

Environmental and Social Data Sheet

Overview

Project Name: *DAMANHOUR CCGT POWER PLANT*
 Project Number: *2014-0534*
 Country: *Egypt*
 Project Description: Installation of new Combined Cycle Gas Turbine power plant for an additional capacity of 1800 MW on a brownfield site.

EIA required: yes

Project included in Carbon Footprint Exercise¹: 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 project concerns the construction of modern gas-fired combined cycle gas turbine (CCGT) plant on a site that houses a steam cycle power plant and older, smaller CCGT plant. Three oldest and smallest steam cycle units will be decommissioned as part of the project. Once completed, the power plant will have output of 2250 MW compared to present output of 650 MW. While the overall efficiency of the power plant will increase as the new units have efficiency of 57-58% compared to efficiency of 34% of the old units, the higher output will result in an increase in fuel consumed and GHG emissions released to the atmosphere.

The plant is located in a densely populated area bordered road, housing areas, channelled section of Nile River and some agricultural land. An EIA procedure for the new power plant was carried out in 2014-2015 and was endorsed by the Egyptian Environmental Affairs Agency (EEAA) and disclosed to the public. No resettlement was required for the project. An EIA has not been carried out for the interconnection infrastructure of the project (75 km of 500 kV transmission lines and 4 km of gas pipeline). However, the construction time of these infrastructure is shorter than construction time of the power plant, routing possibilities for these infrastructure have been identified, and existing connection infrastructure is sufficient for commissioning and initial operation purposes. Satisfactory completion of these studies and incorporation of any recommended mitigating measures in the design and operation of the project will be required by the Bank as a condition for disbursement.

The project ESIA report has still some gaps, in particular: the pollution modelling is too general and does not give detailed information on cumulative effect in already polluted environment close to the power plant. Similarly, the cumulative effect of the noise of the existing power plant has not been taken fully into account and mitigation measures for the existing plant have not been proposed. Satisfactory completion of these additional modelling studies and incorporation of any recommended mitigation measures in the design and operation of the project will be required by the Bank as a condition for disbursement. The construction time disturbances to the neighbouring population are as well required to be detailed and mitigated to more detail as a condition for disbursement.

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.

Subject to satisfactory completion of the complementary studies referred to above, the project is considered to be suitable for Bank financing.

Environmental and Social Assessment

Environmental Assessment

Due to its size and technical characteristics, the project, if located within the EU, would fall under Annex I of the EIA Directive 2011/92/EU, requiring full EIA. The promoter has implemented an ESIA according to Egyptian legislation in 2014, and that ESIA has been subject to a gap analysis by the donors, and further subject to a complementary ESIA, compiling of ESMP and public consultation in 2015. The competent authority EEAA has endorsed the ESIA, but the building permit has not yet been issued. The project is part of Egypt's generation expansion plan 2015-2020 that is partly based on environmental considerations (efficiency improvements, renewable energy) but does not constitute or include strategic environmental assessment (SEA).

The project will not displace or disturb any productive land use on the site and will partly use existing infrastructure but requires strengthening of connections to the power transmission network and the high pressure natural gas grid. The land use in the surrounding areas is mainly for agricultural and residential purposes. To the east and north of the site are road and channelled section of Nile River. On the other side of the channel are housing areas. South of the power plant are the housing areas of the power plant employees ("colony"). To the west the land is agricultural land with transmission lines of the power plant over these fields. The project is not expected to have negative impacts on any sites of nature conservation importance or on any endangered species of flora or fauna.

The project design is applying the best available techniques, including both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned and takes into account the geographical location and the local environmental conditions. It is considering employing air-cooled condensers to condense exhaust steam from the steam turbine. This solution has least environmental impacts compared to alternatives, but reduces on the other hand power plant efficiency and output, thereby increasing relative emissions. In case alternative cooling method is chosen, the ESIA needs to be updated on that section.

Construction and operation of the power plant is not expected to have an impact on any known archaeological, historic or cultural resources. The impacts during construction are limited to the typical nuisance effects of traffic, noise and dust. These impacts are mitigated by workplace procedures with which the various contractors are required to comply. The main operational impacts of the plant are assessed to be the release of atmospheric pollutants (mainly NO_x and CO₂) and these are mitigated by the choice of low-pollution (dry-low NO_x burners) and high-efficiency technology, as well as continuous monitoring of plant performance and emissions. By tackling noise emission at source and applying additional noise reduction measures, the promoter shall ensure that the project is designed, constructed and operated so as to avoid, prevent or reduce the harmful effects, of noise to the neighbouring housing area.

EIB Carbon Footprint Exercise

The absolute emissions of the project are estimated to be 5000 k tonnes CO₂ equivalent per year. Estimated emissions savings achieved by the project, using as a baseline the mix of promoter's generation expansion plan for the period 2015 to 2020, forecasting increase in demand of 6.4%/a, amounts to 1000 k tonnes of CO₂ equivalent per year.

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.

Social Assessment

The project will be implemented on an existing plot of land belonging to the promoter and will not impact on any settlements or assets belonging to other parties. The ESIA describes that the project will have no direct impact on land use or terrestrial resources for communities surrounding the project area. The connecting infrastructure (transmission lines and gas pipeline) will have their own ESIA's and they may well have such impacts; however, the envisaged line routes are on agricultural land that can continue be utilized for farming purposes. Involuntary re-settlements, if necessary, would consist only of construction of new houses outside line corridor to replace the old ones on the corridors. The gas pipeline will be underground and have impacts therefore mostly during construction. A key positive impact of the project will be the generation of employment during construction and operation, with a large proportion of the labour force to be sourced locally.

The promoter has in place policies and procedures to ensure that construction and operation of the power plant is carried out in accordance with Egyptian regulations and in line with international standards for good practice, including an Environmental Health and Safety manual for the power plant with which all contractors are required to comply. Health and safety of personnel during operation of the power plant is ensured through the implementation of an Operational Health and Safety Plan, with appropriate training provided to all staff.

Public Consultation and Stakeholder Engagement, where required

A formal public consultation procedure was carried out for the power plant project according to national requirements and the Bank guidelines. This included stakeholder consultations in scoping phase and full public consultation (consultation meeting on 31.3. 2015). Results of public consultation were incorporated into final ESIA document (June 2015). Co-operation with public is enhanced with Community Advisory Panel. Additional public consultation will be required regarding transmission lines and gas pipeline works related to the project. Social engagement plan and grievance mechanisms are part of ESMP.