



## Project Summary Information

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<b>Project Name</b>	Efeler 97.6MWE Geothermal Power Plant Expansion Project
<b>Document Code</b>	PD000260-PSI-TUR
<b>AIIB Member</b>	Republic of Türkiye
<b>Sector/Subsector</b>	Energy / Renewable Energy Generation – Geothermal
<b>Status of Financing</b>	Approved on July 11, 2019
<b>Project Description</b>	<p>The Asian Infrastructure Investment Bank (AIIB) is considering a senior loan of USD100 million to Gürmat Elektrik Uretim A.S. (Gürmat Elektrik or the Company) as part of a USD350 million project finance facility alongside the European Bank for Reconstruction and Development (EBRD), Türkiye İş Bankası, Türkiye Sanayi ve Kalkınma Bankası and the Black Sea Trade and Development Bank, to support the construction and operation of the Efeler 97.6MW Geothermal Power Plant Expansion Project (Gürmat-2 GPP Expansion or the Project).</p> <p>The Project consists of the construction of three additional geothermal power plant (GPP) units, including their associated production and reinjection wells, pipelines, electricity switchyards and transmission lines. The Efeler GPP units currently in operation are Gürmat-1 (Germencik, also known as Galip Hoca) and Gürmat-2 (Efe-1, Efe-2, Efe-3 and Efe-4), which jointly amount to 162.3 MW of combined installed capacity. The three additional GPP units associated with the Project (Efe-6, Efe-7 and Efe-8) will increase the operating capacity of the Efeler GPP to 259.9 MW by October 2020, when the Efe-8 GPP reaches commercial operation. Efe-6 and Efe-7 GPP units are in operations since August 2017 and October 2018, respectively.</p> <p>Gürmat Elektrik was established in 1999 to build and operate a set of GPPs in the Germencik geothermal field located near Aydın (western Türkiye). Gürmat Elektrik is owned 85% by Mogan Enerji Yatırım Holding A.S. (Mogan Enerji), 0.56% by Gurenerji Elektrik Uretim Ltd. Sti. (Gurenerji), 4.72% by Güriş Holding A.S. (Güriş Holding) and 4.72% by Güriş İnşaat ve Mühendislik A.S. (Güriş İnşaat, referred together with Mogan Enerji, Güriş Holding and Güriş İnşaat, the Sponsors). The remaining 5% of the Company is owned by Mr. Müsfik Hamdi Yamantürk.</p> <p>Güriş Holding, is a Turkish conglomerate with interests in the construction, energy, and industrial sectors. Through its subsidiaries and affiliates, Güriş holds Türkiye's second largest GPP portfolio (as of end of 2018). Mogan Enerji, Güriş' affiliate for energy developments, aims to become a leading energy generation company in Türkiye through the</p>

