

# Use of biomethane as fuel Feedback of the European Metropolitan Lille (MEL)

**OFATE Conference on 4 April 2019**

*Le biogaz dans l'économie circulaire*



CNG is:

- the use of natural gas as an automotive fuel,
- the most widely used alternative fuel in the world: Highly developed in the Netherlands, Belgium, Germany and Italy, it is still emerging in France and the region.
- At MEL, we have been choosing the bus fleet for 20 years.
  - 1<sup>st</sup> biogas bus in France in the 90s
  - **Leader of the European project Biogas Max in 2006** - 1<sup>st</sup> site in France to inject biomethane into public gas networks in 2011
  - Diesel/GNV bus transfer in 10 years - **100% of the fleet = 430 buses run on CNG**
  - In the short term, 15% of household waste containers will be powered by CNG.
- Two technologies:
  - Compressed Natural Gas (CNG): in a gaseous state and compressed to 200 bars. Used for light vehicles, light trucks, trucks, buses...
  - Liquefied Natural Gas (LNG): in its liquid state it is maintained at - 160°C. Volume / 600 : interesting for long distances, available in fuel stations for more than 2 years.

Regulatory requirements have increased in recent years.

In the regulatory framework, we can mention in particular:

- **European directive AFI** (Alternative Fuels Infrastructure) which ratifies the deployment of infrastructures for alternative fuels in each Member State (electricity, hydrogen or natural gas),
- **Energy Transition Law for Green Growth 2015 (TECV)**: implementation of Restricted Circulation Zones (CNG in category 1),
- **Multi-year Energy Programming 2019 (MPE)**: by 2023 target of 3% of heavy goods vehicles running on CNG with a 20% share of bioGNV in CNG consumption,
- More recently, the Ministry of Ecological and Solidarity Transition's draft climate plan which foresees the end of the marketing of petrol and diesel vehicles by 2040,
- The revision of the Metropolitan's **Climate-Energy-Air Plan** (*Plan Climat Air Energie, PCAET*) initiated in 2018.

# DEVELOPMENT OF CNG MOBILITY

## ISSUES AT STAKE

A strong impact of transport on the metropolitan environmental balance sheet:

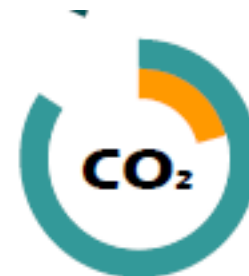
- 46% of CO<sub>2</sub> emissions in the carbon footprint,
- 35% of particulate emissions and 61% of nitrogen oxide (NO<sub>x</sub>) emissions

=> **60 air quality threshold exceedances in 2018**

**GrDF's target for 2030 is 30% biomethane in the network.**

The MEL adopted a strategy for the development of biomethane on its territory in October 2016: **equipment of wastewater treatment plants and Euramethanisation label to support agricultural projects**

Compared to diesel (EURO VI):



**-80%**  
de CO<sub>2</sub> en BioGNV\*

**-50%**  
De nuisances sonores\*



**-90%**  
de particules fines\*

**Existence of a strong economic stake for the carriers of the territory (ZCR, ecological taxation).**



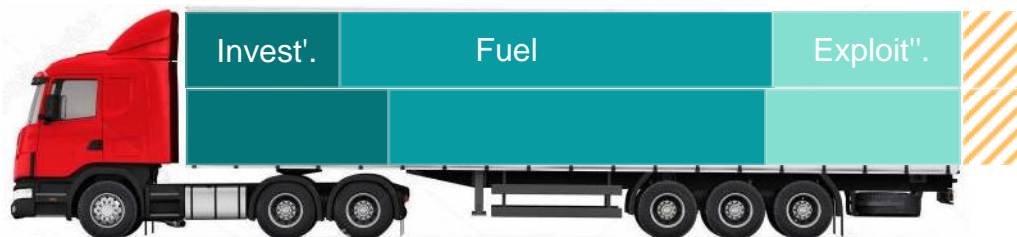
**Promote the development of CNG and CNG and CNGB  
In heavy goods vehicle mobility in metropolitan France**

**Main lines of the October 2017 deliberation on the development of CNG**

- consolidate **the inventory of development potential at the MEL level** with the elaboration of a mapping of possible station locations (location of transporters, presence of gas networks, availability of land, proximity of suitable transport routes),
- Sensitize and mobilize carriers with a view to a medium-term commitment to **partially replace their fleets**, thus creating conditions conducive to investors for the establishment of refuelling stations,
- **mobilise the MEL and its member municipalities** in their own operation of CNG vehicle equipment, including by their delegates.

