



Connecter les énergies d'avenir



## Presentation of French flagship projects Jupiter 1000 and FenHYx

Paris – Franco-German conference on hydrogen –  
22/10/2018

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# GRTgaz Introduction and key figures



- Transport network (France)
- Transport network (Germany)
- Interconnections with adjacent networks
- Interconnections with LNG terminals

- Compression stations (France)
- Compression stations (Germany)
- Direction of gas flow
- Adjacent transport operators and LNG terminals

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**RICE** GRTgaz  
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**ITO**  
Certification

+

**GRTgaz**  
Deutschland

+

**GRTgaz**

## Transport in France

**32 414 km** of network  
**627 TWh** transported  
**4396** delivery stations  
**2887** employees

+

## Shareholders

**74,8%**



**24,9%**



**0,3%**



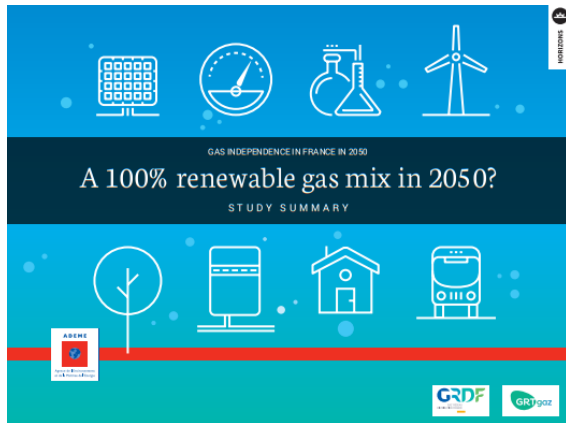
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**140** shippers

