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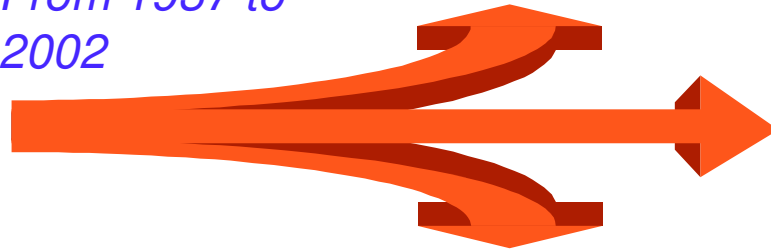
**PPP: Enhancing the  
Diffusion of EEV Vehicles, an  
Italian Experience**

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# 65 years of CNG Vehicles in Italy: The Fiat - Iveco Vehicles



*From 1937 to  
2002*



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## Apology of CNG: Short History of an Ancient Technology



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# Why CNG?

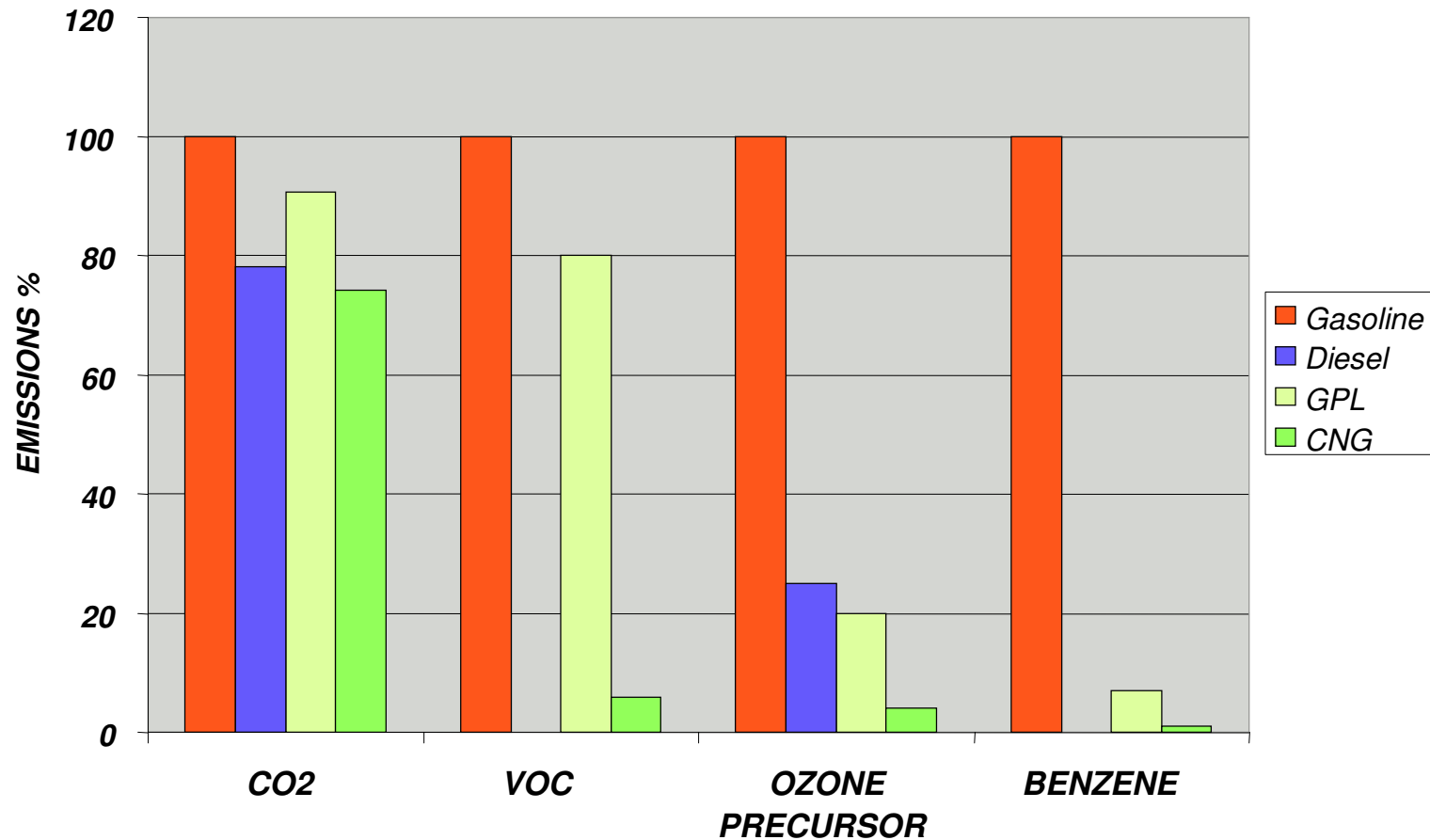
- **CNG is an ECOLOGICAL FUEL**
  - CNG doesn't produce neither PM (Particulate Matter) nor BENZENE
  - CNG produces less CO<sub>2</sub> compared to gasoline and diesel engines
  - Its FLC (Fuel Life Cycle) has little environmental impact
- **CNG produces less noise**
- **CNG is SAFE**
- **CNG is a real ALTERNATIVE to OIL derived FUELS**