# DEVELOPMENT OF CNG MOBILITY

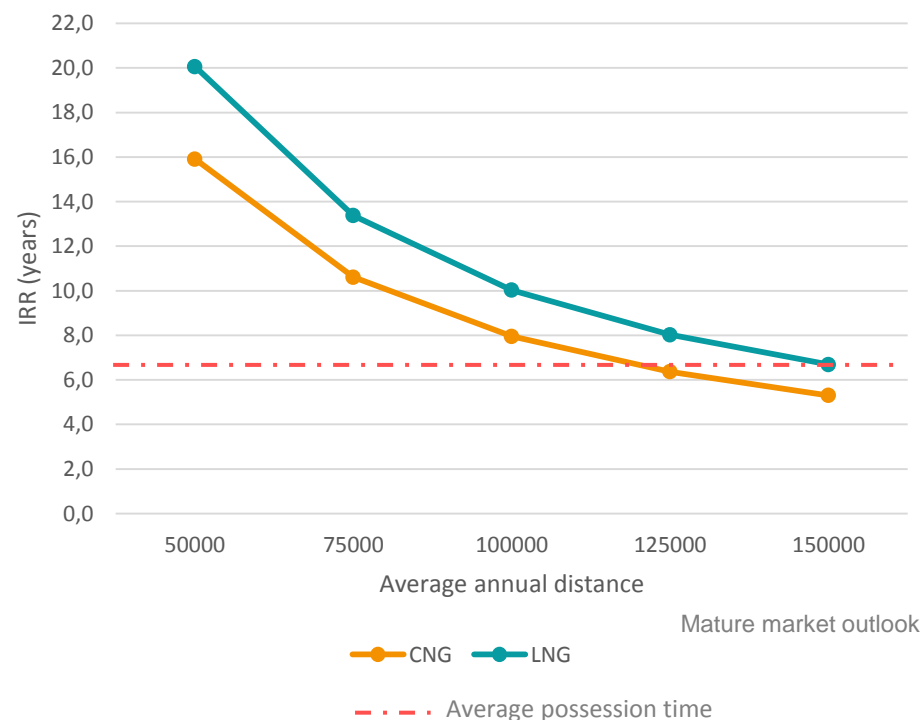
## WHAT ARE THE CONCLUSIONS OF THE STUDY?



Diesel

CNG

### Return on investment time according to annual course\*

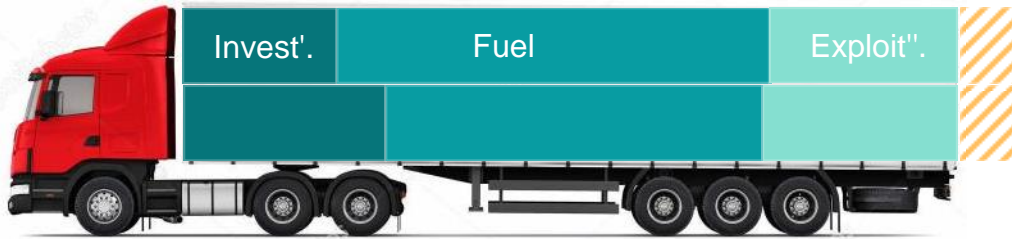


- **Despite obstacles** (additional cost of purchasing vehicles, network of stations to be increased, emergence of a second-hand market), **there are real opportunities for transport operators** (existence of a full manufacturer's offer, cheaper fuel, tax incentives, image)
- Emergence of the sector: **work on captive fleets** before thinking in terms of flows
- Breakeven point of a station: 30 heavy goods vehicles attached to the station,
- **Potential for the creation of 2 to 4 new stations on the territory**

