



# **Tartu – City of Good Thoughts Sustainable Transport System**

**March 2014**

# Tartu - City of Good Thoughts

- **Second-largest city** in Estonia, centre of South-Estonia
- Traditional **university city**
- research and education centre
- **City of youth** – around 50% of the population is younger than 35
- Centre of **medicine** and **biotechnology**
- Increasingly popular **tourist destination**



## Foundation of the University of Tartu: 1632

- **Students in total:** roughly 30 000
- **Population:** ~100 000
- **Area :** 38.8 km<sup>2</sup>
- **Budget (2013):** ca 152 million EUR



# Energy policies

By the Agenda 21 of the Tartu City is set a main target : Tartu - a sustainably developing, socially responsible, and economically thinking town.

The basis of the development of Tartu City is the principle of sustainable development, requiring all the activities to be planned in such a way that they do not harm the quality of life of future generations.

Tartu City Government leads in their decisions and actions from targets set by European Union - A reduction in EU greenhouse gas emissions of at least 20% below 1990 levels , 20% of EU energy consumption to come from renewable resources and a 20% reduction in primary energy use compared with projected levels.

Currently is in compilation an ecological footprint of the Tartu City and started preparatory works to compile a SEAP for Tartu City.



# Tartu City transport development plan 2012-2020

Compilation of transport plan was started on june of 2010

Transport plan was approved by city council on november of 2011

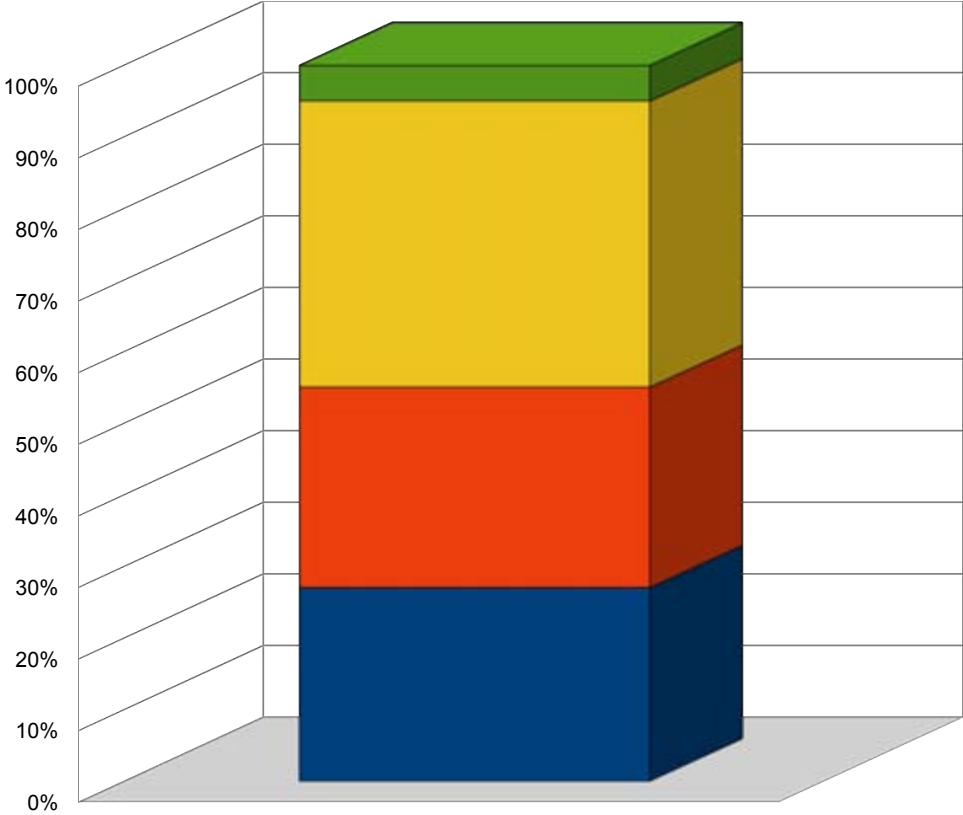
## Main targets in public transport:

