



Tartu – City of Good Thoughts

Electric cars in Tartu

April 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 km²
- **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 under compilation an ecological footprint of the Tartu City and a SEAP for Tartu City.



Aims of transport policy

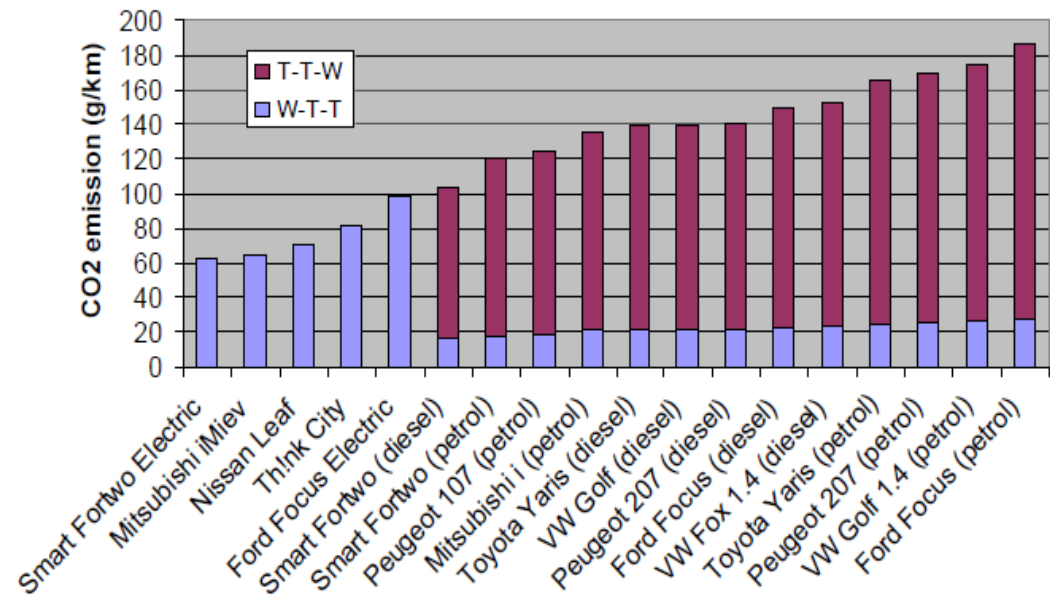
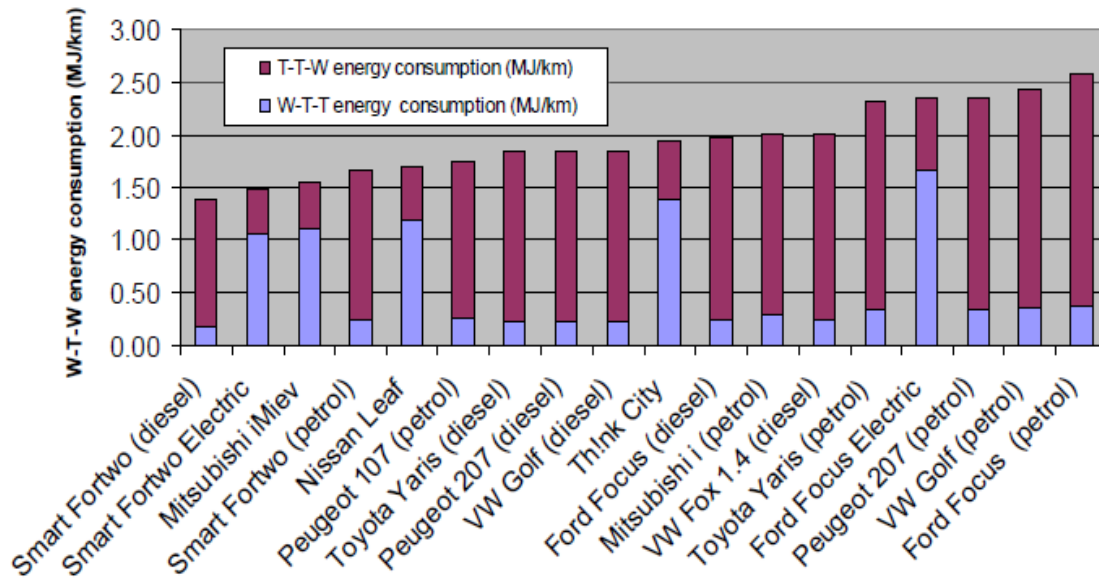
CO₂



