ENERGETICS

ALSTOM - The new challenge of hydrogen: from production to use and its performance

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Context of the research activity	Hydrogen technologies Railway application
Objectives	Techno-economic and environmental sustainability of hydrogen-based mobility solutions at specific line level - Identification of the most promising transport typologies for hosting hydrogen-based solutions. - Development of a methodology to face the techno-economic and environmental analysis. - Development of detailed LCC (life cycle costing) and LCA (life cycle analysis) assessments for different hydrogen-based pathways, from hydrogen production up to the end use. - Comparison with the benchmark solution. - Special focus on the railway sector: comparison of hydrogen-based solutions with traditional railway applications powered by catenary or with diesel supply. - Possibility to reinforce the models (hydrogen-based technologies as electrolysers and fuel cells) by means of experimental data gathered in the POLITO and ALSTOM laboratories.
Skills and competencies for the development of the activity	Hydrogen processes and technologies Thermodynamics and heat transfer System modeling