- Increasing the role of public transport
- Increasing the role of non-motorized traffic
- Increasing the number of buses running on the gas. At least 50% (hopefully 100%) of bus fleet will be gasbuses from 2017
- Introduction of biogas in city buses





# Traffic modal split



Traffic modal split – Tartu City

- Bicycles (5%)
- Pedestrians (40%)
- Cars (28%)
- Public transport (27%)



# Situation in public transport

Population: 98-100 000 inhabitants

Number of bus lines: 25

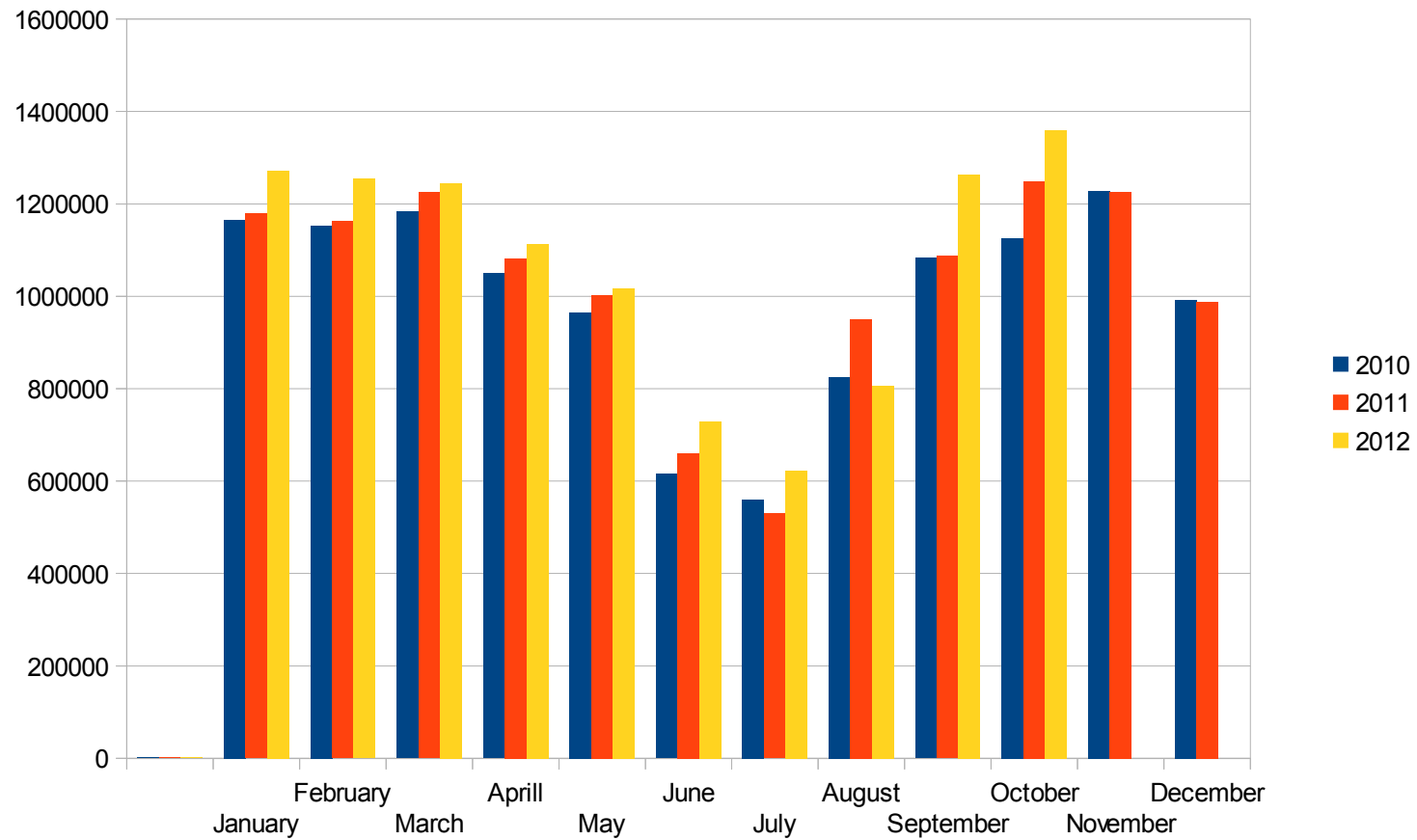
Buses in daily use: 50 (5 CNG and 45 diesel buses)

