



IVECO Natural Power Technology

The Natural Way to Sustainable Road Transport since 1996

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April, 28 2017

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Trucks' (and bus) fuel history

A sad story with an happy ending !

1770



Wood

1850



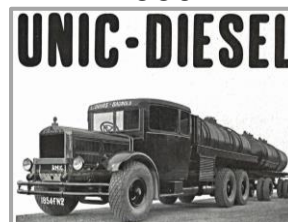
Coal

1899



Petrol

1930



Gas Oil

1996

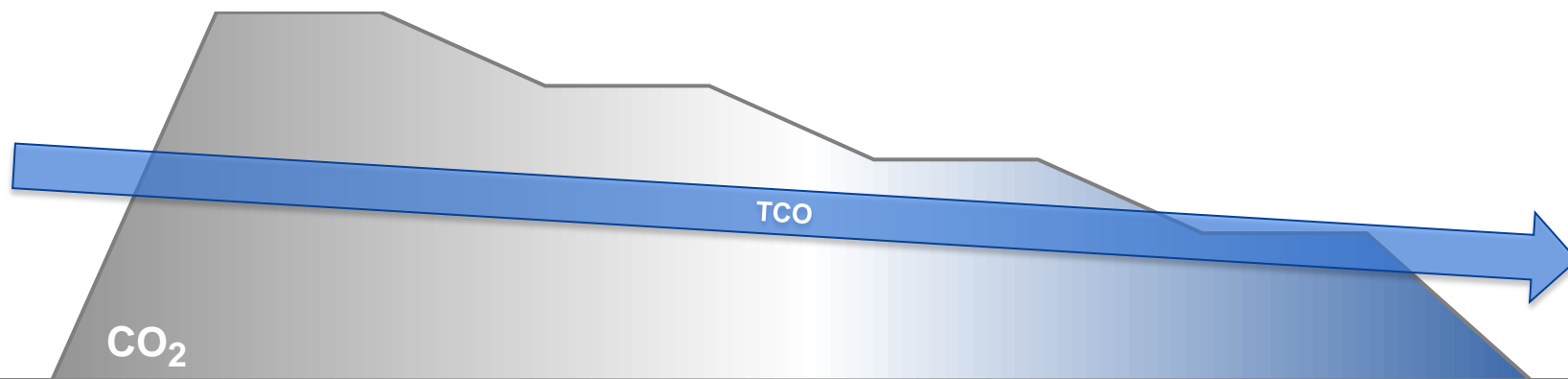


Natural Gas

2016 & beyond

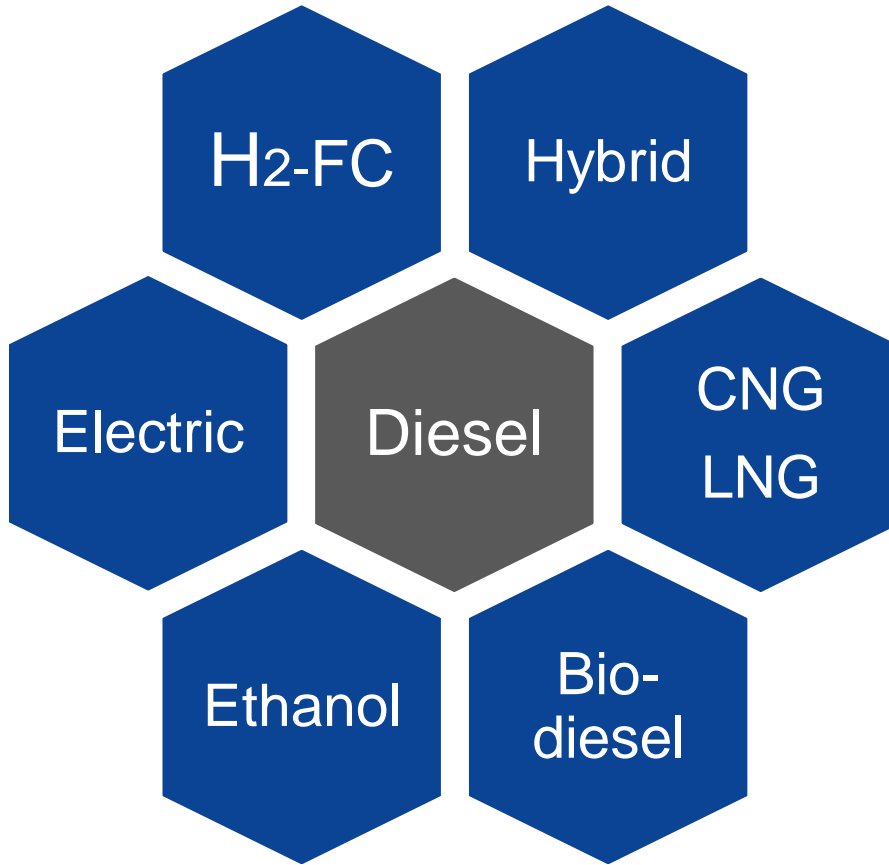


Biomethane



Main replacement candidates to diesel engine for goods transport

Which keys to succeed ?



1. Be as good as diesel

- **Total Cost of Ownership**
- Reliability & Safety
- Pay load & Versatility
- Comfort & performances

2. Secure lower externalities

- **Reduced CO₂ emission**
- Reduced air pollutants
- Reduced noise
- Reduced oil dependency

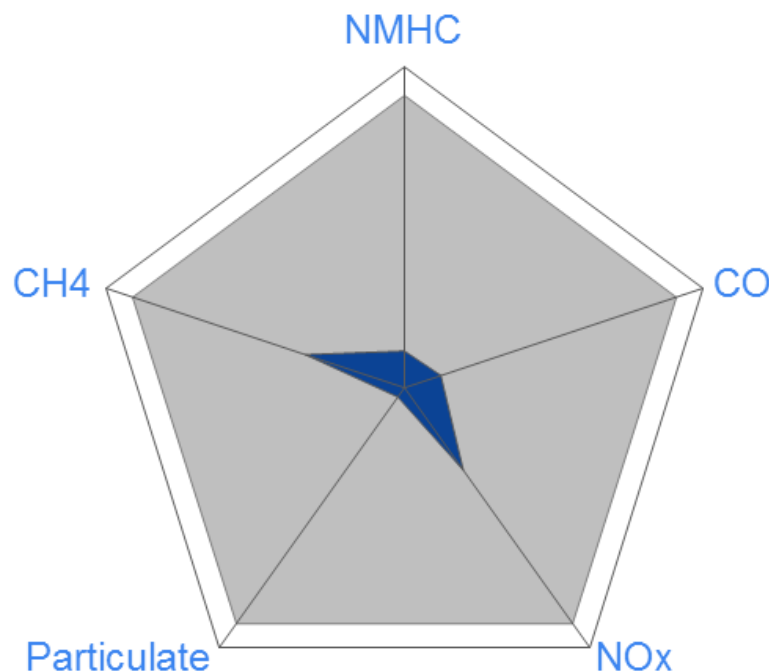
3. Benefit from an efficient fuel distribution

