

Luxembourg, 21<sup>st</sup> March 2024

## Environmental and Social Data Sheet

### Overview

Project Name:	<i>REN-GAS GREEN LIQUID FUELS PRODUCTION - LAHTI</i>
Project Number:	<i>2023-0867</i>
Country:	<i>FINLAND</i>
Project Description:	<i>Design, implementation and operation of a renewable hydrogen production facility (40 to 50 MW) for the production of synthetic methane, located next to an existing CHP, close to the city of Lahti, Finland.</i>
EIA required:	yes
Project included in Carbon Footprint Exercise:	yes
<i>(details for projects included are provided in section: "EIB Carbon Footprint Exercise")</i>	

### Environmental and Social Assessment

The project is a sub-operation and allocation to a Lending Envelope (LE), for which a separate ESDS (2022-0056) has been prepared.

It concerns the development, installation and operation of a large-scale (~40 to 50 MW) renewable hydrogen/synthetic fuel production facility, whereby the hydrogen (H<sub>2</sub>) would serve as a basis for synthetic fuel ("e-methane") production, similar to natural gas. The synthetic fuel will be supplied directly to the existing natural gas grid.

The carbon dioxide (CO<sub>2</sub>) needed for the production of synthetic fuel will be sourced from flue gases of the existing Combined Heat and Power (CHP) plant, the two units of which operate on the basis of recycled fuels (e.g. plastic, paper, cardboard, and wood) and waste-wood based biomass from forestry and sawmill processes.

The project site is located ~10 km east from the Lahti city centre. Located to the north is the Kymijärvi CHP plant. The sites connect to the highway via a road of a residential area. Currently the project site is used for storing rough logs and for parking purposes. The site was originally designated as a commercial and industrial zone.

#### Environmental Assessment

Production and storage of H<sub>2</sub> falls under item 6a,c of Annex II of EIA Directive 2011/92/EU (as amended by Directive 2014/52/EU), for which Member States shall determine whether the project shall be made subject to a mandatory EIA based on defined criteria. According to the national legislation<sup>1</sup>, having transposed EU legislation and governing the EIA procedure, hydrogen production is subject to a legally mandatory EIA.

The competent authorities have granted approval in 2023<sup>2</sup>, in form of a Reasoned Conclusion. Part of these conclusions is that some residual impacts of moderate significance, concerning noise emissions, traffic, safety will occur during construction and operation.

Noise emissions will particularly increase during construction due to groundworks and heavy traffic increase. Mitigation measure to reduce exposure to construction noise will e.g., comprise scheduling timing and intensity of groundworks.

During operation, noise levels will partially increase, as the plant will be air-cooled instead of the initially design of water cooling. This change, triggered by the EIA process, is introduced to mitigate residual impacts on water resources of the nearby river. Additional detailed design adaptations will aim at mitigating noise impacts from air-colling devices further, e.g., positioning

<sup>1</sup> Environmental Impact Assessment ("EIA Act" 252/2017), Government Decree on the Environmental Impact Assessment Procedure (EIA Decree 277/2017)

<sup>2</sup> [Puhtaiden P2X kaasupolttoaineiden ja CO2-vapaan kaukolämmön yhteistuotantolaitos, Lahti \(ymparisto.fi\)](#)



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of the air-cooler in relation to the residential area. Noise emissions during operation could further increase discontinuously in case of methane flaring. Modelling of those noise emissions indicates that none of the noise limits at points within the nearest exposed areas will be exceeded.

In view of the major road connections close to the site, moderately significant adverse traffic impacts during construction and traffic safety aspects in general, including the potential transport of dangerous goods, will have to be reflected through a traffic planning to mitigate congestion, avoid accidents, and to define the most suitable transport routes to ensure safety. Impacts from traffic during the operation will concern the same area but is considered of much smaller magnitude and low significance.

There is no significant impact on the soil and bedrock, whilst however soil samples indicate the presence of harmful substances (hydrocarbons, heavy metals) within the soil but at concentrations much below the threshold set by national regulations. Still, soil movements or exchange will have to be permitted by the regional authorities. Decontamination is not needed.

In preparation of the necessary permit from the national safety agency, the EIA comprise studies on explosion modelling, indicating that in such unlikely case the impact would remain within the boundaries of the project site.

Following this EIA, the project requires a separate environmental permit<sup>3</sup> to be issued by a different (permit) authority. The Reasoned Conclusions to the EIA report contain recommendations for mitigation measures to be considered for the granting of the permit, such as e.g. noise reduction measures, traffic and safety planning, stormwater management planning, precautionary accident and disruption plan, leakage management plan, etc.

