



Ole esimeste seas!
TEEL TULEVIKKU



Be the first on the road to the future

Estonian
Electromobility
program 2011-2013

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TOETAB
KREDEX



About Estonia, the innovation background, passenger cars etc.

BACKGROUND

Estonian Green Transportation Plan

Goal

10% of energy consumption in transportation from renewable sources

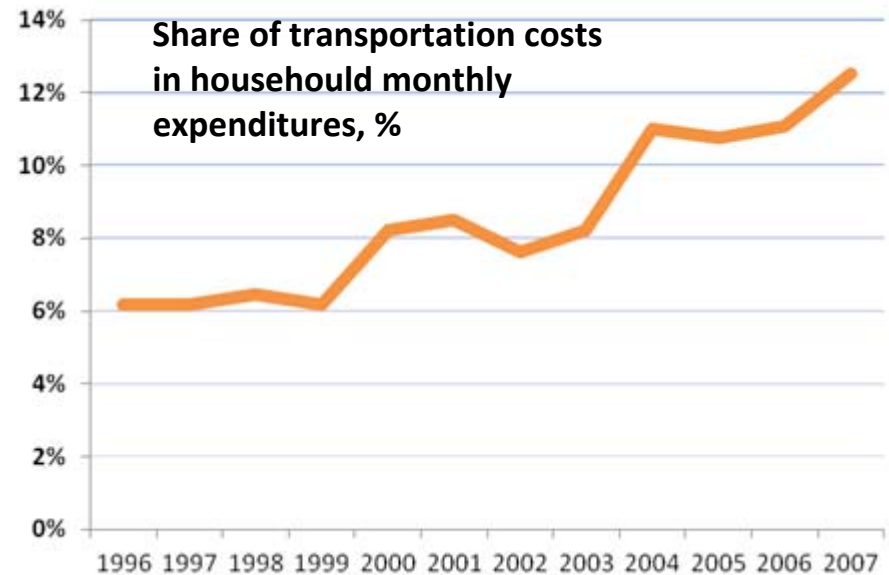
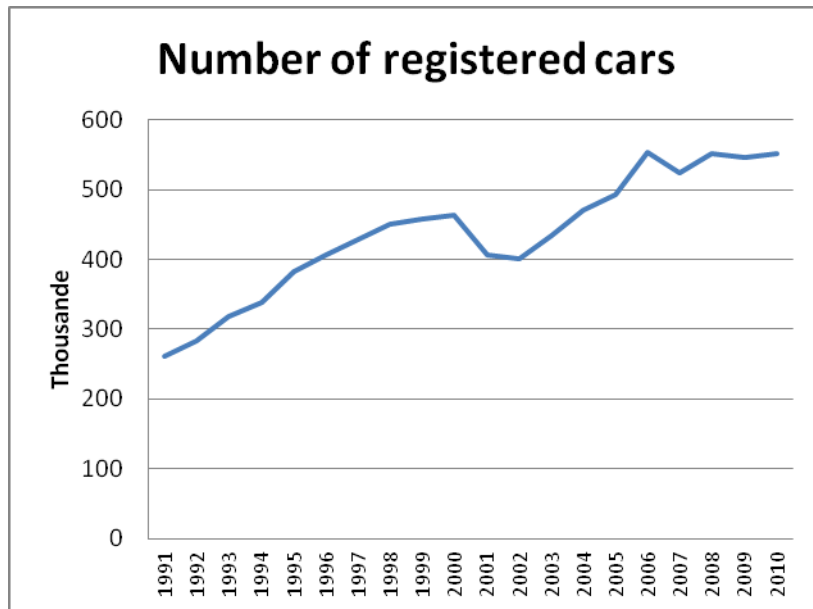
Measures

- **Blending biofuels**
5-7% of liquid fuels from renewables by 2015
- **Green Public transportation**
50% of public transportation to 100% biofuels/biogas by 2020
- **Electromobility**
1% of transport energy consumption from renewable electricity by 2020
- **Eco-driving awareness**
Reduction of fuel consumption by 10%

