



Final Report

Mid-Size Sustainable Energy Financing Facility (MidSEFF) Koyuncu Solar Power Plant: Non-Technical Summary (NTS)

February 2017

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European Bank for Reconstruction and Development

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The European Bank for Reconstruction and Development (EBRD) launched in January 2011 a financing facility aimed at scaling up Renewable Energy and Energy Efficiency investments in Turkey, to increase the country's energy savings and decrease its carbon emissions. The Turkish Mid-Size Sustainable Energy Financing Facility (MidSEFF) launched by the EBRD with support from the European Investment Bank (EIB) and European Commission (source of the Technical Cooperation funds) will provide a total of EUR 1,500 million (which includes EUR 300 million provided by EIB) in loans through 7 Turkish banks for on-lending to private sector borrowers.

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Acronyms

dBA	decibel
EBRD	European Bank for Reconstruction and Development
ETL	Energy Transmission Line
SEPP	Solar Energy Power Plant
MidSEFF	Mid-Size Sustainable Energy Financing Facility
MoFAL	Ministry of Food, Agriculture and Livestock
NTS	Non-Technical Summary
PC	Project Consultant
PV	Photovoltaic
SPV	Special Purpose Vehicle
TEDAS	Turkish Electricity Distribution Company
The Sponsor	Koyuncu Group

1. General Plant Description

KOYUNCU SEPP Project is a bundle of 8 unlicensed Solar-PV projects with a 9.14 MWp/8.00 MWe rated power capacity in total which spread out two different districts of Konya Province in Turkey. The projects are grouped as; 5.00 MWe in Çumra District and 3.00 MWe in Güneysınır District. Solar-PV plants will be installed on mostly open terrains and the site elevations vary between 1,037 m. to 1,129 m. a.s.l for Çumra and 1,129 to 1,246 m. a.s.l for Güneysınır.

All project locations are specified as “dry marginal agricultural land” by Konya Provincial Directorate of Food, Agricultural and Livestock.

Application for an electricity production license is not required for the PV plants whose capacity are smaller than or equal to 1 MWe. However, after receiving the Call Letter from the local Grid Operator and completion of TEDAS project approval process, the connection agreement must be signed with the Grid Operator. The Sponsor has already completed the connection agreement process for all sub-projects.

The construction of projects will be started on February 2017 and completed in the end of August 2017. Google Earth view of the proposed projects are shown in the figures below.



Figure 1-1 Google Earth View of the proposed project in Çumra, İçeriçumra (Eragro-5 SEPP)

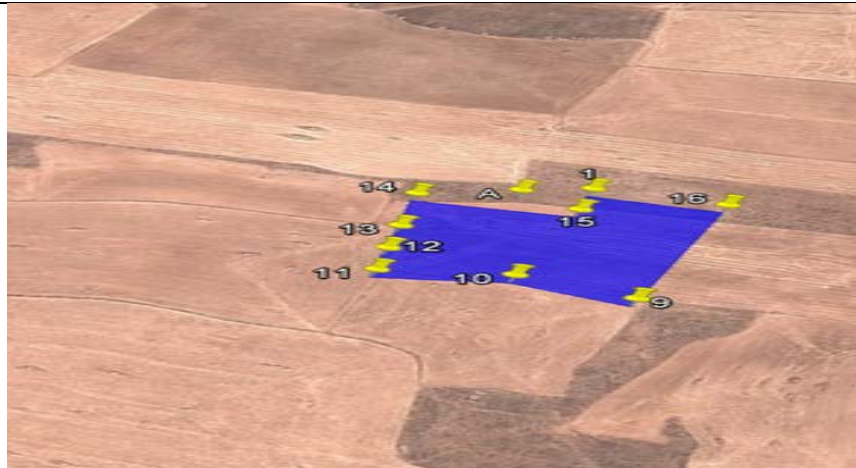


Figure 1-2 Google Earth View of the proposed projects in Çumra, Apa (Girayhan 1 and Girayhan-2 SEPPs)

