

Main milestones of the project activity may be seen as below:

Table 1- Main milestones of the project activity

Date	Event
15/07/2013	Board Decision on VERs
27/11/2013	Turbine contract agreement
20/03/2014	Local Stakeholders Consultation Meeting
31/03/2014	Forestry Permit
30/06/2014	Bank Loan Agreement
28/11/2014	Commissioning of 16 turbines
25/12/2014	Commissioning of 12 turbines
07/02/2015	Commissioning of 3 turbines
20/03/2015	Commissioning of 9 turbines
09/04/2015	Commissioning of 6 turbines
26/06/2015	Commissioning of 4 turbines
28/11/2014	Start date of the 1 st Monitoring Period
31/05/2017	End date of the 1 st Monitoring Period

Total electricity generation and emission reduction in this monitoring period has been calculated as 612,254.68 MWh and 364,902tCO₂eq, respectively.

A.2. Location of project activity

The proposed project activity is planned to be built within Balıkesir Province, Central District and Manisa Province Kırkağaç District.

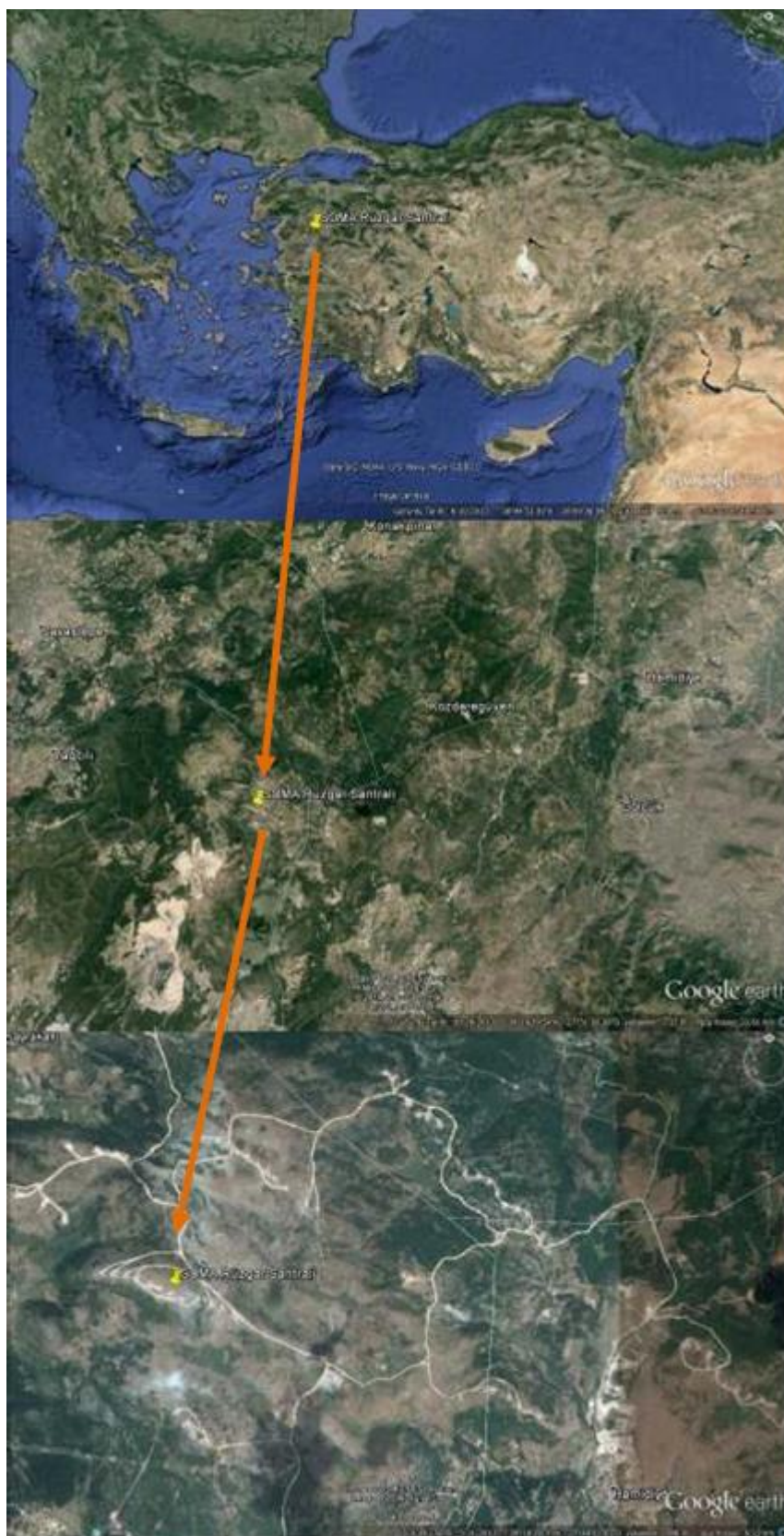


Figure 1. The project area

Table 2- Coordinates of Soma I, II and III (The Generation License is available to the DOE)

