

Environmental and Social Data Sheet

Overview

Project Name: JSW Coke Production Efficiency
Project Number: 2017 0654
Country: Poland
Project Description: The project comprises the modernization of coking plants, the construction of an energy efficient coke oven gas-fired Combined Heat and Power (CHP) plant and the installation of methane-powered CHP engines in Silesia, Poland.

EIA required: yes

Project included in Carbon Footprint Exercise¹: yes

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

Environmental and Social Assessment

Environmental Assessment

- **Project description**

The project comprises investments from 2018 to 2021 covering the modernisation of three coking plants and energy efficiency measures by improving coke oven off-gas utilization and making use of methane from coal seam degasification. In detail, it consists of the following subprojects:

- Replacement of the Przyjazn coking battery no.4,
- Extension of the coke oven gas cleaning installations at the Radlin coking plant,
- Extension of the coke oven gas cleaning installations at the Jadwiga coking plant,
- Modernization of the infrastructure at the Radlin coking plant,
- Installation of a 28 MWe and 37 MWth CHP plant making use of the coke oven gases of Radlin,
- Installation of 14 methane engines of a total installed capacity of 48 MWe and 42.3 MWth making use of methane from coal seam degasification.

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.

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- **Compliance with relevant EU Directives**

All of these subprojects are Annex II projects under the Environmental Impact Assessment (EIA) Directive 2014/52/EU amending Directive 2011/92/EU and it is for the competent authorities to decide whether a full EIA is needed or not. The competent authorities requested a full EIA for the following subprojects:

- Replacement of the Przyjazn coking battery no.4,
- Installation of a 28 MWe and 37 MWth CHP plant making use of the coke oven gases of Radlin.

These have been established and are satisfactory for the Bank. The decision whether the other subprojects would also require an EIA has not yet been taken.

The technical solutions foreseen for the subprojects ensure consistency with Best Available Techniques (BAT) as set out in the Commission Implementing Decision 2012/135/EU establishing the BAT conclusions under Directive 2010/75/EU (IED Directive) on industrial emissions for iron and steel production (final BREF document of 2013), as far as those are applicable.

- **Environmental impacts**

- Przyjazn coking battery no.4: The replacement will lead to emission reductions of SO₂, NO_x, CO and particularly particulate matter;
- Radlin coking plant: the gas cleaning installations will lead to a cleaner coke oven gas, in particular regards tar, H₂S, HCN and NH₃, better amenable for subsequent use and will produce higher amounts of sulphur, tar and BTX (benzene, toluene, xylene) by-products;
- Jadwiga coking plant: same impacts as for Radlin coking plant;
- Radlin infrastructure modernisation: the extension of the rail infrastructure including the railcar defrosting unit will lead to an improved traffic organisation, reduction of double-handling and hence reduction of rail traffic. The coal yard extension by a new enclosed coal storage and the enclosing of the main belt conveyor will lead to lower dust emissions;
- CHP plant Radlin: This new plant will improve the use of surplus coke oven gas, which is currently sold and burnt in an inefficient plant to be closed down. The process planned is more energy-efficient and therefore reduces GHG emissions. The emissions will include SO₂, NO_x, particulates, CO and ammonia. Their maximum permitted emissions are included in the IPCC permit for the coking plant. The emission mitigants include using cleaned coke oven gas with a maximum concentration of H₂S at the level of 0.5 g/Nm³ and of ammonia of 0.03 g/Nm³, emitting flue gases through a stack with a minimum height of 102 m and the use of SCR de-NO_xing installation among other measures.
- Methane engines: these engines of 2 or 4 MWe (14 engines with 48 MWe and 42.3 MWth in total) will be installed at various coal mine sites of JSW and will use methane from coal seam degasification, which is vented as far as not yet used. Currently, some 115 M cbm/a of methane (55% of the methane captured) are being used in existing gas engines. It is expected that future capture will increase to 220 – 250 M cbm/a, of which then 84 – 93% will be used. The decision on maximum allowable emissions has not been issued yet.

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EIB Carbon Footprint Exercise

The environmental impacts listed under b), c) and d) above produce only insignificant GHG emissions and are therefore not included in this exercise.

- The Przyjazn coking battery no. 4 replaces the old battery no.4 which has already been taken out of operation in 2016 after reaching its useful lifetime and torn down in the meantime. For the purpose of this carbon footprint exercise, it can therefore not be used anymore for comparison reasons. This subproject has consequently to be looked at as a capacity increase. It can be assumed, as a baseline, that the markets would be supplied by coke produced somewhere else without the project. Conservatively, such alternative production is assumed also compliant with BAT and energy efficiency benchmarks in the same way as the project is. Consequently, the baseline emissions are the same as the project's absolute emissions and the resulting impact (relative emissions) is nil.
- The CHP plant Radlin will burn coke oven gas and the various gas engines will burn methane in order to produce electrical power and steam. For reference (baseline), it is assumed that they replace electric power of an equivalent amount sourced from the grid and steam produced in a gas fired boiler. These measures will lead to emission savings of 159 kt/a.
- In addition, a significant GHG effect stems from the avoidance of venting methane (with a GHG factor of 21 compared to CO₂) from coal seam degasification. Respective savings by its use in the gas engines are estimated to amount to 1.173 Mt/a CO₂ equ.

Combined, the estimated annual emissions of the project in a standard year of operation are 401 kt/a of CO₂ equivalent (absolute emissions). Combined baseline emissions are heavily influenced by the avoidance of CH₄ otherwise vented. They amount to 1.703 Mt/a CO₂ equ. GHG emission savings of the project therefore amount to a significant number of 1.302 Mt/a CO₂ equ.

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'.

Public Consultation and Stakeholder Engagement

Under Polish environmental legislation, the public participation in the frame of an EIA is organised by the competent authority and is noted in the competent authority's decision.

The promoter is well integrated in the regional and local fabrics and engages in a number of social activities, see www.jsw.pl.

Other Environmental and Social Aspects

The promoter complies with European environmental standards and is well managed with regard to environmental and social matters. It has environmental policies, procedures and plans in place ensuring continued improvement of the working conditions of its employees.

All facilities of the promoter are externally certified under ISO 9001 (quality), 14001 (environmental management), 27001 (security) and PN-N 18001 (EHS standards, most equivalent to OHSAS 18001). The promoter started with its 2017 Sustainable Development Report producing annual reporting about environmental, social and occupational health

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impacts according to the Global Reporting Initiative (GRI) sustainability reporting guidelines and with stakeholder engagement.

Conclusions and Recommendations

The project supports investments to reduce the impact on the natural environment, particularly emissions, by applying Best Available Technology (BAT) standards as well as by increasing the use of coke oven gas and methane generated from coal seam degasification for the generation of electricity and heat. Both the implementation and the operation of the project will not result in any adverse environmental effects or cause any negative impacts on protected areas such as Natura 2000 or on human life and health, but will contribute to improving the promoter's environmental footprint and substantially decreasing his GHG emissions.

Disbursements will only be made on subprojects with a positive conclusion of the EIA process or on those, which have been screened out, i.e. for which no EIA is required.

Considering the above, the project is acceptable for Bank financing.

Conditions and undertakings

- Disbursements will only be made on subprojects with a positive conclusion of the EIA process or on those which have been screened out, i.e. for which no EIA is required.
- As soon as established, the promoter will send to the Bank the EIAs for all those sub-projects for which such EIA is required and which the Bank had not received yet.
- Reporting on relevant emission figures for all subprojects at project completion stage and comparison with pre-project stage.