



CNG Buses in Tbilisi

Tbilisi City Hall

Tbilisi Transport Company



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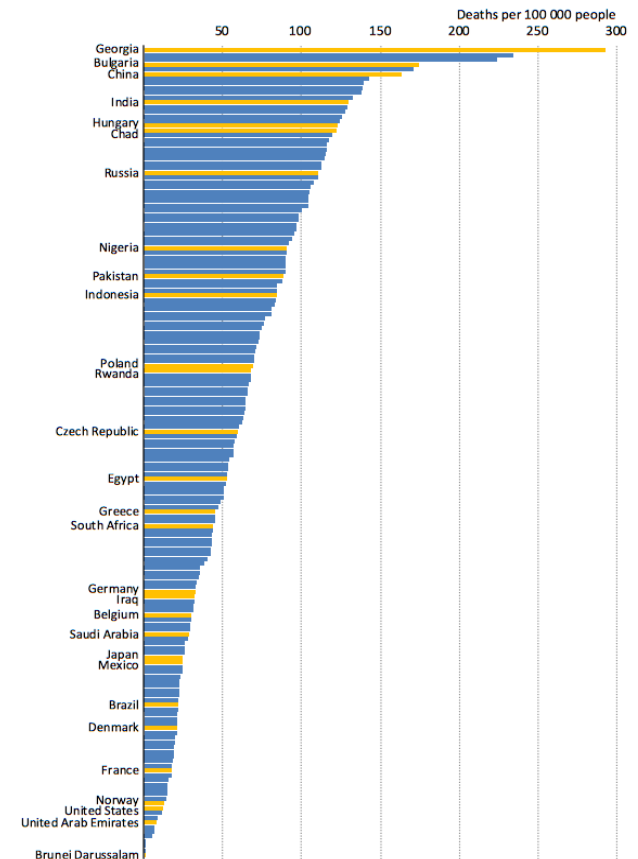


თბილისის სატრანსპორტო კომპანია
TBILISI TRANSPORT COMPANY

MAIN CHALLENGE

- Air Pollution caused by non climate-friendly Transport
- Among the countries where most of the people die due to Air Pollution, Georgia occupies the first place

Figure 1.8 ▶ Mortality rate attributed to air pollution (household and outdoor) by country, 2012



Note: Only a selection of countries are highlighted.

Sources: WHO (2016b) and IEA analysis.



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POLICY

- Towards updated Tbilisi SUT Strategy, an Iterative and Consultative Approach;
- National Census and Household Survey;
- Euro VI standard CNG buses.



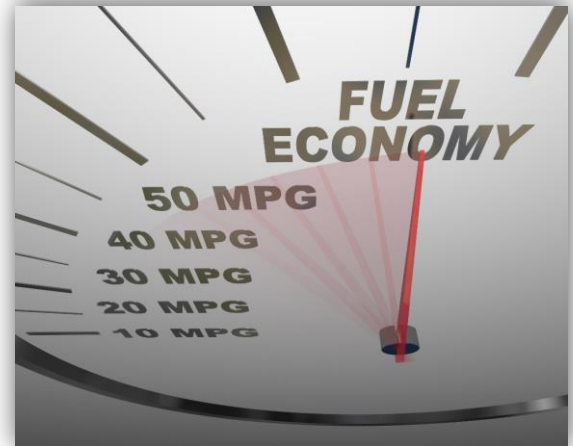
APPROACH

- With assistance of EBRD, Tbilisi City Hall purchased 143 units of Euro VI standard CNG buses;
- Bus Network Restructuring and Bus Lanes.



IMPACTS

- Fully compliant with Euro standards;
- Adapted for transportation of people with disabilities;
- Run on CNG (fuel economy and reduce greenhouse gas (GHG) emissions).



RESULTS

- Euro VI standard - significant reduction of NO_x (Oxides of Nitrogen), CO (Carbon Monoxide) and HC (Hydrocarbons)

Table 1

EU Emission Standards for Passenger Cars (Category M₁*)

Stage	Date	CO	HC	HC+NOx	NOx	PM	PN
		g/km					#/km
Compression Ignition (Diesel)							
Euro 1†	1992.07	2.72 (3.16)	–	0.97 (1.13)	–	0.14 (0.18)	–
Euro 2, IDI	1996.01	1.0	–	0.7	–	0.08	–
Euro 2, DI	1996.01 ^a	1.0	–	0.9	–	0.10	–
Euro 3	2000.01	0.64	–	0.56	0.50	0.05	–
Euro 4	2005.01	0.50	–	0.30	0.25	0.025	–
Euro 5a	2009.09 ^b	0.50	–	0.23	0.18	0.005 ^f	–
Euro 5b	2011.09 ^c	0.50	–	0.23	0.18	0.005 ^f	6.0×10 ¹¹
Euro 6	2014.09	0.50	–	0.17	0.08	0.005 ^f	6.0×10 ¹¹
Positive Ignition (Gasoline)							
Euro 1†	1992.07	2.72 (3.16)	–	0.97 (1.13)	–	–	–
Euro 2	1996.01	2.2	–	0.5	–	–	–
Euro 3	2000.01	2.30	0.20	–	0.15	–	–
Euro 4	2005.01	1.0	0.10	–	0.08	–	–
Euro 5	2009.09 ^b	1.0	0.10 ^d	–	0.06	0.005 ^{e,f}	–
Euro 6	2014.09	1.0	0.10 ^d	–	0.06	0.005 ^{e,f}	6.0×10 ¹¹ ^{e,g}

* At the Euro 1..4 stages, passenger vehicles > 2,500 kg were type approved as Category N₁ vehicles

† Values in brackets are conformity of production (COP) limits

a. until 1999.09.30 (after that date DI engines must meet the IDI limits)

b. 2011.01 for all models

c. 2013.01 for all models

d. and NMHC = 0.068 g/km

e. applicable only to vehicles using DI engines

f. 0.0045 g/km using the PMP measurement procedure

g. 6.0×10¹² 1/km within first three years from Euro 6 effective dates



TRANSFER

- Study and analyze Urban Mobility and Climate Change Issues;
- Implementation of Climate-friendly Transport.





Thank You for Your Attention



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