- Gas buses
- EV-s
- Cyclists



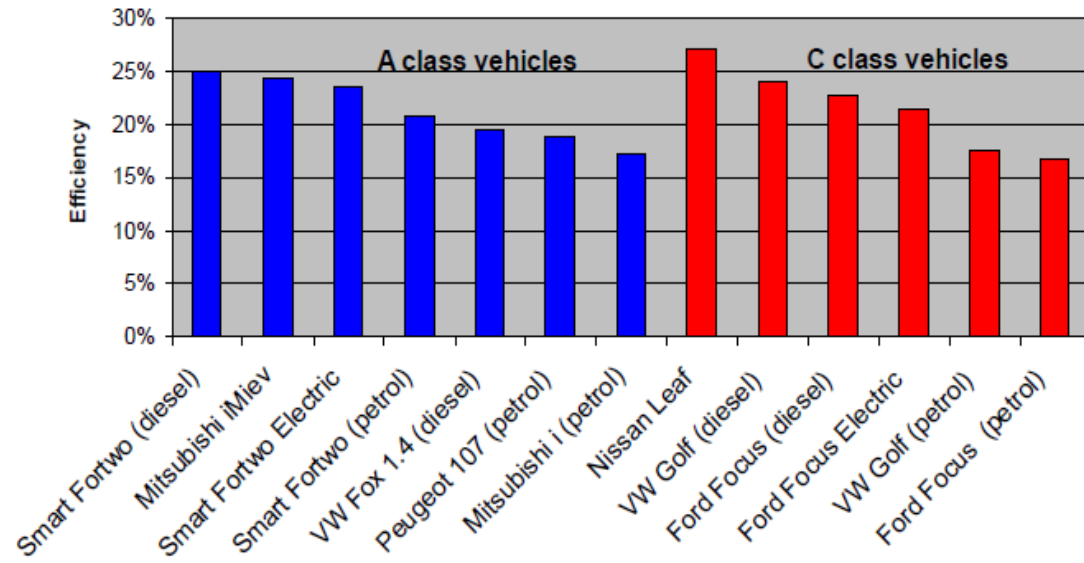
The life cycle of the electric car



Source: Battery Electric Vehicles Performance, CO2 emissions, lifecycle costs and advanced battery technology development. Utrecht university. Daan Bakker



