Developing the market for CNG, LNG and Biogas as a fuel – The Italian Best Case

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NGV ITALY
POWERING A CLEANER FUTURE

NGV Italy, the association of the Italian Industry for natural gas in transport, dates back to 1996, bringing together the most significant companies whose products allow and ease the use of natural gas in transport

The **NGV Italy** represents a professional family that:

- includes HD & LD OEMs as well as the most qualified Italian system and equipment manufacturers.
- takes part in national and international standards development.
- is a privileged environment for information and knowhow exchange.
- constitutes a an important institutional stakeholder for development of Natural Gas in Transport
- is NGV GLOBAL B.O.D. member, NGV EUROPE member, ANGVA member

ITALY
A WORLD LEADERSHIP:

90 years of experience

1,7 Billion € Overall Turnover

960, 000 NGVs

1,140 refuelling stations

20, 000 employees

Why Natural Gas

- Fuel choice drivers

ENVIRONMENTAL SUSTAINABILITY

- PARTICULATE (PM)
- GASEOUS POLLUTANTS (NO_X)
- GREEN HOUSE GAS: CO_2
- NOISE REDUCTION
- FUEL AVAILABLE AS RENEWABLE SOURCE (BIO-METHANE)

REDUCTION OF TOTAL COST OF OWNERSHIP (TCO)