	E	N		E	N
T1	569445,00	4351275,00	T92	564823,00	4356299,00
T2	569537,00	4351237,00	T93	565020,00	4356219,00
T3	568766,00	4345588,00	T94	565400,00	4356048,00
T4	568857,00	4345539,00	T95	565595,61	4355960,52
T5	568945,00	4345492,00	T96	565744,35	4355796,42
T6	569034,00	4345445,00	T97	565948,00	4355721,00
T7	569135,00	4345433,00	T98	566361,00	4353834,20
T8	569235,00	4345419,00	T99	566549,00	4353703,00
T9	569339,00	4345406,00	T100	566745,00	4353614,00
T10	569443,00	4345414,00	T101	566255,50	4352471,47
T11	568649,00	4348041,00	T102	566492,10	4352436,31
T12	568722,00	4347967,00	T103	565676,36	4352069,48
T13	568790,00	4347894,00	T104	565906,14	4352027,47
T14	566975,00	4349557,00	T105	566122,44	4351962,12
T15	567042,00	4349484,00	T106	566298,80	4351827,58
T16	567116,00	4349418,00	T107	565194,00	4347131,00
T17	567191,00	4349351,00	T108	565417,59	4347068,86
T18	566678,00	4351421,00	T109	565870,84	4347195,43
T19	566787,00	4351411,00	T110	566146,18	4347233,84
T20	566891,00	4351396,00	T111	566391,13	4347225,45
T21	566999,00	4351399,00	T112	564658,28	4345655,46
T22	567091,00	4351360,00	T113	564825,36	4345502,82
T23	567183,00	4351322,00	T114	564949,00	4345308,00
T24	567276,00	4351284,00	T115	565007,00	4345046,00
T25	567368,00	4351246,00	T116	565166,39	4344903,33
T26	567475,00	4351242,00	T117	565266,99	4344671,21
T27	567567,00	4351203,00	T118	565430,14	4344496,28
T28	567660,00	4351165,00	T119	565578,17	4344299,52
T29	567752,00	4351127,00	T120	570221,00	4347797,00
T30	568843,00	4353248,00	T121	570444,00	4348539,00
T31	568934,00	4353205,00	T122	570453,00	4347753,00
T32	569029,00	4353174,00	T123	570918,00	4347852,00
T33	569053,00	4353009,00	T124	567609,00	4358022,00
T34	569135,00	4352907,00	T125	567998,00	4357841,00
T35	569227,00	4352869,00	T126	567811,00	4357945,00
T36	569320,00	4352830,00	T127	568695,00	4357560,00
T37	567381,00	4352552,00	T128	568855,00	4357411,00
T38	567499,00	4352560,00	T129	569109,00	4357347,00
T39	567600,00	4352543,00	T130	569396,00	4357403,00
T40	567669,00	4352461,00	T131	569684,00	4357490,00
T41	567772,00	4352435,00	T132	570160,00	4357069,00
T42	567857,00	4352379,00	T133	570457,00	4357049,00
T43	567943,00	4352325,00	T134	570704,00	4357095,00
T44	568025,00	4352261,00	T135	570849,00	4356944,00
T45	568084,00	4352190,00	T136	571162,00	4357171,00
T46	568260,00	4352051,00	T137	571588,00	4357538,00
T47	568356,00	4352019,00	T138	567834,00	4357143,00
T48	567238,00	4347285,00	T139	568048,00	4357089,00
T49	567311,00	4347198,00	T140	568405,00	4356849,00
T50	567376,00	4347086,00	T141	569734,00	4349228,00
T51	567442,00	4346991,00	T142	569913,00	4349180,00
T52	567489,00	4346877,00	T143	570041,00	4349050,00
T53	567960,00	4348366,00	T144	570156,00	4348886,00
T54	568015,00	4348238,00	T145	571061,00	4348836,00
T55	568070,00	4348110,00	T146	570406,00	4351836,00
T56	568125,00	4347981,00	T147	570549,00	4351674,00
T57	568180,00	4347853,00	T148	570844,00	4351601,00
T58	568236,00	4347724,00	T149	571060,00	4351616,00
T59	568279,00	4347607,00	T150	569072,00	4351611,00
T60	571360,00	4351098,00	T151	567355,00	4349338,00
T61	571448,00	4351063,00	T152	567345,00	4349005,00
T62	571540,00	4351025,00	T153	567495,00	4348902,00
T63	571593,00	4350866,00	T154	567639,00	4348783,00
T64	571665,00	4350804,00	T155	568388,00	4348293,00
T65	571757,00	4350765,00	T156	568510,00	4348136,00
T66	571849,00	4350726,00	T157	563533,00	4357312,00
T67	571942,00	4350689,00	T158	563692,00	4357229,00
T68	572037,00	4350650,00	T159	563795,00	4357087,00
T69	567398,00	4350357,00	T160	563888,00	4356793,00
T70	567470,00	4350276,00	T161	564024,00	4356670,00
T71	567536,00	4350201,00	T162	564638,00	4355333,00
T72	567625,00	4350154,00	T163	564802,00	4355242,00
T73	569589,00	4350567,00	T164	568691,00	4345793,00
T74	569753,00	4350635,00	T165	569508,00	4346344,00

T75	569861,00	4350657,00	T166	569664,00	4346255,00
T76	569953,00	4350606,00	T167	569831,00	4345249,00
T77	570048,00	4350568,00	T168	570014,00	4345137,00
T78	570140,00	4350530,00	T169	567535,00	4352960,00
T79	570225,00	4350476,00	T170	568261,00	4357770,00
T80	569556,00	4352419,00	T171	566757,00	4346414,00
T81	569648,00	4352382,00	T172	566110,00	4357960,00
T82	569742,00	4352344,00	T173	566747,00	4357966,00
T83	569808,00	4352243,00	T174	568927,00	4347728,00
T84	569873,00	4352138,00	T175	567325,00	4357969,00
T85	569972,00	4352117,00	T176	567431,30	4357241,60
T86	570056,00	4352058,00	T177	566439,70	4357944,40
T87	570117,00	4351986,00	T178	569165,00	4347364,00
T88	570202,00	4351927,00	T179	566248,00	4355660,00
T89	564229,89	4356683,00	T180	567033,00	4357960,00
T90	564389,35	4356536,52	T181	566624,00	4355732,00
T91	564562,15	4356395,44			

A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Turkey (host Party)	Soma Enerji Elektrik Üretim A.Ş. (Private company)	No

A.4. References to applied methodologies and standardized baselines

The emission reductions of the Project have been calculated in accordance with the approved the largescale consolidated methodology ACM0002 “Grid-connected electricity generation from renewable sources”, version 15.0 EB79 Annex 11¹.

