



European Bank
for Reconstruction and Development



Final Report

Mid Size Sustainable Energy Financing Facility (MidSEFF) Energy Efficiency Project at Batisöke Cement Plant: Non Technical Summary (NTS)

August 2012



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Final Report

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**Energy Efficiency Project at Batisöke Cement Plant:
Non Technical Summary (NTS)**

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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 975 million in loans through 7 Turkish banks for on-lending to private sector borrowers.

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1. General Plant Description

Batı Söke Çimento Sanayii T.A.Ş intends to carry out energy saving projects within the Batisöke Cement Plant. In particular, two projects have been identified: the Waste Heat Recovery form the preheater of the Rotary Kiln and from the Clinker Cooler; and the installation of the roller press to improve the cement grinding unit. Table 1-1 resumes the two projects identified.

Table 1-1: Project identified at Batisöke Cement Plant

Title of the project	Project Type	Brief information
Waste Heat Recovery	Energy Efficiency	Installation of two waste heat recovery boilers to produce the steam for supplying a 5.5 MW steam turbine generator, generating electricity. The waste heat come from the Clinker Cooler and the Preheater of the Rotary Kiln.
Installation of the Roller Press	Energy Efficiency	Installation of a roller press, used for finished and semi-finished-grinding of raw materials, to improve efficiency of cement production and of cement grinding unit.

Table 1-2: Key project summary data

Project Name	Energy Efficiency Project at Batisöke Cement Plant:
Project Borrower	BATISÖKE Söke Çimento Sanayii T.A.Ş.
Project Sponsor	Batı Anadolu Çimento Sanayii A.Ş.
EBRD Transaction	Total project cost, excluding VAT, is EUR 19,341,816, divided as follow: <ol style="list-style-type: none"> 1. Waste Heat Recovery plant EUR 9,317,816 (excluding VAT) 2. Roller Press EUR 10,024,000 (excluding VAT) At the moment of writing this document, the loan conditions were not defined yet. BATISÖKE has enough liquidity power to complete the investment without any debt.
Project Description / Business Purpose:	Batı Söke Çimento Sanayii T.A.Ş intends to carry out energy saving projects within the Batisöke Cement Plant. In particular, two Energy Efficiency projects have been identified: the Waste Heat Recovery form the preheater of the Rotary Kiln and from the Clinker Cooler; and the installation of the roller press to improve the cement grinding unit.
Key Parties Involved:	EBRD, BATISÖKE Söke Çimento Sanayii T.A.Ş BATIÇİM Batı Anadolu Çimento Sanayii A.Ş.
Annual Electricity Saving	62.8 GWh _{el} /year
CO ₂ emission reductions	31,331 tCO ₂ /year

2. Project Area

The Batisöke Cement Plant is located in an existing industrial area, in the Aegean Region in Aydın Province, Söke District, Ataturk neighbourhood (see wide scale location in the maps in Figure 2-1 and Figure 2-2).