# CNG compared to Other “Clean” Fuels: Situation as it is

	<i>"Local" emissions</i>			<i>"Global" emissions</i>	<i>Vehicle Purchase Cost</i>
	<i>NOx</i>	<i>PM</i>	<i>Noise</i>	<i>CO<sub>2</sub></i> <i>(Greenhouse Effect)</i>	
<i>CNG</i>	😊😊😊	😊😊😊	😊😊	😊	😊
<i>"White" Diesel fuel</i>	😊	😊	😊	😊	😊
<i>Biodiesel</i>	😊	😊	😊	😊	😊
<i>Electric/hybrid</i>	😊😊😊	😊😊😊	😊😊😊	?	😞
<i>Fuel cells</i>	😊😊😊	😊😊😊	😊😊😊	?	😞😞😞

## Comparison between the Principal Fuels

FUELS EMISSIONS (GASOLINE = 100)



Source: Centro Ricerche Fiat

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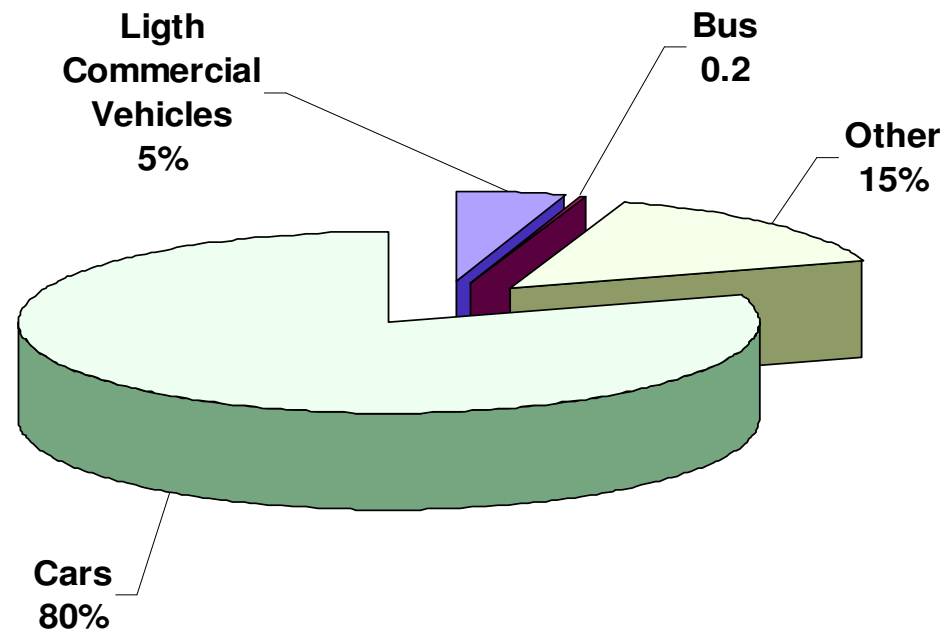
# Vehicle Fleets in Italian Towns