For baseline calculations the ACM0002 refers to;

- Tool for the demonstration and assessment of additionality”, version 7.0.0 EB70 Annex 8
- Tool to calculate the emission factor for an electricity system, version 04.0 EB75 Annex 15

“Tool to calculate the emission factor for an electricity system” offers two options of which the Combined Margin (CM) approach has been chosen. The CM consists of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the above-mentioned tool.

A.5. Crediting period type and duration

Renewable Crediting Period is selected as the type of crediting. The start of crediting period is defined as the date of start of operation or a maximum of two years prior to Gold Standard registration, whichever occurs later, in line with the requirements of Gold Standard v2.2.

The first crediting period is 7 years and renewable twice.

The project was registered on 28/09/2015 with a renewable crediting period. The first crediting period starts from 28/11/2014 to 27/11/2021.

¹ <https://cdm.unfccc.int/UserManagement/FileStorage/52FDLM8C49Q3TBSOIJYPVH16ER0UAW>

SECTION B. Implementation of project activity

B.1. Description of implemented project activity

The project activity involves the installation of 50 units of additional wind turbines with a total installed capacity of 100 MW. The project activity has generated 682,554 MWh/year of net electricity during the monitoring period. The total capacity was reached by installation of Enercon E-70 gearless turbines. The key technical specifications of the turbines are as follows:

Table 3- Key technical specifications of wind turbines

Parameter	Value
Rated Power	2MWe ²
Rotor Diameter	71 m
Turbine Concept	Gearless, variable speed, single blade adjustment
Rotor Type	Upwind rotor with active pitch control
Number of blades	3
Swept Area	3959 m ²
Hub Height	64 m
Blade Material	GRP (epoxy resin); built in lightning protection
Rotational speed	Variable, 6-21 rpm
Pitch Control	Enercon single blade pitch system; one independent pitch system per rotor blade with allocated emergency supply
Generator	Enercon direct drive annular generator
Brake Systems	- 3 independent pitch control systems - Rotor brake - Rotor lock
Yaw System	Active via yaw gear, load dependent damping
Cut out wind speed	28-34m/s

B.2. Post-registration changes

B.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

N/A

B.2.2. Corrections

N/A

B.2.3. Changes to the start date of the crediting period

N/A

B.2.4. Inclusion of monitoring plan

N/A

B.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

Considering the net electricity exported to the grid, EPIAS records are used as the main source rather than the Meter Reading Forms. The reason is that the Meter Reading Forms were issued by the governmental officers and signed by both parties. Currently, the forms are filled by the project owner and approved by the governmental officers. Additionally, the remote reading by the governmental body is also available. Since the system has changed, EPIAS records are preferred as the main source by the DOE.

B.2.6. Changes to project design

N/A

B.2.7. Changes specific to afforestation or reforestation project activity

N/A

SECTION C. Description of monitoring system

The objective of the monitoring plan is to ensure the complete, consistent, clear, and accurate monitoring and calculation of the emissions reductions during the whole crediting period. The Project Owner is responsible for the implementation of the monitoring plan.

Monitoring Organization and System

The Project Participant is responsible for the overall management of the monitoring procedures including recording, data collection, calculating emission reductions and project emissions.

TEIAS is performing remote reading of the meters and monthly power meter readings are the basis for monitoring net electricity fed into the grid. A measuring protocol is prepared including day, peak and night hour electricity generation by the project owner and approved by governmental officers at the end of each month.²

EPIAS³ records are the main source for the quantity of the net electricity. EPIAS is the financial settlement centre of TEIAS (the national grid operator). The website of EPIAS is accessible to Project owner with their unique user ID and password. Once accessed, the Project owner is able to call electricity generation and consumption reports of their own projects. The same reports are used by the Project owner for invoicing TEIAS. The electricity generation data is reported monthly basis. The EPIAS records are crosschecked with the meter reading forms.

² The monthly reading protocols are available to the DOE.

³ PMUM has been replaced by EPIAS as of 01/09/2015 in Turkey during the verification period. Retrospective data is accessible via EPIAS.