Situation of passenger cars in Estonia

Number of cars doubled

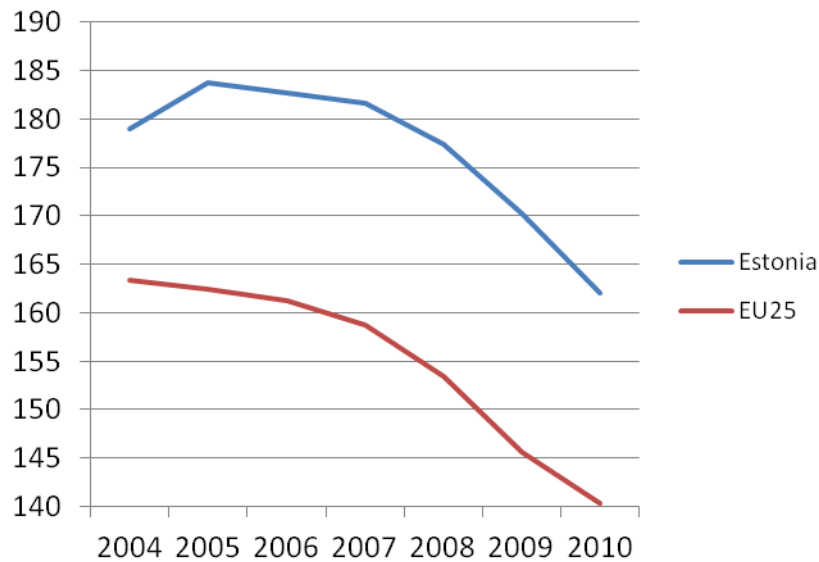
Cost of transportation doubled



Data: Estonian statistics

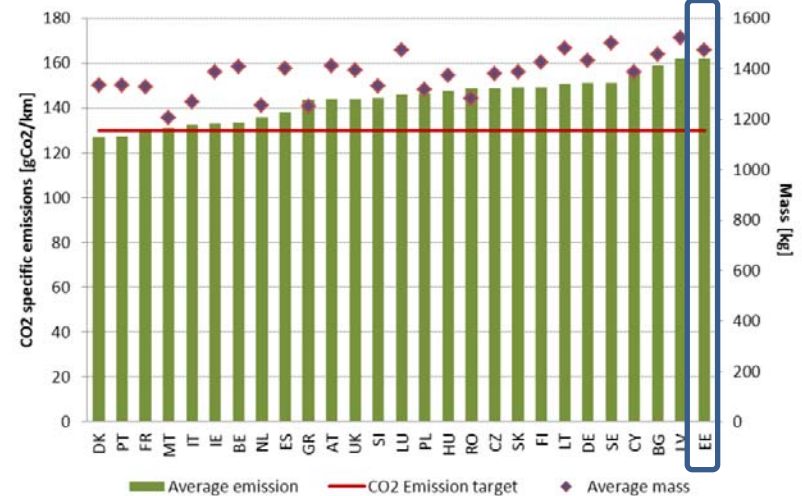
CO2 emissions of passenger cars

Average emissions, gCO2/km



Estonia compared to EU nations

Figure 4: Average CO₂ emission and average weight by EU Member States

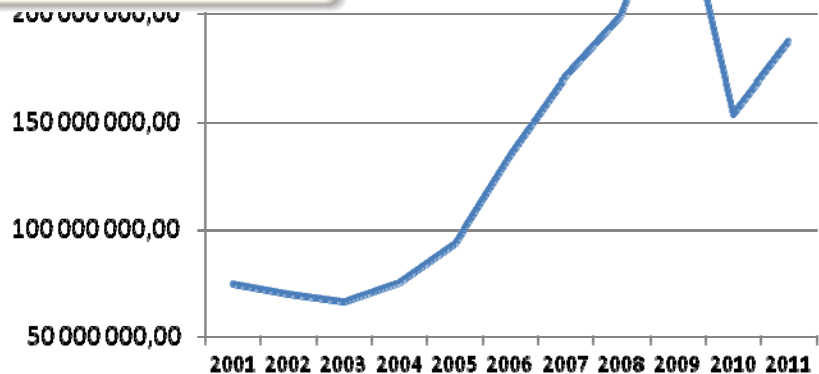
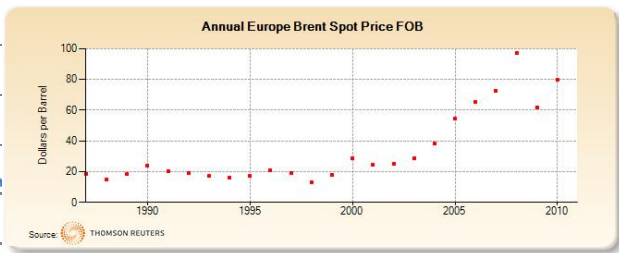
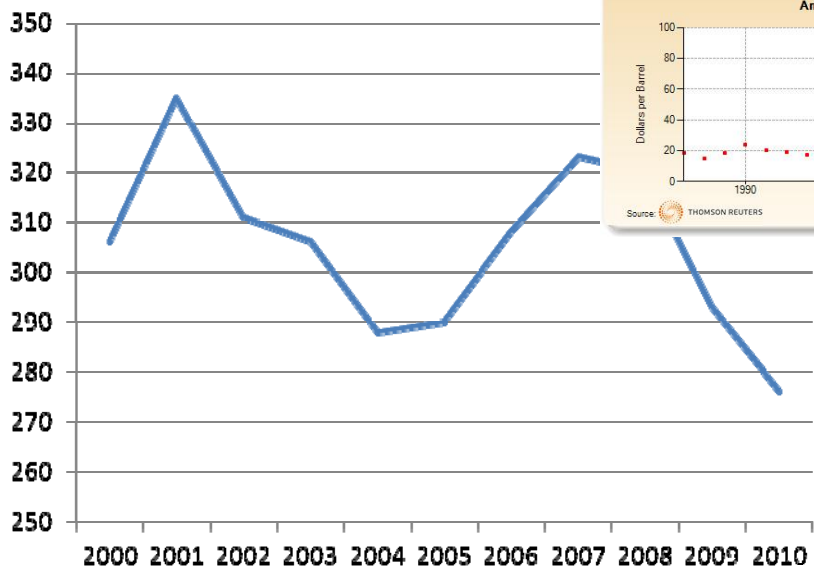


Data: European Environment Agency

Consumption and cost of gasoline

Consumption of gasoline, .000 tons

Gasoline spending dynamics in Estonia