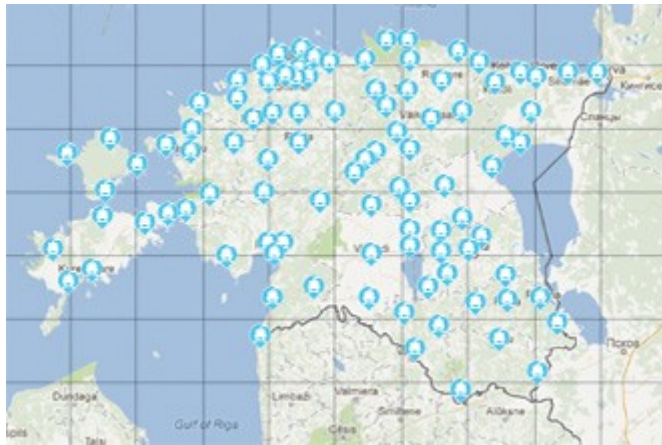
Efficiency of the electric car



Electric cars
30 Mitsubishi I-MIEV
4 Nissan Leaf
9 taxis



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



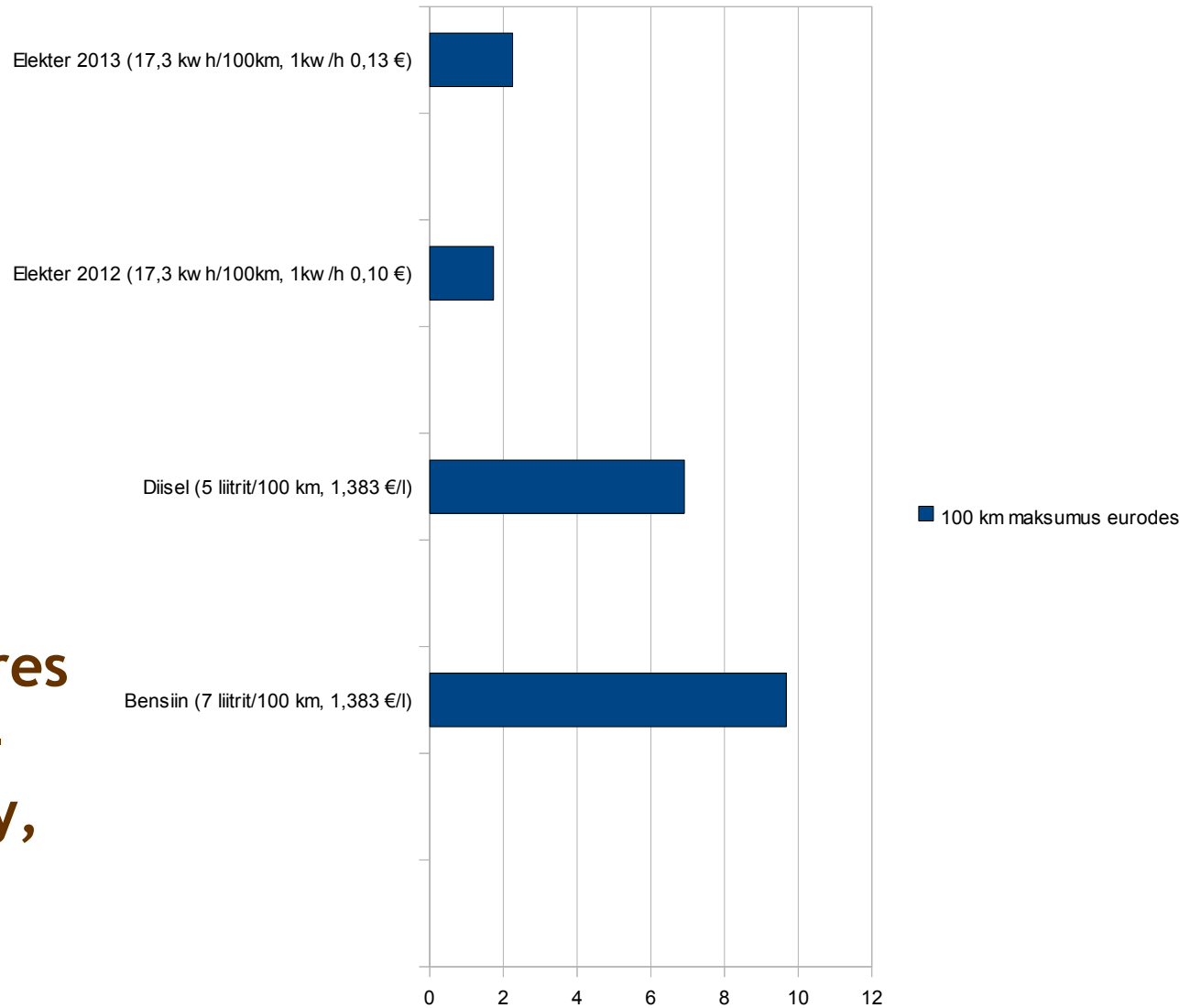
Regular charger



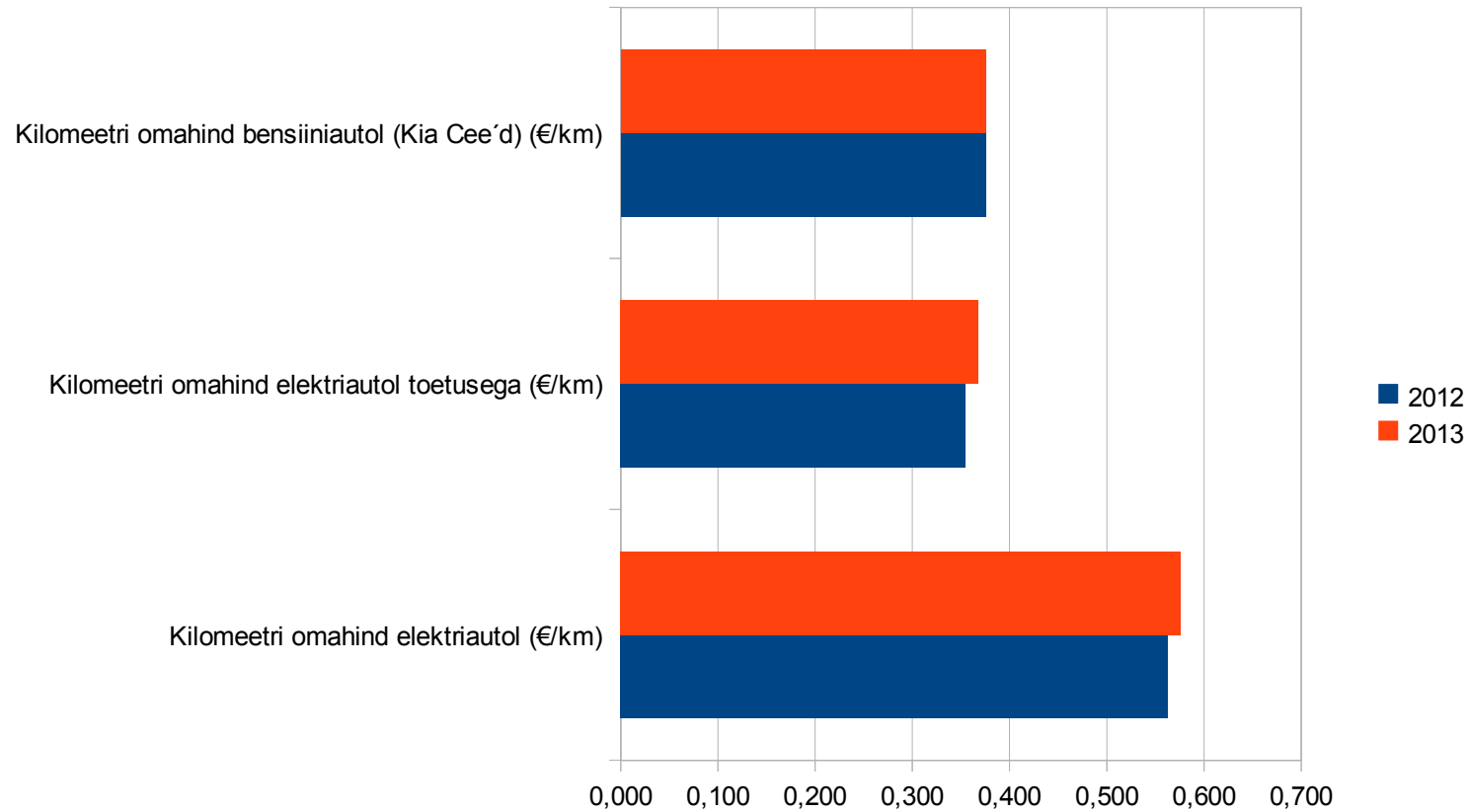
Quick- charger



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



Consumption of electricity - Nissan Leaf

December 2013 - 0,28 kWh/km

January 2014 - 0,31 kWh/km

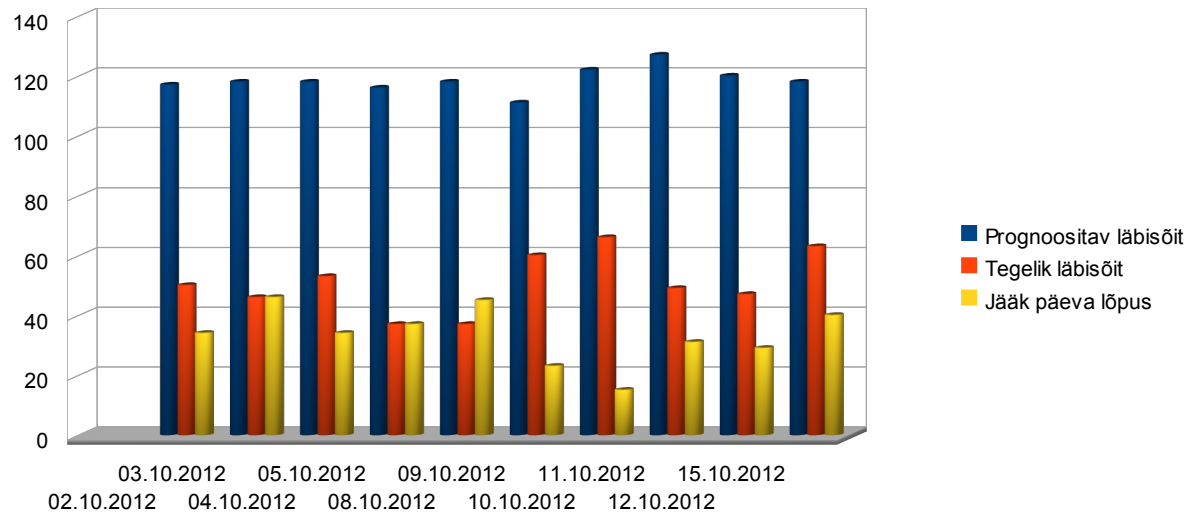
February 2014 - 0,29 kWh/km

March 2014 - 0,25 kWh/km

Consumption of electricity - Mitsubishi Imiev

Year 2013 - average 0,26 kWh/km





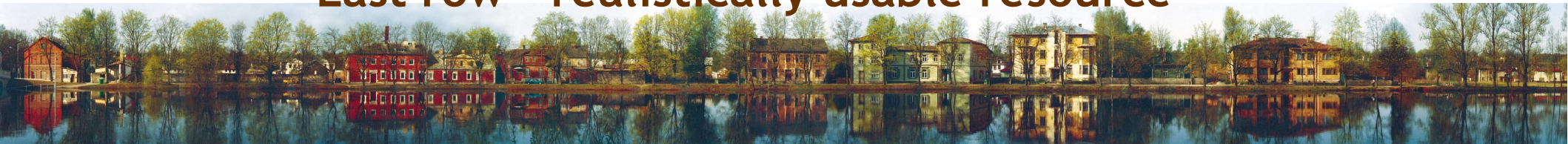