	development of renewable energy projects. In line with this goal, Mogan currently owns multiple geothermal, wind and hydroelectric power plants. Mogan's geothermal energy developments are executed by Gürmat Elektrik.
<b>Objective</b>	To increase power generation of renewable geothermal resources.
<b>Expected Results</b>	<p>The Project will help Gürış expand its renewable capacity, support the development of geothermal energy in Türkiye and mobilize private capital into the country's renewable energy sector. The expected results of the Project are:</p> <ol style="list-style-type: none"> <li>To complete the construction of the Project and add 97.6 MWe of installed capacity by November 2020.</li> <li>To achieve a stable baseload geothermal power generation level of at least 810 GWh per annum from 2022.</li> <li>To help mobilize commercial co-financing from commercial lenders.</li> </ol>
<b>Environmental and Social Category</b>	Category A
<b>Environmental and Social Information</b>	<p>The Gürmat-2 GPP Expansion Project comprising Efe-6, Efe-7 and Efe-8 GPP units will be co-financed with the EBRD and has been prepared in accordance with the EBRD Environmental and Social Policy (EBRD E&amp;S Policy) and the EBRD Performance Requirements (EBRD PRs). The Project is in Category "A", in accordance with the EBRD E&amp;S Policy, due to risks associated with the over-ground network of connecting pipelines, their location near populated areas and agricultural land, cumulative land take of the Company's geothermal power plants and operational carbon dioxide (CO<sub>2</sub>) and hydrogen sulfide (H<sub>2</sub>S) emissions. Indirect, cumulative and induced social impacts related to these risks may affect areas larger than the sites or facilities subject to physical works and planned operations of the Project.</p> <p>The Company already operates five geothermal power plants in the Germencik geothermal field with a combined capacity of 162.3 MWe, with the first plant Gürmat-1 commissioned in 2009 and the following four units of Gürmat 2 already financed by the EBRD commissioned in 2014. The EBRD's due diligence on the Project has taken account of the cumulative impacts and performance of these plants, which are addressed in the Project's E&amp;S instruments. Furthermore, the EBRD is cooperating with the Ministry of Environment and Urbanization (MoEU)'s efforts to complete by end-2019 a Cumulative Impact Assessment of Türkiye's geothermal resources exploration and development to address the concerns of civil society organizations (CSOs) and standardize best E&amp;S practices for the sector and reduce cumulative impacts. The Company agreed to cooperate with the MoEU, local authorities and other geothermal companies in mitigating the cumulative impacts which will be identified through that study in the Germencik region.</p> <p>The Project has been subject to a national Environmental Impact Assessment (EIA) procedure and permits have been granted by the MoEU for Efe-6, Efe-7 and Efe-8 Geothermal Power Plants (GPPs). The MoEU's approval of the Efe-8</p>

EIA was challenged by a local CSO in Aydin in July 2017 in the local Administrative Court, which revoked the approval in September 2018. An appeal decision by the Chamber of the Council of State reversed the lower court's decision in December 2018, thus rendering the initial granting of the EIA approval valid and in effect while sending back the case to the lower court for re-examination and rendering of a further decision. With this Council of State decision, the Company can proceed with the construction of Efe-8 on the ground of the initial EIA approval; however, the approval needs to be reconfirmed by the Administrative Court. The Bank will continue to monitor this process.

The ESIA prepared in accordance with EBRD's standards for the original Gürmat-2 project and an ESIA Addendum for the Expansion Project were disclosed on the EBRD's [website](#) respectively on September 24<sup>th</sup>, 2014 and November 13<sup>th</sup>, 2018. Additional due diligence was undertaken in 2019 following stakeholder concerns and updates on the Project permitting resulting in additional mitigation measures. As required by the Lenders, an independent consultant was retained by the Company in 2019 to conduct an Environmental and Social Due Diligence (ESDD) of the Project and prepare an Environmental and Social Assessment (ESA), Stakeholder Engagement Plan (SEP) and Non-Technical Summary (NTS). The ESDD confirmed that the Project's existing and anticipated environmental and social risks and impacts have not materially changed since the ESIA Addendum disclosure in November 2018, but the scrutiny on the industry across Türkiye and challenges to geothermal operations in the Germencik region have heightened. It also confirmed that the Project will have no impacts on any protected areas, will not be associated with any resettlement and is structured to comply with the EBRD's PRs and national requirements. It also confirmed the Company's track record in implementing an Environmental, Health, Safety and Social Management System (EHSSMS) in line with the national legislation and familiarity with good international industry practice. However, additional areas for improvement have been identified during the ESDD and an updated Environmental and Social Action Plan (ESAP) has been developed and disclosed to ensure that the Project and current operations follow the EBRD's PRs. Measures to mitigate environmental and social impacts during construction, operation, and in case of incidents such as leakage of geothermal fluids, and to strengthen stakeholder outreach are included in the design of the Project and relevant 2019 E&S documentation disclosed on the EBRD's and Company's website in [English](#) and [Turkish](#).