**749** industrial  
customers

**19** distribution  
system operators

# + Optimize the use of a diversity of renewable gases

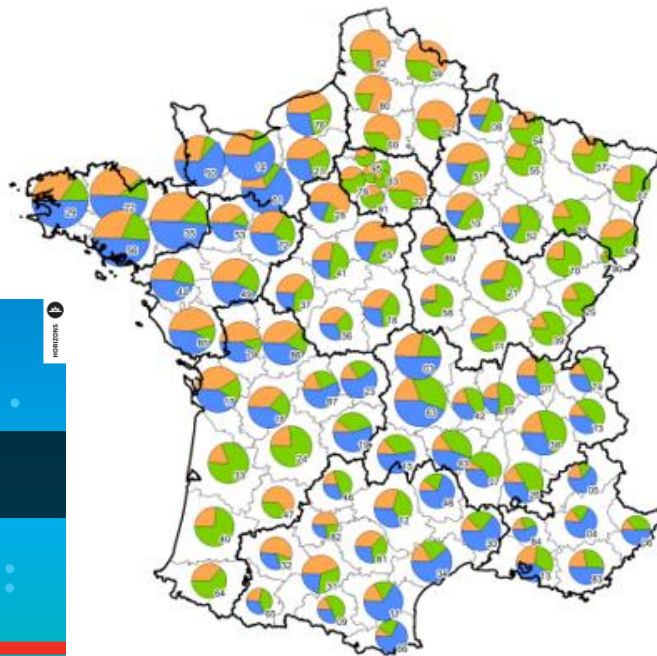


**A 100% renewable gas mix in 2050?**  
STUDY SUMMARY

GAS INDEPENDENCE IN FRANCE IN 2050

Horizons

Logos: ARENH, GRDF, GRTgaz



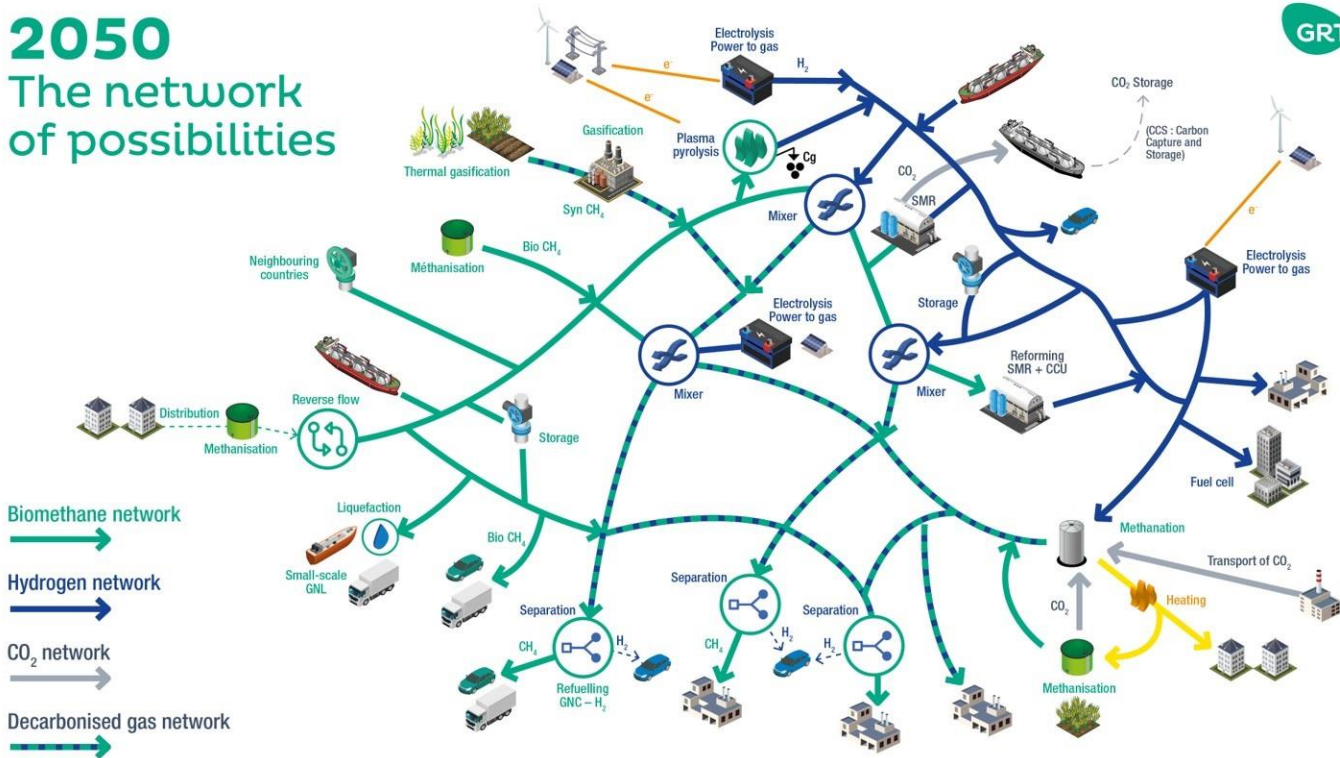
Potential by channel (in GWh)



