


France recent developments

In Hydrogen and Fuel Cells

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2014: Significant Changes in France

A.Montebourg
Minister of Economy

F. Lambert
CEA

- Storage ministerial initiative
- EU initiative HIT → H2 Mobility France (Completed)
- French National Implementation Plan (Completed)
- Captive fleets: a new model to de-risk and open the transport market
- Increased interest for storage and Power to Gas

Research in support of industry

Specific transport

Maritime

Space/aeronautics

CEA prototypes

Electricity and heat Generator
Emergency unit / back up power

RES coupling for
isolated site electrification
or grid injection

H_2Mobility France Members

*

- Vehicle OEMs

- Hydrogen providers/
- Producers and utilities

- Technology
- Equipment providers

WH2

- Regional representatives

INEVA-CNRT

H2 Mobility France (+UK+DE+JP)





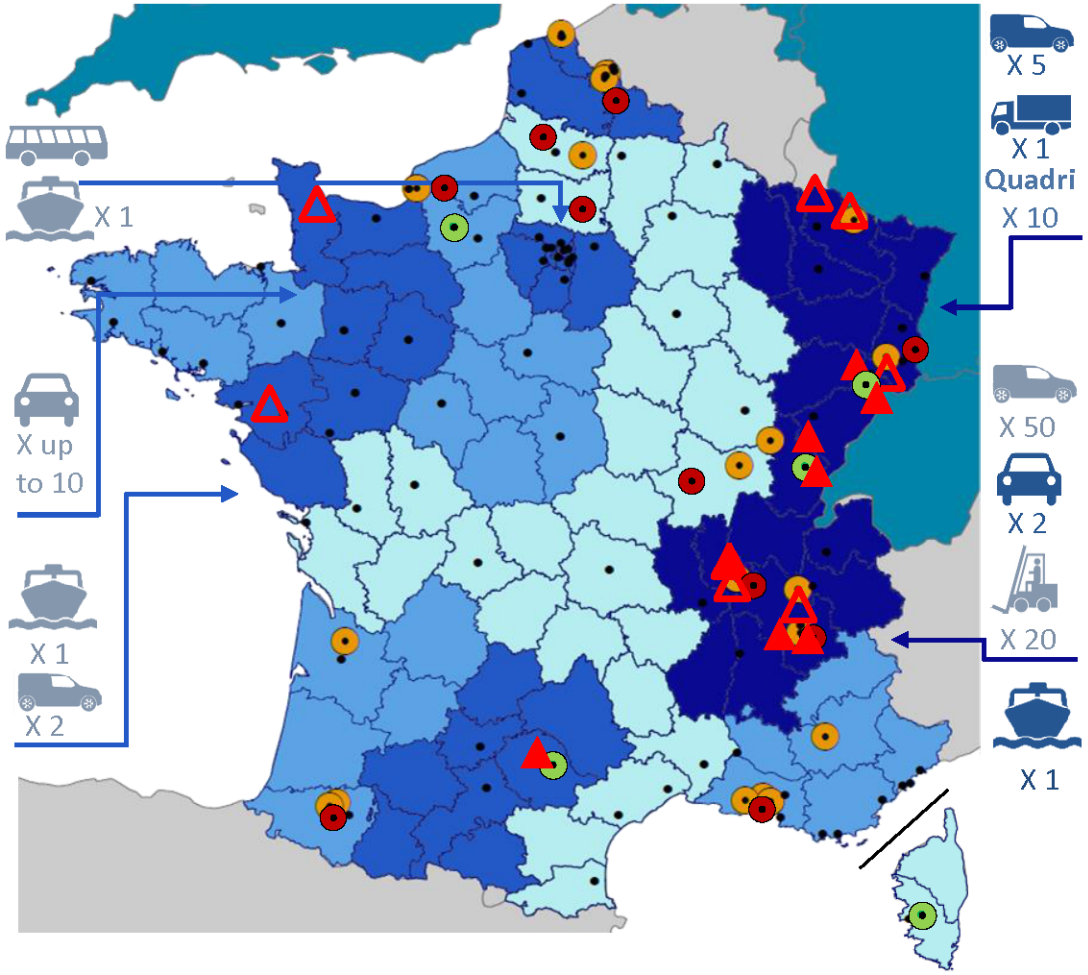

National Implementation Plan for France

Mobilité Hydrogène France

12th May 2014

Element Energy Ltd

Hydrogen infrastructure and FCEV fleet developments: there are numerous hydrogen activities underway and planned across France