Average age of buses : 40 month (have been taken in use in the beginning of 2011 and will be used to the end of 2016)

Passanger turnover in 2013: more than 12 000 000



# Passanger turnover 2010-2012



# Public transportation - new quality level since 2011



Gas buses

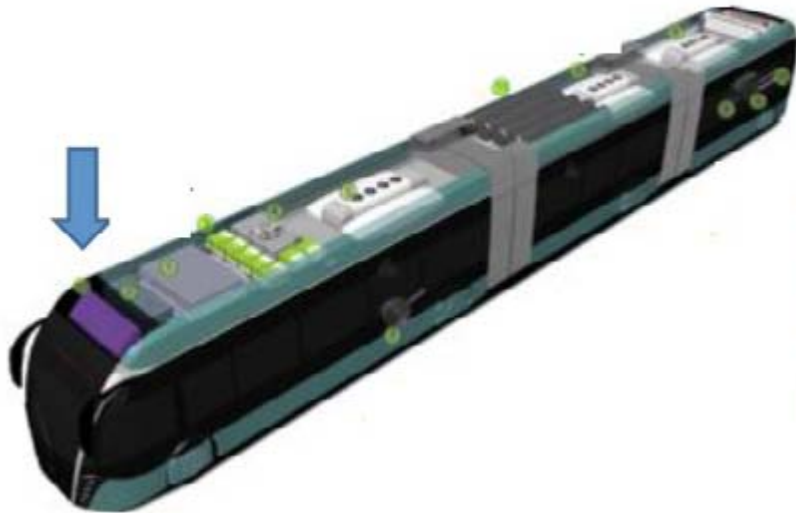




# Possible option - gas hybride bus



Functional areas on the roof and in the rear



1. Battery
2. Battery cooling
3. Convertors
4. Siemens Drive Line Cooling
5. Climate Control Units
6. Cooling of engine & generator
7. Electric Traction motor
8. Biogas engine
9. Generator
10. Braking resistors
11. Biogas storage system
12. Driver's climate control unit



# Electric cars

30 Mitsubishi I-MIEV

4 Nissan Leaf

9 taxis





# Electric cars

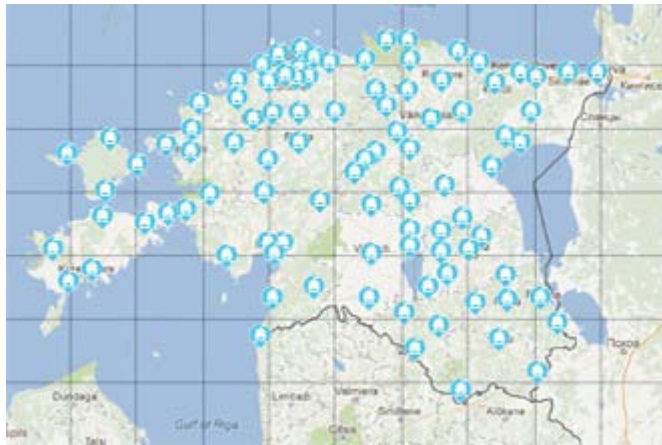
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**Network of quick  
chargers in  
Estonia (in total  
163 chargers, 10  
in Tartu)**





