



CiViTAS
Cleaner and better transport in cities



CIVITAS Forum 2007 - *5th of October*

Kaunas



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Towards a 100% clean public transport fleet

(Discussion)



I- Historical overview of the development of clean vehicles in Toulouse

II- The CIVITAS MOBILIS project and its clean vehicles objectives

III- Costs and Benefits

IV- Innovations and future actions

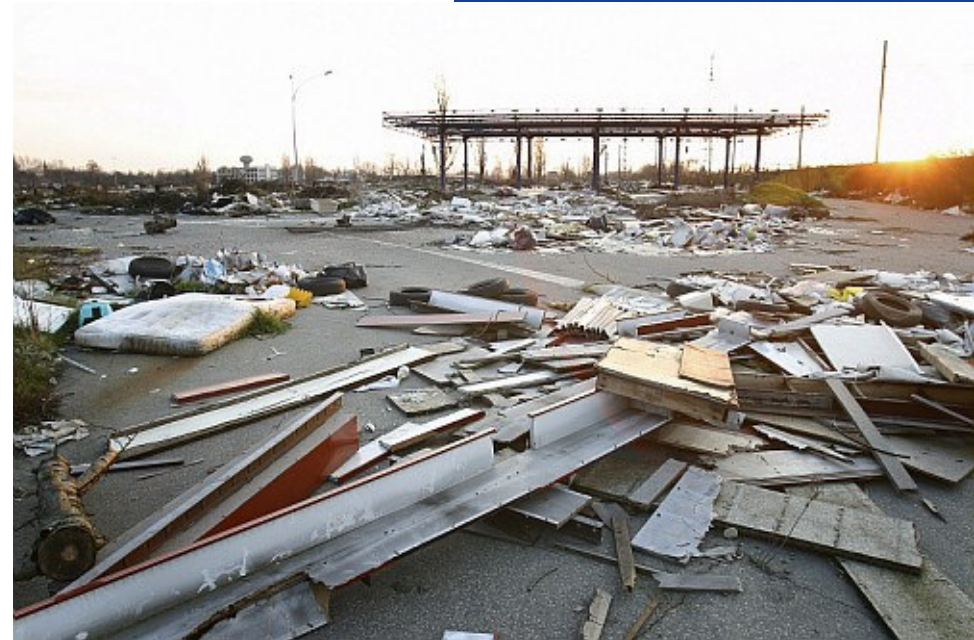
Presentation of the public transport network

Two metro lines (1993 and 2007), 1 cadenced railway line, 67 bus lines (550 buses fleet), Transport on Demand services, dedicated services for impaired PT users



I. Short historical overview of clean vehicles in Toulouse

21 septembre 2001



A strong political message:

“Develop a Clean Public Transport fleet”

2002 : the Assembly of Tisséo-SMTC favors the CNG solution

**2003-2004 : Tisséo procures its first CNG buses
(100 vehicles and 1 CNG filling station)**



II- CIVITAS MOBILIS and Clean Vehicles

Development of a true “environmental and sustainable development” policy

Activities:

- *Procurement of new CNG buses (60) x*
- *Construction of a second CNG filling station at the new bus depot (November 2007)*
- *Prepare for Biogas*
- *Install soot filters on diesel buses*
- *Experiment bio diesel x*
- *The development and commercialization of the CNG solutions for private households (micro compressor)*



Reinforcement of the CNG solution

2005 : Tisséo procured 28 CNG buses

Reconstruction of the Langlade bus depot (November 2007)

Planned : 30 new CNG buses for end 2007 + 30 for late 2008/ integrating a new CNG compression station

Constraints : Functioning of the first 100 busses (technicians doubtful) , Cost of the CNG solution,

Result: strong negative lobby without objective arguments

Solution : Objective comparison of the functioning of the CNG (100 “old” and 28 “new”) and the Diesel busses

Cost-Benefit analysis of the CNG solution



Financial Cost - Benefit analysis

	CNG	Diesel
<u>Investment</u>		
Filling station	1,9 Million €	300 000 €
Safety meas.	705 000 €	-
Buses	285 000 €	235 000 €
<u>Operation and Maintenance</u>		
Cost of fuel per 100 KM (2006)	24,60 €	42,70 €
Maintenance cost per 100 KM	25 €	22,1 €

Other data taken into account in the calculation:

Average age of the fleet : CNG 3,25 years/ Diesel 8.6 years

Out of service rate per 10 thd Km: CNG 2.94/ Diesel 2.64

Subsidies: CIVITAS II 1.05 Million€ / ADEME 7500€ per bus (max 25/year) / Region 30% of the cost for the Filling station

Analysis proved that CNG and Diesel are equal in terms of costs at the end of the 15 year lifetime.



Biodiesel experiment

Objective: 160 vehicles running on bio diesel
(Diester30/ authorized in France)

Reconstruction of the Langlade bus depot (November 2007)

Constraints : No overall consensus on bio fuels; No clear view on the national fiscal framework; Cost of the fuel (+5%), Underperformance of the fuel (100% fuel/ 9% Underperformance), Guarantees Soot filters, Cost of Maintenance (Doubling oil change at least the first year), Little in-house knowledge of its functioning;

Result: doubtful attitude of the technicians/ no decisions taken

Intermediate Solutions : Feasibility study / Cost-Benefit analysis of the Diester30 solution

Additional cost Diester30 in comparison with Normal Diesel between 53K € and 104K €/ Year



IV- Innovations and future actions

At the Policy level: Development of a true environmental and sustainable transport policy with a annual action plan:

- **Structured measuring (performance and progress)**
- **Planning (taking into account energy and emissions)**
- **Budgeting (resources are limited!)**

Future Activities:

- **Hythane (Mixture of GNV and Hydrogen)**
- **Biogas (Constraints of transport, safety, taxing) (?)**
- **Reinforced use of Bio diesel (?)**
- **Eco driving (?)**



Thank you for your attention

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