I

Fleet Composition at 31/12/2000

for the 23 biggest cities in Italy:

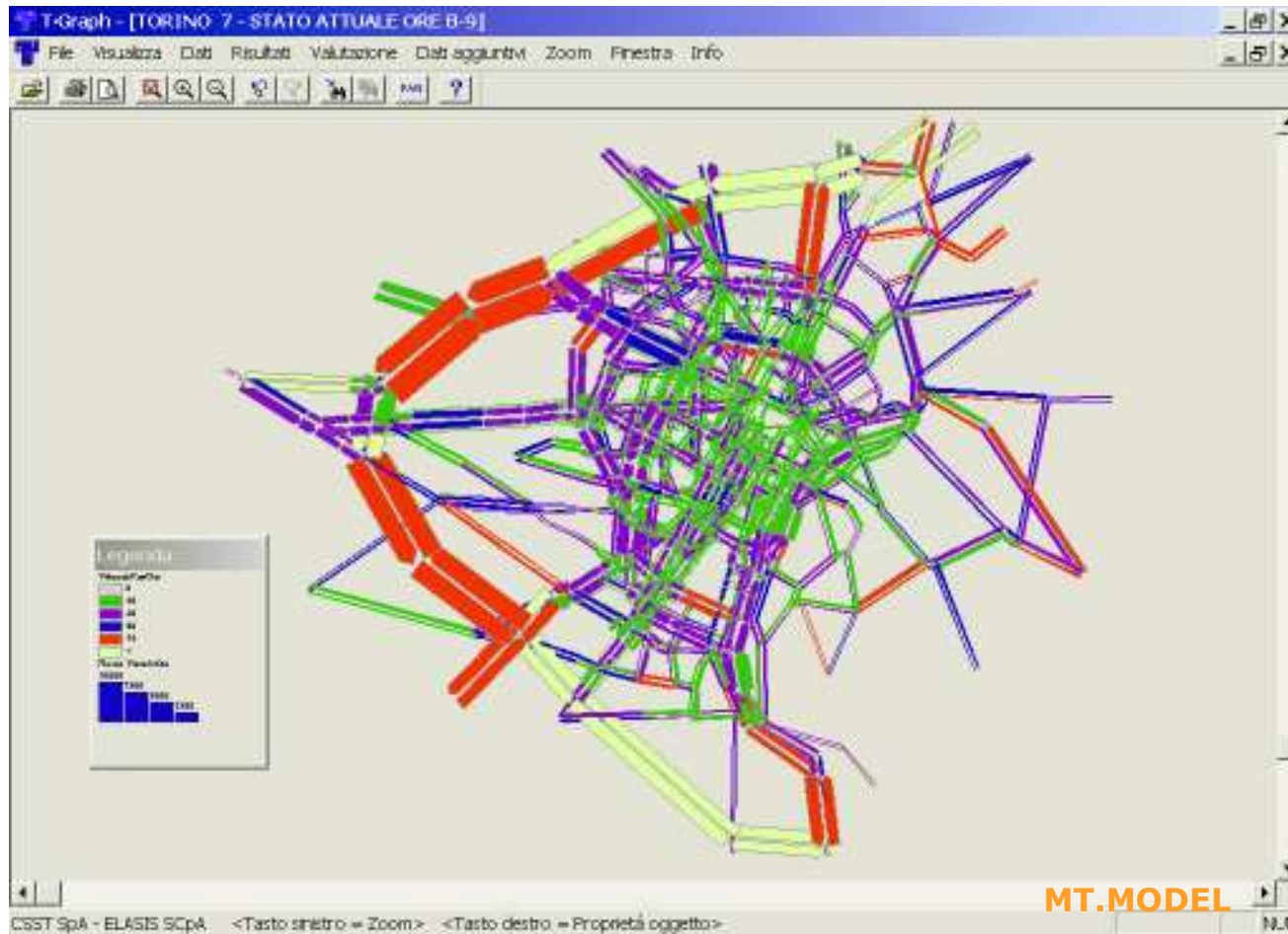
**8,438,000 vehicles, about 30% of the overall Italian fleet**



