

EBRD INVESTMENT IN THE TÜPRAŞ KIRIKKALE REFINERY

NON-TECHNICAL ENVIRONMENT AND
SOCIAL SUMMARY

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KIRIKKALE NTS NON-TECHNICAL SUMMARY

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THE PROJECT

Türkiye Petrol Rafinerileri A.Ş. (Tüpraş) is Turkey's largest listed energy company and a subsidiary of Koç Holding A.Ş. An upgrade to an existing Oil Refinery in Kırıkkale is proposed to install and improve performance of the power plant at the site along with upgrading the hydrocracker process to increase the throughput. This Non-Technical Summary (NTS) provides a description of the planned upgrade and describes the potential benefits and impacts associated with their construction and operation. It also describes how these will be mitigated and managed through all phases of the project and provides a summary of the public consultation activities and the approach to future stakeholder engagement.

Contact details at Tüpraş for this project are:

Contact: Corporate Communication Manager - Seval Kızılcın

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1.1 TÜPRAŞ KIRIKKALE REFINERY OPERATIONS

Operating four oil refineries, with a total of 28.1 million tons annual crude oil processing capacity, Tüpraş is Turkey's largest industrial enterprise with roots dating back to İPRAŞ (İstanbul Petrol Rafinerisi A.Ş.) founded by the U.S. Caltex Company. In 1983, İPRAŞ and three other publicly owned refineries were brought under the Tüpraş umbrella by arrangements made for a more effective operation of State Economic Enterprises.

The Kırıkkale Refinery is the newest refinery and the third largest in Turkey. Operations began in 1986 with an annual crude oil processing capacity of approximately 5.0 million/t. The Refinery is a medium-sized refinery by Mediterranean standards.

The Refinery principally serves the regional markets of Central and Eastern Anatolia. In 2015, the Refinery processed approximately 5.0 Mt of crude oil, producing approximately 3.05 Mt of products, primarily LPG, gasoline, jet fuel, gas oil, fuel oil and asphalt.

The plant upgrades are all confined to within the boundaries of the refinery and impacts will be addressed through appropriate mitigation measures. They are part of an overall programme to improve the power plant efficiency and performance which should have the benefits of greater resource efficiency.

2

KIRIKKALE REFINERY KEY SIDE CONDITIONS

2.1 LOCATION OF THE FACILITY AND SITE OVERVIEW

The Site is located inland in Kırıkkale province, approximately 80 km south-east of Ankara and approximately 15 km to the south of the city of Kırıkkale. The total area of the property is about 8,137,025 m² (approximately 815 hectares). The Refinery occupies 2,134,000 m² of land and the rest is designated as green areas. The Refinery is located on a flat land and the site gently slopes down to the Kızılırmak River from west to east.

The areas surrounding the Refinery are still used for agriculture. However, the area was designated as an industrial zone by the local municipality after the construction of the Refinery. To the east and northeast are several private storage and distribution companies and the Refinery has dedicated pipelines to two of these distribution companies. A railway spur was also constructed in the Refinery, for the transportation of products. Most recently, a thermal power plant was built approximately 1 km to the north of the site. The Refinery provides fuel oil to this power plant via a dedicated fuel oil pipeline.

The “project” will not require any land acquisition as all proposed works are located within the refineries existing site boundary. Figure 1 below shows the site and location of the new developments and upgrades.