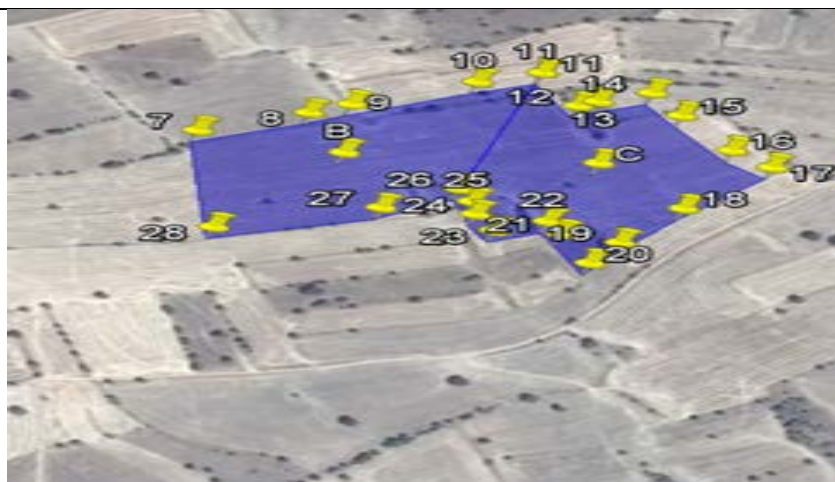


Figure 1-3 Google Earth View of the proposed projects in Çumra, Yeni Mescit (Eragro-6 and Eragro-7 SEPPs)

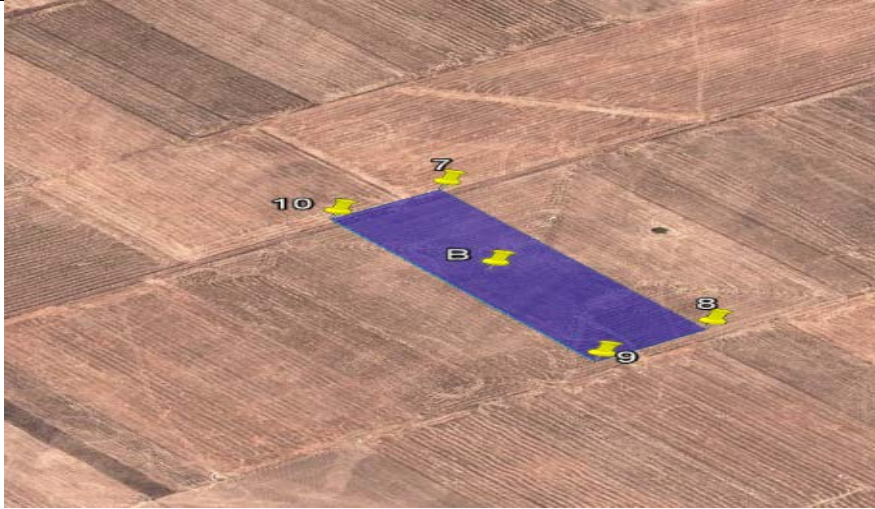


Figure 1-4 Google Earth View of the proposed projects in Güneysınır, Karasınır (Eragro-8 SEPP)

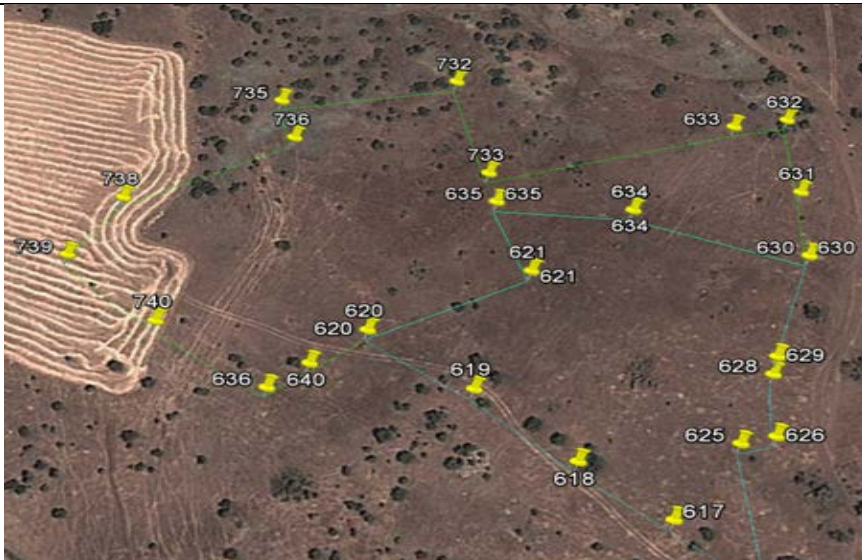


Figure 1-5 Google Earth View of the proposed projects in Güneysınır, Gurağaç (Eragro-9 and Girayhan-3 SEPPs)