The GPP does not involve the combustion of fossil fuels, however geothermal fluids contain non-condensable gases (NCG) comprising a great majority (98%) of carbon dioxide (CO<sub>2</sub>) that need to be degassed as part of the power generation process, thus leading to the release of CO<sub>2</sub>. The Expansion Project is estimated to initially emit around 0.56 tCO<sub>2</sub>e / MWh or a total of around 425,000 tons CO<sub>2</sub>-e per annum. The total emissions from the Gürmat-operated Efeler GPPs are projected to reach up to 1.315 million tons per annum, with an average emission factor of 0.62 tCO<sub>2</sub>e / MWh. The emissions from the operating Gürmat-1 and Gürmat-2 have decreased since their commissioning and the five existing units are currently attaining an averaged emission factor of 0.64 tCO<sub>2</sub>e / MWh. Based on the monitoring of their NCG emissions and the geological modeling of the reservoir, the CO<sub>2</sub> emissions are forecasted to significantly decrease over the lifetime

of the Project. Furthermore, the Company is investigating technically and economically feasible methods to further reduce CO<sub>2</sub> emissions through capture for processing and re-use or for re-injection of the. The emissions to air will also contain trace levels of hydrogen sulfide (H<sub>2</sub>S) - also a non-condensable gas. While the H<sub>2</sub>S levels within the emissions to air are below regulatory threshold limits, the H<sub>2</sub>S emissions will continue to be monitored. However, there have been a number of concerns raised by CSOs and communities in the region as to the impact of geothermal operations on public health, agricultural productivity and environmental quality. The Company will continue to monitor H<sub>2</sub>S emissions from the Project as part of the ESAP implementation and implement a program to reduce these and the inconvenience associated with their odor.

As per the 2018 ESIA addendum and confirmed by the 2019 ESA, land acquisition for the Project was completed on a willing-buyer/willing-seller basis, and no direct/indirect physical displacement or disruptions in livelihood have occurred. Compensation was assessed by the EBRD to have been satisfactory. Outstanding land acquisition for Efe-8's transmission line by the national power distribution company will be monitored by the Company for compliance with PR1 and PR5.

Operational impacts on agricultural production such as olives and figs will be analyzed to avoid negative impact on livelihoods. A Chance Find Procedure will be put in place for management of the archaeological chance finds, particularly during the piping works for the Efe-8 GPP.

The ESDD confirmed that while the Company applies satisfactory occupational health and safety measures, it needs to enhance the scope of its emergency response planning and fill gaps between current implementation of labor and working conditions and EBRD PR2. The following mitigation and management measures will be implemented: human resource procedures are to be streamlined and strengthened in respect of non-discrimination; a management plan for security personnel is to be developed in line with the Voluntary Principles on Security and Human Rights; and the employees' Grievance Redress Mechanism (GRM) and employees' representation are to be enhanced. The Company plans to increase gender diversity and representativeness of its Community Relations function and to raise gender awareness across its operations. Regular environmental and health and safety (EHS) and labor audits will be conducted during construction of Efe-8 to ensure compliance across the Company, contractors and the supply chain.

In order to manage the stakeholder concerns, a SEP defining measures to further enhance engagement with communities on E&S performance and commitments of the Project was prepared in 2019 and will be implemented throughout the lifetime of the Project. The Company also intends to engage with project affected people on the findings of the ESIA Addendum, ESA and management measures comprised in the ESMP in June and July 2019 and all concerns raised will be summarized and responded to for Lenders' consideration. The existing Project-level grievance redress mechanism (GRM) will be enhanced to cover all activities related to land acquisition activities and its public outreach strengthened in

