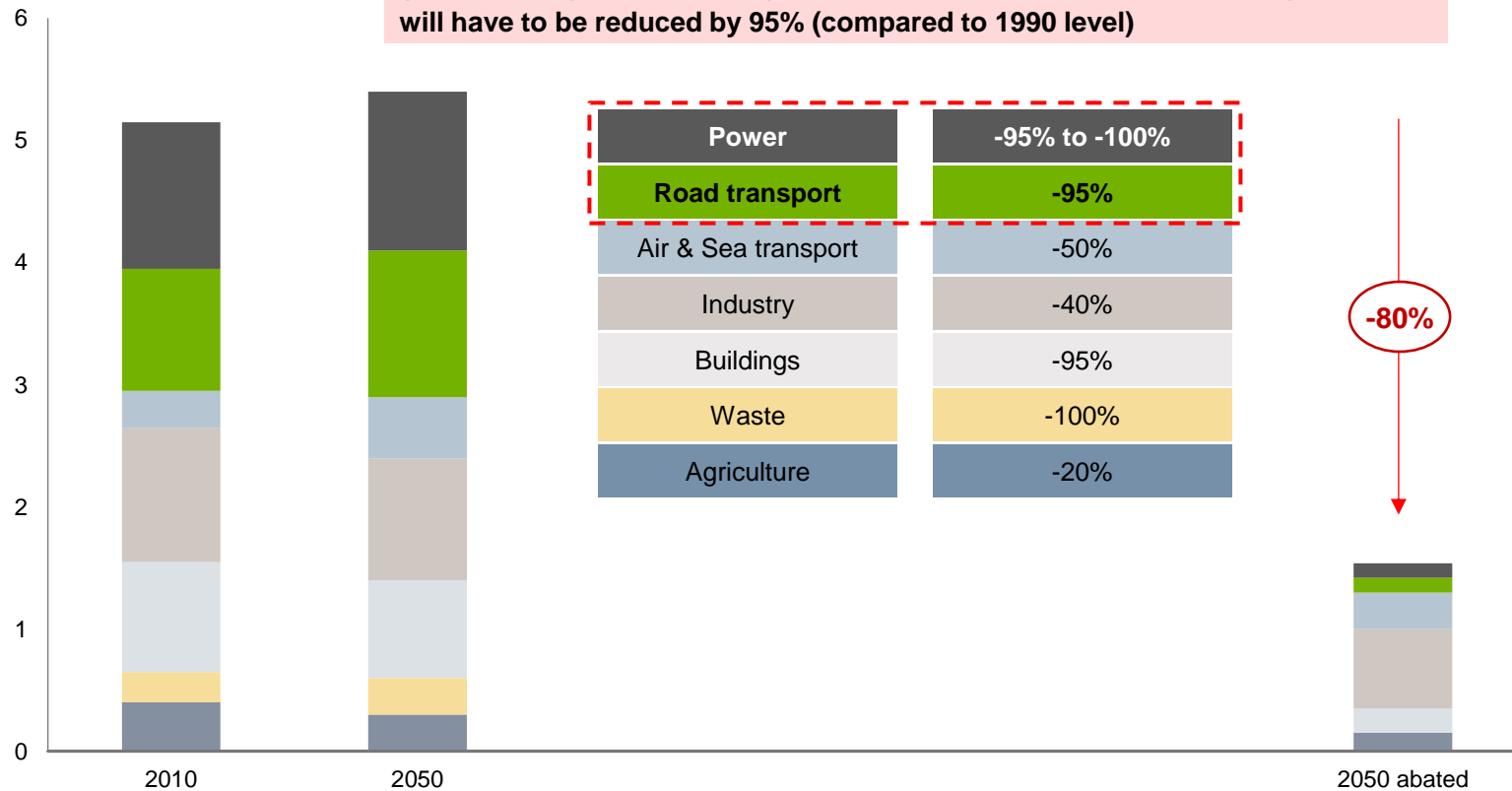




Transportation & power industries will be significantly impacted by CO2 reduction

EU greenhouse gas emissions (Gt of CO₂ per year)

In order to reach the 80% emission reduction objective by 2050, the greenhouse gas emissions generated by road transport and power generation will have to be reduced by 95% (compared to 1990 level)

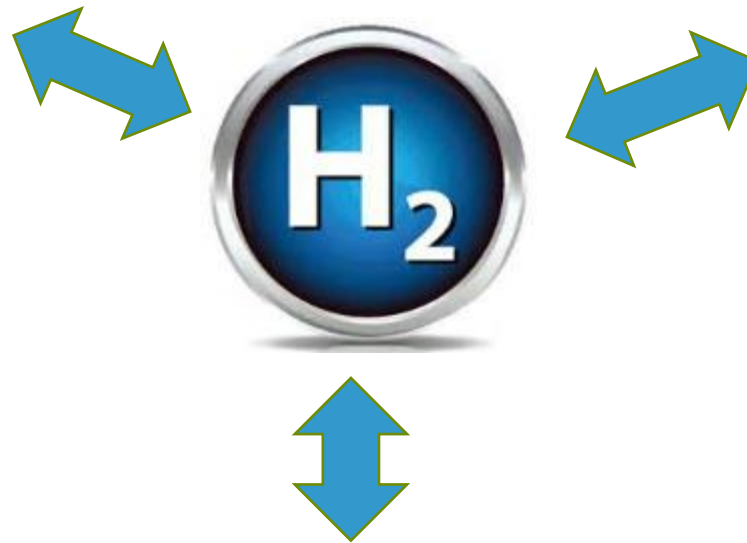


Hydrogen is one of the best ways to implement decarbonized power and mobility on a large scale