\*about 400 000€ over 7 years, 100 000 km/year

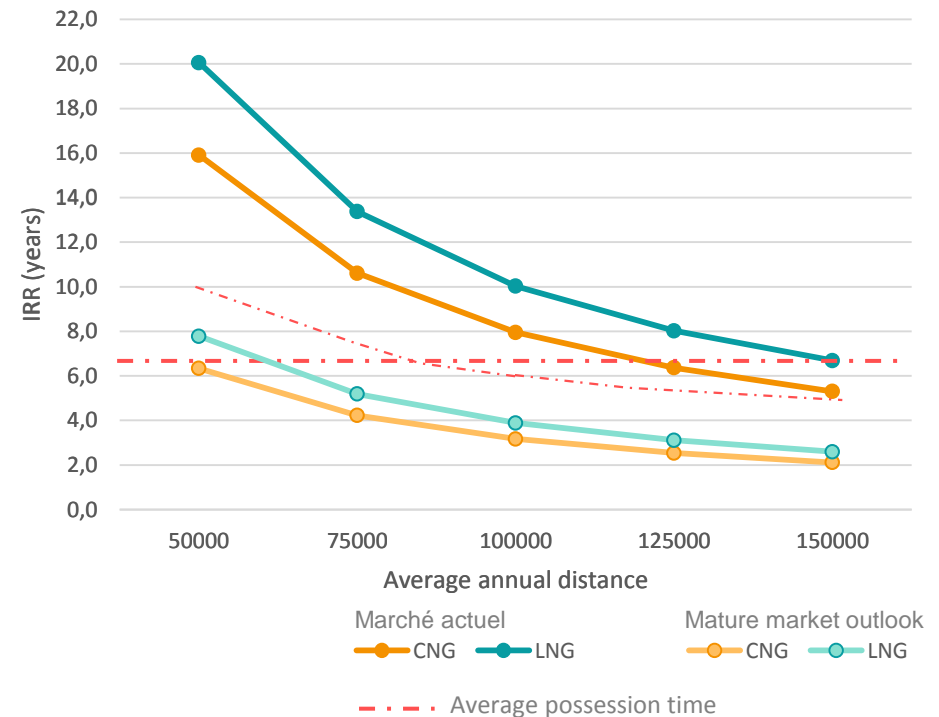
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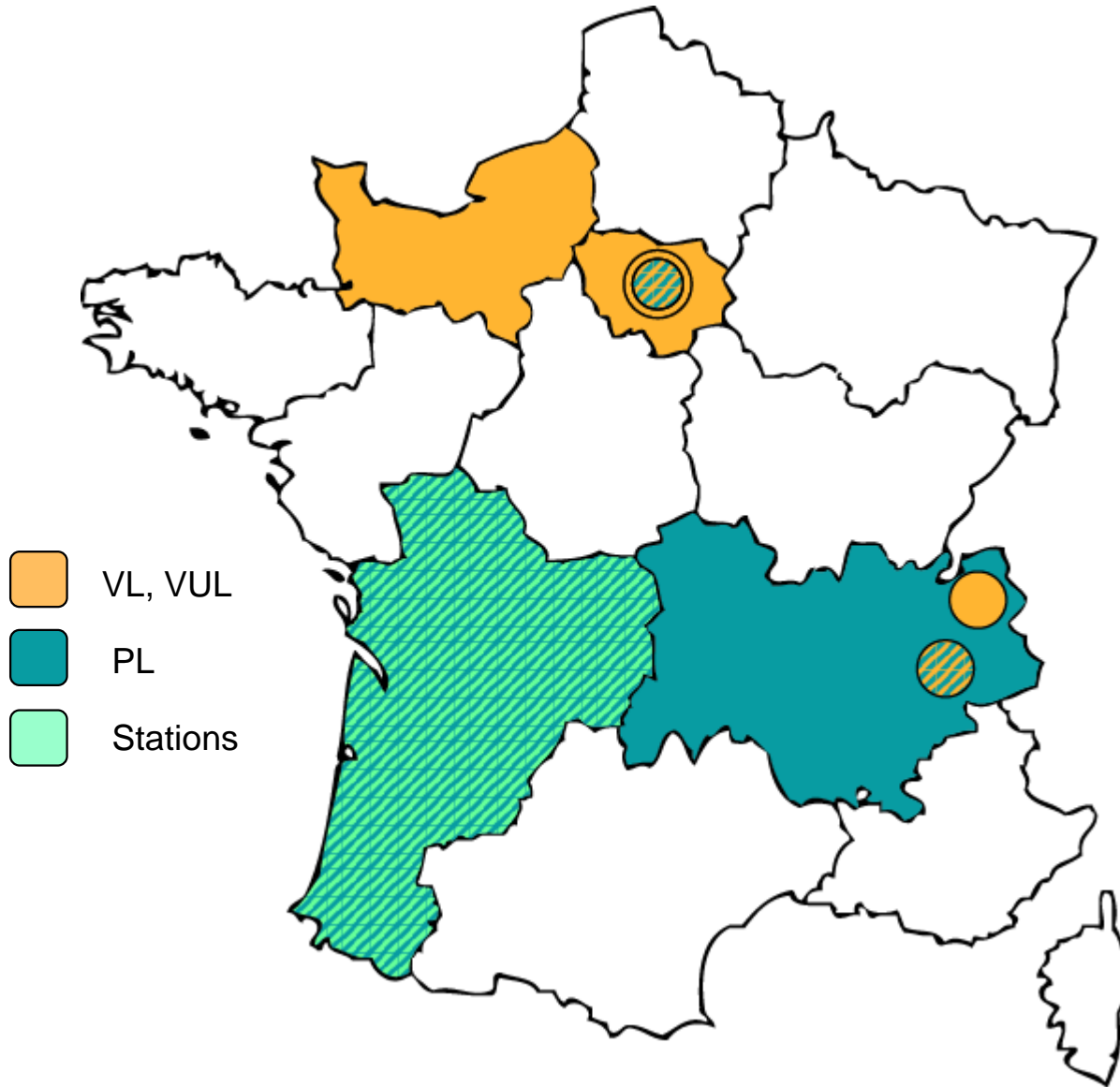


