Tarragona. Port locomotive powered by LNG

EV3

As the Port of Tarragona count with railways for freight transport, the study developed in this port aims to evaluate the technical, the legal and the financial feasibility of implementing liquefied natural gas (LNG) in railway traction within the port domain (shunting locomotives).

Partners involved

Port de Tarragona

The main objective is to pave the way towards the introduction of a more sustainable alternative to current diesel technology in an environment with increasingly stringent environmental requirements.

The final document of the subactivity includes the feasibility and retrofitting study, both of them are currently finished.

- **EV3:** The aim of this study is to evaluate the technical, the legal and the financial feasibility of implementing liquefied natural gas (LNG) in railway traction within the port domain (shunting locomotives), in order to pave the way towards the introduction of a more sustainable alternative to current diesel technology in an environment with increasingly stringent environmental requirements.

The initiative is innovative in nature in Europe as, whereas there have been some pilots with LNG in railway services, all of them have been carried out in other continents and there are still unresolved constraints concerning shunting locomotives (intensive use, high power requirements, long periods of continuous operation…). In order to shed some light on these issues, all technical and legal barriers will be identified, as well as actions to be implemented to overcome them. A financial analysis also be carried out, identifying the critical variables and the conditions under which the investment offers greater return and offering insights into the future potential for LNG locomotives.

The technical results of the feasibility analysis will feed the complementary retrofitting study, in which all steps to be made for the retrofitting of the engine and the locomotive will be detailed. The retrofitting study aims at identifying engineering and mechanical challenges related posed by the technological solutions selected in the feasibility study as well as setting the path for future implementation of the works carried out. At the same time, the outcomes of the retrofitting study (detailed information on all mechanical adaptations and engineering works needed), will enable a more accurate estimate of the financial analysis included in the feasibility study.

The study provides the solid knowledge base (determining the best propulsion option, legal procedures to be overcome and the best fuel supply methods, among others) that is needed to launch -in subsequent phases- a pilot to test, monitor and verify the results of the operation of a port shunting locomotive powered with LNG (operational performance, fuel consumption, emissions…) and the associated logistics.

Feasibility and retrofitting study for the conversion of a port terminal´s shunting locomotive to LNG traction