- FUEL COST
- OVERALL COST / KM
- 100% MATURE TECHNOLOGY

ENERGY SECURITY

- INDEPENDENCE FROM OIL AND OIL EXPORTER COUNTRIES
- BALANCED MIX BETWEEN ENERGY SOURCES

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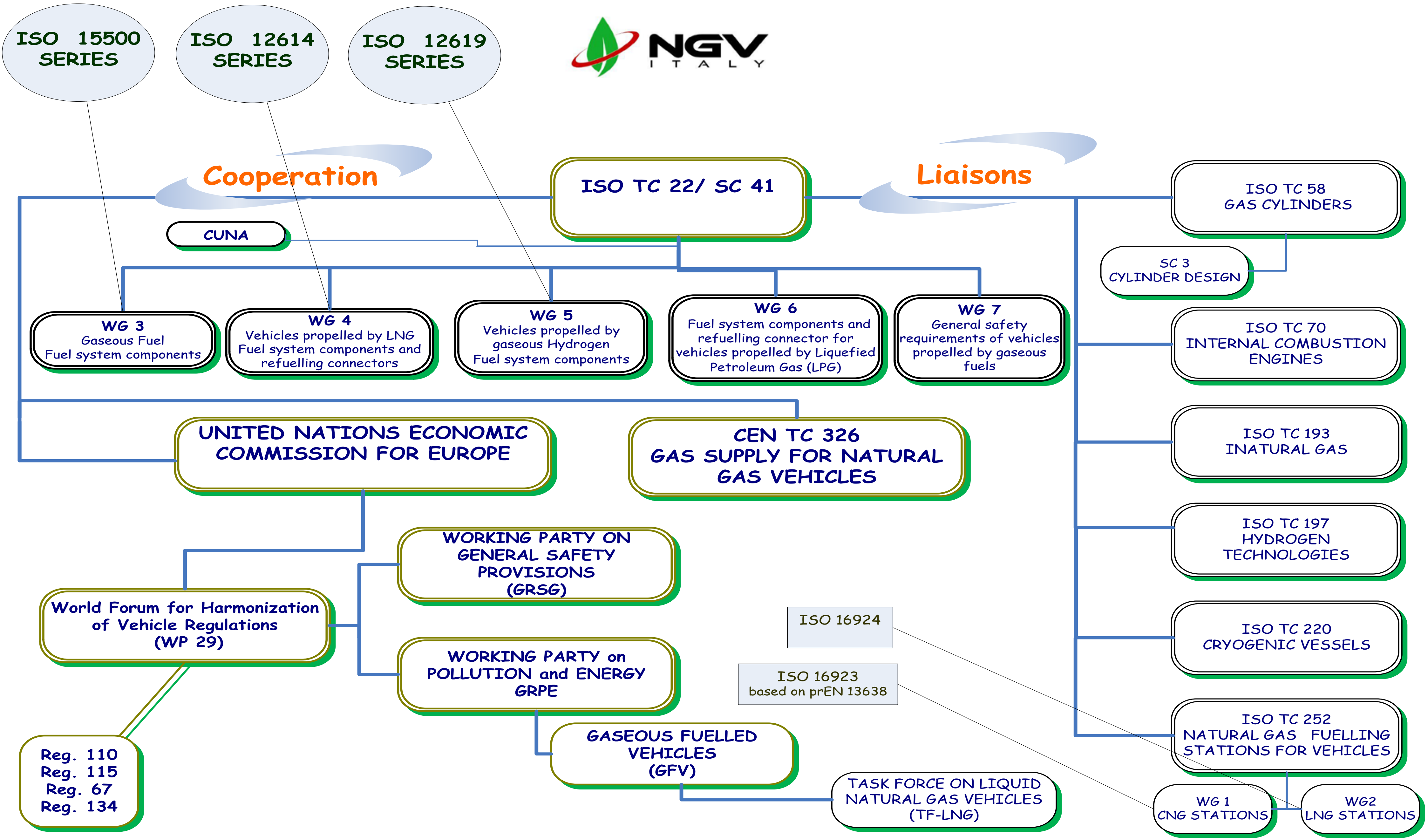
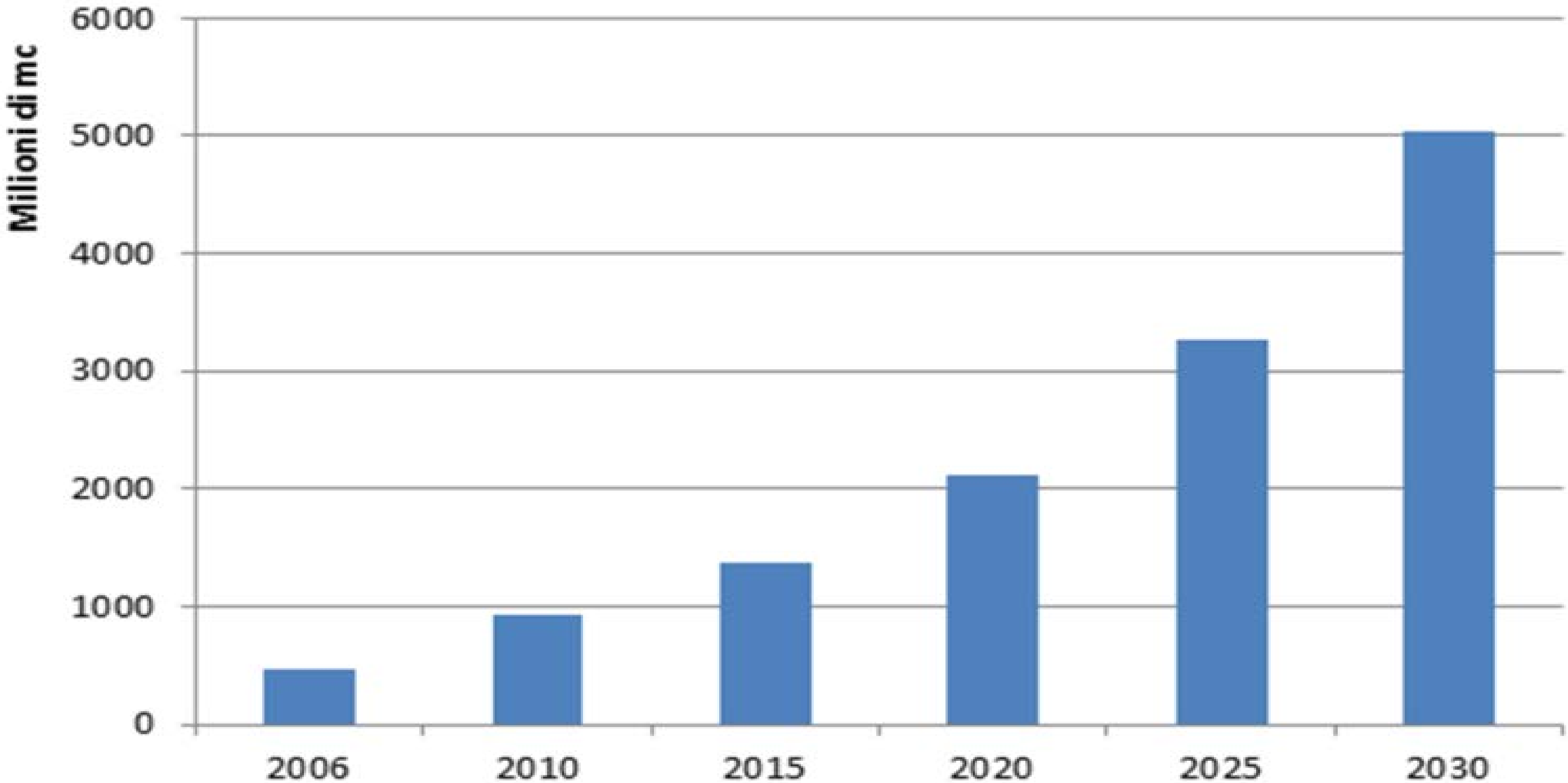
NGVs DEVELOPMENT KEY FACTORS:

