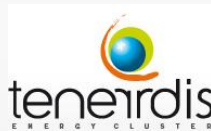




**bpi**france



**AlpStore**  
**Belfort Marsch 27<sup>th</sup> 2014**



# AlpStore & WH2

The Alps mountains :



**14 millions people**

**5 867 cities and villages**

**120 millions tourists/year**

**+ 1,5° C. since 100 years**

**huge volumes of renewable energies**

**WH2**

L'Hydrogène Vert

# AlpStore & WH2

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WH2 provides an efficient solution to optimize the energy resources available in the Alps :

- energy storage : power to gas

# AlpStore & WH2

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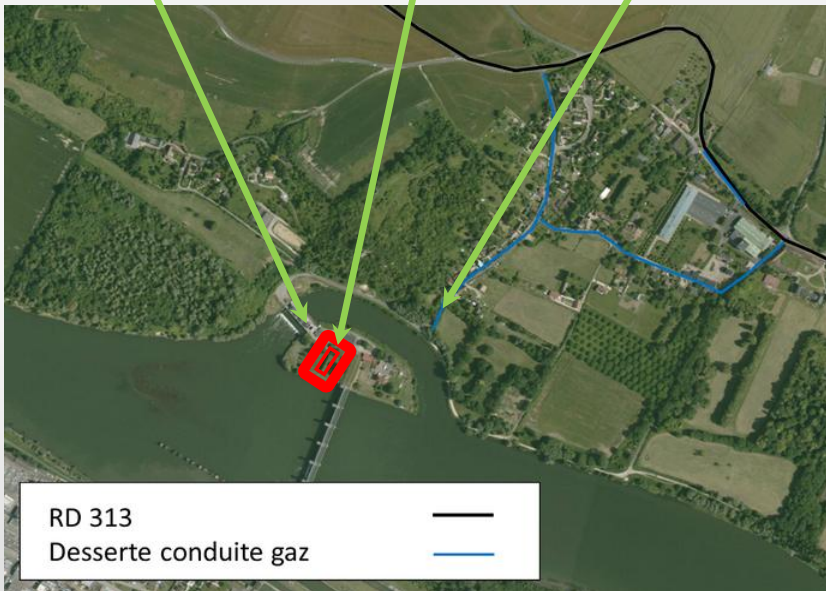
WH2 provides an efficient climate change solution :

**- free emissions mobility solution**

# Production site : presentation

## 1<sup>st</sup> French Green Hydrogen production location: Port-Mort

Hydro power plant, electrolyzer and ... gas network distribution



- Port-Mort power station will be the first French location able to deliver Green Hydrogen.
- The steps of the project
  - Jan. 2013 - Sept. 2014: administrative process into the authorization request (ICPE)
  - Jan. 2015: starting of the experimental phase:  
**210 MWh of green gas available per year**  
**or 7 000 kg.H2/year (1 kg H2 = 100 km.)**
  - Feb. 2016 industrial step: authorization for 3 times the experimental volume.
- Potential markets: mobility and power to gas (a few meters from the network)

# Free emission mobility: the project



Take the advantage of local renewable energy plants: hydro, wind, solar, wastes...

Manage the shipment of this hydrogen with local transporters (short distances)

Install small delivery device, sized with the present needs: 2 up to 30 kg. H<sub>2</sub>/J. In some cases, possibility of coupling CNG and Green hydrogen on the same delivery place.

**3 projects on studies: Port-Mort, Rhône-Alpes et Corrèze**

# Free emissions mobility: some figures

If we compare the revenues for the state between “classic” fuels and green hydrogen mobility:

	Present	Green H2
TICPE	14 b€	0
Other taxes	0	17 b€
Costs/100 km	7,50 €	9,00 €
Commercial exchanges	- 60 b€	0,00 €
Balance for the state	- 46 b€	+ 17 b€

# H2 delivery device

Sale/rent of H2 delivery devices of H2



Non contractual picture  
Mobile delivery device  
3 up to 5 kg. H2/D pressure: 350 bar

FIRST INDEPENDENT FRENCH MANUFACTURER OF HYDROGEN DELIVERY DEVICES  
More than 25 years in industrial high pressure gas.

Storage and high tech distribution system are proposed  
with our equipments..  
Ranges from 3 up to 9 kg.H2/D - 9 up to 15 kg.H2/D and +

One of this equipment is in operations at Ladoux,  
Michelin's test circuit



# ID

**Equity 327 k€**

**Since 10/2011**

**WH2 statut JEI**

**ISI OSEO**

## **Staff:**

- 3 full time engineers
- 3 contractuels

## **Partnerships:**

- GDF SUEZ (GO-GNV)
- AREVA Stockage (PàC)
- Distributeur EFOY SFC

# WH2 The staff

Anne Pénalba

Directrice des relations institutionnelles.  
Présidente du syndicat France HydroElectricité – productrice –  
Formation : Médecin

Pierre Picard

Président – Directeur du développement  
Création de Green-Access  
Formation : ESC

Philippe Samat

Directeur Général – Directeur Technique  
Conception, suivi et mise en service de 30MWde production d'EnR  
Formation : Mines Albi

Jean-Michel Joly

Responsable technique compression gaz  
Spécialiste des gaz industriel hautes pressions (30 ans d'expériences)  
Formation : ECAM

Hugues Albanel

Membre du Comité Technique  
Fondateur du Groupe UNITE (bilan : 100 M€ , CA : 20 M€)  
Formation : Lettres, HEC

Antoine de Boissieu

Directeur financier  
HEC fondateur de OSC Solutions

# R&D activities



**Financing:** BpiF

**Target:** demonstrator which will show the possibility we have to produce green hydrogen from renewable sources, storage at a low pressure (solid storage), shipment and delivery to an industrial consumer.

PACMONT



**Financing:** ADEME – program TITEC

**Target:** use hydrogen and fuel cell in extreme climatic conditions. At the end, the solution will be able to be in operations down to minus 40° C. It will supply electricity for supervision and security cameras, sensors...

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**Merci** 😊

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