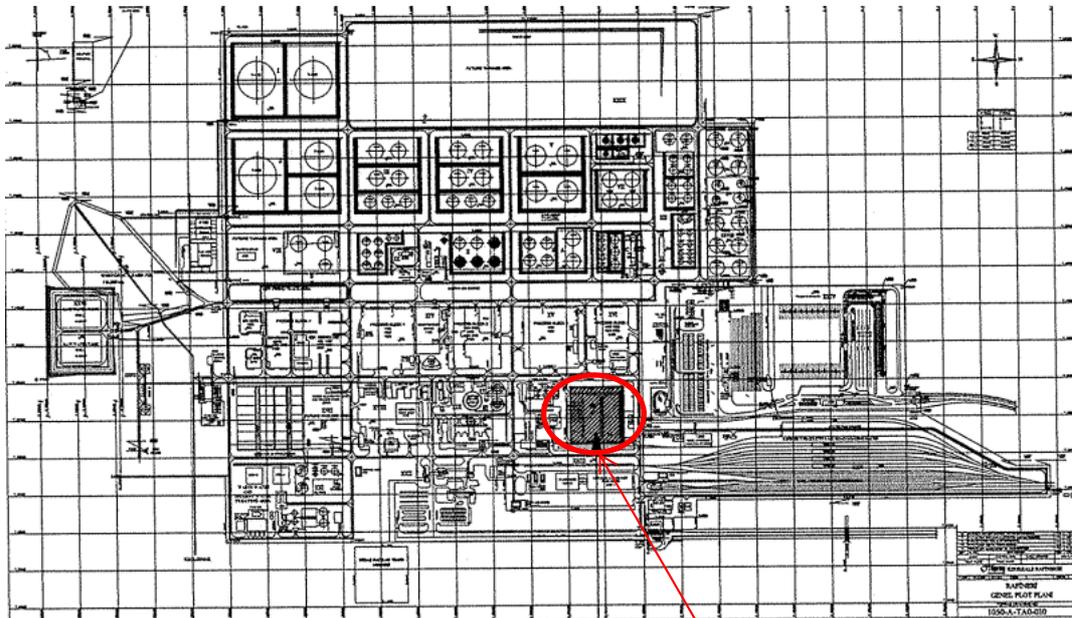


Figure 1 Site and Location of Projects

Thermal Power Plant

2.2 PROPOSED INVESTMENT COVERAGE

The European Bank for Reconstruction and Development (the “EBRD”) is considering providing finance to Türkiye Petrol Rafinerileri A.Ş. (“Tüpraş”) to support a resources efficiency programme at two of its refineries, including the Kırıkkale Refinery. The programme in Kırıkkale is to be implemented during the period 2016-2019 and includes:

- Upgrade to the Hydrocracking process which is a chemical process used in refineries to convert crude oil into petroleum components like diesel and naphtha products; and
- Changes to the current configuration, as well as general changes to improve the energy efficiency of the site’s thermal power plant.

HYDROCRACKER UNIT

The hydrocracker unit’s capacity will be increased from 2,500m³/day to 3,000m³/day. This will require an additional, compressor, air coolers, additional makeup water, drums heat exchangers and pumps. UOP, the licensor of the unit is undertaking the basic engineering design currently. Work on the upgrade will take place from November 2017 until end of 2019.

NEW THERMAL POWER PLANT

The aim of the project is to construct a new thermal power plant composed of one Gas Turbine, one HRSG, one Conventional Boiler, one backpressure Steam Turbine and one condensing type steam turbine (cold spare) and with necessary auxiliary systems such as boiler feed water preparation and pumping stations.

With the help of the new thermal power plant, the inefficiencies and reliability problems associated with the current system will be eliminated. The overall efficiency will be improved considerably with the elimination of condensing turbines and conventional boilers.

3

ENVIRONMENTAL, HEALTH, SAFETY AND SOCIAL ASPECTS OF THE PROJECT

3.1 OVERVIEW OF EHSS REVIEW OF THE PROJECT

In May 2016 an Environmental and Social Due Diligence audit was undertaken at the Kırıkkale Refinery with particular focus on the company's upgrade plans. An evaluation of both the impacts and benefits of the upgrades has been undertaken. Where the audit has identified the need for further mitigation measures to address impacts or improvements in corporate EHSS performance, an action has been proposed and incorporated into an Environmental and Social Action Plan (ESAP). This ESAP ensures full compliance with relevant corporate, national, EU standards and EBRD Performance Requirements.

3.2 PERMITTING STATUS OF THE PROJECT

The Kırıkkale refinery developed a project presentation file for the new thermal power plant project and submitted it to the Ministry of Environment. The Ministry was requested for an opinion on whether a full formal Environmental Impact Assessment (EIA) was required (a 'screening opinion'). The response in relation to the new thermal power plant project confirmed that no full formal EIA was required as this was a development within the current boundary of operations of the plant.

The proposed hydrocracker unit design is in the initial stages and so a request for this 'screening opinion' has not been submitted as yet. A request will be made to Ministry of Environment and disclosure of further studies will be undertaken if required by the Ministry.