Kuupäev	2.10.12	3.10.12	4.10.12	5.10.12	8.10.12	9.10.12	10.10.12	11.10.12	12.10.12	15.10.12	
Prognositatav läbisõit(km)	117	118	118	116	118	111	122	127	120	118	
Tegelik läbisõit + jääk (km)	84	92	87	74	82	83	81	80	76	103	
Kadu (km)	33	26	31	42	36	28	41	47	44	15	Keskmine
Reaalselt kasutatav ressurss (%)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

Real mileage - 60%

1 st row - prognosis (by car computer)

2 nd row - real daily mileage

Last row - realistically usable resource



Experiences

- Winter conditions reduced the distance traveled by about half (used for warm-up)
- From time to time problems with chargers
- Electricity consumption observation: 2/3 of total electrical resources will be spent by consumers (heating, wipers, etc.,)
- Cars were working well until - 15 degrees . From - 20 st, sometimes froze off (N: did not start), this could be a problem with the incomplete use of preheat In winter,
- The mileage of 30-40 km on a single charge
- Lots of electronics. User experiences are small
- Some electronic faults (3-4 cars)
- The car have in wintry conditions, very good penetration. There was no problem. At least no more than an ordinary vehicle
- The car is comfortable to use - clean, quiet, easy to use. Perfect for spring and summer-autumn period
- When the daily mileage exceeds 30 km then is needed to recharge a car every day



Welcome in Tartu!

