

## Environmental and Social Data Sheet

### Overview

Project Name: *EVERFUEL GREEN HYDROGEN PROJECT*  
Project Number: *20190238*  
Country: *Denmark*  
Project Description: *The project comprises the large-scale production and distribution of green hydrogen to provide fuel to a sizeable fleet of hydrogen fuel-cell electric buses.*

EIA required: project falls under annex II of the EIA Directive, screening decision has not yet been provided

Project included in Carbon Footprint Exercise<sup>1</sup>: yes

### Environmental and Social Assessment

The project comprises the development of hydrogen production, distribution and refuelling infrastructures, in order to supply the fuel to a large-scale fleet of Fuel Cell electric buses (FC buses) in Denmark and, to a smaller extent, to an existing refinery. The project is expected to develop a total 8 tH<sub>2</sub>/day maximum supply capacity, and meet an average daily demand of about 6 tH<sub>2</sub>/day.

The project will be implemented in two phases including stationary and mobile assets:

- First Phase:
  - Offtake of the excess hydrogen from chemical processes (electrolysis of salt water to produce chlorine) from an existing integrated chemical plant.
  - Establishment of a hydrogen distribution network with the acquisition of mobile assets: certified trailers (equipped with appropriate tanks to be filled with compressed gaseous hydrogen) to transport the hydrogen from the supply sources to the bus depots.
  - Development of refuelling stations (stationary hydrogen refuelling stations –HRS–) and ancillary infrastructure to allow the refuelling of fuel-cell buses. This infrastructure is developed within the bus depots of the PTOs.
- Second Phase (once sufficient supply contracts for hydrogen are secured):
  - The development of a hydrogen logistics centre (HLC) comprising an electrolyser and related storage and compression equipment in Fredericia, Denmark, to increase the production of hydrogen. The HLC will be built next to the existing Fredericia refinery owned and operated by Shell, which will lease the land and allow for the use of the existing electrical substation. The promoter plans to use of renewable energy sources for the production of the hydrogen and in any case will commit to buy green certificates equivalent to the energy consumption.
  - Development of additional refuelling stations for the newly contracted PTOs.

<sup>1</sup> Only projects that meet the scope of the Carbon Footprint Exercise, as defined in the EIB Carbon Footprint Methodologies, are included, provided estimated emissions exceed the methodology thresholds: 20,000 tonnes CO<sub>2</sub>e/year absolute (gross) or 20,000 tonnes CO<sub>2</sub>e/year relative (net) – both increases and savings.

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At the end of the project deployment period, about one third of the total hydrogen production (including the hydrogen sourced from the existing chemical plant and the hydrogen produced at the Fredericia electrolyser) will be sold to the refinery and two thirds will be used as alternative fuel for public transport operators in Denmark.

### **Environmental Assessment**

The hydrogen logistics centre (HLC) to be built in Denmark is expected to be located in an industrial area at the site of an existing refinery in Fredericia, in a plot of land next to that of the refining assets. The implementation of the HLC falls under annex II of the EIA Directive 2014/52/EU amending the EIA Directive 2011/92/EU. Initial planned storage capacity is below the lower-tier threshold (5 tons) of the SEVESO III Directive (Directive 2012/18/EU). Expansion may take place in the future; however, it is not currently planned nor is part of the project scope. The infrastructures will be located at about 150-300m from the nearest residential building, and at 2km from the nearest Natura 2000 site, and are thus expected not to entail meaningful negative impacts or risks for these. The promoter will be required to provide a written confirmation from the competent authority.

Stationary hydrogen refuelling stations (HRS) will be located at the public transport operators' bus depots. The HRS will be subject to a screening decision. The HRS will also have to comply with the technical specifications for hydrogen refuelling points for motor vehicles set out in the AFID Directive (Directive 2014/94/EU). Given the expected storage size (below 2 tons) and the location, the bus-depot HRS are not expected to have major environmental impacts.

All the other components of the project do not follow under EIA Directive.

Construction and maintenance of the assets will be performed by leading hydrogen equipment manufacturers with proven experience with the type of infrastructure to be developed.

All relevant and applicable building, environmental, and safety permits for the infrastructure will be provided by the Promoter before disbursement against these components.

