

Project HyAMMED:


developing hydrogen mobility within the Aix-Marseille metropolitan area



As part of the HyAMMED project - Hydrogen in Aix-Marseille for Ecological and Sustainable Mobility - Air Liquide will build the first high-pressure hydrogen station that will supply low-carbon hydrogen to the first European fleet of eight 44-ton long-haul trucks specially designed in the framework of the project.

Starting date of the project	February 2019: start of the project July 2020: press release Beginning of 2022: start of the project		
Project Localisation Places of implementation of the project at this stage and targeted geography if replicable.	<p>The HyAMMED project (Hydrogen in Aix-Marseille for Ecological and Sustainable Mobility, "Hydrogène à Aix-Marseille pour une Mobilité Écologique et Durable") is located in the Provence Alpes Côte d'Azur region, within the Aix-Marseille Provence metropolis and the Grand Port Maritime de Marseille.</p> <p>The low-carbon hydrogen station will be located at the Air Liquide site in Fos-sur-Mer.</p> <p>HyAMMED is a first step in the deployment of the hydrogen distribution chain by truck in France, and even in Europe. It is part of a European "H2Haul" project, which aims to promote the use of hydrogen in the transport of goods in Europe.</p>		
Project objectives Type of climate innovation of the project with a description of the problem/issue addressed	HyAMMED aims to initiate in the Provence-Alpes-Côte d'Azur region the transition from transporting various polluting heavy vehicles to responsible, innovative and environmentally conscious mobility through the use of hydrogen.		
Detailed project description	<p>The transport activity contributes 30% to GHG emissions in France. It is therefore imperative to find effective solutions, particularly in the heart of large urban areas.</p> <p>The HyAMMED project, Hydrogen in Aix-Marseille for Ecological and Sustainable Mobility, has the potential to transform the transport of goods in the Aix-Marseille-Provence metropolis, one of the most populous regions in France.</p> <p>For this, the project provides for the deployment of eight 44-ton long-distance hydrogen trucks (up to 800 km) associated with the first high-flow low-carbon hydrogen station [700 bar, 1 ton / day], invested and operated by Air Liquide on its Air Liquide site in Fos-sur-Mer and will allow up to 20 refills per day of hydrogen trucks. The low-carbon hydrogen that will feed the Air Liquide station will be co-produced by electrolysis by KemOne at its Fos-sur-Mer site. The station is also designed for refueling buses and other utility vehicles (horizon 2023).</p> <p>The HyAMMED project aims to demonstrate the high reliability of long-haul 44t trucks, equipped with fuel cells, compatible with road transport operations under normal operating conditions. One of these trucks will be operated by Air Liquide as part of its packaged gas delivery activities in the Fos-sur-Mer region. Their range (up to 800 km) is a real asset. In addition, hydrogen has the advantage of not changing charging habits (the duration of a filling is about 20 minutes), which will facilitate the deployment and acceptance of this technology by users (carriers and retailers).</p> <p>The HyAMMED project is part of a regional Hydrogen ecosystem that is already present and rapidly expanding across the entire value chain.</p>		
Main project's drivers for reducing the greenhouse gas emissions	Reduction levers	Details on the aspects of the project	
	<input type="checkbox"/> Energy and resource efficiency (including behaviour)		
	<input checked="" type="checkbox"/> Energy Decarbonisation	Replacing diesel fuel with carbon-free hydrogen (H2)	
	<input type="checkbox"/> Energy efficiency improvements		
	<input type="checkbox"/> Improving efficiency in non-energy resources		
	<input type="checkbox"/> Emissions absorption: creation of carbon sinks, negative emissions (BECCS, CCU/S, ...)		
	<input type="checkbox"/> Financing low-carbon producers or disinvestment from carbon assets		