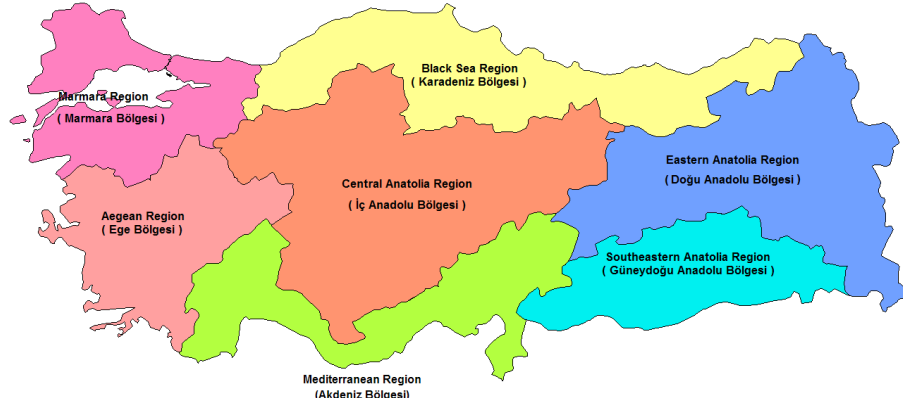


Figure 2-1: Turkey Map – Aegean Region

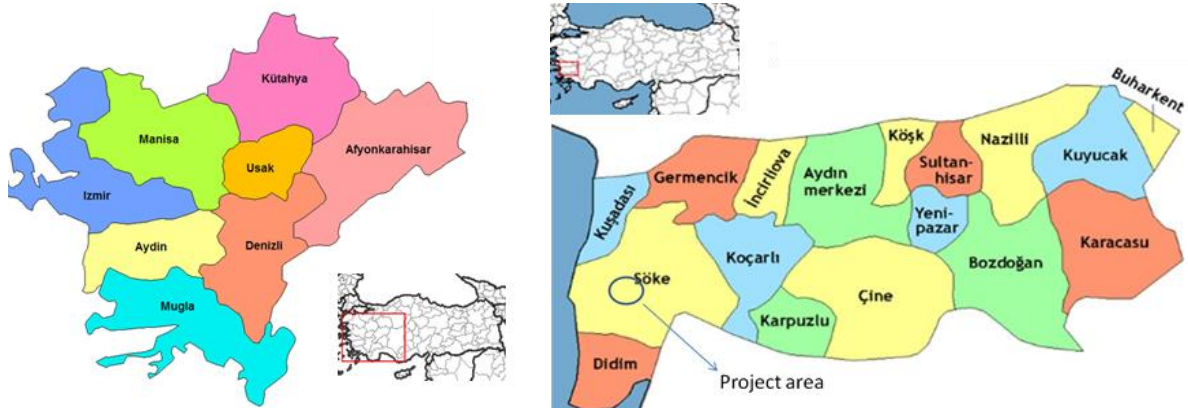


Figure 2-2: Plant Location - Aydın Province (right); Söke District, Ataturk neighbourhood (left)

The installation of the Waste Heat Recovery System is quite completed whereas the Roller Press construction hasn't started yet. Being the new facilities within the already existing industrial site, the construction activities will not be particularly impacting since the plant is far from natural protected area or areas with valuable habitats/species.

There are no settlements or scattered houses close to the Plant and considering its distance from the nearest residential areas, the project will not affect them.

3. Social and Environmental Impact

3.1 Land Use

The Waste Heat Recovery System has been installed and the Roller Press will be installed within the existing Plant area and no new private land is needed.

The Sponsor should supply some documents/studies that demonstrate that the Plant didn't affect the habitats around the industrial area during the Cimento Mill operation, even if the Waste Heat Recovery System and the Roller Press are located within an industrial site far from natural protected area or areas with valuable habitats/species, as the sponsor also confirmed during the site visit.

3.2 Waste Production and Management

A separate waste collection, storage and disposal system is employed at the Site in the scope of the Environmental Management System. Separate containers are provided at proper locations and the employees were trained for waste segregation and separate collection. In the context of segregation of recyclable and non-recyclable wastes, the facility is in compliance with the regulations. Hazardous wastes generated at the Site are segregated and stored temporarily in the dedicated hazardous waste storage area. The same procedures will be implemented also for the construction of the WHR and Roller Press.

3.3 Noise

Considering project characteristics and location, the noise generated during construction/installation is reasonably a minor issue. An accredited company carried out a noise measurement study to determine the ambient noise levels at the various units and areas and around the Site (dated 2004).

Both for the WHR (Waste Heat Recovery) Project and the Roller Press, during the site visit the Sponsor declared that the noise emissions level will be below 85 dB 1 meter away from the main sources.

This emission level is over the regulatory limit but using the security equipment the noise levels could become acceptable for the workers. However, considering that the calculated noise level, at the border of the industrial area, is 60 dB (supplied noise report, 2004) and that there are no receptors in the proximity of the Cimento Plant, this aspect doesn't present particular criticalities.

3.4 Water consumption and discharge

Concerning the construction phase both for the WHR Project and the Roller Press there should be household water waste due to generally employees' daily waste. The management of these water consumption/discharge will be reasonably provided by the existing potable/discharge water grid.

Concerning the operation of the WHR project the water consumption will be due to the cooling water system for a total of 2,042 m³/h (circulating water) and the chemical water treatment system from 2 m³/h to 10 m³/h max. This amount will be reasonably supported by the existing industrial water grid.

Water from the boilers (4.5 m³/h) does not contain hazardous substance and can be discharged directly into water drainage inside the plant; water from the thermal dynamic system (1.4 m³/h) contains phosphorous acid and can be discharged after being mixed with water from the cement production line; waste water from the power station (about 0.2 m³/h) is mainly from domestic and floor-cleaning and can be discharged into pipelines inside the plant and finally discharged outside the plant after treated.

No water consumption and discharge are expected due to Roller Press operation.

3.5 Emissions to air

Dust is generated from earth-moving and material storage, and air emission from the operation of construction machinery and equipment. The aspect will not be critical considering the location of the project and the already existing facilities. Some basic information especially on site preparation associated activities should be provided by the sponsor.

During operation, the roller press emissions will be generated by the engines. The Project sponsor should provide emission data and comparison with regulatory limits. However the Batisöke Company ISO 14001 certification should guarantee that the company is at least compliant with the law limits.

Concerning the Waste Heat Recovery System, there will be no added emissions.

Table 3-1: Impact Quantification

COMPONENT	IMPACT	QUANTIFICATION
Land Use	<u>Different use of the Land</u>	No change in the Land use: the new facilities are within an existing industrial area
Waste	<u>Production of solid waste</u>	No info is available about the number of workers; anyway it can be estimated a waste production around 1.4 kg/day per person
	<u>Excavation waste</u>	N. A.
Water	<u>Consumption and Discharge</u>	Construction phase: household water waste Operation phase: cooling water system 2,042 m ³ /h (circulating water); chemical water treatment system from 2 m ³ /h to 10 m ³ /h max
Emissions	<u>Noise</u>	Operational phase < 85dB (security equipment are strictly required)
	<u>Particulate</u>	No specific data are available. ISO 14001

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