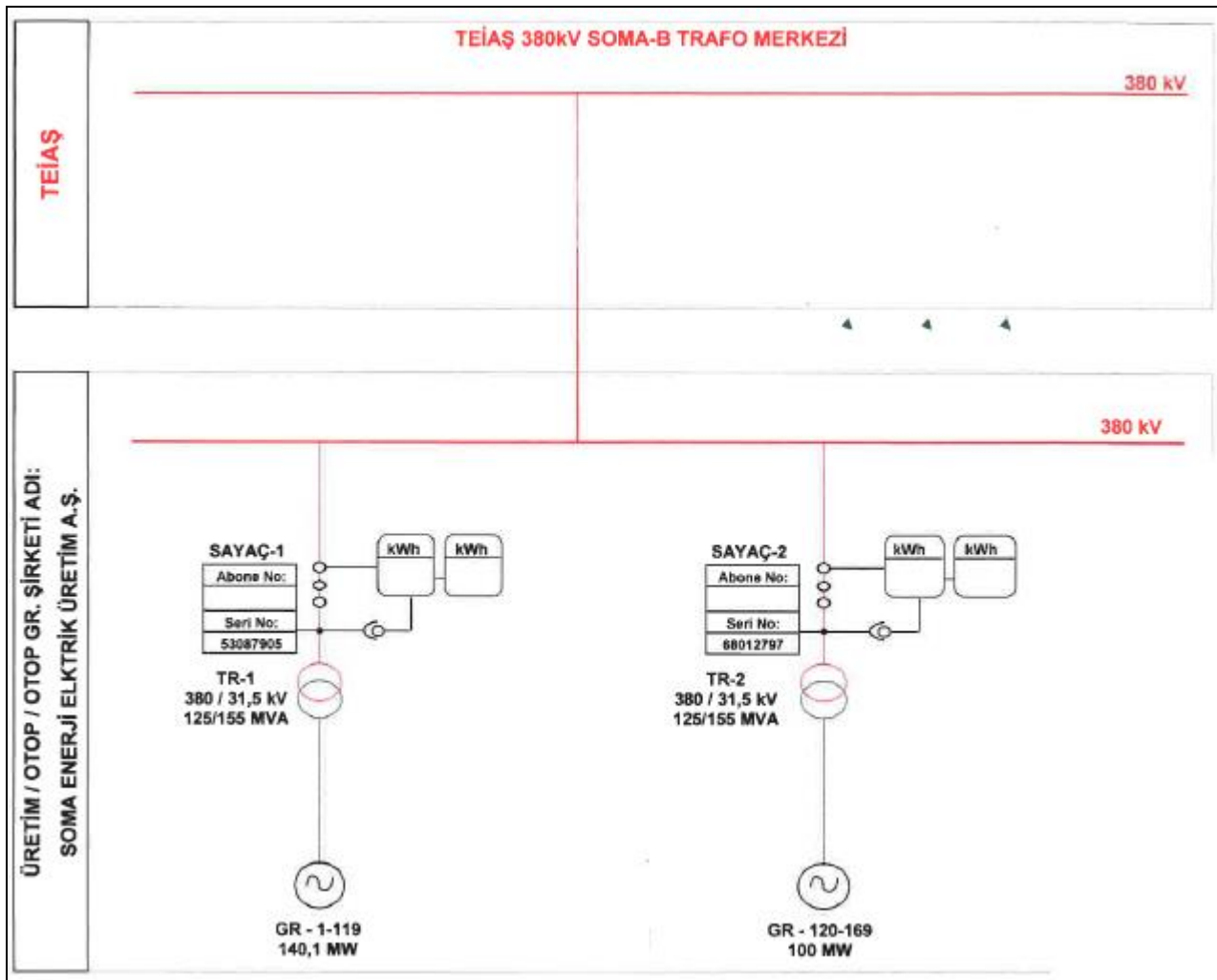
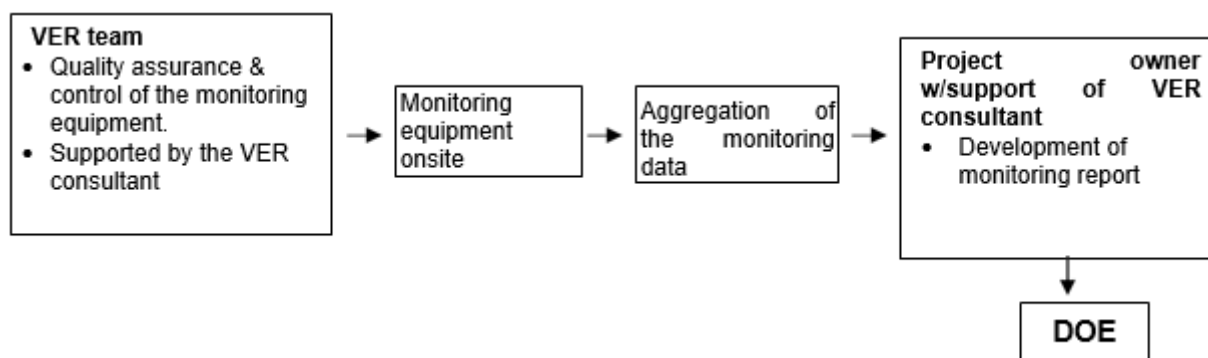


Figure 2. The single line diagram of the Project Activity

The Project Participant is responsible for the operation and maintenance of the project activity and the installed equipment⁴. The project owner is also responsible for the administration of the data, setting up a VER team who will be responsible for monitoring all data required to estimate emission reductions. In the diagram below the organization of monitoring management and data application is presented.

⁴ Except for the electricity meter that monitors both electricity imports and exports, since the monitoring device is sealed by TEİAŞ (Turkish Electricity Transmission Company) and the Project Participant cannot interfere with the device.



Data Management and Quality Control

The main source of measurement is the TEİAŞ meters, which are sealed by TEİAŞ and since it is subject to monthly invoicing high reliability and accuracy is secured. In accordance with the requirements of TEİAŞ, there are two meters installed at the site where one is called the main meter and the other one secondary. TEİAŞ is the main responsible for calibration and maintenance of the devices. TEİAŞ performs the necessary maintenance and calibration. Since the electricity generation data is used for the billing and accounting between TEİAŞ and the project participant the data is of high quality.