	<p>line with the EBRD's requirements. For this purpose, the Company has recruited an experienced Community Relations Manager.</p> <p>The Company will report to the Lenders semi-annually on its E&amp;S performance and compliance with the ESAP requirements during the construction phase, and thereafter on an annual basis. The Company will also publicly disclose annually a summary of its E&amp;S performance, including its GHG emissions. A third-party E&amp;S Audit will be conducted upon commissioning of Efe-8, and five years after Financial Close. The Lenders will jointly or independently conduct an annual supervision mission, and regularly monitor the permitting status of the Project and public opinion toward not only the Project but also the geothermal industry in Türkiye.</p> <p>The 2014, 2018 and updated 2019 E&amp;S documentation can be found at:  <a href="https://www.ebrd.com/work-with-us/projects/psd/efeler-gpp.htm">https://www.ebrd.com/work-with-us/projects/psd/efeler-gpp.htm</a></p> <p>The updated 2019 Disclosure Package can also be found in English at:  <a href="http://www.mogan.com.tr/EN,852/disclosure-package-update.html">http://www.mogan.com.tr/EN,852/disclosure-package-update.html</a></p> <p>The updated 2019 Disclosure Package can also be found in Turkish at:  <a href="http://www.mogan.com.tr/TR,851/bilgilendirme-paketi-guncellemesi.html">http://www.mogan.com.tr/TR,851/bilgilendirme-paketi-guncellemesi.html</a></p>	
<b>Cost and Financing Plan</b>	Total debt: USD 350 million AIIB loan: USD 100 million	
<b>Borrower</b>	Gürmat Elektrik Üretim A.Ş.	
<b>Guarantors</b>	Güriş Holding A.Ş. Güriş İnşaat ve Mühendislik A.Ş. Mogan Enerji Yatırım Holding A.Ş.	
<b>Estimated date of last disbursement</b>	June, 2020	
<b>Contact Points:</b>	<b>AIIB</b>	<b>Borrower</b>
<b>Name</b>	Suyez Pinto	Ms Yeşim Erdemir
<b>Title</b>	Senior Portfolio Officer	Project Manager
<b>Email Address</b>	<a href="mailto:suyez.pinto@aiib.org">suyez.pinto@aiib.org</a>	<a href="mailto:yerdemir@Guris.com.tr">yerdemir@Güriş.com.tr</a>

<b>Date of Concept Decision</b>	January 21, 2019
<b>Date of Appraisal Decision</b>	June 17, 2019
<b>Date of Financing Approval</b>	July 11, 2019

<b>Application of EBRD's Environmental and Social Policy and AIIB's PPM</b>	<p>The Gürmat-2 GPP Expansion Project will be co-financed with the European Bank for Reconstruction and Development (EBRD) and other development and commercial financial institutions and has been prepared in accordance with the EBRD's Environmental and Social Policy (EBRD Policy) and related Performance Requirements (EBRD PRs). AIIB is satisfied that: (i) the EBRD Policy and EBRD PRs are consistent with AIIB's Articles of Agreement and are materially consistent with AIIB's Environmental and Social Policy (ESP) and relevant Environmental and Social Standards (ESSs) and (ii) the monitoring procedures that EBRD has in place to ascertain such compliance are appropriate for the Project.</p> <p>Consequently, as permitted by the ESP, AIIB: (i) will apply the EBRD Policy and EBRD PRs to this Project and (ii) will rely on EBRD's determination as to whether compliance with the EBRD Policy and EBRD PRs has been achieved under the Project.</p> <p>The Bank will rely on its own Project-affected People's Mechanism (PPM), to handle submissions filed by PAPs with the PPM relating to environmental and social issues that may arise under the Project.</p> <p>The PPM has been established by the Bank to provide an opportunity for an independent and impartial review of submissions from Project-affected people who believe they have been or are likely to be adversely affected by AIIB's failure to implement its ESP in situations when their concerns cannot be addressed satisfactorily through the Project-level GRM or the processes of the Bank's Management. For information on AIIB's PPM, please visit: <a href="https://www.aiib.org/en/policies-strategies/operational-policies/policyon-the-project-affected-mechanism.html">https://www.aiib.org/en/policies-strategies/operational-policies/policyon-the-project-affected-mechanism.html</a></p>
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