- Safety regulations & Taxes
- **Profitable distribution network**

IVECO Natural Power – Sustainability facts

A global answer

Air Quality



■ Euro VI limits

■ Stralis *NP*

HOMOLOGATED EMISSIONS VERSUS EURO VI LIMITS

**70 % less
NO_x**

**99 % less
PM**

**90 % Less
NMHC**

**88 % less
Methane**

Global Warming

10 to 80% CO₂ emissions cut, that is yearly :

Up to 20 tons of CO₂ saving per truck

Up to 6 tons of CO₂ saving per bus

Up to 100 tons of CO₂ saving per truck with Biomethane

Up to 50 tons of CO₂ saving per truck with Biomethane

Noise

3 to 5 dB noise reduction

Piek Quiet Truck Certification (-71 dB)

Night time missions possible

IVECO Natural Power – Sustainability facts

Superior performances demonstrated also on road

Stralis Natural Power vs DIESEL Euro VI	
NOx emissions	-54%
NO2 emissions	-96%
Particulate emission	Too low to be accurately measured by the PEMS
CO2 Emissions with biomethane	Tank to Wheel -10% => 15 tons per truck each year Well to Wheel -80% => 120 tons per truck each year
Externalities (2009/33 EU)	-28 400 € on 800 000 km
Fuel consumption	-15% (kg vs liters)
ON BOARD EMISSION MEASUREMENTS (PEMS)	

ADEME



Measurements CRMT (Q1 / 2015)
Financing ADEME

Agence de l'Environnement
et de la Maîtrise de l'Énergie

IVECO

April 2017

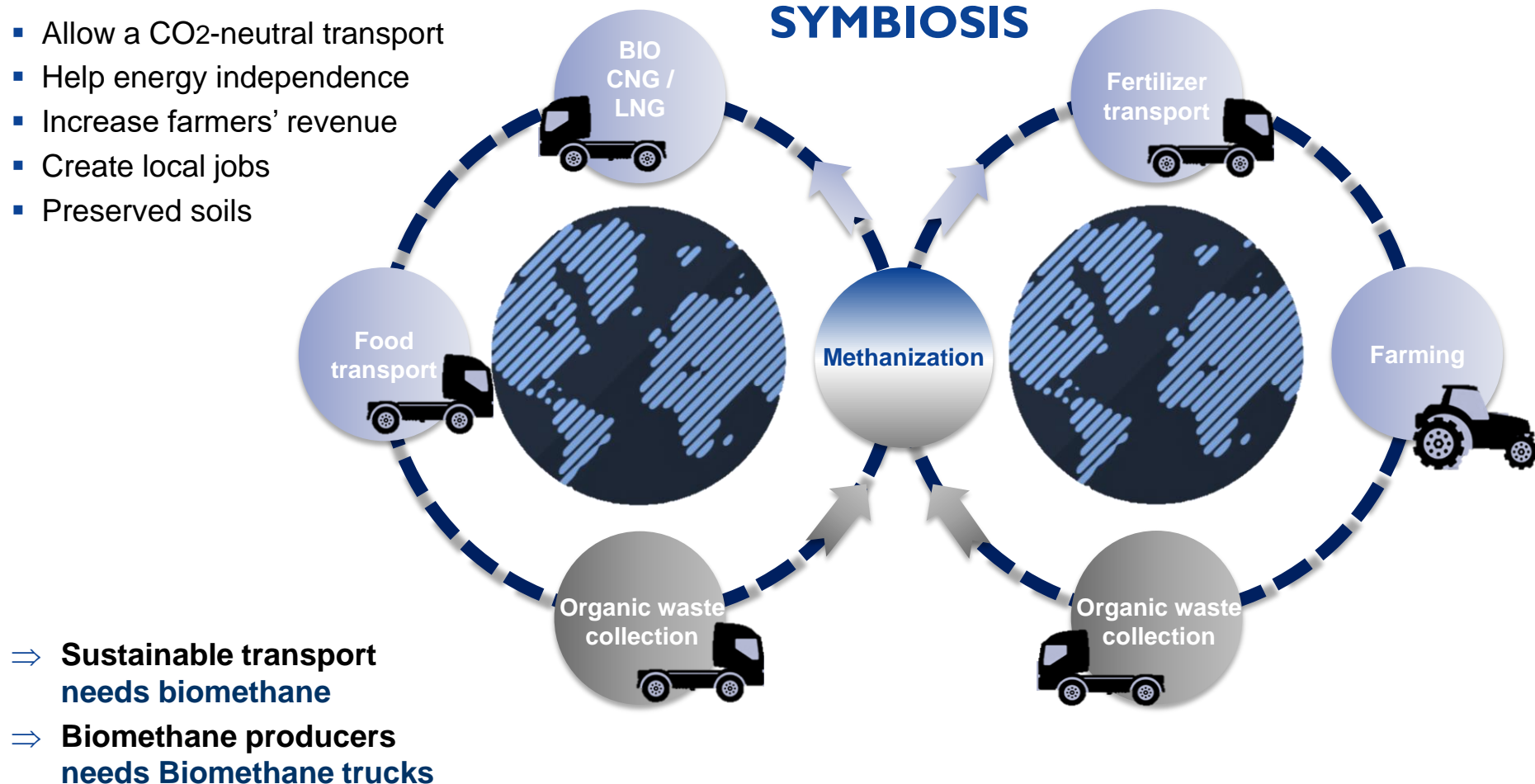
IVECO Natural Power Technology – The natural way to sustainable road transport

IVECO Natural Power Vehicles + Biomethane

Much more than clean vehicles : an essential brick of the circular economy

For unparalleled benefits

- Transform waste into resources
- Allow a CO2-neutral transport
- Help energy independence
- Increase farmers' revenue
- Create local jobs
- Preserved soils



IVECO Natural Power Vehicles + Biomethane

The Carrefour example : clean, silent and CO2-neutral city-distribution using Carrefour's bio-wastes !