● Main cities

Hydrogen vehicles

in use | on order /planned

Hydrogen refuelling stations

▲ HRS – existing (8) | △ HRS – planned (7)

Hydrogen production

- Steam Methane Reforming
- By-product
- Green H_2: from photovoltaic, wind energy, or waste biogas

Level of activity at regional level

- Budget committed, road hydrogen mobility activities underway or starting by 2015
- Consortia formed, hydrogen mobility initiatives starting in medium term
- Interest from local governments / industry – projects being formulated
- H_2M initiatives outside France (UK, NL, DE, CH)

Source: H_2Mobilité France

See in Appendix for the detailed list of HRS and hydrogen road vehicles

Contents of the National Implementation Plan

- Introduction and presentation of the H_2 Mobilité France coalition
- Hydrogen infrastructure and FCEV fleet developments in France
- The rollout of FCEVs and HRS in France
  - The phases of the rollout
  - Rollout link with TEN-T corridors
  - The role of captive fleets
  - Projections of FCEV sales and HRS parc
  - HRS rollout investments and profitability
- Present and future hydrogen production mix
- Identified regulation barriers and current regulation activities
- Policy and financial support for the H_2 mobility rollout
- Next steps

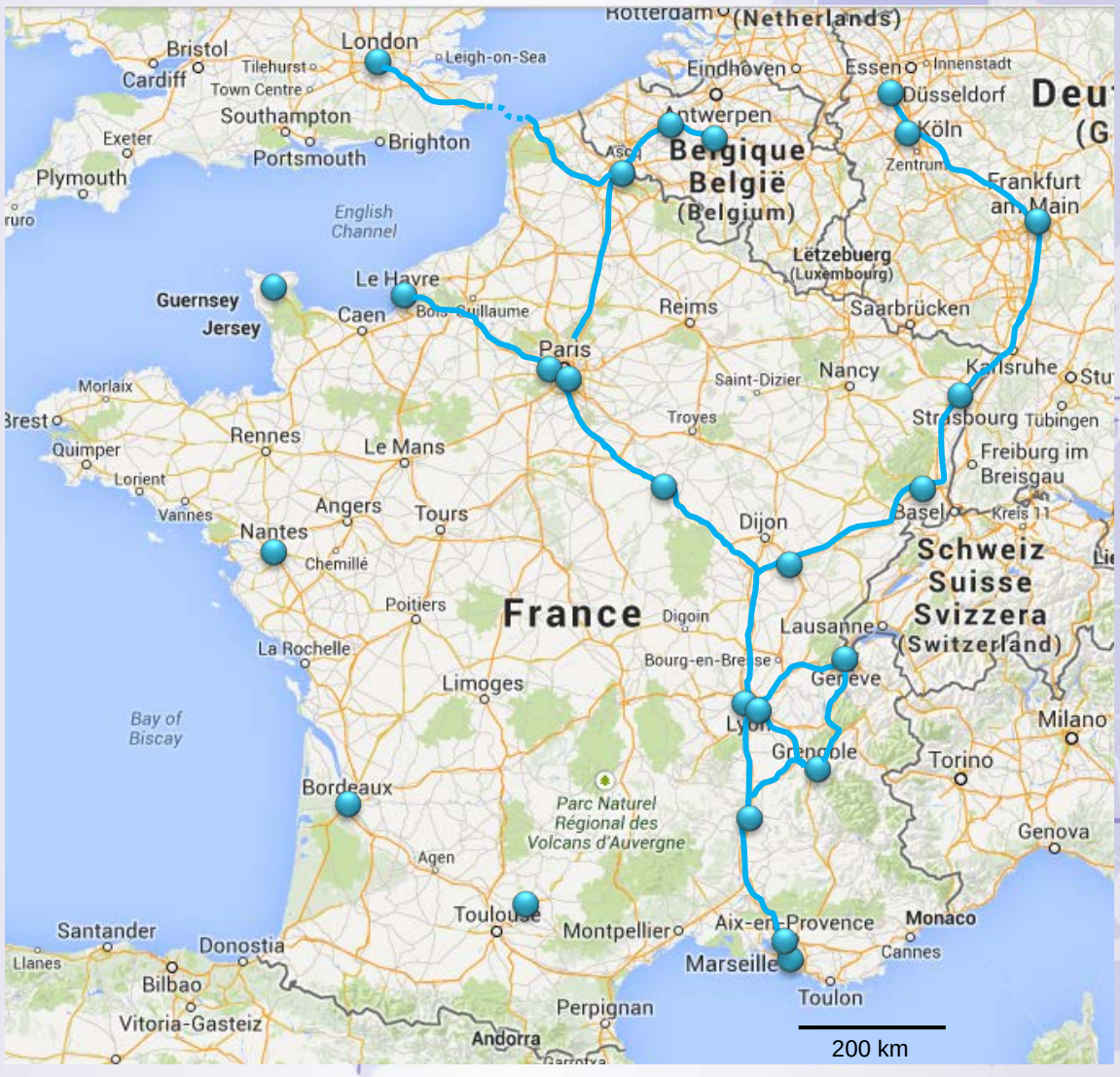
Source: H_2Mobilité France

H2 Mobility France
A vision of next steps

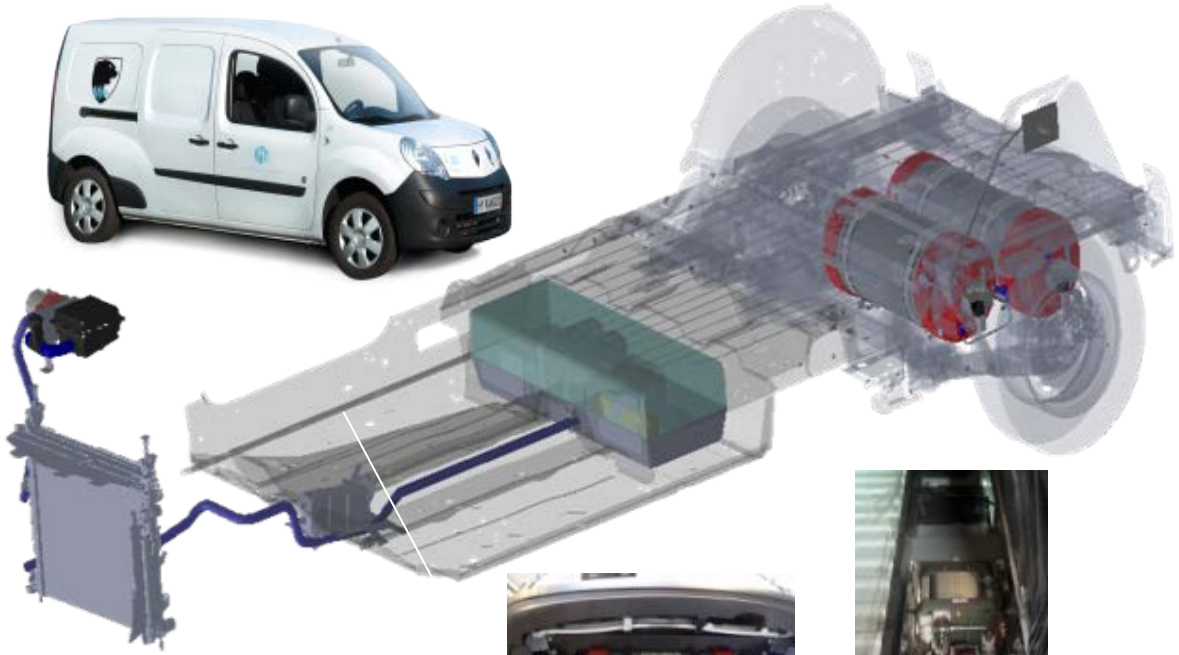
Mobilité Hydrogène France

Hydrogen Infrastructure for Transport