Source IAE forecasts

The energy transition: the H2 link

560 TWh (F-2012)



450 TWh (F-2012)



670 TWh (F-2012)

H₂ for Energy: valuing energy surpluses through decarbonized road transport

The necessary reduction in European road transport CO₂ emissions by 95%

European road transport ≈ 17% of CO₂ emissions

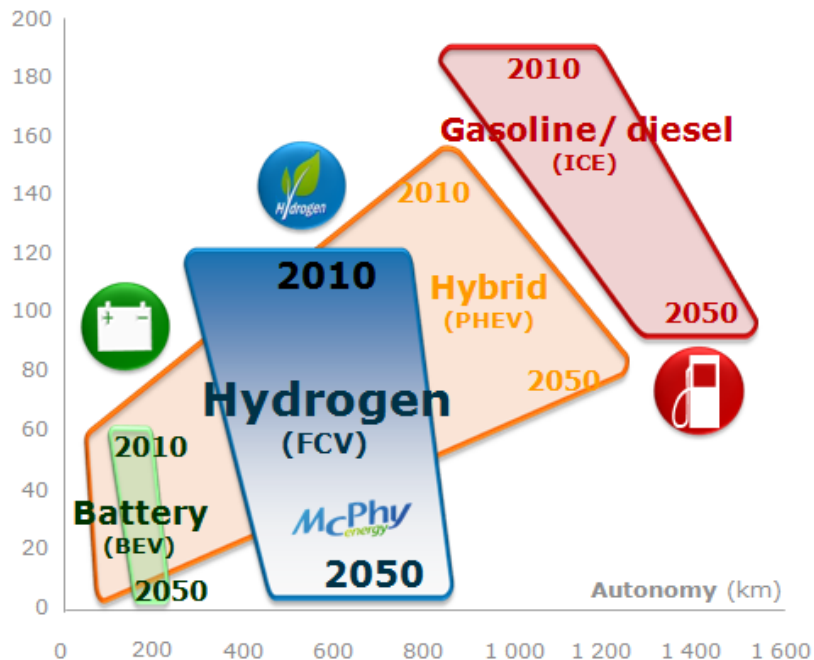


Batteries

- ▣ 150-250 km
- ▣ Refueling: 2 to 8 hours
- ▣ Small vehicles only

➔ Comparing energy sources (g CO₂/ km)

Source: McKinsey, Power trains for Europe



Hydrogen

- ▣ 500 km
- ▣ Refueling < €50
3 to 5 min
- ▣ Small to large vehicles

➤ Hydrogen electric vehicles deliver same customer value as traditional vehicles, without CO₂

Battery Electric vehicles



3 à 10 kW



10 à 50 kW



20 à 120 kW

Hydrogen Electric Vehicles



5Kg H₂/ 3min ⇔ 3 330 kW

Vehicles are ready !!!



HRS at Berlin Airport



HRS California



- Location: Skyline Blvd; Woodside, CA
- Capacity: 140 kg/day; McPhy Electrolyzer to provide 40 kg/day on-site production
- Schedule: October, 2015
- Program: Part of CA Hydrogen Infrastructure Roll Out

But also in France !



Grenoble
> 1.000 refilling



FCH JU 2014
Sarreguemines



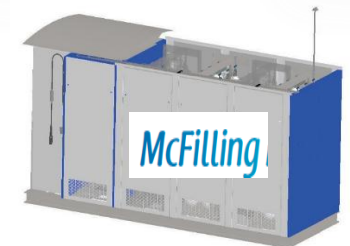
Grenoble HYWAY
> 25 cars



Paris COP21



Lyon HYWAY



> 10 HRS 2016 & 100 for 2018



Valence



Peugeot & Renault joint for H2?

Toyota, Nissan, and Honda Agree on Details of Joint Support for Hydrogen Infrastructure Development in Japan

July 01, 2015

Tokyo, July 1, 2015 -- Toyota Motor Corporation, Nissan Motor Co., Ltd., and Honda Motor Co., Ltd. have agreed on key details regarding a new joint support project for the development of hydrogen station infrastructure in Japan. In addition to partially covering the operating costs of hydrogen stations, the three automakers have also agreed to help infrastructure companies deliver the best possible customer service and create a convenient, hassle-free refueling network for owners of fuel cell vehicles (FCVs).

The joint project (conducted alongside the Japanese government's support for hydrogen stations) will partially cover hydrogen station operating expenses incurred by infrastructure companies, and was first announced on February 12. Furthermore project partners will jointly raise awareness regarding these support measures, in order to encourage new companies to enter the hydrogen supply business. Financial assistance will be provided through the Research Association of Hydrogen Supply/Utilization Technology* (HySUT), which is setting up a project to stimulate demand for FCVs.

For more details, go to: <http://newsroom.toyota.co.jp/en/detail/8553632/>



Hydrogen Fueling Station 001
Hydrogen Station in Ebina city



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**CE QUI RISQUE
D'ARRIVER A DÉJÀ
COMMENCÉ.**

**SI ON NE FAIT RIEN,
PERSONNE NE LE FERA À NOTRE PLACE.**

#climate21 - coalitionclimate21.org

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"what may happen has already begun"

“ Yes, my friends, I believe that water will be one day used as fuel, that the hydrogen and the oxygen, which make it, used separately or simultaneously, will provide a source of inexhaustible heat and light and with an intensity the coal could never reach”

Jules Verne, L'Île Mystérieuse - 1874



Thank you !



Research Institutes/Technology Partners



Industry