Corrective actions and emergency preparedness

The Project Participant regularly checks the monitoring system on errors. In the case of errors, corrective actions will be undertaken by the Project Participant, or if required, by the supplier of the monitoring equipment.

Since the seal duration (10-yr period) of the Primary Meter expired, it was changed on 18/02/2018. The serial number for Primary Meter was 68012797. The Secondary Meter has not been changed. The details of the meters may be seen in section D.2.

All data collected as part of monitoring will be archived electronically by the project owner and be kept at least for 2 years after the end of the last crediting period.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

Data/Parameter	EG _{m,y}
Unit	MWh
Description	Net electricity generated by power plant/unit m
Source of data	TEİAS (Turkish Electricity Transmission Company) https://www.teias.gov.tr/tr/iii-elektrik-enerjisi-uretimi-tuketimi-kayıplar-0
Value(s) applied	Detailed in the registered PDD Table 9
Choice of data or measurement methods and procedures	According to "Turkish Statistics Law and Official Statistics Program" TEİAS, the Turkish Electricity Transmission Company is the official source for the related data, hence providing the most up-to-date and accurate information available.

Purpose of data/parameter	Used to calculate the combined margin emission factor
Additional comments	-

Data/Parameter	$FC_{i,y}$
Unit	tonnes (m ³ for gaseous fuels)
Description	Amount of fossil fuel type i consumed in the project electricity system by generation sources in year y (2009-2011)
Source of data	TEIAS (Turkish Electricity Transmission Company) https://www.teias.gov.tr/tr/iii-elektrik-enerjisi-uretimi-tuketimi-kayiplar-0
Value(s) applied	Detailed in the registered PDD Table 6
Choice of data or measurement methods and procedures	According to "Turkish Statistics Law and Official Statistics Program" TEIAS, the Turkish Electricity Transmission Company is the official source for the related data, hence providing the most up-to-date and accurate information available.
Purpose of data/parameter	Used to calculate the combined margin emission factor
Additional comments	-

Data/Parameter	$NCV_{i,y}$
Unit	GJ/tonnes (m ³ for gaseous fuels)
Description	Net calorific value (energy content) of fossil fuel type i in year y
Source of data	TEIAS (Turkish Electricity Transmission Company) https://www.teias.gov.tr/tr/iii-elektrik-enerjisi-uretimi-tuketimi-kayiplar-0
Value(s) applied	Detailed in the registered PDD Table 6
Choice of data or measurement methods and procedures	According to "Turkish Statistics Law and Official Statistics Program" TEIAS, the Turkish Electricity Transmission Company is the official source for the related data, hence providing the most up-to-date and accurate information available.
Purpose of data/parameter	Used to calculate the combined margin emission factor
Additional comments	-

Data/Parameter	$EF_{CO_2,i,y}$
Unit	tCO ₂ /GJ
Description	CO ₂ emission factor of fossil fuel type i" used in power unit min year y
Source of data	IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter 1 of Volume 2 (Energy) of the 2006 IPCC Guidelines for National Greenhouse Gas Inventory http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.htm
Value(s) applied	Detailed in the registered PDD Table 6
Choice of data or measurement methods and procedures	There is no information on the fuel specific default emission factor in Turkey, hence, IPCC values has been used.
Purpose of data/parameter	Used to calculate the combined margin emission factor
Additional comments	-

Data/Parameter	$\eta_{m,y}$										
Unit	%										
Description	Average net energy conversion efficiency of power unit m in year y										
Source of data	"Tool to calculate the emission factor for an electricity system" version 03.0.0, Appendix 1										
Value(s) applied	<table border="1"> <thead> <tr> <th></th><th>Average conversion efficiency $\eta_{m,y}$</th></tr> </thead> <tbody> <tr> <td>Natural Gas</td><td>IPCC default value of 60% for combined cycle</td></tr> <tr> <td>Lignite</td><td>IPCC default value of 45% for Supercritical IPCC default value of 41.4% for PFBS</td></tr> <tr> <td>Coal</td><td>IPCC default value of 45% for Supercritical IPCC default value of 41.4% for PFBS</td></tr> <tr> <td>Fuel Oil</td><td>IPCC default value of 46% for combined cycle</td></tr> </tbody> </table>		Average conversion efficiency $\eta_{m,y}$	Natural Gas	IPCC default value of 60% for combined cycle	Lignite	IPCC default value of 45% for Supercritical IPCC default value of 41.4% for PFBS	Coal	IPCC default value of 45% for Supercritical IPCC default value of 41.4% for PFBS	Fuel Oil	IPCC default value of 46% for combined cycle
	Average conversion efficiency $\eta_{m,y}$										
Natural Gas	IPCC default value of 60% for combined cycle										
Lignite	IPCC default value of 45% for Supercritical IPCC default value of 41.4% for PFBS										
Coal	IPCC default value of 45% for Supercritical IPCC default value of 41.4% for PFBS										
Fuel Oil	IPCC default value of 46% for combined cycle										
Choice of data or measurement methods and procedures	Default values have been used.										
Purpose of data/parameter	Used to calculate the combined margin emission factor										
Additional comments	Where available Plant specific efficiencies are used instead of default values where available.										