- Vehicles:
  - 500-700 fleet vehicles/cars
  - x0 Trucks
- Core customers:
  - Identified
- HRS
  - 15 to 20 HRS
  - Bi-pressure dispensing close to borders
  - 350 bar for local fleets
  - On site electrolysis far from existing sources
- Transborder corridors
  - German corridor towards Dusseldorf
  - Belgian corridor towards Brussels and Netherlands
- Plus local customers aligned with the captive fleet model



Fuel Cell Integration in a light commercial vehicle



5 kW Fuel Cell System

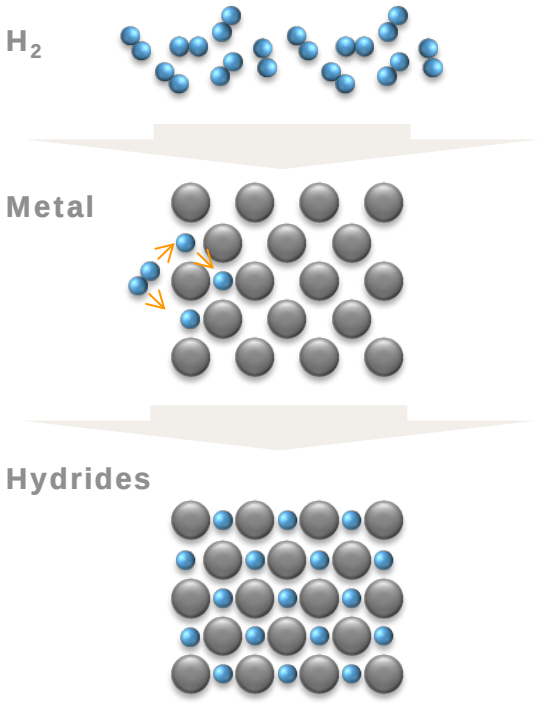
Inside

- A standard, mass-produced electric vehicle equipped with H_2 range extender
- First customer deployments (Solvay Group, in Tavaux, France) will be followed by LaPoste project


