

Roads2HyCom

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Roads2HyCom Hydrogen and Fuel Cell Wiki
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Portal:HyTRAN

Document Tracking ID 6963

Newest revision:

<http://www.ika.rwth-aachen.de/r2h/Portal:HyTRAN>

This revision:

<http://www.ika.rwth-aachen.de/r2h/index.php?title=Portal:HyTRAN&oldid=6963>

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Print date: Tue, 18 Jun 2013 05:05:50 +0000

About Roads2HyCom

Roads2HyCom is a project supported by the European Commission's Framework Six program. Its purpose is to assess and monitor hydrogen and fuel cell technologies for stationary and mobile energy applications. This is done by considering what the technology is capable of, relative to current and future hydrogen infrastructures and energy resources, and the needs of communities that may be early adopters of the technology. By doing this, the project will support the Commission and stakeholders in planning future research activities. Project main website: <http://www.roads2hy.com>

HyLights, Roads2HyCom and the Hydrogen and Fuel Cells Technology Platform (HFP)

The European Commission is supporting the Coordination Action "HyLights" and the Integrated Project "Roads2HyCom" in the field of Hydrogen and Fuel Cells. The two projects support the Commission in the monitoring and coordination of ongoing activities of the HFP, and provide input to the HFP for the planning and preparation of future research and demonstration activities within an integrated EU strategy.

The two projects are complementary and are working in close coordination. HyLights focuses on the preparation of the large scale demonstration for transport applications, while Roads2Hycom focuses on identifying opportunities for research activities relative to the needs of industrial stakeholders and Hydrogen Communities that could contribute to the early adoption of hydrogen as a universal energy vector.

Further information on HyLights is available on the project web-site at <http://www.hylights.org>.



The scope of the HyTRAN project is to advance the fuel cell technology towards solutions that are commercially viable. This is to be demonstrated in two fuel cell systems:

- Technical Platform 1 (TP1): Direct hydrogen 80 kW Proton Exchange Membrane (PEM) fuel cell for propulsion.
- Technical Platform 2 (TP2): A 5 kW PEM fuel cell system including a diesel based fuel processor for Auxiliary Power Unit (APU) applications.

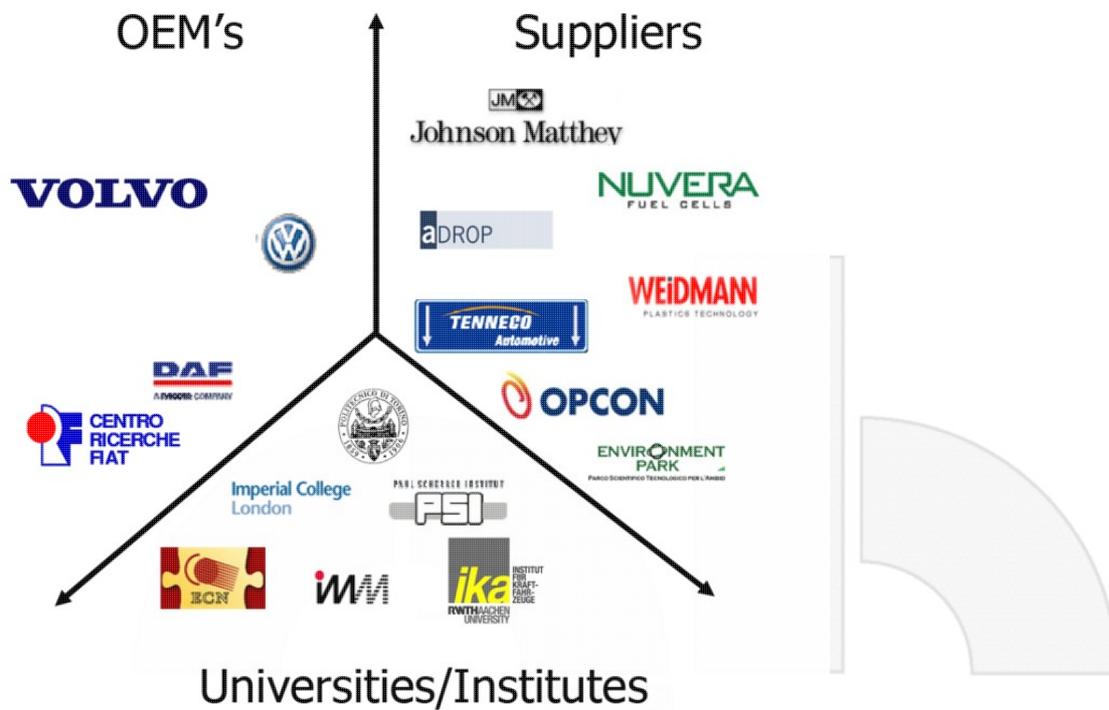
Issues of oil dependency, greenhouse gas emissions and local air pollution are currently highly associated with the transport sector. Hydrogen and fuel cell technologies are widely seen as promising alternatives to internal combustion engines in road transport applications. In this respect, components and sub-systems are considered as major bottlenecks for fuel cell based vehicle systems. These project incentives are the background for HyTRAN being focused on the development of the necessary components and sub-systems. The specific aim is to make them meet the actual requirements derived from the two applications.

The expected outcome of the HyTRAN project is thus new components, sub-systems and systems. For the automotive manufacturers involved, another equally important outcome is the comprehensive knowledge and experience generated on these new and advanced fuel cell technology systems and an assessment of how they can best meet market requirements. For the suppliers' viewpoint, a further key outcome is the trade-off assessment of components on a system level and with end-user requirements. The challenges for the technologies deal with factors such as cost, durability, weight, volume, efficiency that all need to be improved. A multitude of components are developed in HyTRAN such as:

- An 80 kW direct hydrogen stack with strong weight and volume reduction, increased efficiency, durability and start-up time, and with innovative MEAs.
- Balance-of-plant components customized for the application, for example air system and humidification devices.
- Micro-structured diesel steam reformer and gas purification units.

HyTRAN started in January 2004. The first three years have mainly been devoted to the development of innovative components to widen the technology. Considering the fourth year increased focus has been put on the integration of these components into subsystems, including tests and implementation into vehicles. In total, 17 partners now participate in the project with their specific roles described in the following figure.

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There are also transverse activities concerning dissemination and training, environmental, safety and marketing studies going on in two separate subprojects. Public seminars and technical courses are reported at project's website: [\[1\]](#).

Case studies:

- TP1: Fuel Cell Vehicle
- TP2: Fuel Cell APU with on-board diesel reformer