(consumption * brent spot price), USD




Data: Estonian statistics

Data: Estonian statistics,
Europe Brent Spot prices

Short overview

ELMO – ESTONIAN ELECTROMOBILITY PROGRAMME



Our commitment
to climate policy

Energy
independence

Because we
can!

**Why is Estonia launching EV
programme?**

Background for electromobility program

Mid 2010 - Gov. initiates CO2 reduction project calls to use excess AAUs (CO2 credits)

Various projects proposed by ministries

AAU sales team matches buyes and projects

Buildings

Energy production

Public
transportation

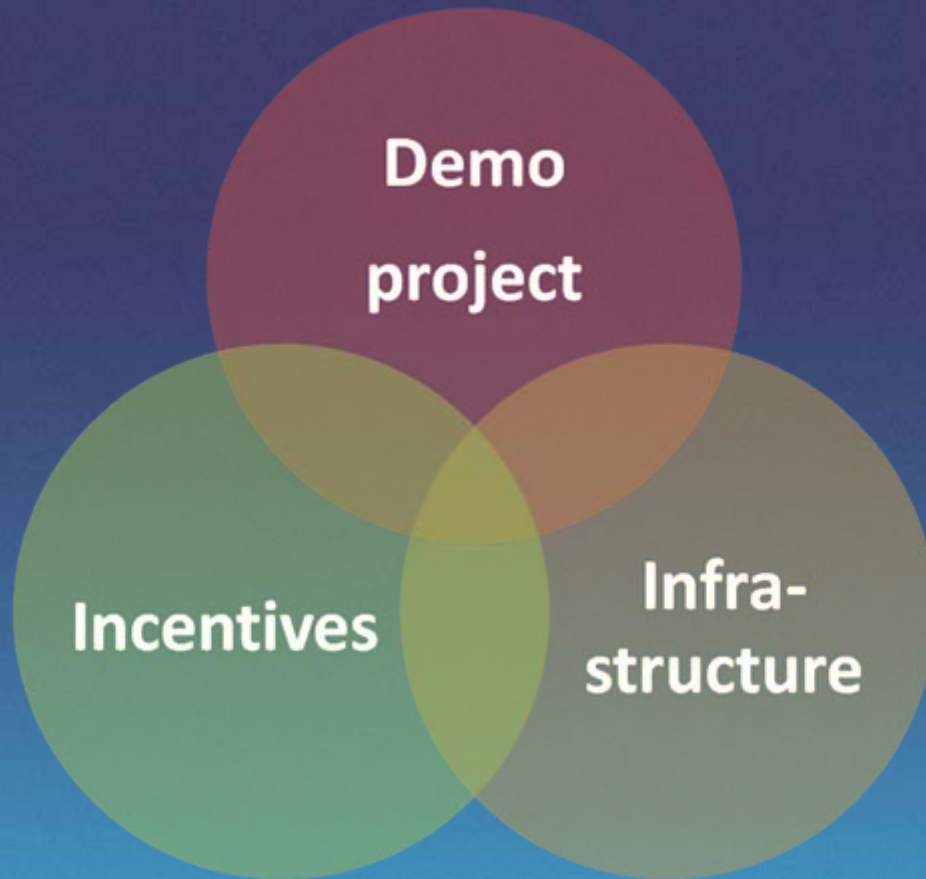
Private
transportation,
electric mobility