- Available and affordable technology
- Fuels price differencial
- Developed refuelling network
- Applicable standards and Regulations
- Competence of operatives
- Environmental benefits

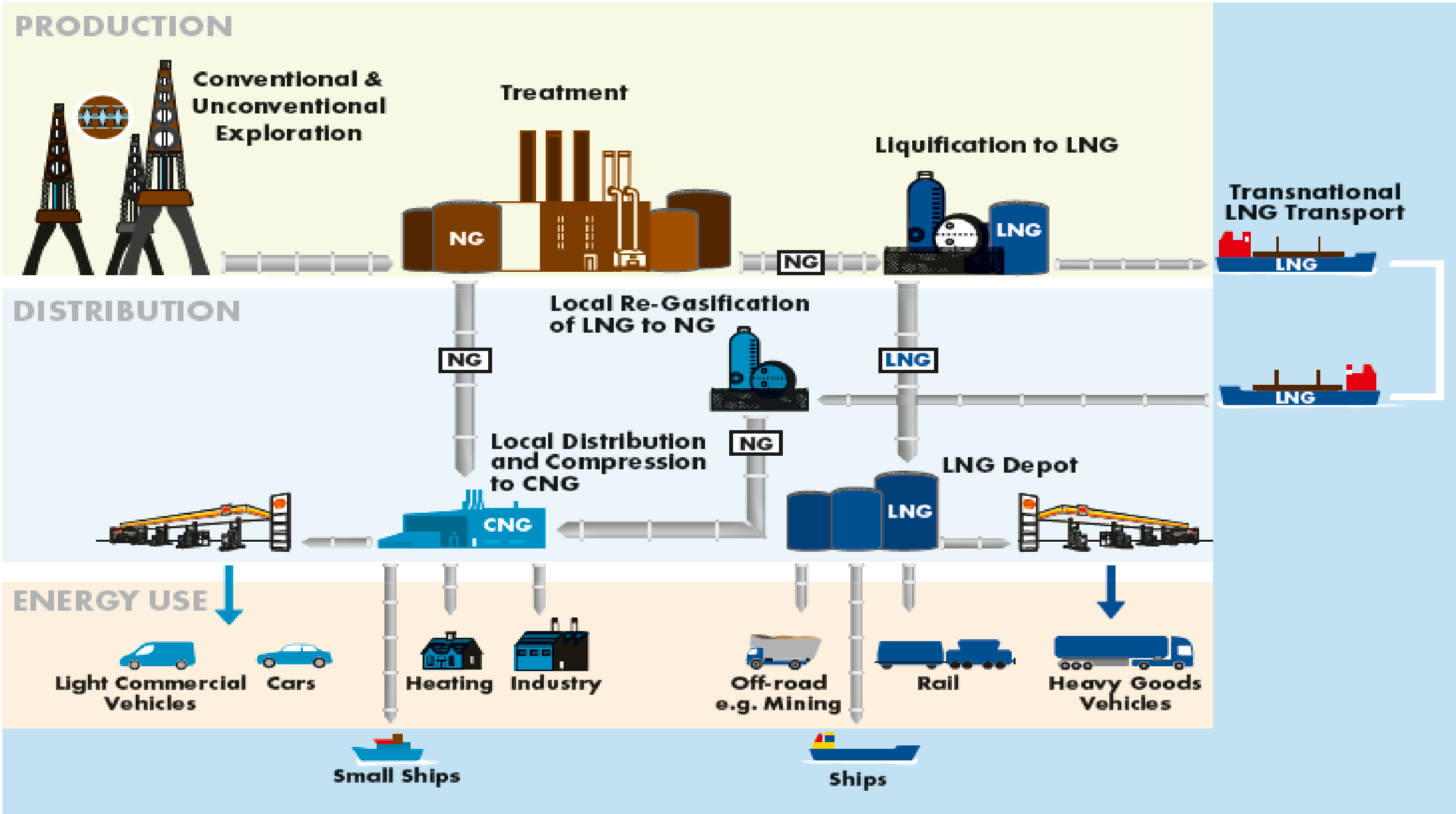

ISO 15500 SERIES
ISO 12614 SERIES
ISO 12619 SERIES
NGV ITALY
Cooperation
Liaisons
ISO TC 22/ SC 41
CUNA
WG 3
Gaseous Fuel
Fuel system components
WG 4
Vehicles propelled by LNG
Fuel system components and refuelling connectors
WG 5
Vehicles propelled by gaseous Hydrogen
Fuel system components
WG 6
Fuel system components and refuelling connector for vehicles propelled by Liquefied Petroleum Gas (LPG)
WG 7
General safety requirements of vehicles propelled by gaseous fuels
ISO TC 58
GAS CYLINDERS
SC 3
CYLINDER DESIGN
ISO TC 70
INTERNAL COMBUSTION ENGINES
ISO TC 193
INATURAL GAS
ISO TC 197
HYDROGEN TECHNOLOGIES
ISO TC 220
CRYOGENIC VESSELS
ISO TC 252
NATURAL GAS FUELLING STATIONS FOR VEHICLES
WG 1
CNG STATIONS
WG2
LNG STATIONS
UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE
CEN TC 326
GAS SUPPLY FOR NATURAL GAS VEHICLES
WORKING PARTY ON GENERAL SAFETY PROVISIONS (GRSG)
World Forum for Harmonization of Vehicle Regulations (WP 29)
WORKING PARTY on POLLUTION and ENERGY GRPE
GASEOUS FUELLED VEHICLES (GFV)
TASK FORCE ON LIQUID NATURAL GAS VEHICLES (TF-LNG)
ISO 16924
ISO 16923
based on prEN 13638
Reg. 110
Reg. 115
Reg. 67
Reg. 134