	<input type="checkbox"/> Reduction of other greenhouse gases emission																												
Emission scope(s) on which the project has a significant impact and quantification of GHG emission reductions per emission scope	<table border="1"> <thead> <tr> <th></th><th>Aspects of the project contributing to the reduction of emissions by emission category</th><th>Quantification of associated GHG emissions by emission category Please follow the quantification methodology used in the Afep guidelines.</th></tr> </thead> <tbody> <tr> <td colspan="3">Reduction of the company's carbon dependency</td></tr> <tr> <td>Scope 1 <i>Direct emissions generated by the company's activity.</i></td><td></td><td></td></tr> <tr> <td>Scope 2 <i>Indirect emissions associated with the company's electricity and heat consumption.</i></td><td></td><td></td></tr> <tr> <td>Scope 3 <i>Emissions induced (upstream or downstream) by the company's activities, products and/or services in its value chain.</i></td><td></td><td></td></tr> <tr> <td colspan="3">Increase of carbon sinks</td></tr> <tr> <td>Emissions Absorption <i>Carbon sinks creation, (BECCS, CCU/S, ...)</i></td><td></td><td></td></tr> <tr> <td colspan="3">GHG emissions avoided by the company at third parties</td></tr> <tr> <td>Avoided Emissions <i>Emissions avoided by the activities, products and/or services in charge of the project, or by the financing of emission reduction projects.</i></td><td>Replacing diesel fuel with carbon-free hydrogen (H2)</td><td>diesel by carbon-free hydrogen (H2) - 1.5 ktCO2 / year</td></tr> </tbody> </table> <p>Clarification on the calculation or other remarks: Details on the calculation or other remarks: The HyAMMED project will reduce CO2 emissions by more than 1,500 tonnes of CO2 per year, the equivalent of more than 2 million kilometers traveled in trucks equipped with conventional diesel engines. Each truck will reduce emissions by 150t of CO2 per year (200,000 kilometers per year).</p>			Aspects of the project contributing to the reduction of emissions by emission category	Quantification of associated GHG emissions by emission category Please follow the quantification methodology used in the Afep guidelines .	Reduction of the company's carbon dependency			Scope 1 <i>Direct emissions generated by the company's activity.</i>			Scope 2 <i>Indirect emissions associated with the company's electricity and heat consumption.</i>			Scope 3 <i>Emissions induced (upstream or downstream) by the company's activities, products and/or services in its value chain.</i>			Increase of carbon sinks			Emissions Absorption <i>Carbon sinks creation, (BECCS, CCU/S, ...)</i>			GHG emissions avoided by the company at third parties			Avoided Emissions <i>Emissions avoided by the activities, products and/or services in charge of the project, or by the financing of emission reduction projects.</i>	Replacing diesel fuel with carbon-free hydrogen (H2)	diesel by carbon-free hydrogen (H2) - 1.5 ktCO2 / year
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Modality of verification of the quantification.	Calculation standard used (ADEME base, GHG protocol, etc.): ADEME base																												
Other environmental and social benefits of the project	Verification of the calculation (internal or external): Internal verification Improving transport not only reduces CO2 emissions linked to the transport of goods, but also to significantly improve air quality (reduction of the level of NO2 fine particles in the air) and to limit the noise level in dense areas. The HyAMMED project thus contributes to the following SDGs: <ul style="list-style-type: none"> - SDG 1 Good health and well-being - SDG 7 Clean and affordable energy - SDG 9 Industry, innovation and infrastructure - SDG 11 Sustainable cities and communities - SDG 13 Measures relating to the fight against climate change 																												
Project maturity level	<input checked="" type="checkbox"/> Prototype laboratory test (TRL 7) <input type="checkbox"/> Real life testing (TRL 7-8) <input type="checkbox"/> Pre-commercial prototype (TRL 9) <input type="checkbox"/> Small-scale implementation <input type="checkbox"/> Medium to large scale implementation Remarks: The project will have reached the TRL-7 in 2022, before the demonstration, and the TRL-8/9 in 2024, at the end of the demonstration.																												

Capacity and conditions of the project reproducibility, with associated climate impact mitigation potential	<p>The project will initiate the deployment of hydrogen trucks in France and Europe, particularly in all dense logistics areas such as ports.</p> <p>The HyAMMED project will be a success thanks to (i) the great diversity of actors gathered and committed and (ii) the unconditional support of public funding bodies (FCH JU, ADEME and South Region).</p>
Amount of investment made (in €)	Budget scope: € 14.7 million
Economic profitability of the project (ROI)	<p> <input type="checkbox"/> ST (0-3 years) <input type="checkbox"/> MT (4-10 years) <input checked="" type="checkbox"/> LT (> 10 years) </p> <p>Remarks: click here to enter the information</p>
Engaged partnerships	<p>Different partners are involved in the HyAMMED project:</p> <ul style="list-style-type: none"> • Grant recipients: Perrenot, ID Logistics, Malherbe, Blondel, Air Liquide • (complementary) partners: IVECO, Green GT, KemOne, Carrefour, Monoprix, Coca-Cola • European Partners, Chabas, Capenergies. • Support: GPMM (Grand Port Maritime de Marseille), PIICTO, MAMP (Métropole Aix Marseille Provence) • Funders: FCH JU, ADEME, South Region 
Open comments from the project owner	The hydrogen distribution station designed by Air Liquide as part of the HyAMMED project will be the first high-pressure hydrogen station (700b) for 44-ton long-haul trucks (800 km) in actual commercial operation in Europe.
More about the project	
Contact the company carrying the project	patrick.dilly@airliquide.com
Project URL links	Press Release: https://fr.media.airliquide.com/actualites/air-liquide-va-construire-la-premiere-station-hydrogene-haute-pression-destinee-aux-camions-longue-distance-en-europe-6776-1ba6d.html
Illustrations of the project	<p>Video: https://www.youtube.com/watch?v=OoqVPGTrhBU&t=10s</p> 