

Environmental and Social Data Sheet

Overview

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| Project Name: | AGC ADVANCED GLASS TECHNOLOGY RDI |
| Project Number: | 2016-0503 |
| Country: | Western Europe |
| Project Description: | The project includes RDI on glass processing and glass products for the period 2017-2020 and the cold repair investment programme up to 2019. |
| EIA required: | no |
| Project included in Carbon Footprint Exercise ¹ : | yes |
| (details for projects included are provided in section: "EIB Carbon Footprint Exercise") | |

Environmental and Social Assessment

The project consists of two different elements:

- i) the modernisation of flat glass production lines with a focus on energy efficiency, reaching best-in-class energy efficiency performance levels and slightly increased capacity, and;
- ii) the Research, Development and Innovation (RDI) programme with a focus on optimising the life-cycle environmental impact of glass products and exploring new applications.

Environmental Assessment

AGC's environmental policy has a double focus:

1. Aim to be at the forefront in developing new products with better environmental performance during their lifetime.
The project enables the promoter to further develop the high-tech glass products of tomorrow. Fifty percent of the R&D budget is devoted to sustainable products, solutions and manufacturing - reduce greenhouse gasses, heavy metals in the environment and pollution in water.

Themes of the R&D programme include:
 - energy saving (super-insulated or solar control glass for the building and automotive sectors),
 - renewable energy generation (glass for solar applications),
 - protection of the environment by being clean and environment-friendly,
 - preservation of indoor air quality (the levels of volatile organic compounds released by our interior glass products are very low).
2. Aim to manufacture these products using the best available technologies from the environmental point of view, in order to minimise the environmental impact.

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.

Luxembourg, 15th June 2017

The major environmental impact of glass production is caused by atmospheric emissions from melting activities:

- The *combustion of natural gas/fuel oil* and the *decomposition of raw materials* during the melting lead to the emission of CO₂ - the only greenhouse gas emitted during the production of glass. Some 80% of the CO₂ emissions from the furnaces are energy-related, with the remaining 20% caused by decomposition of the raw materials. AGC Europe now invests to upgrade two of its installations and apply state-of-the-art techniques so to achieve best-in class performance - achieve better than EU ETS benchmark performance. In doing so, the company is guided by existing legislation such as the EU emissions trading scheme (EU ETS) and the Industrial Emissions Directive (IED).

- *Sulphur dioxide (SO₂)* and *Nitrogen oxides (NO_x)* from the fuel and/or from decomposition of sulphur and nitrogen compounds in the batch materials can contribute to acidification and formation of SMOG.

The objective of the project is to further reduce emissions by implementing air pollution control units to remove acids and particulates from furnace flues. The process used is specific to glass production, as the acid scrubbing reagent in the scrubber is sodium carbonate (Na₂CO₃), which is a raw material used in glass production. This material was chosen because the reaction of the carbonate with the sulphur oxides in the flue gases produces sodium sulphate (Na₂SO₄), which is also a raw material for glass. Thus, the scrubbing system uses a raw material as a reagent and produces another raw material as result of the flue gas desulphurisation. Instead of being disposed of in a landfill, this raw material goes back to the furnace to be reused for glass production.

Glass manufacturing plants fall under Annex II of the Directive 2011/92/EU as amended, thus requiring a formal EIA following respective screening-in of the Competent Authorities. The cold repair components of the project were screened-out because of the location on existing glass manufacturing sites, and no additional expected environmental impact due to implementation of improved energy efficient and low NO_x melting technology.

EIB Carbon Footprint Exercise

The estimated annual emissions of the project in a standard year of operation will amount to 300 000 tonnes CO₂ per year (direct and indirect emissions associated with energy consumption). This figure assumes a production of 600 000 tonnes per year of molten glass – produced in the three locations - and takes into account the expected specific emissions after project implementation.

The baseline scenario represents a realistic and credible scenario that delivers the same output as expected in the proposed project with comparable quantity (i.e. 600 kt/a), quality and geographical area. The emissions are based on the assumption that the existing furnaces will continue to operate under the current performance and emission levels for a limited number of years and will then be substituted by the state-of-the-art furnaces implemented by the project. The project will thus result in a yearly emission saving of 8 000 tonnes of CO₂.

Many products marketed by AGC make it possible to reduce the energy consumption and the CO₂ emissions of users. AGC calculated that for each tonne of CO₂ emitted by AGC Europe activities, nearly 10 tonnes of CO₂ are saved thanks to the use of the low emissivity and energy generating glass products.

Luxembourg, 15th June 2017

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.

Other Environmental and Social Aspects

The AGC Group developed a holistic approach to fully assess our environmental footprint by using complementary approaches:

- The Environmental Management System (EMS), based on the ISO 14000 family of standards), designed to deal with environmental issues on a global scale. Policies and strategies are based on information from performance indicators, research, learning and related external activities.
- The Cradle to Cradle approach is an innovation approach used to design products and services which are beneficial in economic, health and environmental terms. The Cradle to Cradle philosophy is triggered at the beginning of the development of the products. The AGC Europe products that undergo the Cradle to Cradle Certified programme have to meet strict criteria (non-toxicity of materials, reuse of materials, use of renewable energy, water stewardship, and social responsibility). Cradle to Cradle is an ecolabel type I according to the definition given by ISO 14024.
- Life Cycle Analysis of the product supply chain to quantitatively assess the environmental impact in the production stage and the savings generated by the high-performance glazing products in the use stage of their life cycle, and thus check potential CO₂ reduction and other benefits. It also offers the information required for the sustainability certification of buildings.

Glass is endlessly recyclable like no other product. The objective is to use as much glass cullet as possible in the production processes. The use of cullet avoids CO₂ emissions, since cullet requires less energy to melt, and replaces carbonated raw materials. AGC Europe recycles around 1,000,000 tonnes of cullet per year, saving about 1,150,000 tonnes of raw material and 300,000 tonnes of CO₂ emissions.

More info on: *Glass recycling & Circular economy*

Conclusions and Recommendations

The proposed cold repairs are in full compliance with Best Available Techniques. Both the implementation and operation of the project will not result in any adverse environmental effects or cause any negative impact on protected areas, Natura 2000 areas, cultural objects or human life and health, but contribute to improving the promoters' environmental footprint.

Additionally, the project contributes to the development of new products with better environmental performance during their lifetime.

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