Our partner in EV program: Mitsubishi Corporation



- Mitsubishi was interested in the electromobility project proposal.
- The negotiations began in dec 2010 and final set up of the program concluded by Feb 2011.
- Government announced the program in the beginning of March.
- Total volume of AAUs: 10mAAUs (12% of Estonian AAU balance)

Fitting the pieces together for the future of electric cars



1. DEMO PROJECT

507 x

FOR SOCIAL WORKERS
AROUND ESTONIA



507 iMievs to social workers

- Estonian government bought 507 Mitsubishi iMievs
- The purchase is financed by selling AAU (carbon credits) to Mitsubishi Corporation
- The cars will remain in the ownership of the Ministry of Social Affairs of Estonia, but they are handed over to local municipalities all around Estonia
- The cars are distributed for free
- Social workers: public administrators responsible for providing public social services
- The cars will be equipped with GPS/GPRS enabled data loggers for future R&D of usage of electric cars

Mitsubishi iMievs in action



Photos: Bianca Mikovitš, Maaleht

2. INCENTIVES

-50%



Max 18 000 EUR PER CAR,

NO BRAND RESTRICTIONS, FOR PRIVATE AND COMMERCIAL BUYERS, UNTIL THE END OF 2012

+ 1000EUR FOR MODE3 HOME CHARGER

Incentive scheme

- Eligible cars: fully electric passenger cars (M1)
- For private, commercial and public buyers
- Support rate 50% of car's price
- Max grant: 18 000 per car + 1000EUR for Mode 3 home charger set-up
- You can buy an EV from any EU country
- Second-hand (used) EVs are not eligible
- Last date to submit grant application 30.11.2012
- **Budget for 500 EVs**

Green certificates

- **With each grant comes the obligation to use only renewable energy in your electric car for 5 years**
- This will be ensured by using green certificates (certificates of origin)
- EV owner has to report the milage annually to KredEx and submits the equal amount of green certificates

3. FAST CHARGING INFRASTRUCTURE



Fast charging infrastructure

1. 200-250 FAST CHARGERS AROUND ESTONIA
2. CHAdeMO + AC Mode 3 slow charger combo
3. Central network management system
4. 5 year contract for network operating services, 24/7 central customer support
5. Innovative solutions: mobile identification and payments, RFID and/or NFC cards, mobile app, web portal etc.

Operating model

Services

Private operator, selected by KredEx for 5 years

Charger control and maintenance

Business services

Customer support

Security services

Asset management

KredEx selects private operator to run the charging network for 5 years. Operator will receive a service fee for the operation. No profit from energy sales during initial 5 years.