The following table summarises the main potential positive and negative impacts related to the project, as well as a summary of the key mitigation measures to ensure that no significant impacts will be realised:

POTENTIAL IMPACT	KEY MITIGATION MEASURES
Fire from crude oil / chemical storage	All staff are trained at a dedicated fire training school and protection, control (i.e. strict control on ignition sources), detection and mitigation measures (i.e. firefighting equipment) are employed to reduce the risk of fire.
Air impact from the new thermal power plant	The new boilers will be fitted with special burners ('low NOx burners') that are designed to ensure that substantially reduced levels of nitrogen dioxide (a common air pollutant associated with industrial processes and transport etc.) are achieved. The facility will also employ a technique which recirculates its flue gas (Flue Gas Recirculation) which results in further treatment of the gas stream and reduces the overall amount of nitrogen dioxide emitted. The improvements in the power plant configuration will also improve energy efficiency, which in turn will reduce carbon dioxide emissions from this specific source on site. As the new emission regulations require the use of

	low sulphur content fuel oil, there will be a significant reduction in sulphur emissions to atmosphere. Fuel oil, having 2% sulphur and high nitrogen content, will no longer be in the fuel pool, unconverted oil (negligible sulphur content) will be used as the secondary fuel.
Occupational Health and Safety of workforce (contractors) during construction process	Only approved contractors through Tüpraş's Vendor Assurance Programme will be used. Method statements and risk assessments for the work to be undertaken are requested of the contractors and fully reviewed and agreed prior to selection.
Potential for any Nuisance impacts to surrounding community	The site is located 1.1km from the nearest town of Hacilar and plant mitigation measures will protect against noise and air emission impacts from the site. However, the site has a Stakeholder Engagement Plan which identifies relevant stakeholders and defines communication channels so that the surrounding community can be kept fully informed in the case of works that may affect them.

3.3 KEY BENEFITS OF THE PROJECT

The proposed plant upgrades are part of a resource efficiency programme across two of Tüpraş's oil refinery sites.

At Kırıkkale refinery the new thermal power plant will provide the same quantity of electricity as well as high pressure, intermediate pressure and low pressure steam for a significantly smaller power plant configuration. This will have the benefit of reducing emissions to air in the locality which would improve ambient air quality as well as reducing the carbon footprint of the facility and saving natural gas from the reduced size of the power plant.

The hydrocracking process will provide a capacity increase which will ensure higher production of finished products.

3.4 ENVIRONMENTAL AND SOCIAL ACTION PLAN (ESAP)

Following the audit, an ESAP was prepared to ensure that the project implements best proactive standards and ensures that the general operations across the Kırıkkale Refinery are in line with European Union equivalent standards, EBRD Environment and Social 'Performance Requirements' and their environmental and social policy. The proposed action areas will result in improved EHSS performance and risk management. A summary of the key themes that are incorporated into the ESAP from the findings of the audit are provided below.

Review Areas	Action Areas
Institutional EHS Capacity and Management	<ul style="list-style-type: none"> The facility is certified to internationally recognised environmental and health and safety management systems and these will be extended to cover the operations of the new projects and developed further to meet the requirements of new legislation around process safety (Seveso II).
Environmental Performance	<ul style="list-style-type: none"> All relevant environmental permits and licences are in place The use of water from the Kızılırmak River will be reviewed in line with a

	<p>commitment for continual improvement in Environmental and Health and Safety matters.</p>
Health and Safety Performance	<ul style="list-style-type: none"> ■ Considerable importance is given to Health and safety management, performance and monitoring of accident statistics and near misses to prevent future incidents.
Social and Employment	<ul style="list-style-type: none"> ■ Develop and maintain a Stakeholder Engagement Plan (SEP) and make it available to the community. ■ Review key social policies to ensure they meet international standards.
Seveso II	<ul style="list-style-type: none"> ■ Continue a commitment to safeguarding the workforce and wider community from potential accidents on site. Process safety is already a key priority and this will be further enhanced by improvements to meet “Legislation on Prevention Of Major Industrial Accidents And Reduction Of Their Effects” or BEKRA which implements the Seveso II Directive. ■ Improvements include a strategy around communication and engagement with the wider community and information exchange other nearby industrial sites
Process Safety	<ul style="list-style-type: none"> ■ Designate a dedicated project manager to the Hydrocracker upgrade project to provide oversight of all environmental, social and health and safety matters.