Table 1–1: Key project summary data

Key Project Summary Data	
Project Name	Koyuncu SEPP
Project Borrower	Eragro Enerji Tarım ve Hayvancılık Tic. San. Ltd. Şti. Girayhan Tarım Enerji ve Hayvancılık Tic. San. Ltd. Şti.
Project Sponsor	KOYUNCU Group
EBRD Transaction	The total project cost for 8 SPVs is USD 15,753,763 including USD 11,085,619 fixed investment cost, VAT of USD 4,272,241, USD 50,104 commitment and arrangement fee, USD 183,073 investment period interest and USD 162,726 working capital requirement. The debt financing amount of the investment will be USD 9,250,000 by EBRD resources. The debt to equity ratio is calculated as approximately 59:41%.
Project Description / Business Purpose	<p>The investment consists of 8 solar PV plants in two different districts of Konya Province as it is also summarized below;</p> <ul style="list-style-type: none"> ✓ 5 un-licensed PV projects in Konya Province, Çumra District for a total of 5 MW, and (Girayhan 1, Girayhan 2, Eragro 5, Eragro 6 and Eragro 7 SEPPs) ✓ 3 un-licensed PV projects in Konya Province, Güneysınır District for a total of 3 MW (Girayhan 3, Eragro 8 and Eragro 9 SEPPs) <p>The project will approximately generate 14.7 GWh/year electricity in the first year of operation.</p> <p>The Sponsor has received the Call Letters and, completed the TEDAS approval and connection agreement processes for all sub-projects.</p> <p>Within the scope of the project, 3.1 km overhead ETL for Eragro-8; 8.7 km overhead ETL for Eragro-7; 0.6 km overhead ETL for Eragro-9; 1.8 km underground ETL for Eragro-5; 0.075 km underground ETL for Girayhan-6; 0.1 km underground ETL for Girayhan-1 and 0.060 km underground ETL for Girayhan-2 will be constructed.</p>
Installed Capacity	8 MWe
Annual Electricity Production	14,720,000 kWh/year (first year)

2. Environmental and Social Baseline

2.1 Environmental description of the project areas

Koyuncu PV solar power plant is located in two different districts (Çumra and Güneysınır) of Konya Province in Central Anatolian Region. The project areas will be mostly on arid lands and, all are classified as “dry marginal agricultural land” by Konya Provincial Directorate of Food, Agricultural and Livestock.

The proposed sub-project sites have no interaction with any Natural Parks or Wildlife Protection Areas. There is no natural park or protected area in close proximity of the sub-project sites as well. The closest Natural Park to the sub-project sites is Akyokuş Natural Park and it is 35 km far away from the sub-project located in Çumra-İçeriçumra. The closest Wildlife Protection Area to the sites, namely Bozdağ WPA, is about 50 km from the Çumra-İçeriçumra site.

Table 2–1: Environmental characteristics

ENVIRONMENTAL ASPECTS	PRESENCE /DISTRIBUTION	COMMENTS
Land use	The project areas consist of dry marginal agricultural lands.	Non-Agricultural Utilization Permit obtained from the Provincial Directorate of MoFAL.
Water surfaces	Apa Dam in Çumra	The closest water source is Apa Dam which is 4 km away from the Eragro 6-7 sub-projects in Yeni Mescit, Çumra.
Protected area	The closest Natural Park to the sub-project sites is Akyokuş Natural Park which is 35 km far away from the sub-project located in Çumra-İçeriçumra. The closest Wildlife Protection Area to the sites is Bozdağ WPA with about 50 km distance from the Çumra-İçeriçumra site.	The proposed sub-projects sites have no interaction with any protected area.
Flora and Fauna	The project locations are mostly in arid lands and poor in vegetation.	-

2.2 Social condition of the project areas

According to the 2015 census, the total population of Konya Province is 2,130,544. The populations of Çumra and Güneysınır Districts are 65,152 and 9,636, respectively.

All project areas are owned by the sponsor. The closest residential areas to the sub-project sites (based on the Google Earth) are summarized in the table below:

Table 2–2: Closest Settlements

Sub-project	Closest Settlement	Distance (km)
Eragro 8	Karasınır Village	3
Eragro 9	Gürağaç Village	7

Girayhan 3	Gürağaç Village	7
Eragro 6-7	Yenimescit Village	1
Girayhan 1-2	Apa Village	8
Eragro 5	İçeriçumra Village	10

There is no historically, culturally and archeologically important place in and around the project areas.

3. Social and Environmental Impacts

3.1 Land Use

All the proposed sub-project areas are located within dry marginal agricultural lands and owned by the sponsor. During the zoning plan approval process, the Sponsor has obtained the Non-Agricultural Utilization Permit from the Provincial Directorate of the MoFAL. The total area of the 8 sub-projects is 129,328 m².