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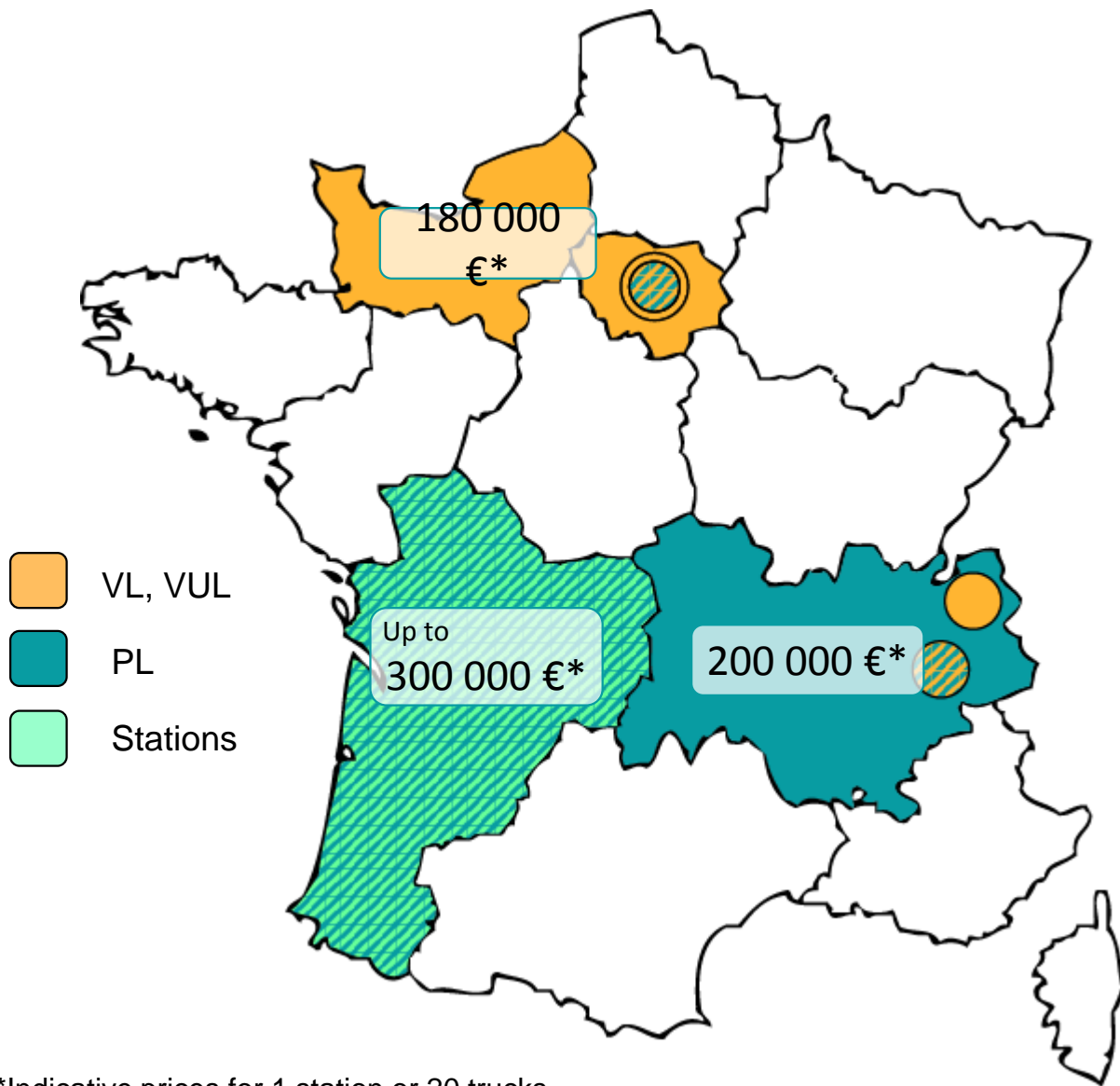
## UPDATE ON PROCEDURES IN FRANCE