Hydrogen production will use electricity source from the central grid, by means of an existing 60kV substation next to the site. The promoter plans to use electricity generated from renewable energy sources. The project will thus contribute, in line with the AFID Directive (Directive 2014/94/EU), to provide for a solution to decarbonise the transport sector and to make larger-scale hydrogen-powered motor vehicle deployment possible with positive impacts on environment in terms of air quality improvement, greenhouse gas emissions and noise reduction.

The environmental impacts are expected to be minimal and related to noise, vibration, dust, and traffic disruption during the construction of the stationary facilities; and to nuisance and to the impacts typical of heavy-duty road transport during the operational phase.

### **EIB Carbon Footprint Exercise**

For consistency purposes, the standard Bank's standard methodology has been applied and leads to an estimate of the annual emissions of the project of some 36 kT CO<sub>2</sub>e/year in a standard year of operation, including:

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- 1) The emissions due to the initial hydrogen sourcing site
- 2) The emissions due to energy consumption for the Fredericia production site
- 3) The emissions for the distribution of the hydrogen with trailers.

In fact, in line with the Bank's standard methodology, the standard grid factors were used for the carbon footprint calculations even if green energy is expected to be used for the production of the hydrogen.

In a standard year, the project is expected to reduce CO<sub>2</sub> emissions:

- 1) as it will enable the operation of at least 200 hydrogen-powered buses (some 15 million km per year) replacing end of life diesel buses that will otherwise emit 21.1 Kt CO<sub>2</sub>e/year (well-to-wheel emissions, including production and distribution of diesel fuel).
- 2) From Fredericia's site, green hydrogen will also be provided to the Shell refinery and is expected to reduce some 4.5 kT CO<sub>2</sub>e/year of this refinery, by avoiding the production of hydrogen with fossil fuels.

Overall, using the Bank's standard methodology, the project is estimated to lead to a net increase of 6.1 Kt of CO<sub>2</sub> equivalent per year. This calculation is deemed conservative as the standard grid factors have been taken into account not properly reflecting the project's key features. In fact, the promoter intends to use of renewable energy sources for the production of the hydrogen for the Fredericia site and in any case will commit to buy green certificates equivalent to the energy consumption. Therefore, if a zero emission grid factor is considered for that production site, the project is expected to lead to a net reduction (-22 ktCO<sub>2</sub>e/yr) in GHG emissions. Furthermore, additional CO<sub>2</sub> savings are expected once hydrogen-driven trucks become available on competitive terms in Northern Europe and are implemented for the distribution of the hydrogen.

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, where applicable**

No social impacts foreseen for this project as facilities will be constructed either on existing industrial land or within public transport operators' bus depots.

### **Public Consultation and Stakeholder Engagement**

Requirements in terms of public consultation under the EIA process will be known once environmental procedures will be carried out.

## **Conclusions and Recommendations**

Hydrogen production will be produced through electrolysis using renewable energy sources. The project will thus contribute, in line with the AFID Directive (Directive 2014/94/EU), to provide for a solution to decarbonise the transport sector and to make larger-scale hydrogen-powered motor vehicle deployment possible with positive impacts on environment in terms of air quality improvement, greenhouse gas emissions and noise reduction.

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Environmental impacts of the implementation of the hydrogen production and distribution infrastructure are not fully known yet as environmental procedures will take place at a later stage. However, given the location, size, and type of infrastructure, no major impacts are expected.

Based on the information provided by the Promoter and with appropriate conditions in place (see below), the project is considered acceptable for EIB financing in environmental and social terms.

Before disbursing against the infrastructure components, namely the production sites and each of the refuelling stations, the Promoter shall provide to the EIB:

- All EIA screening decisions issued by the competent authority for nature and environment concerning the component.
- If applicable, the Environmental Impact Assessment (EIA) and/or the biodiversity assessment under the EU Habitats and Birds Directives.
- A written confirmation from the competent authority that the Project and/or the component will have no impact on Natura 2000.

The Promoter undertakes not to allocate the Bank's funds to any investment under this project that requires an Environmental Impact Assessment (EIA) until the EIA and/or the biodiversity assessment have been finalised and approved by the competent authority. An electronic copy of the EIAs must be placed on the website of the Promoter from the moment the EIAs are made available to the public and maintained until completion of reporting.