Environmental and Social Data Sheet

Overview

Project Name: **RAFFINERIA DI MILAZZO (2015-0316)**

Project Number: **2015-0316**

Country: *Italy*

Project Description: The project consists of various investments at a refinery located on the north-eastern coast of Sicily. A third of the total investment will aim at improving the energy efficiency of the plant by installing heat recovery systems in four existing process units; a third will be directed to adding a sulphur recovery unit to meet multiple objectives, amongst which it will allow the refinery to process heavier, higher sulphur crude oils and improve operational reliability. The remaining part will be used to comply with the Italian Environmental legislation with regard to the protection of groundwater and to overhaul the fire-fighting system.

EIA required: To be determined by the Competent Authority (see below)

Project included in Carbon Footprint Exercise[1]: yes

(details for projects included are provided in section: "EIB Carbon Footprint Exercise")

Summary of Environmental and Social Assessment, including key issues and overall conclusion and recommendation

The investments will take place on the refinery's site, which is categorised under Annex I of the EIA Directive (2011/92/EU). As such, any change or extension that may have significant adverse effects on the environment (change or extension not included in Annex I) is categorised as Annex II of the Directive. Two sub-projects are concerned by this procedure. The Sulphur Recovery Unit 3 has been screened out and will not require an EIA. The MISO (barrier preventing contact between sea water and potentially contaminated water under the refinery) is currently in the screening process.

The environmental capacity of the promoter is deemed good. It complies with all environmental protection regulations and standards provided by national and EU law.

The impacts of the projects are related to potential impact on groundwater and soil for the MISO and emissions to the atmosphere for the Sulphur Recovery Unit 3 in case they fail to operate as planned. However, the overall investment will result in positive environmental impacts compared to the current situation. The project is therefore considered acceptable for Bank financing.

With regard to the outstanding screening procedure, the following will be integrated in the Finance Contract:
Disbursement condition:

- The MISO sub-project funding to be conditional to receiving either the screening out decision or the EIA approval by the Competent Authority.

[1] Only projects that meet the scope of the Pilot Exercise, as defined in the EIB draft Carbon Footprint Methodologies, are included, provided estimated emissions exceed the methodology thresholds: above 100 000 tons CO2e/year absolute (gross) or 20 000 tons CO2e/year relative (net) – both increases and savings.

Environmental and Social Assessment

Environmental Assessment

The plant site and current activities are covered by valid integrated environmental permits (AIA – Autorizzazione Integrata Ambientale) DVA DEC-2011-000042 of 14 February 2011 and DVA DEC-2011-0000255 of 16 May 2011, valid for 6 years, following the construction of a new hydrogen production unit. It includes a monitoring and control plan as well as action points to improve the environmental situation and ensuring the application of the Best Available Techniques (BAT) as a condition for the validity of the AIA. A next AIA is expected in 2017.

The promoter holds an ISO 14 001 certificate for environmental management, an ISO 50 001 certificate for energy management and OSHAS 18 001 for occupational safety and health management.

1. Sulphur recovery unit 3

The additional unit will allow the refinery to handle crude oils with higher sulphur content and to improve the refinery's reliability in case of unplanned maintenance needs. The project does not increase the refinery's processing capacity, but forms part of the changes aimed at maintaining high standards environmental protection while processing higher sulphur crudes. The facilities will be built in accordance to Best Available Techniques (BAT). The project has screened out by the Competent Authority and therefore does not need an EIA (DVA – 2012 – 00211681 del 11/09/2012).

2. MISO

The subproject will contribute to preventing any contact between groundwater circulating from agricultural lands under the refinery and the sea water. The subproject consists of drilling a curtain of shallow wells parallel to the sea shore, pumping the potentially contaminated water out, treating it and reinjecting it through a second curtain of wells between the refinery and the sea. 14 extraction wells have already been drilled at 30m depth for that purpose. The project is the result of a legal requirement following the Environmental Characterization Plan pursuant a legislative decree. The sub-project is pending a screening decision from the Environmental Competent Authority regarding the need of an EIA.