Most alternatives solutions tested

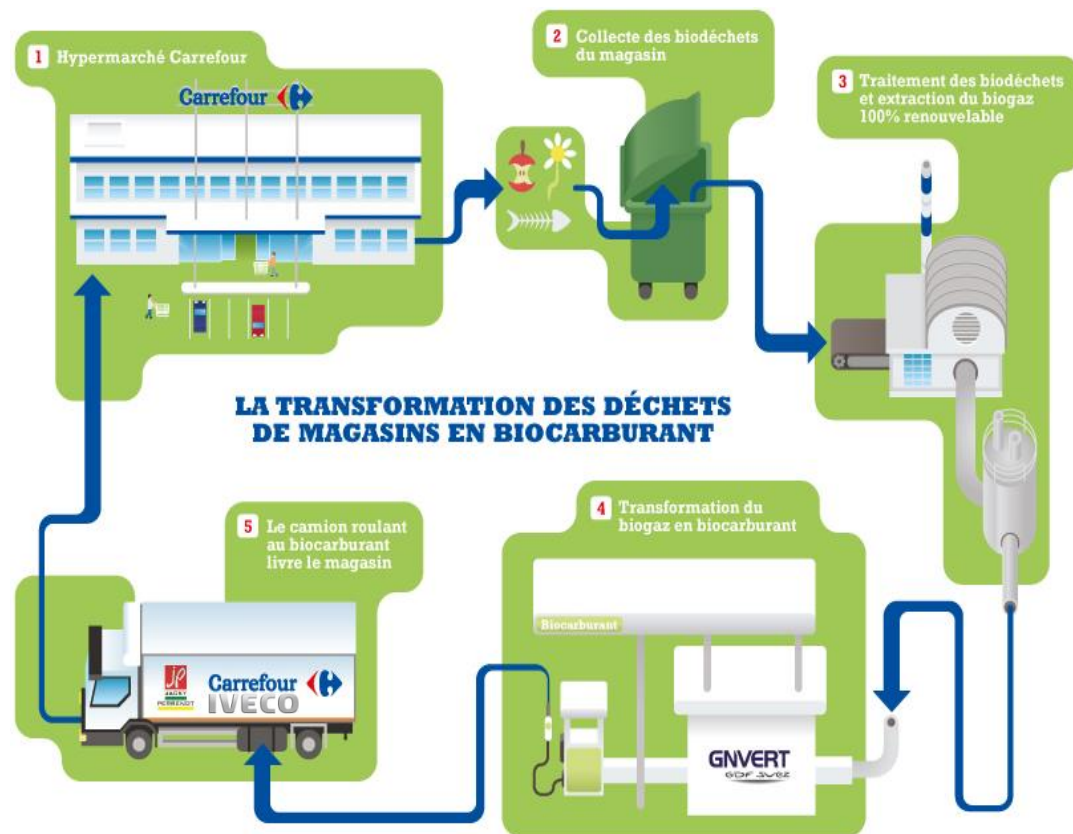
- Hybrids
- Full electric
- Liquid Biofuels

A clear winner : the Bio CNG trucks

- Silent, Clean & CO2-Neutral
- Safe & Reliable
- Versatile & Cost Effective
- Fueled with Carrefour waste !

Next Steps

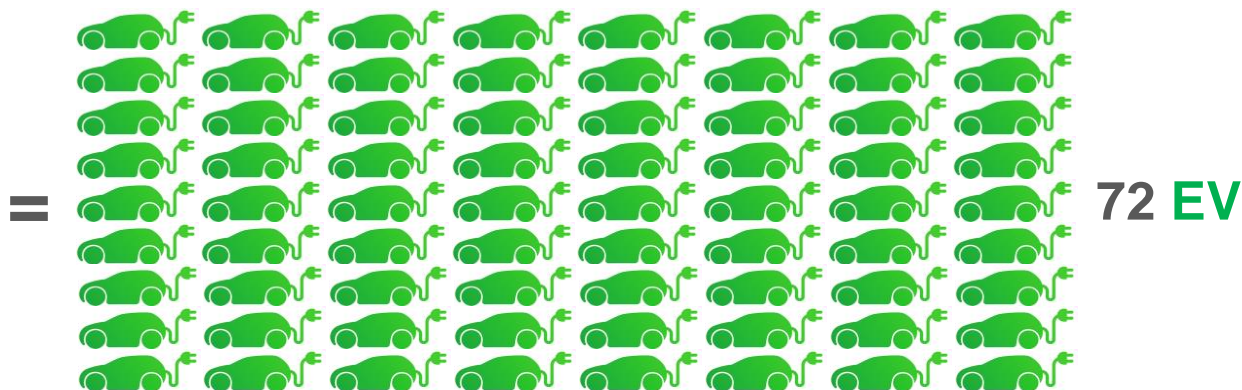
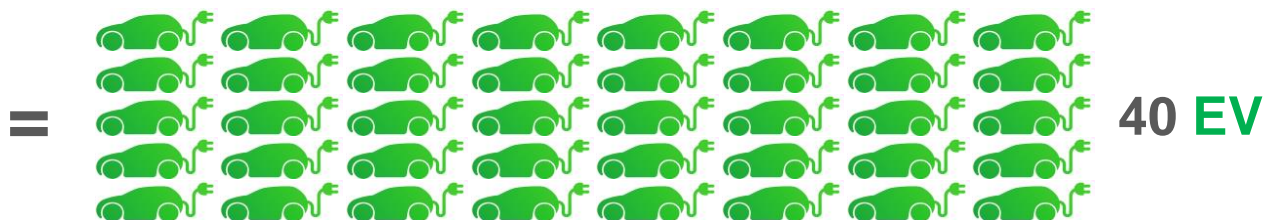
- Project extension to more European regions (Spain, Italy, Belgium)
- Project extension to extra-urban supermarkets
- bioCNG becoming the new standard



IVECO Natural Power Vehicles + Biomethane

The best vector to limit CO₂ emissions in road transport

Minimum CO₂ saving equivalence base on 100% carbon-free electricity



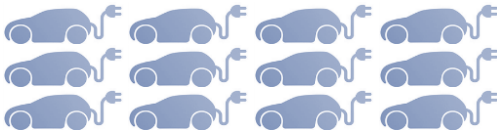
IVECO Natural Power Vehicles + Biomethane