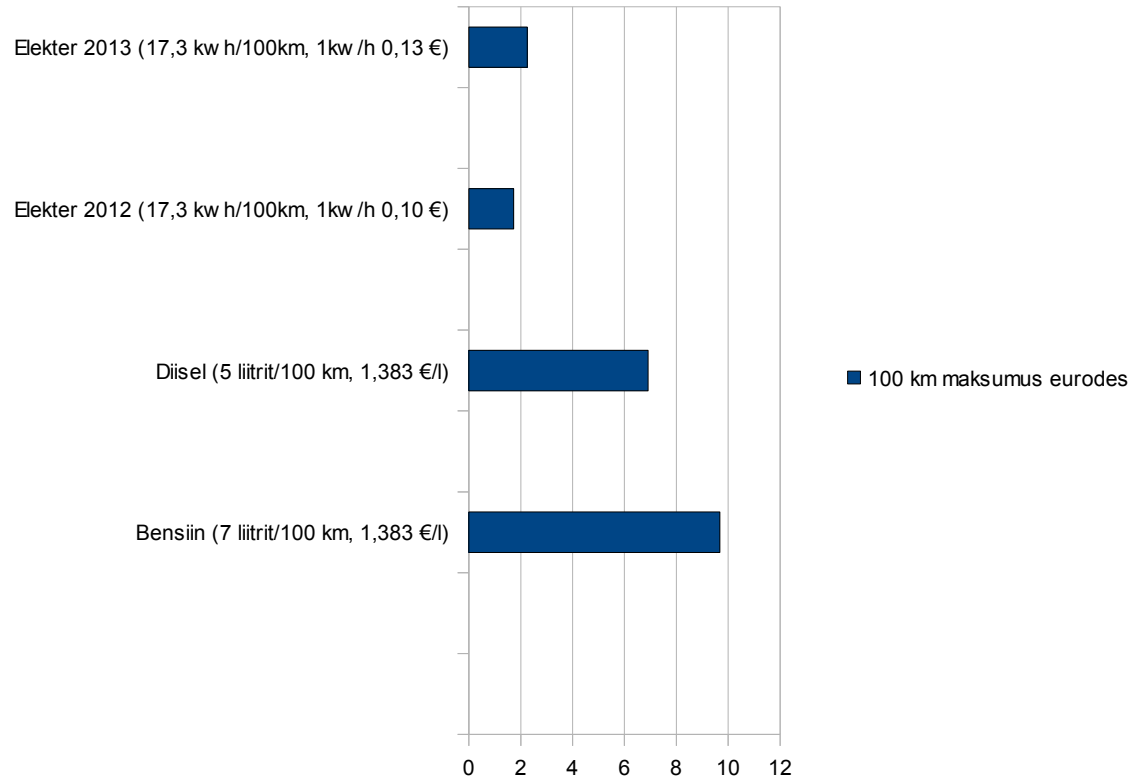
## Regular charger



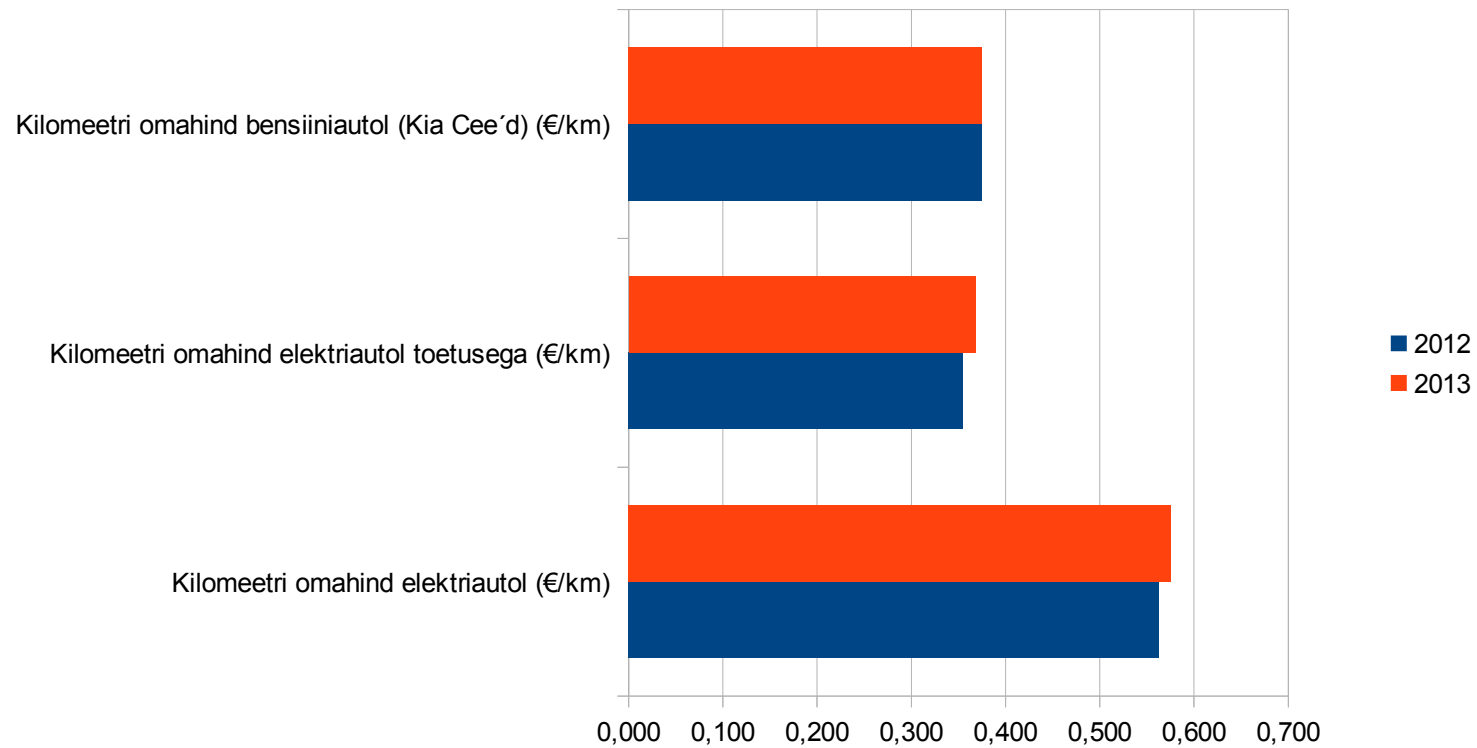
## Quick- charger

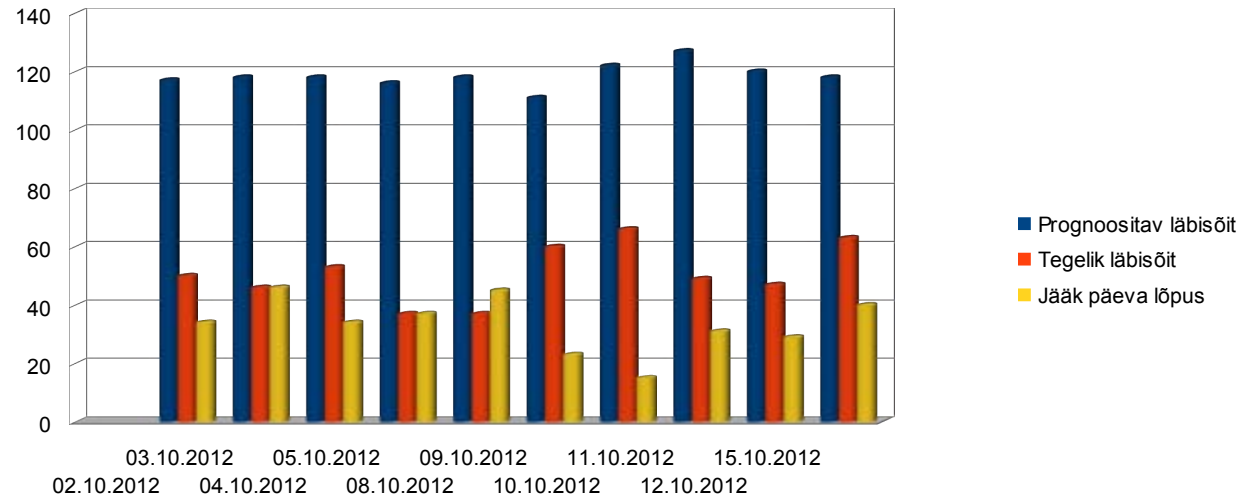


# Expenditures on fuel - electricity, diesel, gasoline



# Self-cost of 1 km in case of