CNG Consumption - Future scenario



Natural Gas value chain

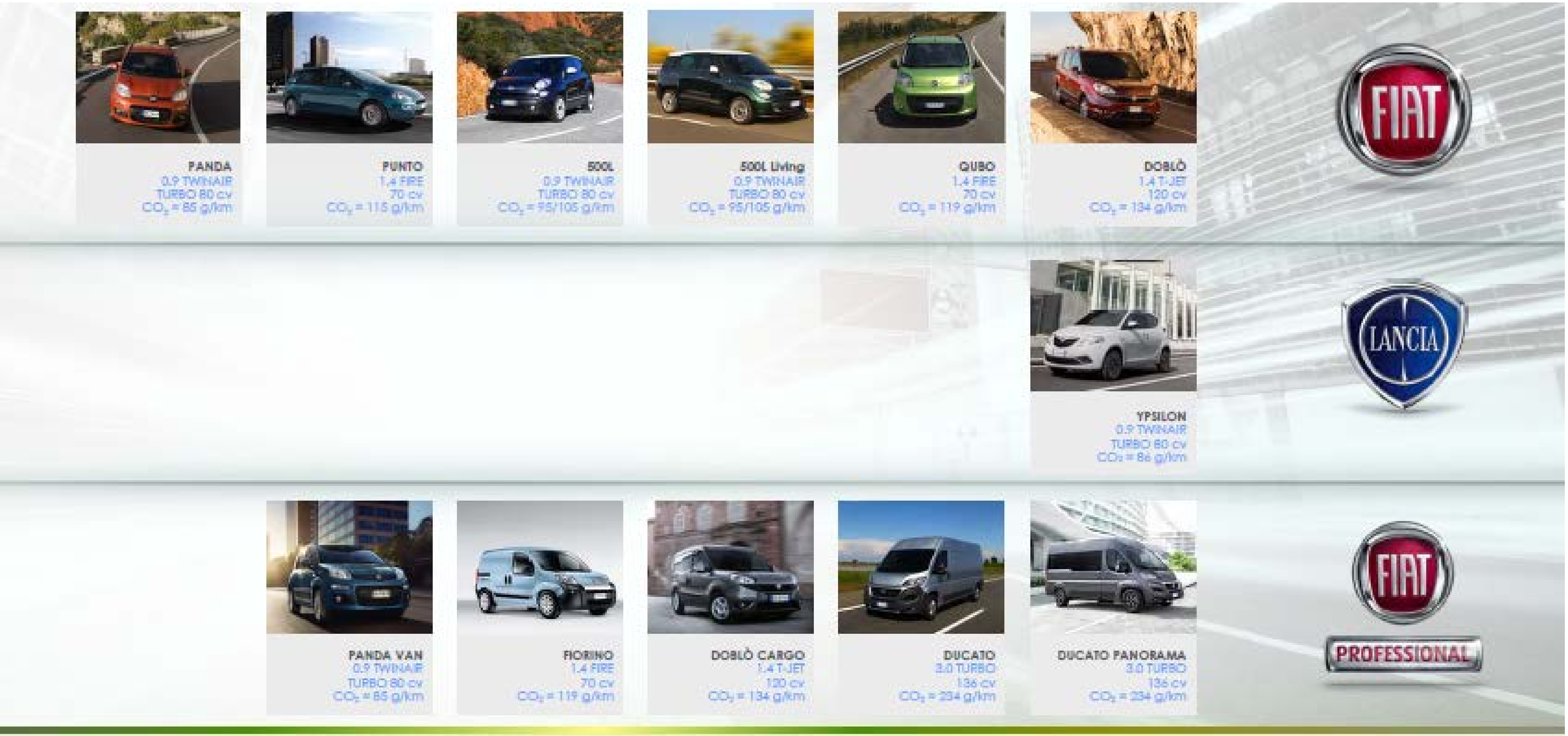
Pipelines Vs. LNG ships



Today, approximately two thirds of international gas trade is by pipeline, one third as LNG