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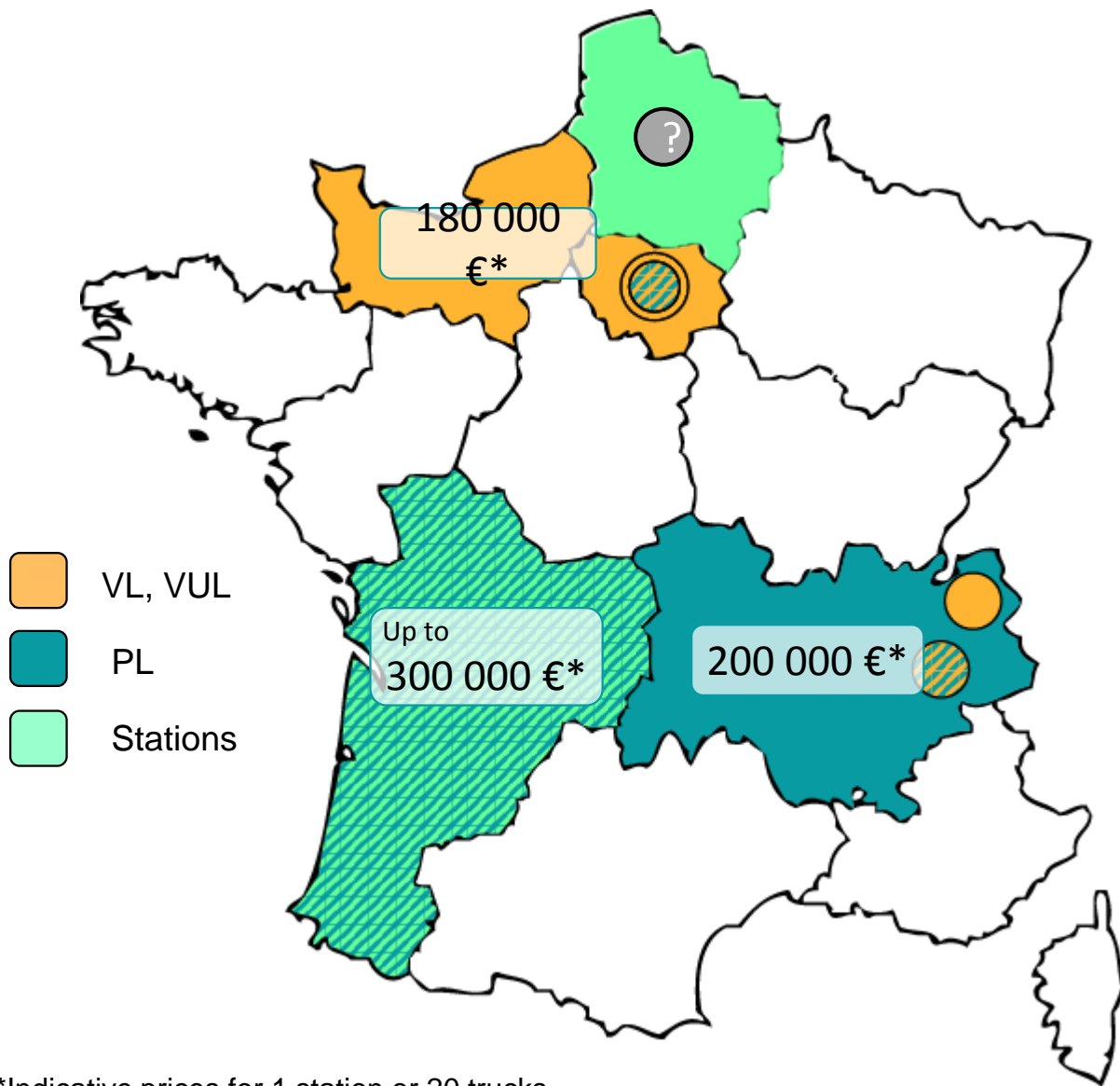
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\*Indicative prices for 1 station or 20 trucks