gasoline car, electrical car with state support and electrical car without support





Kuupäev	2.10.12	3.10.12	4.10.12	5.10.12	8.10.12	9.10.12	10.10.12	11.10.12	12.10.12	15.10.12	
Prognositav läbisõit(km)	117	118	118	116	118	111	122	127	120	118	
Tegelik läbisõit + jääk (km)	84	92	87	74	82	83	81	80	76	103	
Kadu (km)	33	26	31	42	36	28	41	47	44	15	Keskmine
Reaalselt kasutatav ressurss (%)	72	78	74	64	69	75	66	63	63	87	71

## Real mileage

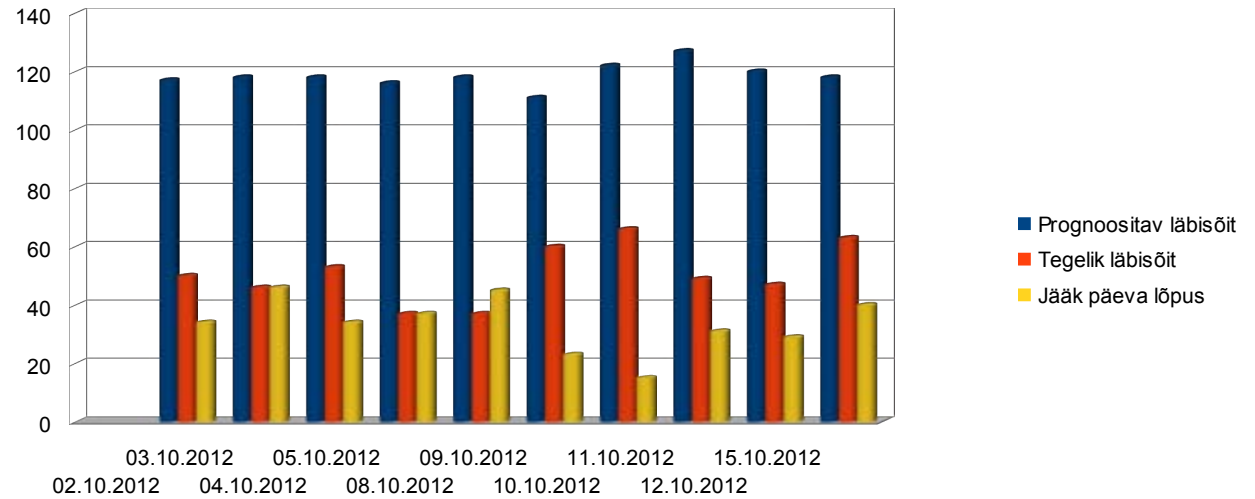
1 st row - prognosis (by car computer)