The best vector to limit CO2 emissions in road transport

Minimum CO2 saving equivalence base on 100% carbon-free electricity



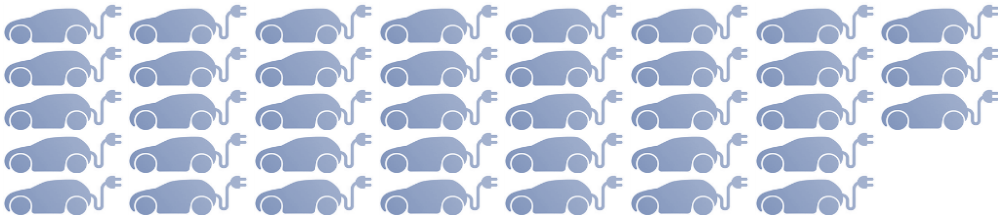
+ bioCNG =



12 EV



+ bioCNG =

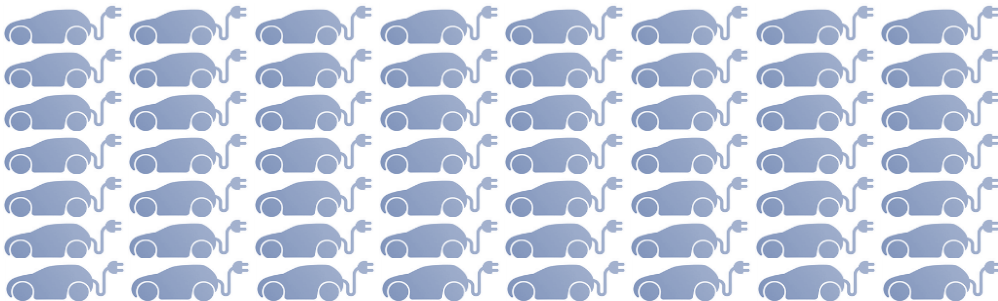


38 EV



+
bioCNG

=



58 EV

IVECO Natural Power Vehicles

Two decades of continuous investments

Sales figures
at Sept. 2016

COMMERCIAL VEHICLES

LIGHT

3,5 to 7,2t

6 800 UNITS



MEDIUM

11 to 16t

3 500 UNITS



HEAVY

18 to 44t



BUS

10, 12 & 18m
Std and BRT

5 800 UNITS



ENGINES

3, 6, 8 & 9 L
140 to 400 hp

32 600 UNITS



1996	2000	2001	2007	2009	2010	2012	2015	2016
1 st Bus 1 st Truck	1 st LCV	1 st below EEV	1 st below Euro VI	1 st medium truck	1 st CNG Tractor	1 st LNG Tractor	1 st Rigid LNG Truck	1 st Long Haul LNG Truck

Cumulated vehicle sales

16 100

IVECO Natural Power HD Vehicles

1996 to 2016 : from garbage collection to long haul missions

1996

2008

2012

2014

Q4-2016

Refuse collection (**18-26t CNG, 240hp, 120km**)

+ Urban distribution (**18-26t CNG, 270hp, 300km**)

+ Regional distribution (**44t CNG, 330hp, 400km**)

+ inter-regional routes (**44t L-CNG, 330hp, 700km**)

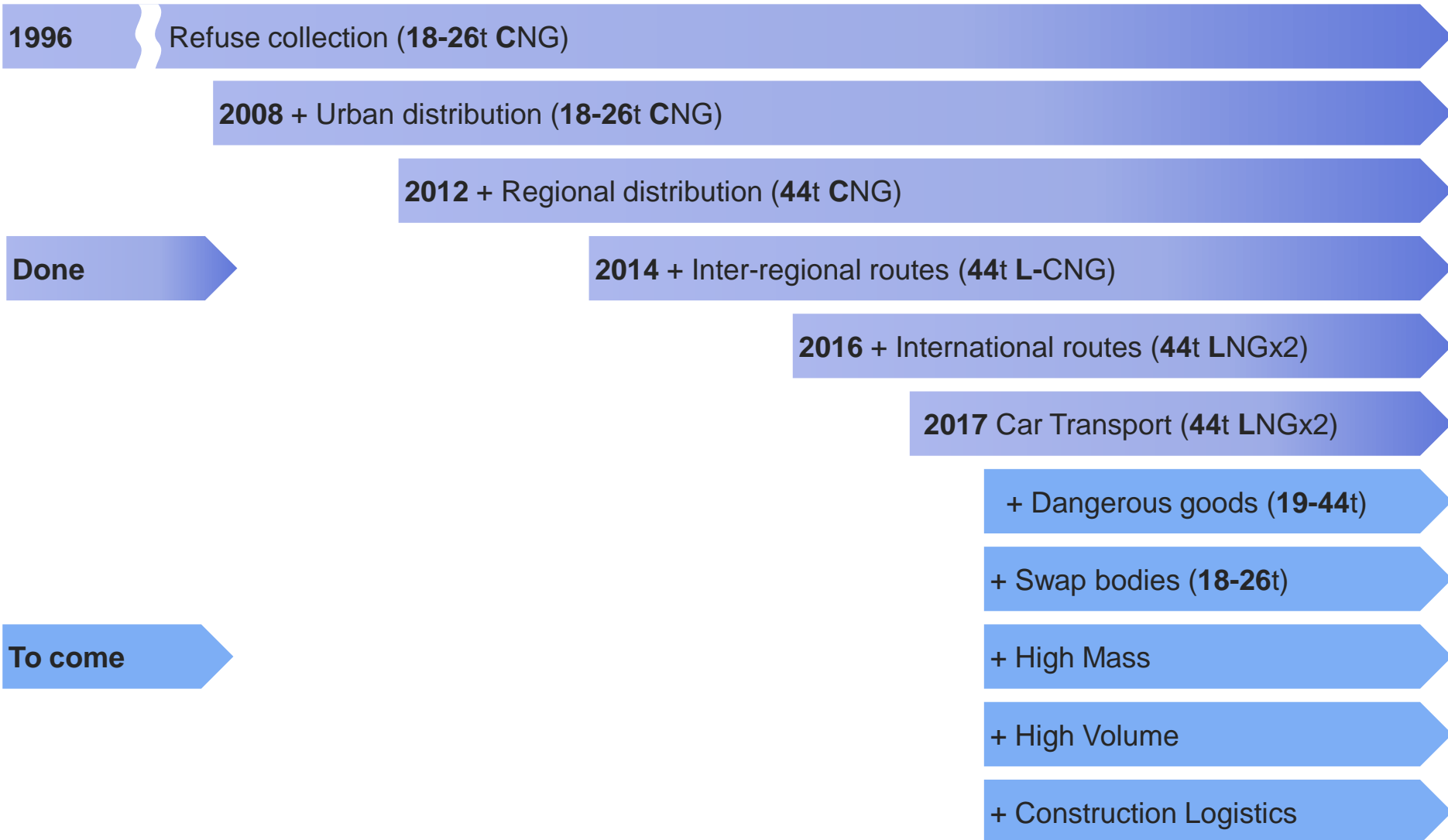
+ International routes (**44t LNG, 400hp, 1500km**)

Sustainability-driven market
Niche market

Sustainability + TCO-driven market
Volume market

IVECO Natural Power HD Vehicles

2017 onwards : from general cargo to specialized missions



IVECO Natural Power – Stralis NP : First Long-Haul Gas truck

1000 units sold 6 months after launch, 2.000 units on EU roads by end of 2017 !