MICHELIN
+proche +vert
www.laposte.fr

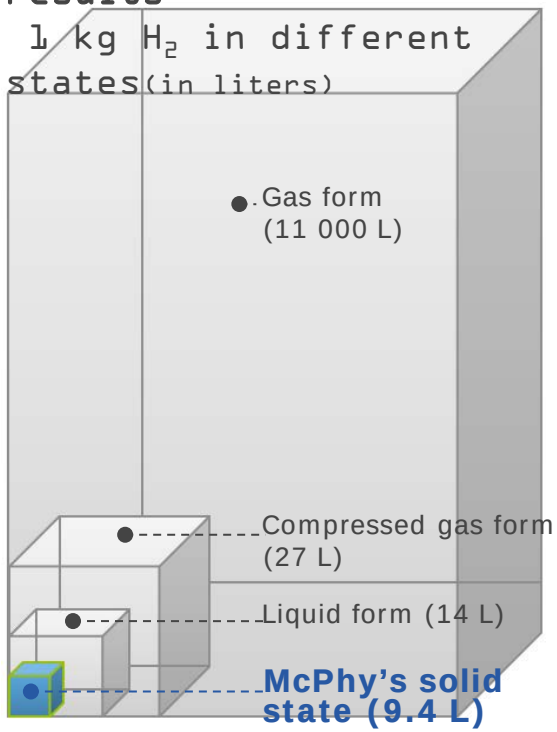
A success story

➲ A hydrogen "sponge" …



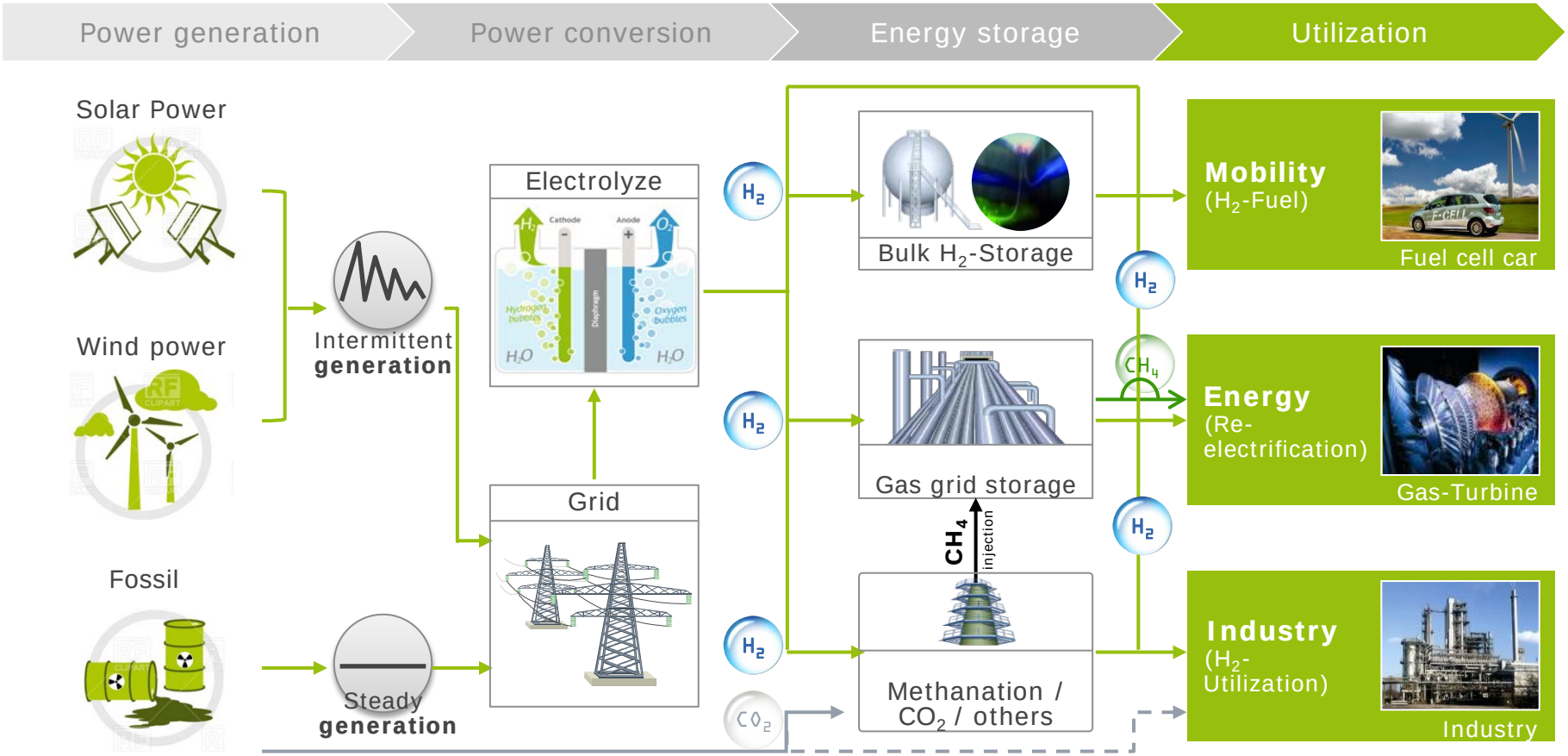
➲ Coming from 13 years of R&D …

➲ Achieving significant results



Solid storage is a disruptive technology

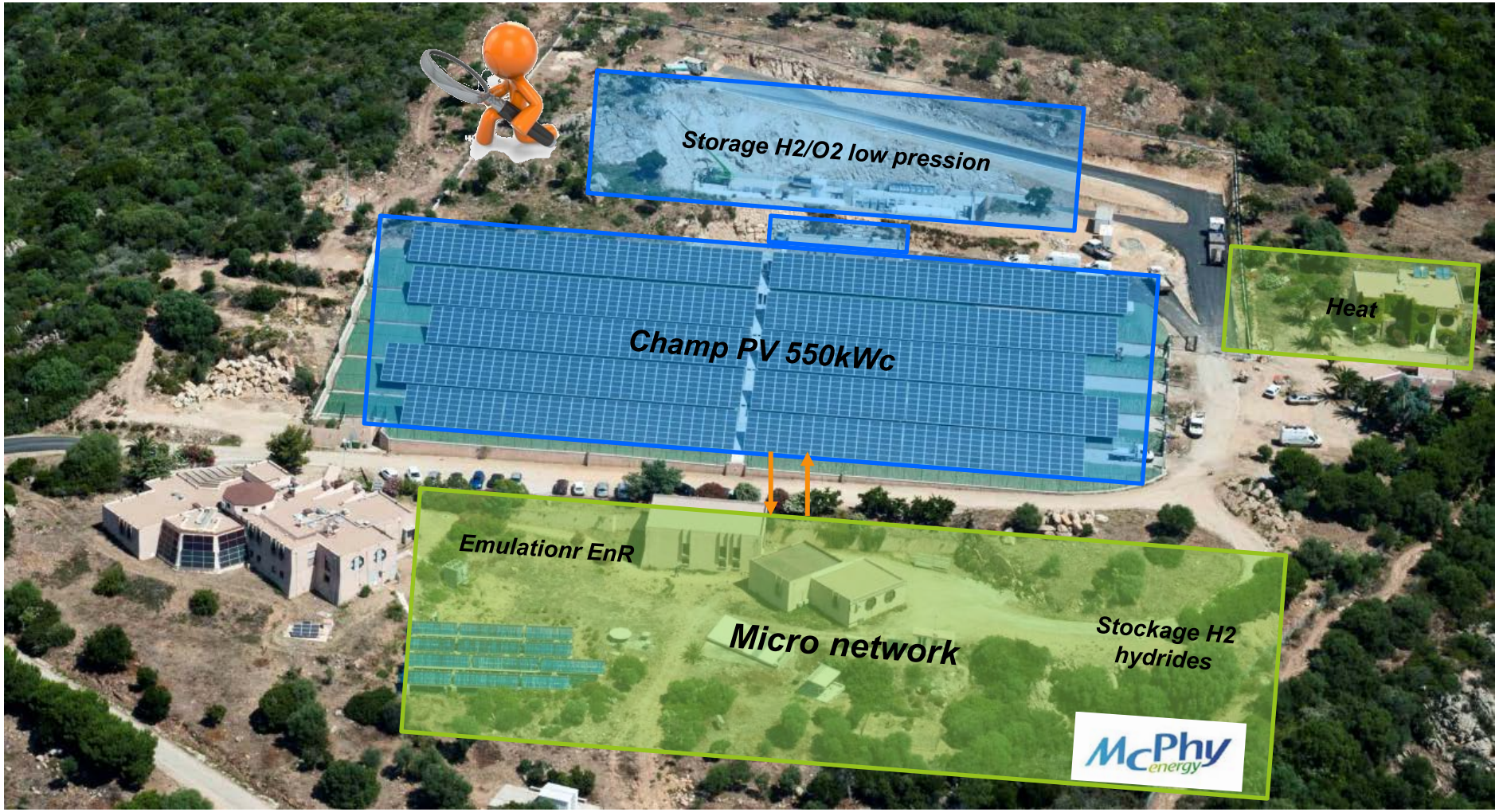
Hydrogen: essential today, disruptive tomorrow



MYRTE 2020
Solar Energy and Hydrogen Storage in the Corsica island

Electricity Production 550 kW
1 Electrolyser + Hydrogen storage
3 x 60 kW Fuel Cells

MYRTE 2020


Storage H2/O2 low pression
Champ PV 550kWc
Heat
Emulationr EnR
Micro network
Stockage H2
hydrides
McPhy
energy