2 nd row - real daily mileage

Last row - realistically usable resource







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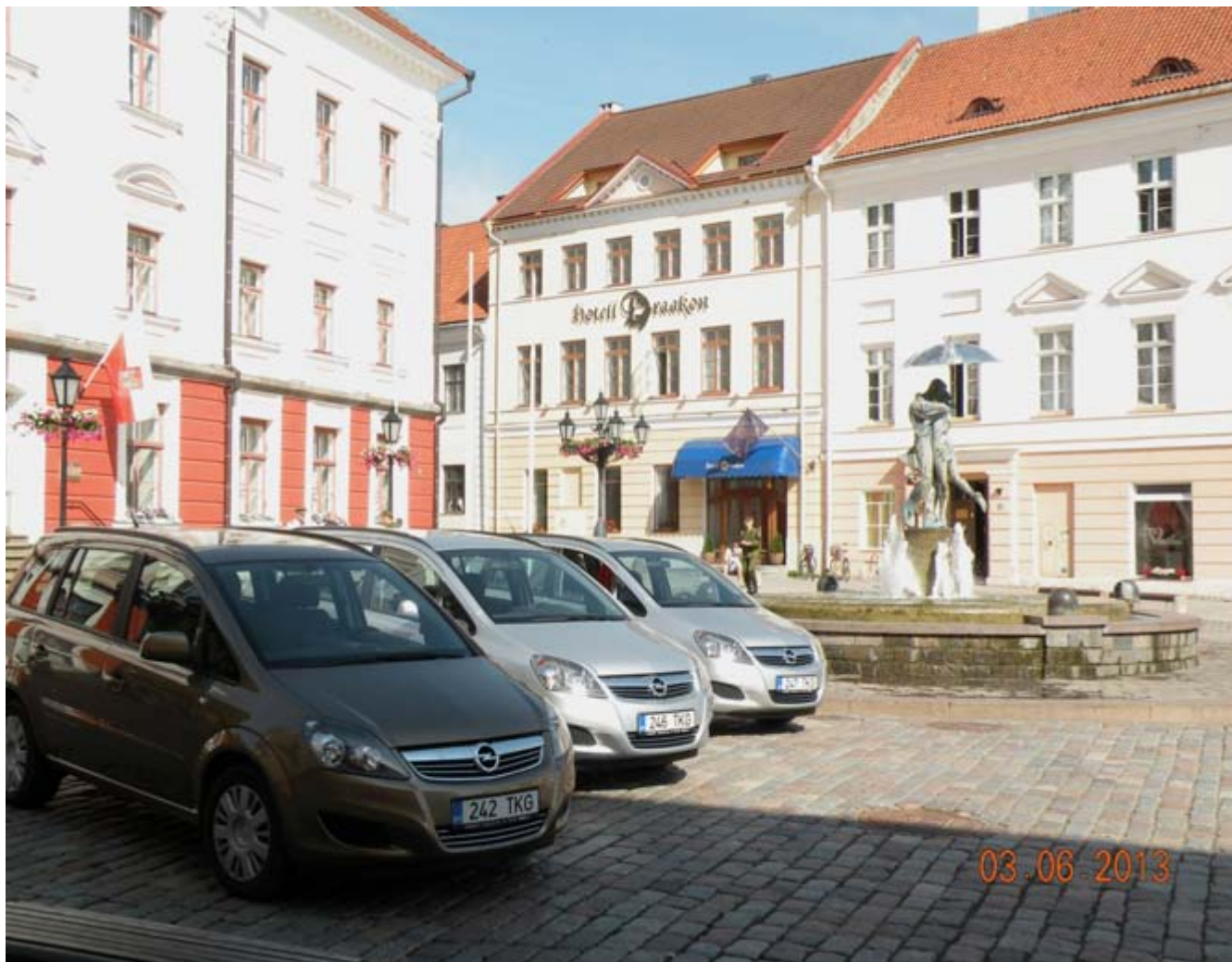
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Last row - realistically usable resource





**CNG cars**  
**5 Opel Zafira´s**  
**for needs of**  
**city officials**





# Bicycle roads and....



Ca 45 km of bike lanes



# ...and stands





# Aims of transport policy

CO<sub>2</sub>



- Gas buses
- EV-s
- Cyclists



**Biogas - for  
electricity, heat  
and bus fuel**



**Tartu Water Company  
and  
Aardlapalu landfill**



**Welcome in Tartu!**