IVECO Natural Power HD Trucks

A European success

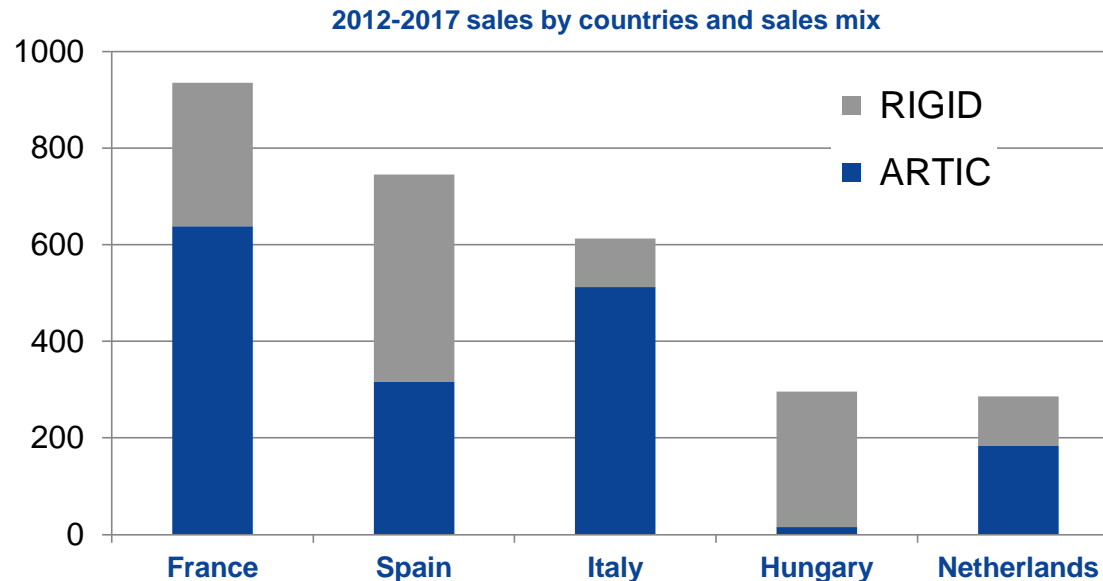
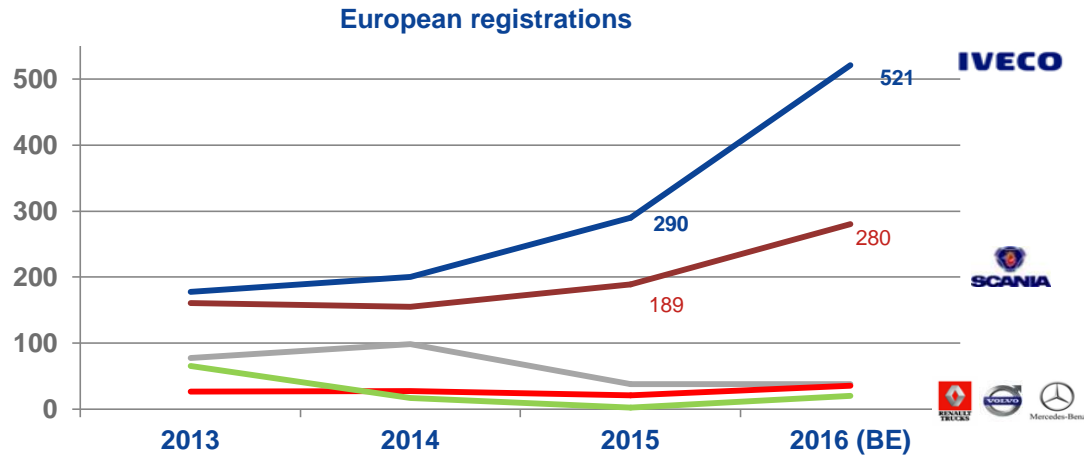
- >300 Transporters
- >2 500 HD Trucks in running fleet
- 21 European countries
- >200 Millions km per year
- >60% Market Share

The fleet could use **60 000** tons of biomethane yearly, saving **130 000** tons of **CO2** each year



HD Natural Gas truck Market evolution

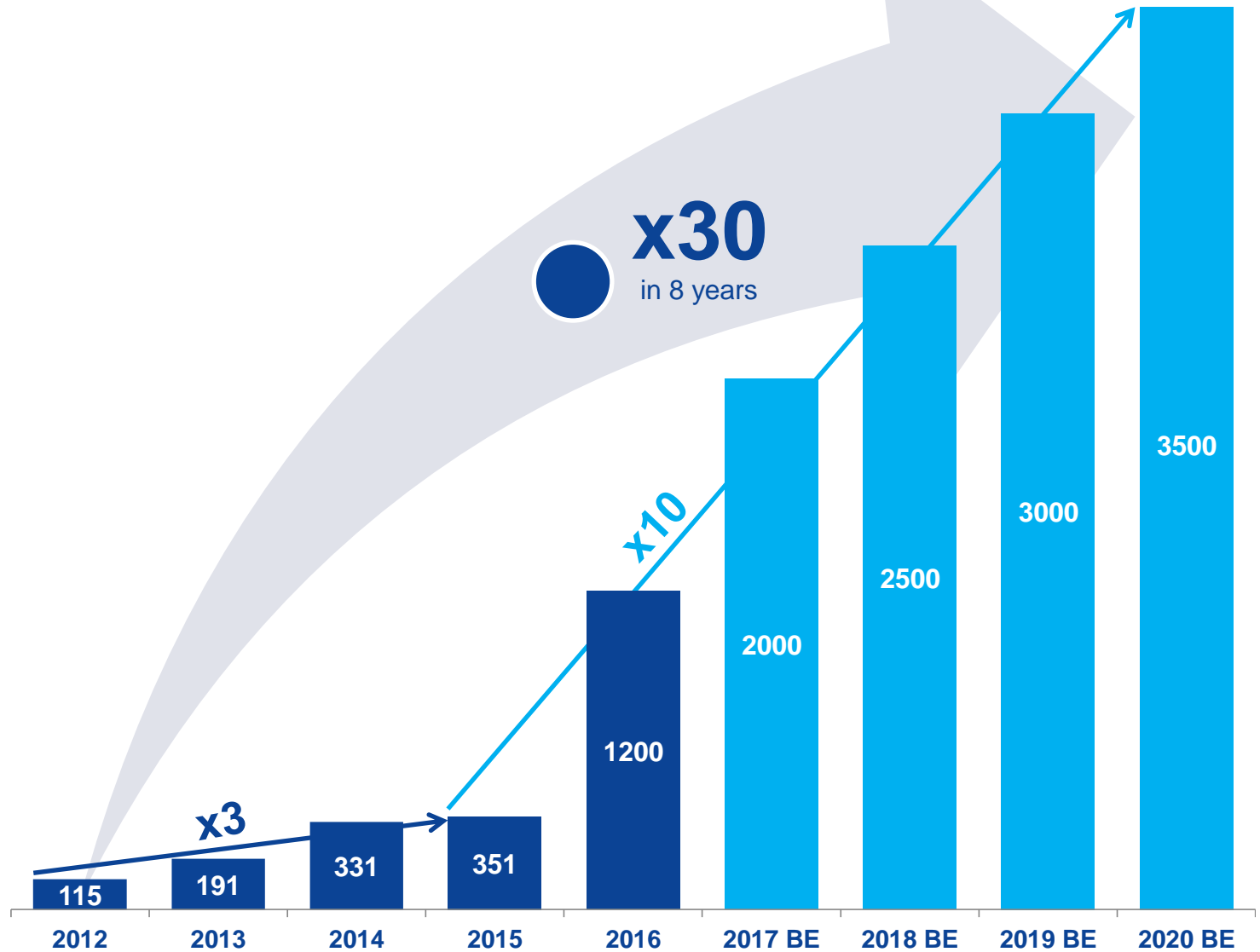
Strong acceleration of the demand in western Europe