D.2. Data and parameters monitored

Data/Parameter	$EG_{PJ_ADD,y}$
Unit	MWh
Description	Quantity of net electricity generation supplied to the grid in year y by the project plant/unit that has been added under the project activity
Measured/calculated/default	Measured
Source of data	EPIAS records as mentioned in Section C. Net electricity exported is crosschecked with Meter Reading Forms issued by Project owner and approved by governmental officers (When the PDD was issued the system worked as: The Meter Reading Forms were issued by the governmental officers and signed by both parties. Currently, the forms are filled by the project owner and approved by the governmental officers. Additionally, the remote reading by the governmental body is also available). Since the system has changed EPIAS records are considered as the main source.
Value(s) of monitored parameter	175,334.06 MWh for 2017 288,415.79 MWh for 2018 148,504.83 MWh for 2019

Monitoring equipment	The net electricity is measured continuously by a power meter at the grid interface and recorded monthly.		
	Power meters:		
		Primary Meter*	Secondary Meter
	Brand/Model	EMH/ LZQJ-XC	ITRON/ SL7000
	Serial Number	7019903	68012798
	Accuracy of meters	0.2 S	0.2 S
	*Since the seal duration (10-yr period) of the Primary Meter expired, it was changed on 18/02/2018. The serial number for Primary Meter was 68012797. The Secondary Meter has not been changed.		
Measuring/reading/recording frequency	The electricity will be measured continuously and recorded at least monthly.		
Calculation method (if applicable)	The net electricity is the difference of the electricity supplied and consumed by the project and shall be taken into account for emission reduction calculations.		
QA/QC procedures	• A secondary meter is used for crosschecking the accuracy and both meters are calibrated if required. • EPIAS records are considered as the main source for the net electricity and the values are crosschecked with the data measured by meters. • TEIAS is responsible for calibration and maintenance of the devices. The periodical calibration or maintenance is under the responsibility of TEIAS and has been fixed as once in 10 years. Since TEIAS meters are sealed by TEIAS, the project proponent cannot intervene with the devices. The periodic tests are executed on annual basis. Last metering test was performed on 18/02/2018. • Latest calibration of testing instrument was performed on 18/02/2018.		
Purpose of data/parameter	Calculation of emission reductions		
Additional comments			

Sustainable Development Matrix Indicators

Data/Parameter	Air Quality (SDI I)
Unit	N/A
Description	a. Electricity delivered to the grid substituting fossil fuel-based electricity generation in the baseline resulting in decreased NOx and SOx. b. Dust mitigation - c.
Measured/calculated/default	Calculated

Source of data	a. - EPIAS records for electricity production - United States Environmental Protection Agency for SO₂ and NO₂ emissions per MWh (http://www.epa.gov/cleanenergy/energy-and-you/affect/air-emissions.html) <table border="1" data-bbox="628 367 1339 573"> <tr> <th></th><th>SO₂ (kg/MWh)</th><th>NO₂ (kg/MWh)</th></tr> <tr> <td>Natural Gas</td><td>0.45</td><td>7.71</td></tr> <tr> <td>Coal</td><td>5.89</td><td>2.72</td></tr> <tr> <td>Oil</td><td>5.44</td><td>1.81</td></tr> </table> For simplicity and conservativeness it is assumed that the electricity delivered to the grid by the project activity will result in 0.45kg/MWh SO₂ and 1.81kg/MWh NO₂ emission reductions		SO ₂ (kg/MWh)	NO ₂ (kg/MWh)	Natural Gas	0.45	7.71	Coal	5.89	2.72	Oil	5.44	1.81								
	SO ₂ (kg/MWh)	NO ₂ (kg/MWh)																			
Natural Gas	0.45	7.71																			
Coal	5.89	2.72																			
Oil	5.44	1.81																			
Value(s) of monitored parameter	a. Electricity delivered to the grid substituting fossil fuel-based electricity generation in the baseline resulting in decreased NO_x and SO_x <table border="1" data-bbox="525 840 1439 1155"> <tr> <th>Vintage</th><th>Electricity delivered to the grid</th><th>Amount of SO₂ Emission Reduction</th><th>Amount of NO_x Emission Reduction</th></tr> <tr> <td>01.06.2017-31.12.2017</td><td>175,334.06</td><td>78.9</td><td>317.4</td></tr> <tr> <td>01.01.2018-31.12.2018</td><td>288,415.79</td><td>129.8</td><td>522</td></tr> <tr> <td>01.01.2019-30.06.2019</td><td>148,504.83</td><td>66.8</td><td>268.8</td></tr> <tr> <td>TOTAL</td><td>612,254.68</td><td>275.5</td><td>1,108.18</td></tr> </table> Totally, 275.5 tons of SO₂ and 1,108.18 tons of NO₂ have been reduced due to the project activity within this monitoring period.	Vintage	Electricity delivered to the grid	Amount of SO ₂ Emission Reduction	Amount of NO _x Emission Reduction	01.06.2017-31.12.2017	175,334.06	78.9	317.4	01.01.2018-31.12.2018	288,415.79	129.8	522	01.01.2019-30.06.2019	148,504.83	66.8	268.8	TOTAL	612,254.68	275.5	1,108.18
Vintage	Electricity delivered to the grid	Amount of SO ₂ Emission Reduction	Amount of NO _x Emission Reduction																		
01.06.2017-31.12.2017	175,334.06	78.9	317.4																		
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01.01.2019-30.06.2019	148,504.83	66.8	268.8																		
TOTAL	612,254.68	275.5	1,108.18																		
Monitoring equipment	N/A																				
Measuring/reading/recording frequency	a. Once for each monitoring period b. During first verification																				
Calculation method (if applicable)	a. For simplicity, it is assumed that the electricity delivered to the grid by the project activity will result in 0.45kg/MWh SO₂ and 1.81kg/MWh NO₂ emission reductions. b. Visual inspection (such as pictures of water sprinklers used during the construction)																				
QA/QC procedures	N/A																				
Purpose of data/parameter	Sustainability monitoring parameters																				
Additional comments																					

Data/Parameter	Quality of Employment (SDI.3)
Unit	N/A
Description	Trainings on occupational health and safety. Availability of protection equipment.
Measured/calculated/default	N/A
Source of data	Through training certificates or training attendance lists.

