Hydrogen is a clean and storable solution that could meet the worldwide energy demands.

The Hydrogen project addresses the standardisation needs in the hydrogen-energy sector that meet the requirements of the European Directive on the deployment of Alternative Fuels Infrastructure 2014/94/EU in order to bring forward the standardization in R&D related to metrology.

The Hydrogen project expresses the new European policy objectives in the transport and energy sectors defined in the Horizon 2020 programme that encourages the decarbonisation of the transport sector.

More info at http://projects.lne.eu/jrp/Hydrogen

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This project aims at:

- evaluating the probability of hydrogen impurity affecting fuel cells and developing analytical techniques for traceable measurements of the hydrogen impurity (research axes for the revision of ISO 14687-2)
- developing and validating traceable methods to assess accurately the hydrogen mass absorbed and stored in metal hydrides (research axis for the revision of ISO 16111).

**Technical objectives:**

1. Develop hydrogen quality specifications for fuel cell vehicles, including tolerance levels for impurities in hydrogen and limits for the degradation of fuel cell performance as per ISO 14687-2*

   Proposal of recommendations on maximum concentration of individual compounds based on fuel cell degradation studies and on the probability of presence of the contaminants.

2. Propose optimised analytical protocols including fit-for-purpose analytical methods and assess an analyser that enables the implementation of ISO 14687-2.

   The multicomponent analyser will have optimised sampling method and meet the required detection limits as per business plans ISO/TC 197 and CEN/TC 268.

3. To develop and validate traceable methods for measuring the hydrogen mass absorbed in metal hydride tanks (hydrides AB, AB2 and AB5), with reference to ISO 16111**

4. To contribute to the development of the standardization work within the technical committees ISO/TC 197 and CEN/TC 268 ensuring that the outputs of the project are aligned with their needs and are communicated quickly in a form that can be incorporated into the standards at the earliest opportunity.

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*ISO 14687-2 Hydrogen fuel – Product specification – Part 2: Proton exchange membrane (PEM) fuel cell applications for road vehicles

**ISO 16111 Developing transportable gas storage devices - Hydrogen absorbed in reversible metal hydride