Belgium & UK are expected to be the next growing markets
Lets add Romania on the list !

Stralis NP sales target in Europe (orders intake)

From a niche market to a mass market

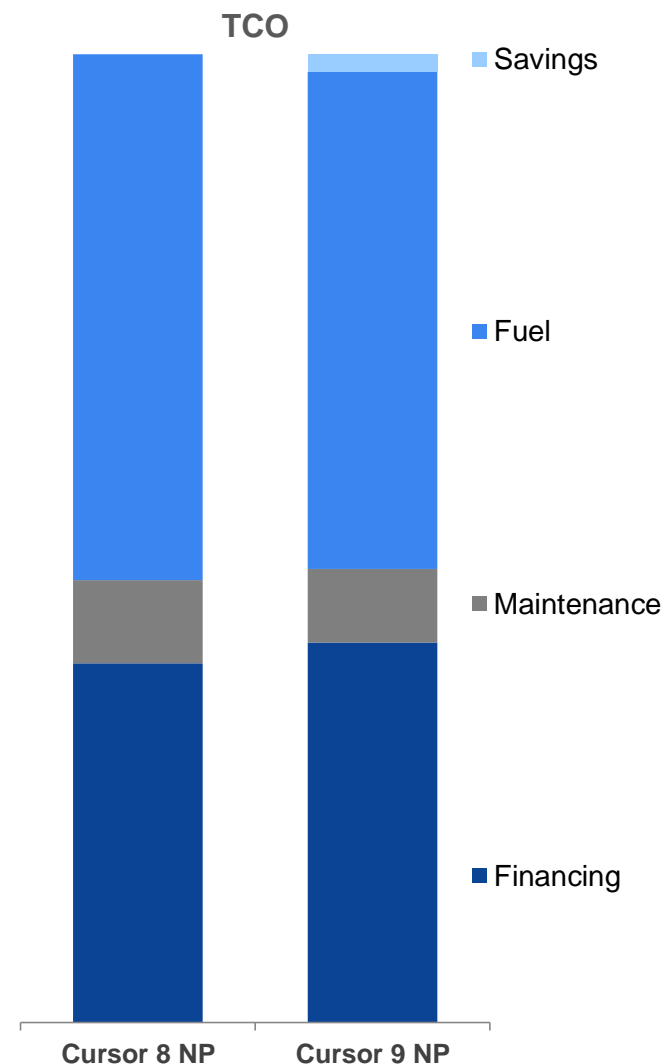


Committed to lowest TCO through constant innovation

New Stralis NP : outstanding performances and a lower TCO !



	C8 NP	C9 NP
Yearly millage	130 000 km	
Leasing duration	5 years	
Fuel consumption x100 km	28 kg	26,4 kg
NG cost (vat excluded)	0,77 € / kg	
Maintenance & Repair	Included	Incl. + Up-time
Monthly TCO (leasing + fuel)	4 300 €	4 220 €
TCO saving @ 5 years	base	4 800 €



Committed to a cleaner logistics

Switching CNH Industrial logistics flows from diesel to LNG Trucks

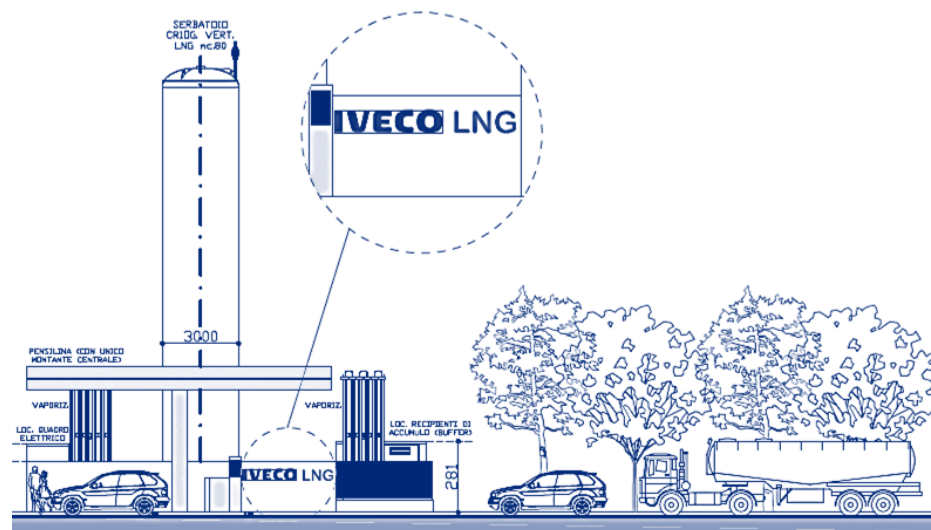
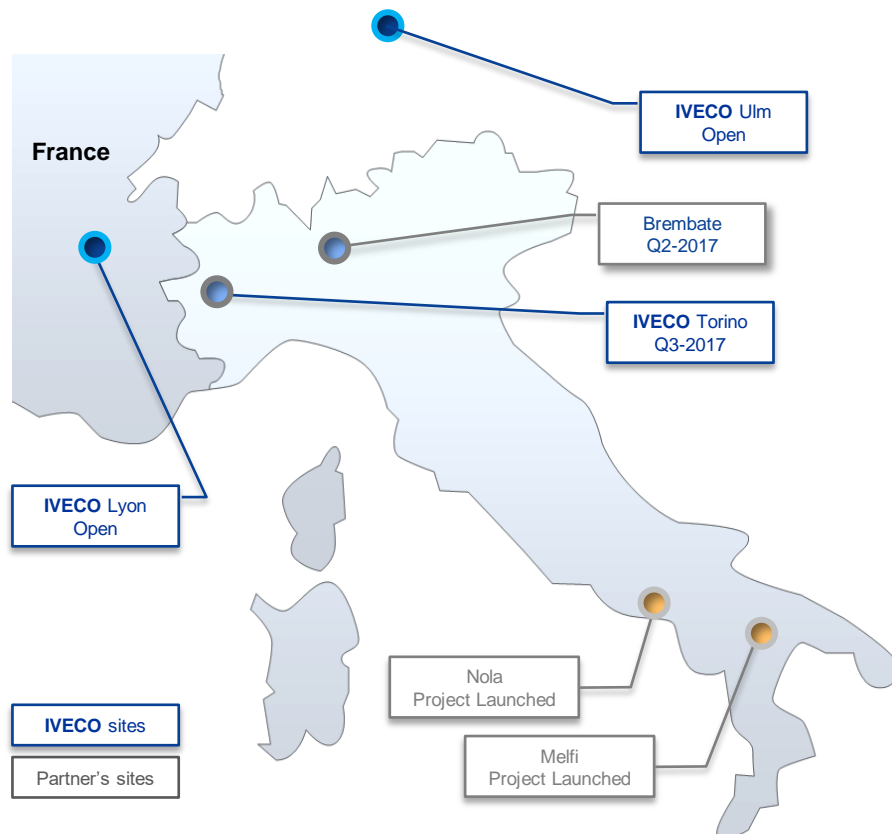
- Project started in **June 2015**
- **All CNH industrial flows** contemplated (material, finished vehicle & spare parts)
- **600 diesel Trucks** to be replaced by **LNG models** before end of 2018
- **150 vehicles** already ordered
- **2** inbound domestics flows in place
 - Stralis & Trakker Cabin transport from Valladolid to Madrid (29 rotation per day)
 - Daily steel panels transport from Turin to Suzzara
- **3** outbound international flows in place
 - Stralis and Trakker trucks transport from Madrid to Gent
 - Daily transport from Suzzara
 - Truck and cab transport loop through Belgium, France, Germany and Austria
- **1** Multi-modal inbound flow from Asti to Madrid via Voltri and Valencia,