II

# Urban Traffic Model

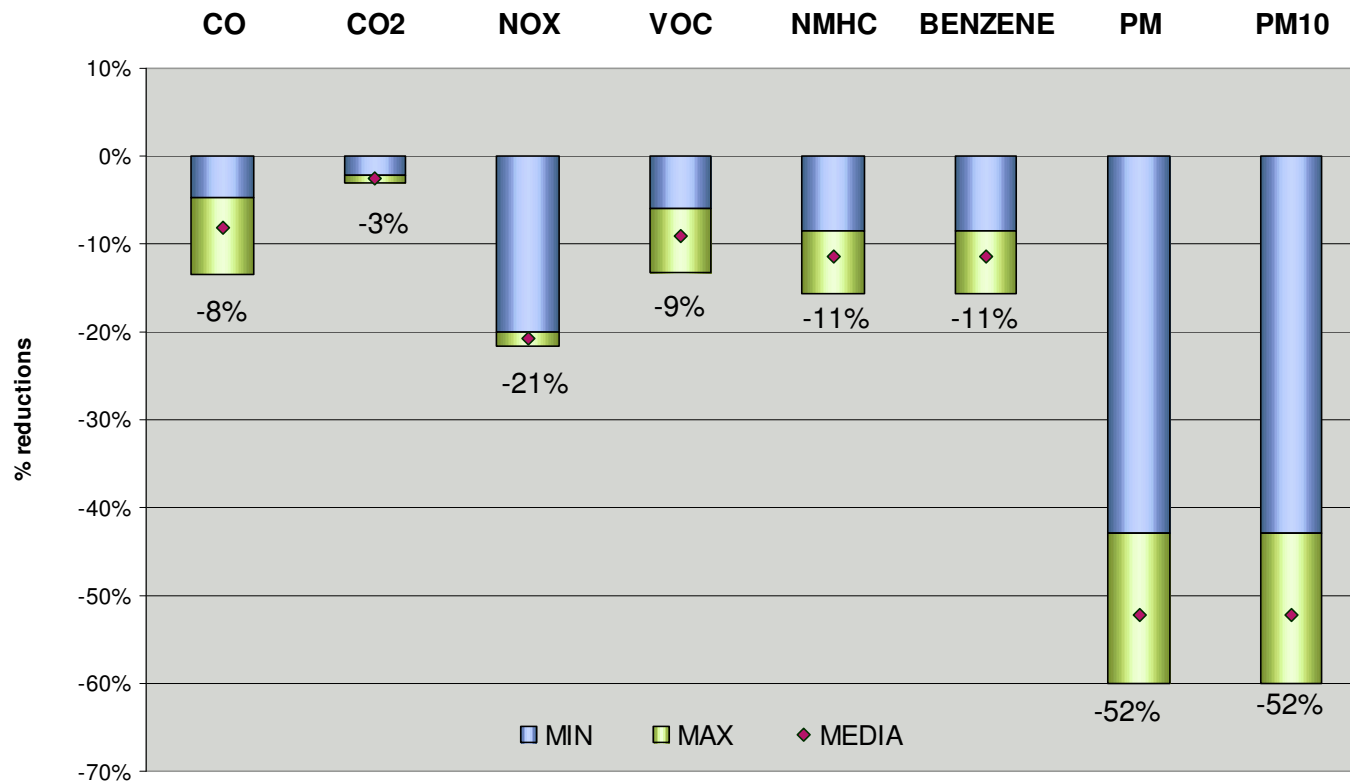
## Traffic Parameters