Within the scope of the project, 3.1 km overhead ETL for Eragro-8; 8.7 km overhead ETL for Eragro-7; 0.6 km overhead ETL for Eragro-9; 1.8 km underground ETL for Eragro-5; 0.075 km underground ETL for Girayhan-6; 0.1 km underground ETL for Girayhan-1 and 0.060 km underground ETL for Girayhan-2 will be constructed. The ETLs will pass through private registered lands and forestry lands. The acquisition processes have been started for the proposed ETLs and, the process will be followed by the PC during monitoring activities.

3.2 Water

Based on the assumption that the daily domestic water requirement is 150 litres per person and considering the total worker number of 60 during the construction phase and 10 during the operation phase, the total amounts of domestic wastewater production in the construction and operation phases are estimated as 9 m³/day and 1.5 m³/day, respectively. Wastewater generated during the construction and operation phases will be collected in impermeable septic tanks to be constructed for each sub-project site in compliance with the related Turkish regulations.

3.3 Waste

It is estimated that mainly domestic solid waste and construction waste will be produced as a result of construction activities. All suitable excavated waste generated during land preparation works will be used as backfill material.

Domestic solid waste will be produced by workers on-site. Assuming the daily domestic solid waste production rate of 1.08 kg per person, it is estimated that 64.8 kg/day of waste will be produced by 60 workers to be employed during the construction phase and 10.8 kg/day of waste will be produced by 10 worker to be employed during the operation phase.

Recyclable waste should be collected in separate waste containers and potentially hazardous waste should be segregated from non-hazardous construction waste and domestic waste. The Sponsor should prepare a waste management plan and implement it accordingly during the construction and operation phases. Separate temporary storage areas that have impermeable bases should be provided for the storage of waste oils, fuels, hazardous substances, etc.

3.4 Emissions: Noise and Particulate

Noise emissions will be generated during construction phase due to earthmoving works, installation of PV panels and operation of construction machinery and other equipment. Since noise will be mainly generated by the construction machinery and equipment and considering that residential houses are not close to the projects areas (>1 km), the noise level at the closest residential areas are expected to be below the noise limit value (70 dBA) defined by the related national regulation, namely Regulation on Assessment and Management of Environmental Noise. During the operation phase, no noise emission is expected to be produced.

Potential impacts of the Koyuncu SEPP on air quality will occur basically during the construction phase of the projects due to exhaust gasses of heavy machinery. However, no critical aspects are expected related to air emissions providing that maintenance of the heavy machinery should be done regularly. For the operations phase, no air emission is expected.

The PC notes that the PS is required to take necessary measures to minimize noise and air emissions during the construction phase. The waste management plan should also cover the noise & dust emission management.

3.5 Landscape

Since the PV power plants require large areas for solar radiation collection, the landscape could be a really sensitive aspect for this kind of projects and, although there is no national regulatory requirement, the PS is required to make an assessment of visual impacts with a photo montage study for all project locations.

Table 3–1: Impact Quantification

COMPONENT	IMPACT	QUANTIFICATION
Land use	<u>Land use</u>	Dry marginal agricultural lands with a total 129,328 m ² area will be used for the eight sub-projects. Non-Agricultural Utilization Permit has been obtained from the Provincial Directorate of the MoFAL during the zoning plan approval process.
Wastewater	<u>Utilization and Discharge</u>	9 m ³ /day during the construction phase 1.5 m ³ /day during the operation phase
Waste	<u>Production of solid waste</u>	64.8 kg/day in the construction phase and 10.8 kg/day in the operation phase (assuming 60 workers during construction and 10 workers during operation)
	<u>Excavation waste</u>	The majority of excavated waste generated during land preparation works will be used as backfill material.
Fauna and flora	<u>Interference with flora-fauna species</u>	During the visit, it has been also observed that there are some trees (approximately 8-10 trees) which are planned to be cut at the sub-project locations in Güneysınır-Gürağaç (Eragro-9 and Girayhan-3 SEPPs) and Çumra-Yenimescit (Eragro 6 and Eragro-7 SEPPs) before the construction works. Other project locations are poor in vegetation and no tree cutting will be required
Emissions	<u>Noise</u>	Construction phase < local reg. limit of 70 dBA Operational phase < local reg. limit of 65 dBA
	<u>Particulate</u>	Construction phase < local reg. limit = 1 kg/h No particulate emission during the operation phase
Landscape	<u>Changing in the aspect of the area</u>	A visual impact assessment is required for all sub-projects.

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