Committed to develop the refueling network in Europe

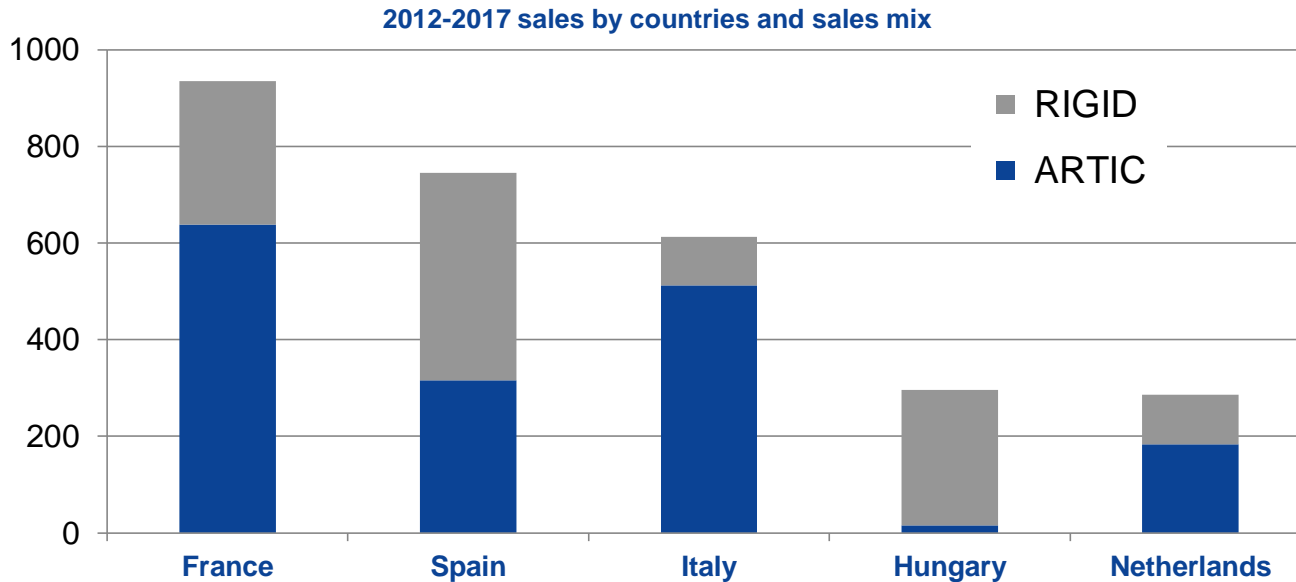
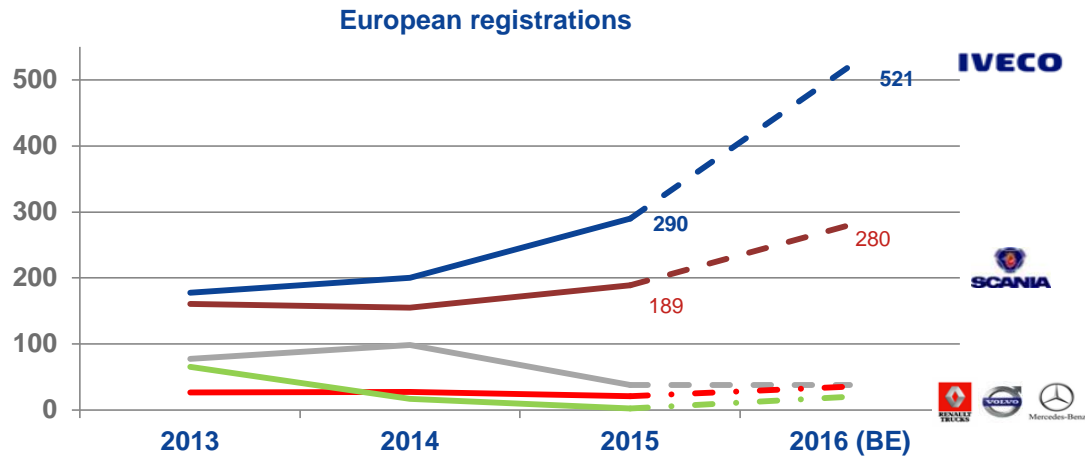
Acting as a catalyst to accelerate the C-LNG station investments where most needed

- Project started in **January 2016**
- **1st** C/LNG station opened in **Lyon** in July 2016
- **2nd & 3rd** C/LNG stations in **Turin & Brembate** to be opened in Q3-2017
- Project launch for **2** C/LNG stations in **south of Italy**
- On going investigation for new C/LNG stations in **France, Belgium, Austria & Poland**