- Methanation
- Pyrogasification
- Power-to-gas

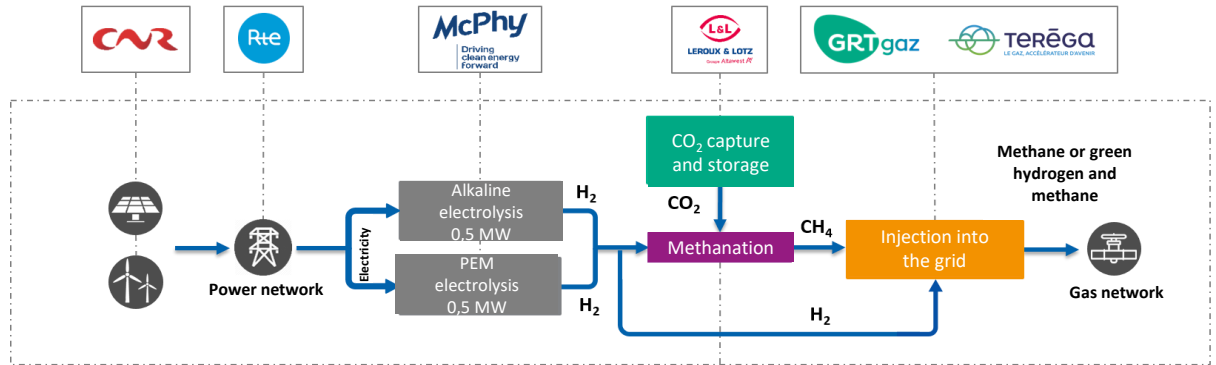
# 2050

## The network of possibilities









# + Jupiter 1000: The first P2G demonstrator in France



\*Proton Exchange Membrane



|   |  |   |  |
|---|--|---|--|
| <br>Power<br>1 MWe | <br>Hydrogen<br>injection<br>200 m3/h | <br>Methane<br>production<br>25 m3/h | <br>Start-up<br>2019 |
|---|--|---|--|

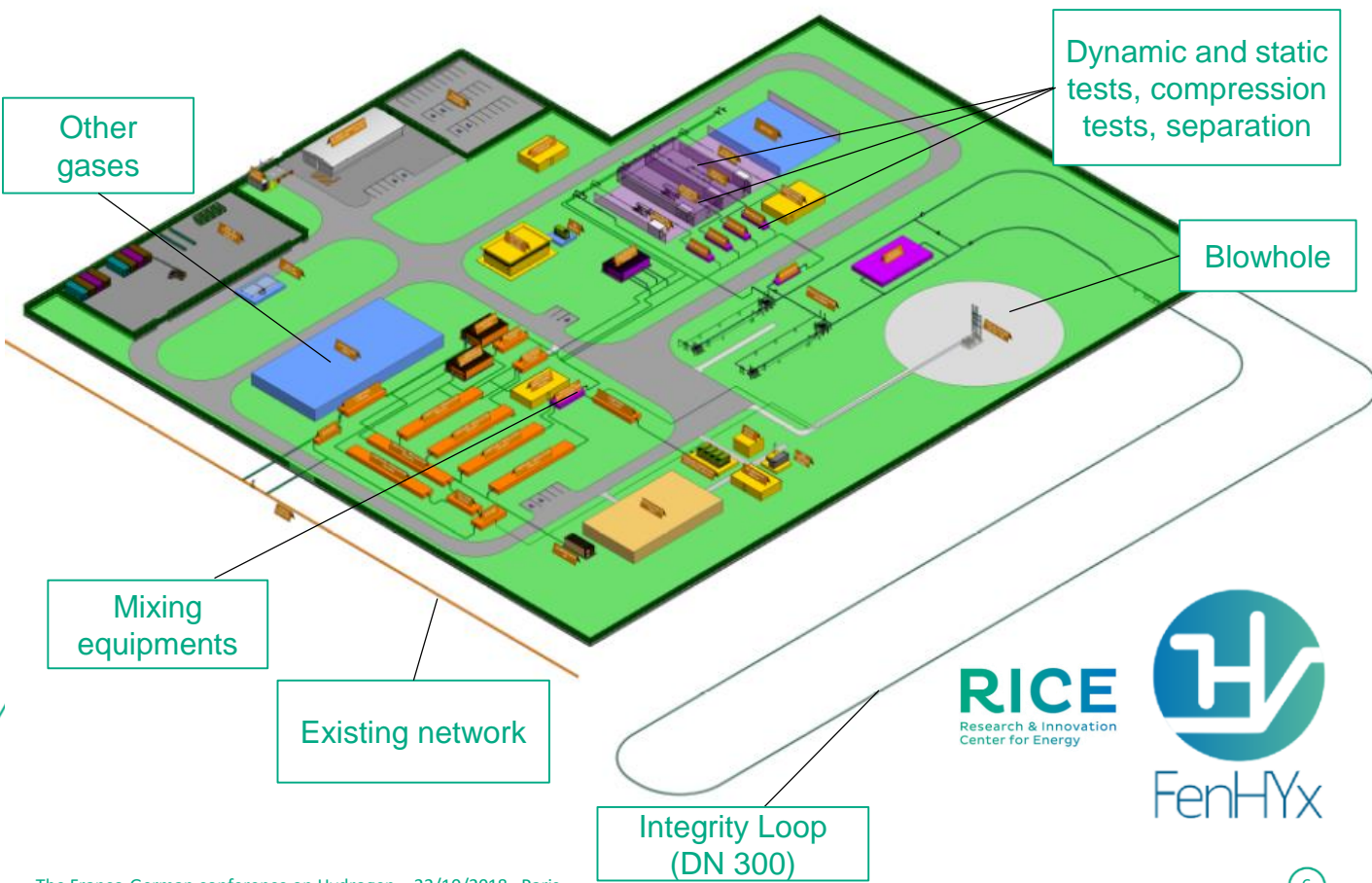
Project coordinated by :