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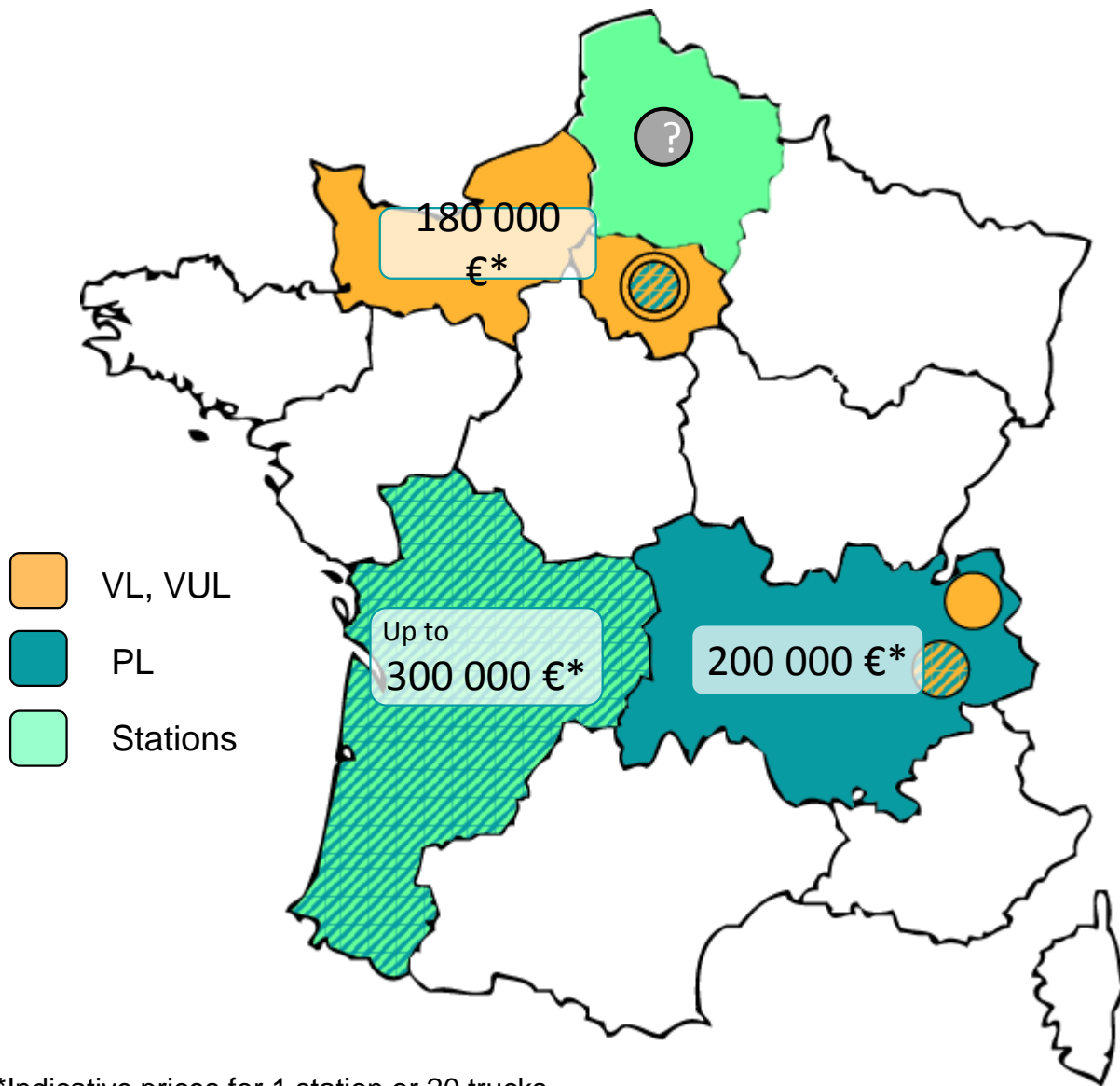
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"Carriers bear the risk"