ENGINE TECHNOLOGY

NATURAL GAS CARS

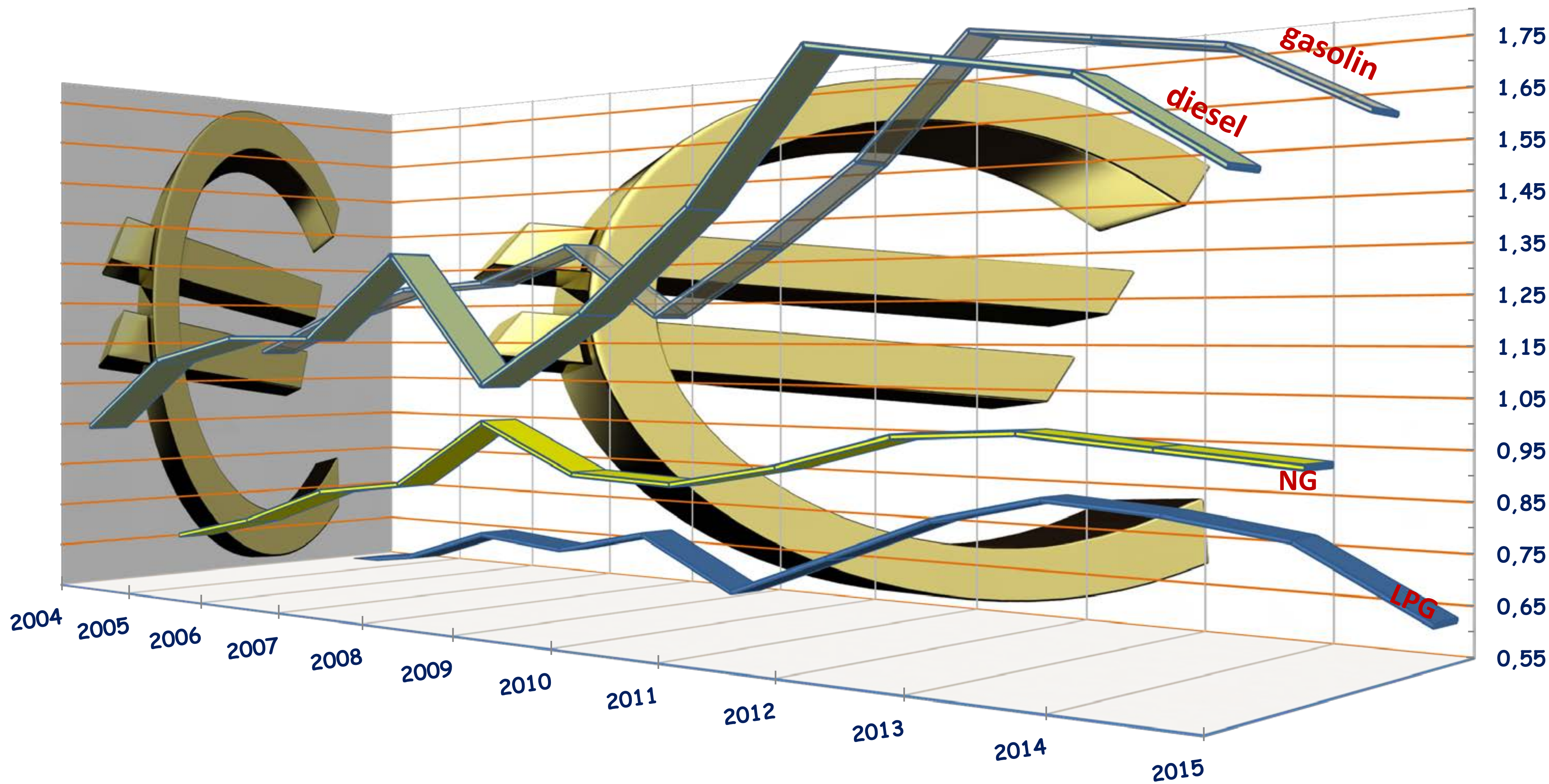


HEAVY DUTY NATURAL GAS VEHICLES

The articulate take off – 830 units sold since 2011 of which 560 LNG !

BARRIERS TO BE OVERCOMED

FUEL PRICE DIFFERENCIAL



Obstacles and Opportunities for Natural Gas

OBSTACLES	OPPORTUNITIES/RECOMMENDATIONS
Aged vehicles and technologies / Infrastructures Lagging customer demand	Integrated fleet renewal effort • Circulation restriction & implementation of DAFI • Easy access to (EIB) credit in relation to clean vehicles • Extension of the Green Public Procurement principle • Coordination among EU member states, cities
Cost of regulation	Integration and harmonisation • Address add-up effect of individual measures • International standards for infrastructures and vehicles Flexibility instead of rigidity • Introduction in relation to customer demand and economic environment

CNG-LNG Policies Must be Coherent

Renewable Energy Directive (2009/28/EC)

CO2 Regulation for Cars and LCVs

EU Communication Strategy for Alternative Fuels

+ Clean and less pollutant vehicles
+ Environmental Sustainability

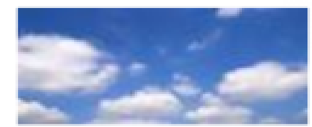
Directive Proposal on Alternative Fuel Infrastructure

TEN-T Funding – LNG Blue Corridor

+ Infrastructure
+ Environmental Sustainability
+ Economic Sustainability

Horizon 2020 Funding for R&D

+ Environmental Sustainability
+ Research & Development



Revision of Directive 96/53 on Weight & Dimensions

+ Mass/length increase to cleaner vehicles

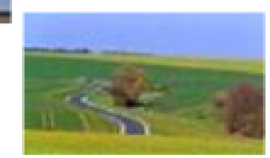
Review of Air Quality Directive

+ Clean and less pollutant vehicles

...not always in the same direction

Revision of Directive 2003/96/EC on Energy Taxation

- Emission Reduction
- Infrastructure development



Directive 2009/33/EC on the Promotion of Clean and Energy Efficient Road Transport Vehicles

- High energy content penalize Natural Gas in public tenders.

Several objectives/initiatives at European are directly or indirectly connected with the diffusion of natural gas, therefore it seems that
there's still the need of structured, coordinated and more consistent policies.

STEPS FOR MARKET DEVELOMPMENT

1) IDENTIFY BARRIERS AND SUCCESS FACTOR FOR THE INTEGRATION OF BIOMETHANE/NATURAL GAS IN THE FUEL SUPPLY CHAIN

2) FOSTER CONCRETE APPLICATION ON THE SUPPLY AND DEMAND SIDE

3) RAISE AWARNESS ON NG AS A FUEL AMONG GAS SUPPLIER, FUEL STATION OWNERS AND CAR DEALERS

4) RAISE AWARNESS AND PROVIDE INFORMATION TO CUSTOMERS

5) PLAN FOR AN EXTEND INFRASTRUCTURE FOR GAS FUELLIG STATIONS

6) INCREASE THE NUMBER OF NGVs IN THE PARTECIPATING REGIONS

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Thank you for your attention