

Why and how hydrogen can be part of Energy Transition?



**Pierre-Étienne
FRANC**

Directeur Advanced Business
and Technologies,
Air Liquide

**lundi
13 octobre
2014**

École polytechnique
Amphi. Faure
14h 00

Département de Mécanique

We are living within a society with more and more people, with a growing income per capita and concentrated in urban areas. This means more and more air pollution from a transport system remaining largely dependent at this time on fossil fuels. The European Union has targeted a reduction of the emissions from transport of ~95% by 2050 as part of the more general reduction of the GHG emissions from energy sources through the deployment of renewables.

The deployment of renewable energies brings up new issues such as intermittency. **Hydrogen can participate in the introduction of these renewable energies by storing** the excess electricity at large scale and durably through electrolysis and contributing to the **stabilization of the grid**. The hydrogen can then be used for different energetic usages, one of the most promising being **road transportation**. Indeed, hydrogen can be used to refuel fuel cell electrical vehicles. These only release heat and water at the tail pipe, while providing the same level of service as a classical diesel/gasoline car (driving range ~600km, refuelling time 3-5min).

Through the storage of renewable energy and 0 emission road transportation, hydrogen has a strong potential to contribute to energy transition. Today, fuel cell and hydrogen technologies are at an advanced stage of development with large demonstration projects. Some technologies are already reaching the market, like forklifts. **The main issue that we are facing today is not technical. It is “how to scale up to reduce the costs of the technologies”?** An adequate public policy is necessary for those technologies to reach the market. A number of initiatives have started in Europe, in the US and in Japan and will need to be re-enforced to make hydrogen a strong actor of energy transition.