Value(s) of monitored parameter	Health and Safety trainings ⁵
Monitoring equipment	N/A
Measuring/reading/recording frequency	Once for each year of operation
Calculation method (if applicable)	N/A
QA/QC procedures	N/A
Purpose of data/parameter	Sustainability monitoring parameters
Additional comments	

Data/Parameter	Quantitative employment and job creation (SDI4)
Unit	N/A
Description	Job creation
Measured/calculated/default	N/A
Source of data	Through number of contracts (Social Security System records) ⁶
Value(s) of monitored parameter	In total 40 employees are working for the whole Soma project (I, II and III)
Monitoring equipment	N/A
Measuring/reading/recording frequency	Once for each monitoring period
Calculation method (if applicable)	N/A
QA/QC procedures	N/A
Purpose of data/parameter	Sustainability monitoring parameters
Additional comments	There are 40 employees working for PP at the site. Since both project activities Soma I, II and III are under the same company it is not possible to identify which employee is working for Soma III. However, taking into account that Soma project (I, II and III) is GS registered project activity with the same parameter, the benefit is linked.

⁵ Education Participation Forms are available to the DOE.

⁶ The records are available to the DOE.

Grievance Mechanism

During the monitoring period, 11 appeals have been recorded. Four of these are the complaints received from the villagers. Appropriate actions have been taken and the issues have been solved. Seven of the appeals are the requests came from the villagers and the site staff. The project owner has taken care of all the requests and appropriate actions have been taken. Please see Table 4 for the details:

Table 4- Grievance mechanism appeals⁷

Date	Topic	Action
01.07.2019	Request for the restore of the mosque	Monetary aid was done.
01.07.2019	Request for straightening Yazören village road with grader	The road was straightened.
18.07.2019	Complaint of water pipeline damage during transportation road manufacturing works (Bademli village)	Water pipeline has been repaired.
20.07.2019	Complaint of a damage to a duck and a goose with a vehicle	The necessary warnings were made and pecuniary reparation were provided.
01.08.2019	Request from Yazören, Hıdırbalı and Yukarıkaraçam villages for increasing the security of the region.	A 7/24 night-vision camera has been installed.
05.08.2019	Complaint of dust issue due to vehicle traffic	Measures on watering regularly have been taken.
09.08.2019	Request for irrigation pond and fountain renovation	Irrigation pond and fountain were renovated.
16.08.2019	Request for the construction of irrigation pond	The irrigation pond has been constructed.
30.08.2019	Request for arrangement of Soma Office entrance's parking space	Line marking of parking space borders have been done.
05.09.2019	Dust complaint due to traffic between construction site vehicles and cars of surrounding villagers	Necessary warnings were made to vehicle drivers. Additionally, warning signs have been installed. The roads were watered.
03.10.2019	Request for the renewal of washbasins in the project office	Renewal works have been initiated.

⁷ Related records are available to the DOE.

FAR#1: Expropriation of Private Land should be check next verification

Expropriation of all parcels of the land has not been completed, yet. The land titles of the 4 parcels have been provided to the DOE. As mukhtars of the villages have been interviewed during the site visit, they also stated that there had been no problem during the process. General procedures are going on apart from the project owner.

FAR#2: As per the opinion of the verifying DOE and the “log book” not being effectively used by the local residents, PP shall document the feedback received from the villagers by any means (phone calls, face to face meetings, etc.) for the following monitoring period in order to enhance the grievance mechanism and to provide to the verifying DOE.

Logbook has been used by the villagers as may be seen through grievance forms which have been provided to the DOE. The precautions taken are detailed in the minutes which are attached to the forms. Both support requests and complaints were notified to the project owner. For instance, road-surface treatment was requested by the villagers. The road-surface was treated by the project owner. Both the form and solution minute can be checked through the records provided.

FAR#3: The PP and DOE shall consider the daily life of the villagers and special circumstances of the region while organizing the site visits. As” the project area to be quite extensive” as described by the DOE and thus the impact area to be the same, the verifying DOE to conduct interviews with the local residents on the sustainability monitoring plan indicators and grievance mechanism feedbacks for the next monitoring period.

Interviews have been organized with the local people during the site visit. Mukhtars of the villages Dikmeler, Hıdırbalı and Hamidiye have been interviewed.

D.3. Implementation of sampling plan

N/A

SECTION E. Calculation of emission reductions or net anthropogenic removals**E.1. Calculation of baseline emissions or baseline net removals**

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The baseline emission BE_y (tCO_2e) during the monitoring period results from:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

Where:

BE_y	Baseline emissions in year y (tCO_2e/y)
$EG_{PJ,y}$	Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)

$EF_{grid,CM,y}$ Combined margin CO₂ emission factor for grid connected power generation in year y calculated by using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO₂/MWh)

Calculation of $EG_{PJ,y}$

The calculation of $EG_{PJ,y}$ is different for (a) greenfield plants; (b) retrofits and replacements and; (c) capacity additions. Since the proposed project activity falls under the description capacity addition, the following method has been adopted.