3. Revamping HDS-1

The unit was built in 1989 to remove sulphur from oil fractions of kerosene and diesel from atmospheric distillation of crude. The revamping of the unit will improve the quality of the process product, reduce consumption of steam and power as well as improve heat recovery by substituting the existing heat exchangers and other process components with more efficient ones. A reduction of 12% of fuel gas is expected, leading to an equivalent reduction of NOx, SO_2, CO and particulate emissions. The project has followed a tacit environmental approval.

4. Kerosene

At present the kerosene extracted from the main column of primary distillation (topping) at 180 °C is not subject to any thermal exchanges to recover the heat available and is sent to storage after cooling in air and water coolers to 40 °C. The heat will be used in two additional reboilers situated in the topping processes. Due to its characteristics that do not produce change of quality and quantity of environmental parameters, an environmental approval is not required for this project.

5. Revamping FCC

The plant's FCC (Fluid Catalytic Cracking) has undergone a series of technological interventions since it was installed (circa 1970) that have resulted in significant operational stability and improved plant performance. The overhaul is expected to further improve the yields for lower crude oil feeds, to reduce catalyst and methane consumption, to remove bottlenecks in the FCC process and to reduce dust emissions by approximately 40%. The

facilities will be built in accordance to Best Available Techniques (BAT). The intervention is part of a mandatory requirement stemming from the Integrated Environmental Approval (AIA). The project has followed a tacit environmental approval.

6. Topping 3 Furnace

The furnace of the distillation unit Topping 3 is one of the oldest furnaces of the refinery as it was put on stream in 1970. In 2002, the convection section was replaced by a more efficient one to increase the overall furnace efficiency. The subproject consists of replacing the natural draft furnace by a forced draft furnace with a new air/flue gas exchanger. A reduction of 27% of NOx, 97% of SO_2 and 63% of particulate emissions is expected.The project has followed a tacit environmental approval.

7. Vacuum Furnace

The existing furnace was designed in 1979 and modified in 2004 to a forced-draft furnace. The furnace will be modified installing a new air/flue gas exchanger to allow heat recovery and reduce the need for steam that is currently used to pre-heat the air. Additionally, a new smoke extractor will be installed. A reduction of 24% of NOx, 50% of SO_2 and 62% of particulate emissions is expected. The project has followed a tacit environmental approval.

8. Firefighting station and detection system

The Milazzo refinery has been affected in recent years by an intensive development with the construction of new units and revamping of existing process units. This resulted in differences between the active protection systems operating in various units and areas of refinery. Additionally, in 2012 the Regional Technical Committee (CTR) in the Refinery Safety Report highlighted the inadequate situation of the firefighting station as it could be affected by bad weather or fires. A new firefighting station will constructed outside the main entrance of the refinery and new H_2S and smoke detectors will be also installed. Due to its characteristics, an environmental approval is not required for this project.

During implementation, some sub-projects will require excavation and noise as well as dust and increased traffic within the refinery premises can be expected. The overall impact is considered acceptable. During operation, the investment will have a net positive impact on the environment (soil, groundwater, emissions) compared to the current situation.

EIB Carbon Footprint Exercise

The CO_2 emissions for the refinery in a standard year (2014) of operation are estimated at 2.1 Mt CO_2/y for a throughput of 9 Mt/y (including indirect emissions from electricity consumption). The absolute emissions for the project are based on the sub-projects financed by the Bank and estimated to be 289.9 kt CO2eq/y. The sub-projects will lead to a reduction of energy consumption and the relative emissions are expected to amount to minus 81.3 kt CO_2eq/y.

For the annual accounting purposes of the EIB Carbon Footprint, the project emissions will be prorated according to the EIB lending amount signed in that year, as a proportion of project cost.