### **EIB Carbon Footprint Exercise**

It is calculated for a base case hydrogen production - in accordance with the Bank's current Carbon Footprint methodology - that the expected hydrogen and subsequent synthetic fuel ("e-methane") volumes from the project would avoid natural gas consumption and lead to reduction of CO<sub>2</sub> equivalent emissions of ~30 kt CO<sub>2</sub>e/year, over the lifetime of the project. Furthermore, the excess process heat to be supplied to the existing district heating system in the project's area would avoid an equal share of gas and biomass consumption for domestic heating, leading to the reduction of CO<sub>2</sub> equivalent emissions of ~20 kt CO<sub>2</sub>e/year, over the lifetime of the project.

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

The competent authority however notes that there is uncertainty about the estimated carbon emission reduction of the use cases for the synthetic fuel produced by the project, as a function and evolution of the assumed specific emission factor in the region. In addition, the climate impact assessment depends on that "fully renewable" electricity is continuously available to the project whilst the EIA report indicates some uncertainty to that for all operational modes of the project.

### **Social Assessment, where applicable**

The facility will be located in an area that has already been heavily modified, with large-sized buildings in the vicinity. The operation of the project does neither result in significant changes in the landscape or the built cultural environment, nor does the project have significant adverse effects on human health, comfort or living conditions. The project will create about 200 person-years of temporary employment during implementation. Twelve full time equivalent (FTE) posts

<sup>3</sup> Environmental Protection Act (527/2014) and Government Decree on Environmental Protection (713/2014)



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are expected to be created for the operational phase of the plant. The employment conditions and the level of inclusion will be in line with national regulations.

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

Public consultation of EIA programme (Scoping) was undertaken from 11/2022 to 01/2023. The competent authority issued its positive opinion to the scoping report in 02/2023. Subsequently, the promoter has submitted the EIA report in 06/2023 for consideration and a reasoned conclusion by the competent authority. The public had access to the report in the period from 07/2023 to 08/2023, including the opportunity to attend a public hearing in hybrid format. There was relatively modest participation by the public at the hearing. However, issues were raised related to transport and traffic situation during construction and operation, stormwater and wastewater management, impacts of noise and vibrations from the plant during construction and operation and visual impacts, which the competent authorities have reflected in their Reasoned Opinion.

### **Other Environmental and Social Aspects**

The national EIA process comprises a scoping exercise (“EIA programme”), defining the framework of the actual environmental impact assessment, to which the competent authorities opine, including the considerations collected through a public consultation/hearing.

The assessment itself, based on the scoping report, presents the project's characteristics, technical solutions, and the unified assessment of the project's environmental impact. The report of the assessment will be equally subject to public consultations/hearings. The EIA procedure ends when the competent authority issues a Reasoned Conclusion including statements and opinions of other stakeholders. The Reasoned Conclusion forms the basis for a subsequently needed environmental permit to be issued by a different (permit) authority. An environmental permit can only be granted when the EIA procedure is completed. For the permit the project needs to meet the requirements of the Environmental Protection Act and other legislation.

Based on the current generic design for a H2 production plant, it would be considered a facility pursuant to sections 4a and 4b of Appendix 1 of the national Environmental Protection Act, hence requiring an environmental permit. Further necessary permits comprise those required by (a) the national Act on the Safety of the Handling of Hazardous Chemicals and Explosives (390/2005), if the hydrogen production facility would involve large-scale storage of hazardous chemicals; (b) the SEVESO III directive, as a hydrogen production facility is estimated to exceed the threshold for a major accident hazard.

## **Conclusions and Recommendations**

Based on the reporting by the promoter, it is concluded that this project has been found acceptable for the Bank's financing in E&S terms and is considered to be compliant with the relevant EU and national environmental legislative framework by the national competent authorities.

The Bank will require the promoter to undertake:

- to obtain positively granted environmental permits prior to that the Bank's funds are allocated to a hydrogen production facility;
- to send electronic copies of the facility's EIA programme and report to the Bank for publication on its website;
- to send to the Bank copies of all EIA decisions and environmental permits issued by the competent authorities;
- to provide the competent authorities' decisions concerning the need for an appropriate assessment of potential impacts by a facility on the integrity of Natura 2000 sites;
- to take into account and implement conditions expressed in any screening decision, Opinion, Reasoned Conclusion, or environmental permit granted by the competent authorities for the project;



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- to store and keep updated any documents as may be relevant for the project, supporting the compliance with the provisions under the EU Environmental acquis;
- to promptly deliver, upon request, such documents to the Bank.