4

STAKEHOLDER ENGAGEMENT IN THE PROJECT

4.1 OVERVIEW OF THE SEP

A Stakeholder Engagement Plan has been developed for Tüpraş's oil refinery in Kırıkkale with the objective of identifying key stakeholders and ensuring that, where relevant, they are informed in a timely manner of the potential impacts of projects. The plan will also identify a formal grievance mechanism to be used by stakeholders for dealing with complaints, concerns queries etc. It will be reviewed and updated on a regular basis. If activities change or new activities relating to stakeholder engagement commence, the SEP will be brought up to date. The SEP will also be reviewed periodically during project implementation and updated as necessary.

The SEP includes the following:

- Project description, location of the site and key environmental and social issues;
- Public consultations and information disclosure requirements;
- Identification of stakeholders and other affected parties;
- Overview of previous Tüpraş stakeholder engagement activities;
- Stakeholder engagement programme and methods of engagement and resources; and a
- Grievance mechanism.

Stakeholders could be individuals and organisations that may be directly or indirectly affected by the project either in a positive or negative way, who wish to express their views. The definition applied to identify key stakeholders is:

'any stakeholders with significant influence on or significantly impacted by, the work and where these interests and influence must be recognised if the work is to be successful'.

Key stakeholders have been identified from the following categories: international; governmental (Republic of Turkey, relevant Ministries, Municipalities and other relevant local authorities); advisory non-government; services / suppliers; clients; institutions (universities, think tanks, etc.); the industrial sector (trade bodies, other refineries), internal stakeholders (employees); general communities (locally affected people); public groups (nearby hospital, local schools); and the media.

The SEP outlines the methods that Tüpraş will adopt to ensure effective stakeholder engagement is undertaken, providing details of the programme of future public consultation and information disclosure that will be recorded for major projects. Tüpraş will record the following information on an ongoing basis:

Type of information disclosed, in what forms (e.g. oral, brochure, reports, posters, radio, etc.), and how it was released or distributed.

- The locations and dates of any meetings undertaken to date.
- Individuals, groups, and / or organisations that have been consulted.
- Key issues discussed and key concerns raised.
- Company response to issues raised, including any commitments or follow-up actions.
- Process undertaken for documenting these activities and reporting back to stakeholders.

If there are questions, queries, complaints or grievances regarding future projects, a grievance mechanism has been developed to address these issues and a grievance form will be used to record this information. The grievance form and the outline on how to use the grievance form is provide below.

4.2 PROCEDURE FOR GRIEVANCES

A grievance mechanism will be adopted in which the grievance form presented below will be used as required to handle grievances from non-employees. The mechanism will be as follows:

- Grievance received
- Grievance recorded in a register
- For an immediate action to satisfy the complaint, the complainant will be informed of corrective action
- Implement corrective action, record the date and close case
- For a long corrective action, the complainant will be informed of proposed action
- Implement corrective action, record the date and close case

A grievance should be recorded by the complainant using the grievance form below, ensuring that contact details are provided with the preferred method and language of communication. A clear description should be provided of the incident or grievance. Tüpraş will respond to grievances within one month of receiving the form.

Public Grievance Form

Reference No:	
Full Name	
Contact Information Please mark how you wish to be contacted (mail, telephone, e-mail).	By Post: Please provide mailing address: _____ _____ _____ By Telephone: _____ By E-mail _____
Preferred Language for communication	English Turkish Arabic Other - specify
Description of Incident or Grievance: What happened? Where did it happen? Who did it happen to? What is the result of the problem?	
Date of Incident/Grievance	
	One time incident/grievance (date _____) Happened more than once (how many times? _____) On-going (currently experiencing problem)
What would you like to see happen to resolve the problem?	

Signature: _____
Date: _____

Please return this form to:

Contact: Corporate Communication Manager - Seval Kızılcan

Address: Türkiye Petrol Rafinerileri A.Ş. Headquarters, 41790 Körfez Kocaeli, Turkey

Telephone: 0 262 316 30 00

Email: info@tupras.com.tr

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GLOSSARY

BAT	Best Available Technique
CAPEX	Capital Expenditure
ESAP	Environmental and Social Action Plan
EBRD	European Bank for Reconstruction and Development
ESDD	Environmental and Social Due Diligence
EHSS	Environmental, Health and Safety and Social
EU	European Union
EIA	Environmental Impact Assessment
EHS	Environmental Health and Safety
GHG	Greenhouse Gas
Ha	Hectares
NTS	Non-Technical Summary
PPE	Personal Protective Equipment
T	Tonnes
t CO ₂ -e/yr	Tonnes of carbon dioxide equivalent per year