HD Natural Gas truck Market evolution

Strong acceleration of the demand in western Europe



City bus and BRT CNG : a complete range

Superior comfort, high passenger capacity and best in class TCO



Daily 7,12m – 136 hp



Urbanway 10,5m – 290 hp



Urbanway 12m – 290 hp



Urbanway 18m – 330 hp



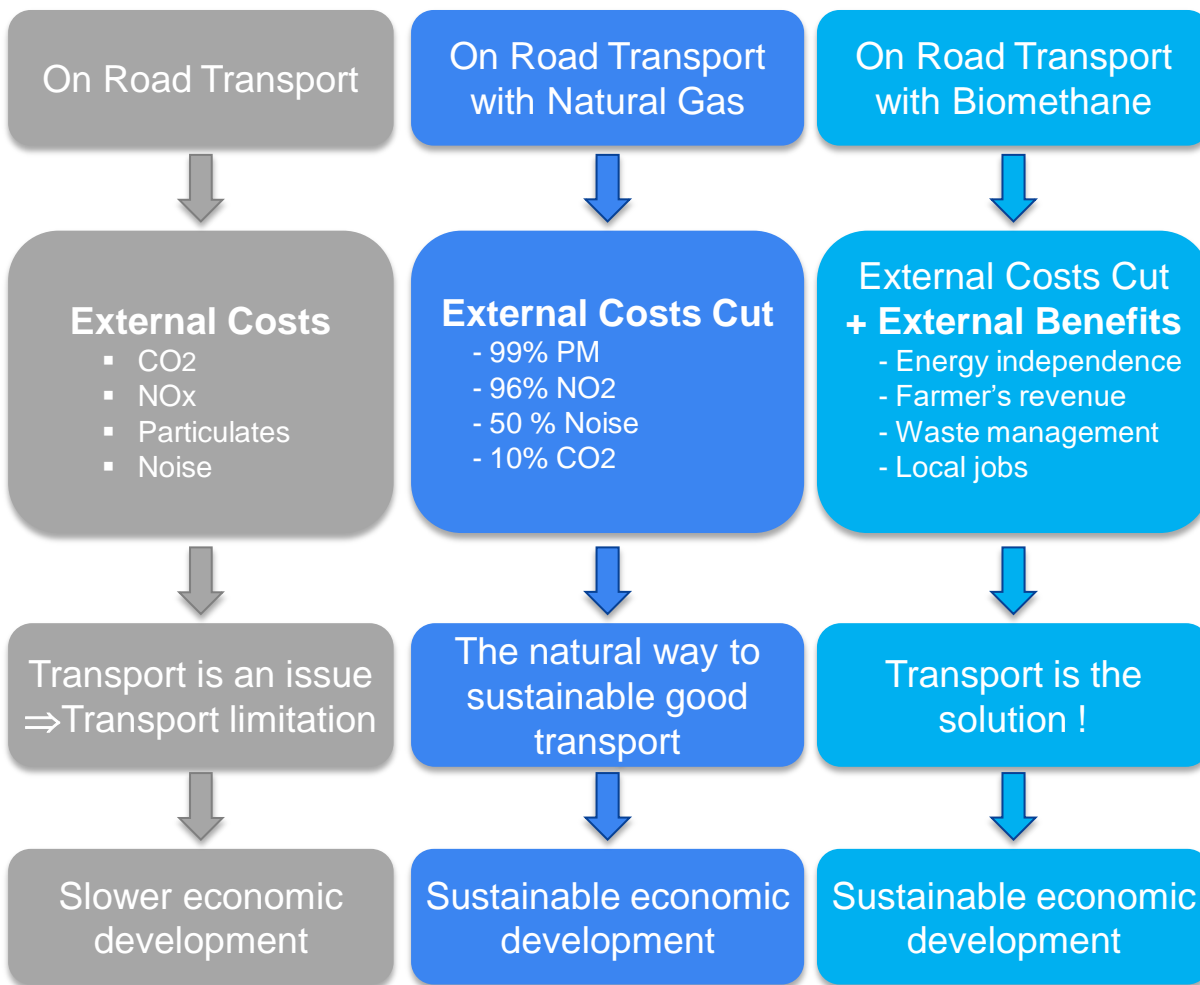
Crealis 12m – 290 hp



Crealis 18m – 330 hp

A sustainable transport is possible !

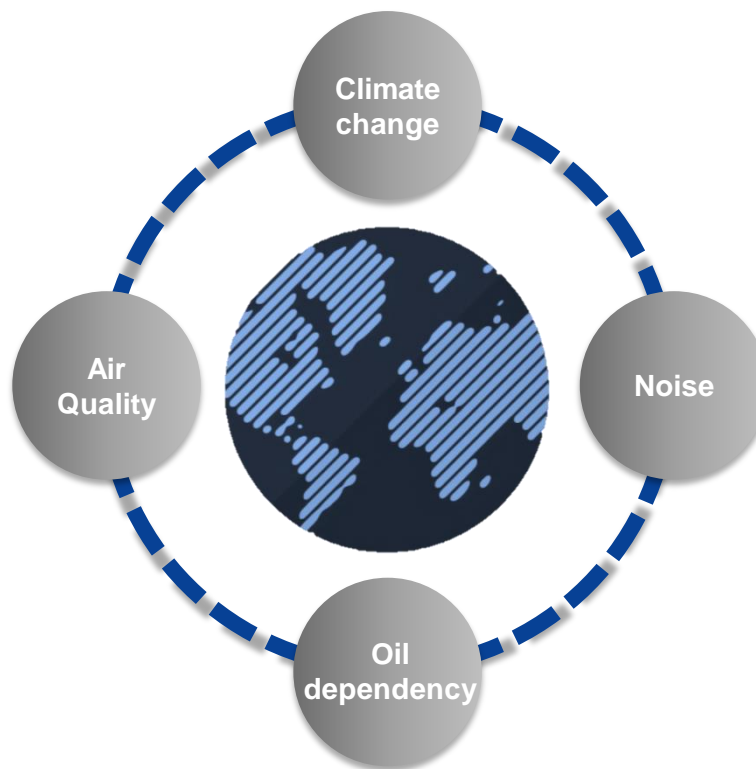
The choice is ours !



IVECO Natural Power Vehicles

The global alternative to go out of the oil age, now !

- SUSTAINABLE
- FLEXIBLE
- COMFORTABLE



- AVAILABLE
- AFORDABLE
- RELIABLE



A 360° commitment

A row of various commercial vehicles including vans, trucks, and buses. From left to right: a small white van, a white box truck, a white semi-truck, a white bus with its door open, a white articulated bus, and a white van.