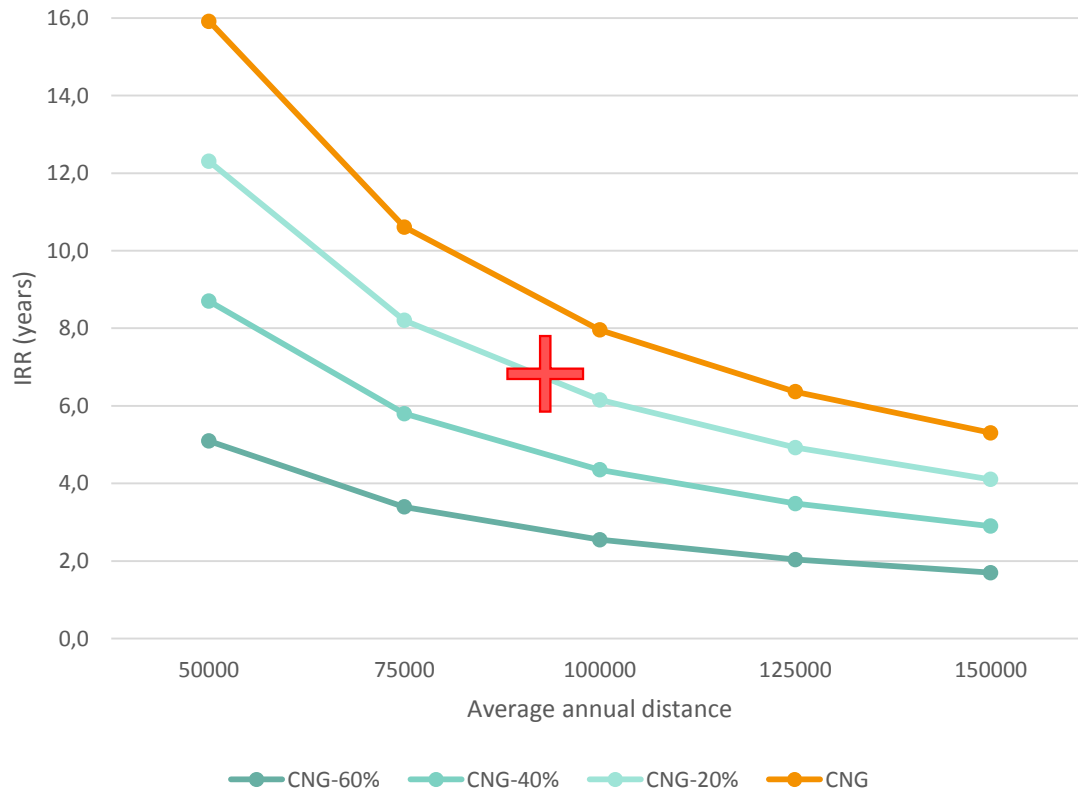
"The community has a role to play in bringing together stakeholders for the emergence of stations"

"Importance of ceilings for allocating aid"

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## - Financial support for vehicles

Study of the influence of purchase aid  
As a % of the overcharge



- Positive signal.
- Reduces financial immobilization.
- Concrete impact on profitability.
- Allows to compensate for fears and changes in habits.



- Depending on conditions, can be used to recover BioGas.



- Without additional help, there is a risk of a lack of stations.
- Requires an agreement with the region

## - Financial support for vehicles

Proposal of grant amounts  
(As a percentage of the surcharge)

Small companies	40%
Medium-sized companies	30%
Large companies	20%
BioGNV Bonus	+10%

4 stations, 25 vehicles:

100 PL per year = about **900 000€**  
- 1000 tonnes of CO<sub>2</sub>/year (CNG)  
- 8.5 tonnes of Nox/year

### **MEL Deliberation next June to validate this strategy**

- Launch of a Call for Proposals with investors from private stations,
- Provision of the conclusions of the study and the locations,
- Support for the first 25 transfers of diesel trucks to CNG per station to launch the business model

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