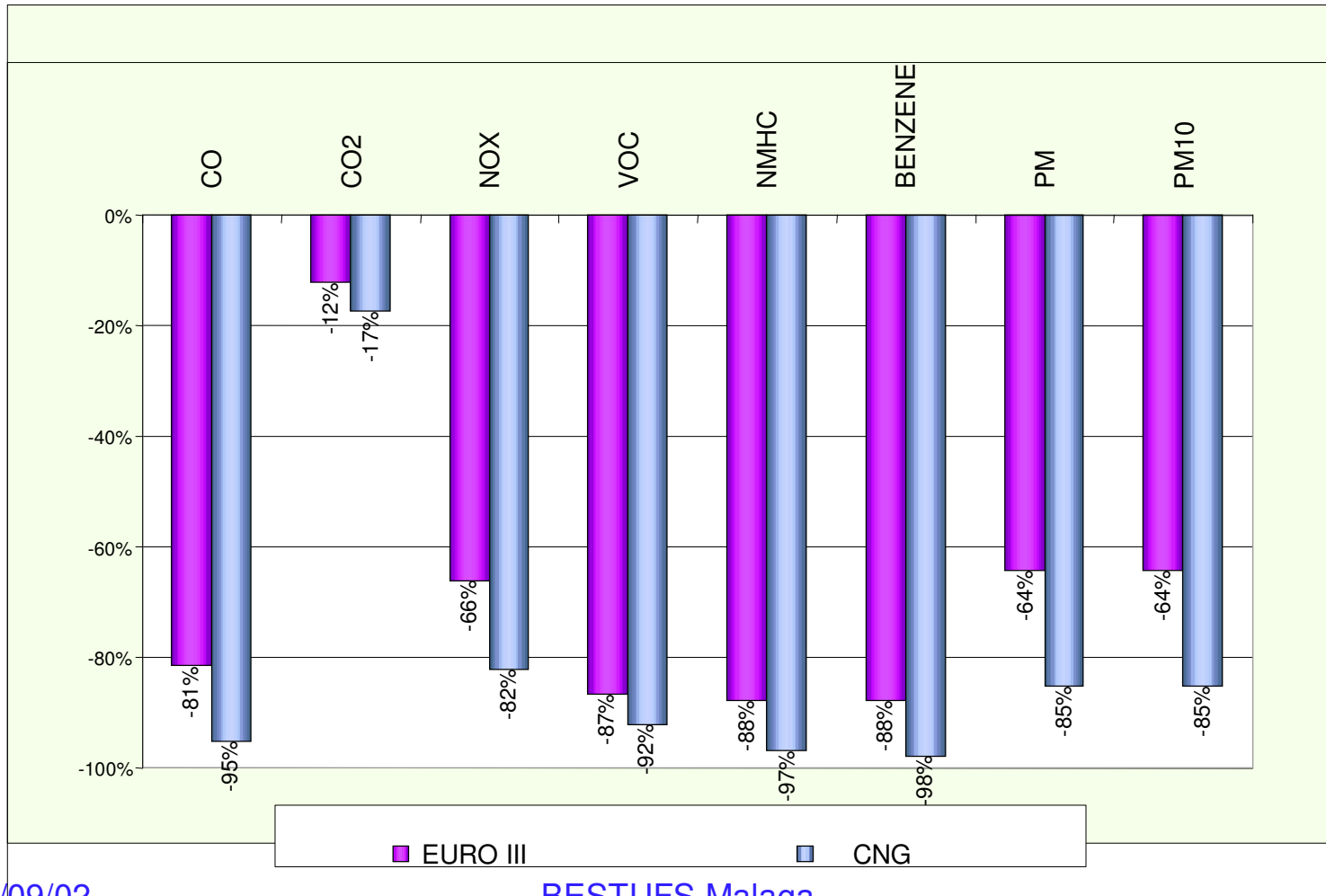
- Flows
- Speed
- Distance
- Veh\*km
- Veh\*h
- ...