Supported by :



# + Illustrative model of FenHYx : Future energy network for Hydrogen and mix



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# FenHYx : a European Innovative Platform on H2/CH4 mixes



## Objectives



Accelerate network upscaling and adaptation for transmission of new gases



Test/develop new transmission equipment/innovation design for H2, CH4, sygas and RNG



Elaborate and validate new business model and key regulatory issues



## Project identity



Project initiator:  GRTgaz



Partners and project funders:  Multiple European organisations/TSOs



Localisation: still ongoing



## Equipment

An innovative platform equipped like a transmission network in real conditions:

- ✓ Gas quality analysis, metering, compression and storage
- ✓ Gas mixing apparatus
- ✓ Dynamic, static and integrity loops
- ✓ Test innovative processes



## Tested parameters



Different blends of natural gas and hydrogen, up to 100% hydrogen



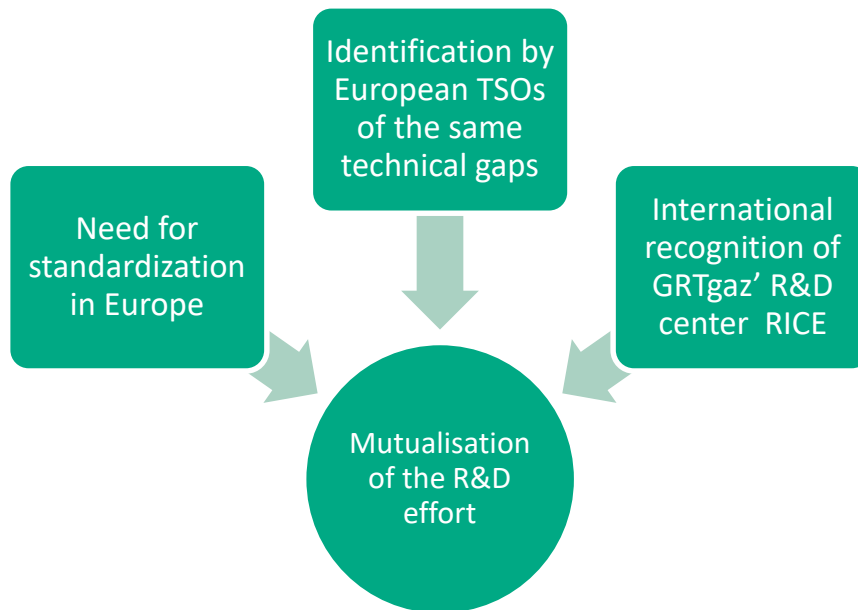
Different pressure levels



Green regulatory and support schemes, impact on projects' business models



## A platform open to European partners

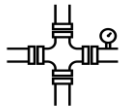




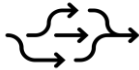
## + Conclusion



Hydrogen is a key enabler for deep decarbonation of gas usages. Gas transport operators are engaging in the energy transition when considering this vector.



The network will be a key factor in the successful upscaling of new sectors like hydrogen.



Projects like Jupiter 1000 have the ambition to develop sector coupling through the flexibility between gas and electricity networks.



FenHYx will promote not only research around the adaptation of the networks to hydrogen injection in Europe but will demonstrate equipments qualification.



Cooperation between France and Germany constitutes an opportunity to develop the sector.



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