Capacity addition to wind, solar, wave or tidal plant

In case of wind energy, it is assumed that the addition of new capacity does not significantly affect the electricity generated by existing power plant(s) or unit(s). In this case, the electricity fed into the grid by the added power plant(s) or unit(s) could be directly metered and used to determine $EG_{PJ,y}$.

$$EG_{PJ,y} = EG_{PJ_ADD,y}$$

Where:

$EG_{PJ,y}$	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the VER project activity in year y (MWh/yr)
$EG_{PJ_ADD,y}$	Quantity of net electricity generation supplied to the grid in year y by the project plant/unit that has been added under the project activity (MWh/yr)

$EF_{grid,CM,y}$ value is fixed as 0.596 tCO₂/MWh for the crediting period of seven years.

Table 5- Baseline emissions

Month	(A) Electricity supplied to the grid [MWh]	(B) Electricity consumption from the grid [MWh]	(C) = (A) - (B) EG (ID 8) Net electricity supplied to the grid [MWh]	EF [tCO ₂ /MWh]	Baseline emission: ER = EG * EF [t CO ₂ -eq]
Jun-17	10,967.08	19.59	10,947.49	0.596	6,525
Jul-17	35,718.72	2.62	35,716.10	0.596	21,287
Aug-17	48,916.82	1.83	48,914.99	0.596	29,153
Sep-17	13,114.36	11.38	13,102.98	0.596	7,809
Oct-17	20,231.75	4.65	20,227.10	0.596	12,055
Nov-17	12,661.38	21.34	12,640.04	0.596	7,533
Dec-17	33,790.51	5.15	33,785.36	0.596	20,136
Jan-18	27,844.10	21.69	27,822.41	0.596	16,582
Feb-18	21,831.43	8.64	21,822.79	0.596	13,006
Mar-18	29,814.57	1.63	29,812.94	0.596	17,769
Apr-18	16,403.35	13.59	16,389.76	0.596	9,768
May-18	19,894.10	9.54	19,884.56	0.596	11,851
Jun-18	15,349.93	11.23	15,338.70	0.596	9,142
Jul-18	17,977.69	10.27	17,967.42	0.596	10,709
Aug-18	37,537.41	0.71	37,536.70	0.596	22,372
Sep-18	25,259.53	1.01	25,258.53	0.596	15,054
Oct-18	22,078.65	5.36	22,073.28	0.596	13,156
Nov-18	32,941.66	1.44	32,940.22	0.596	19,632
Dec-18	21,586.53	18.05	21,568.48	0.596	12,855
Jan-19	26,204.81	1.69	26,203.12	0.596	15,617
Feb-19	29,834.18	8.22	29,825.95	0.596	17,776
Mar-19	33,332.54	2.80	33,329.74	0.596	19,865
Apr-19	21,793.95	9.10	21,784.85	0.596	12,984
May-19	10,043.497	11.017	10,032.48	0.596	5,979
Jun-19	27,335.75	7.063	27,328.69	0.596	16,288
2017 Vintage (01.06.2017-31.12.2017)	175,400.62	66.56	175,334.06	0.596	104,499
2018 Vintage (01.01.2018-31.12.2018)	288,518.95	103.15	288,415.79	0.596	171,895
2019 Vintage (01.01.2019-30.06.2019)	148,544.73	39.90	148,504.83	0.596	88,508
Total	612,464.30	209.62	612,254.68	0.596	364,902

E.2. Calculation of project emissions or actual net removals

According to ACM0002, project emissions are taken as zero.

E.3. Calculation of leakage emissions

According to ACM0002, 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.

E.4. Calculation of emission reductions or net anthropogenic removals

	Baseline GHG emissions or	Project GHG emissions or actual net	Leakage GHG emissions	GHG emission reductions or net anthropogenic GHG removals (t CO ₂ e)
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				Before 01/01/2013	From 01/01/2013	Total amount
Total	364,902	0	0	0	364,902	364,902

E.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the registered PDD

Amount achieved during this monitoring period (t CO ₂ e)	Amount estimated ex ante for this monitoring period in the PDD (t CO ₂ e)
364,902	324,426

E.5.1. Explanation of calculation of “amount estimated ex ante for this monitoring period in the PDD”

Estimated emission reduction in ex ante calculation of registered PDD is 155,810 tCO₂e, which corresponds to 324,426 tCO₂e for 760 days. And actual emission reduction achieved during this monitoring period is 364,902 tCO₂e (for 01/06/2017-30/06/2019, 760 days).⁸

E.6. Remarks on increase in achieved emission reductions

Actual emission reduction in the second monitoring period is higher (40,476 tCO₂e) than the ex-ante value estimated in the registered PDD. The amount causing difference can be explained as the increase of 12% than the expected generation of the project activity. It's obvious that the generation is volatile considering the differences between the years. The differences may occur due to more wind than expected. The vintage wise and total comparison may be seen in Table 6:

Table 6- Comparison of emission reductions

Vintage	Period	Amount achieved during this monitoring period (tCO ₂ e)	Amount estimated ex ante (tCO ₂ e)
2017	01.06.2017-31.12.2017	104,499	91,352
2018	01.01.2018-31.12.2018	171,895	155,810
2019	01.01.2019-30.06.2019	88,508	77,265
Total		364,902	324,426

⁸ The calculation can be seen in more detail via the ER Calculations Soma III WPP excel spreadsheet which is available to the DOE.