# Full CNG Scenario for LCV, Buses and Taxis

Emissions Reductions on the Overall Town Traffic Pollution



# Euro III and CNG Scenarios: Emission Reduction on the Overall Town Traffic Pollution



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Variability ranges related to Turin, Milan, Rome, Naples

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## CNG Vehicles already exist and work!



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## **A 3 Party Agreement: Fiat Group, Italian Oil Union, Ministry of Environment**

**The Agreement was signed in December 2001 after a 4 year period of experimentation and observation.**

**April 1997: First co-operation agreement signed by FIAT and ENI to empower the CNG distribution network (i.e. fuel stations development)**

**1997-1999: The Fiat Group launches several CNG vehicles of new generation (Marea, Multipla, Daily, Autobus City Class, Ducato, Eurotech for waste collection) gaining positive market reactions**

**1997-2001 ENI has expanded the CNG distribution network, reaching the number of 350 fuel stations at the end of 2000**

**Thanks to the actions undertaken, CNG vehicles have been recognised to represent a feasible solution from the industrial, technological and economical point of view**

## OBJECTIVE of THE AGREEMENT

**To promote and enhance the diffusion of CNG for automotive traction in big metropolitan areas and particularly in those cities where the concentration levels of PM<sub>10</sub> are critical**

## How the Agreement Works

- **Unione Petrolifera commits itself to promote and exploit the development of a CNG distribution network within 21 cities “at risk of exceeding the emissions standards” defined and selected by the Ministry of Environment**
- **FIAT Group commits itself to supply a new series of CNG vehicles in the short time (2002-2004), providing the development of telematics systems to enable easy fleet management from both the ecological and economical point of view**

- **The Ministry of Environment commits itself to determine new economic incentives to promote the purchase of CNG vehicles and simplifying bureaucratic procedures**
- **It also commits itself to financially support the realisation of a CNG distribution network, in co-operation with Unione Petrolifera and its Associates, and moreover...**
- **to grant aid measures financing projects such as the renewal of public and private bus parks and expanding these measures to the waste collection vehicles too, fuel stations building included**

## Programme Economic Dimensions

	Total Amount ('02-'05) in ML €	TOTAL
Government Incentives - 1- Vehicles 2 - Distribution	250 ML € 15 ML €	255 ML €
ENI - Investments	15 ML €	15 ML €
Fiat Group - 1 - Investments 2 - Sales Support	102 ML € 181 ML €	283 ML €
<b>TOTAL</b>		<b>553 ML €</b>

Commercial Vehicles = 65.8 ML €

## CNG Vehicles Demand Forecast

UNITS	2002	2003	2004	2005	Total Amount in the selected cities	Total Amount in the Italian Territory
Buses (7-18 m)	100	250	250	200	640	800
Minibuses (< 7 m)	30	40	50	60	126	180
Waste Collection Vehicles	50	100	100	150	320	400
Light Commercial Vehicles (Delivery Vans => 3.5 ton)	100	200	300	400	700	1000
<b>Total</b>	<b>280</b>	<b>590</b>	<b>700</b>	<b>810</b>	<b>1786</b>	<b>2380</b>

## Conclusions

- **PPP offers great advantages for all Stakeholders, the General Public included**
- **PPP shall be encouraged, implemented and spread all over the European Union thus becoming a common practice**
- **PPP represents a concrete way of co-operation among Governments, Public Administrations, Enterprises and NGOs creating a dialogue between different parties and reaching consensus for the whole Community**
- **THANK YOU BESTUFS for having dedicated this workshop to PPP!**