Assets

Owned by the government agency KredEx

Quick chargers

Network management system

Locations for chargers

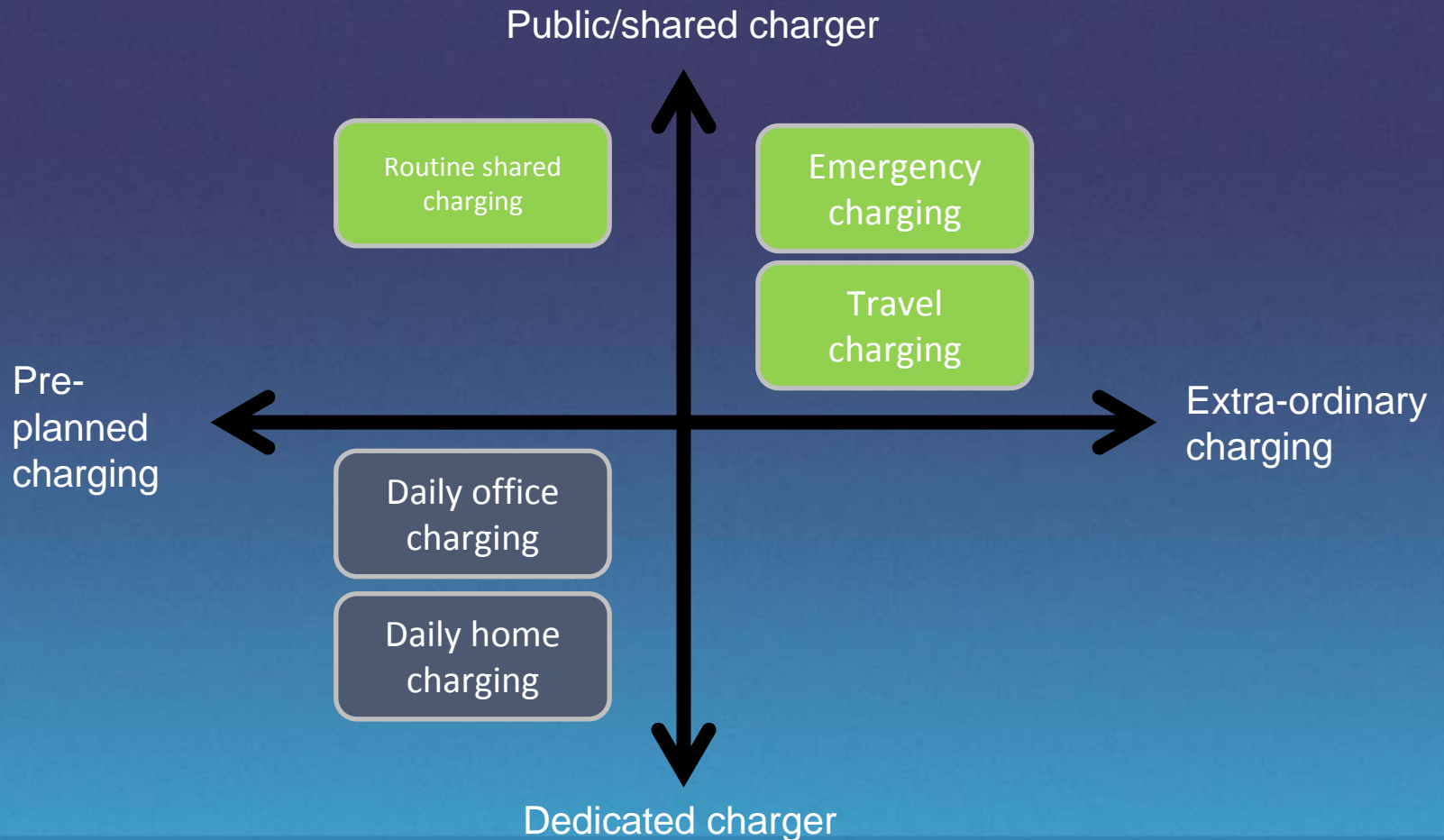
High power grid connections

Intellectual property

Use cases and technology options

	AC Normal 6-8h	AC Fast 1-2h	DC superfast 20-30min
Daily office charging	OK	Maybe	Not OK
Daily home charging	OK	Maybe	Not OK
Routine shared charging	Maybe	Maybe	OK
Emergency charging	Not OK	Maybe	OK
Travel charging	Not ok	OK	OK

DC quick charging: best match for public infrastructure



3 main use-cases for Estonian public charging network

Emergency charging

- Locations hard to predict
- Cover the main routes

Shared routine charging

- Locations easy to predict
- Follow the daily routines

Travel charging

- Locations easier to predict
- Emphasize tourist routes

Power and productivity
for a better world™



NOW!
INNOVATIONS



Our partner: global leader in fast charging solutions: ABB



CONCLUSION

Estonia as a role model

- Estonia made a choice to build up the fast charging network
- Single operator single network management system – business model test!
- Scandinavia (Europe?) is watching closely how we are performing

Unique opportunities for EV value chain in Estonia

- Flexible and cost-effective test-bed
- High concentration of EVs
- DC fast charging and impact to grids
- Central operating model
- Advanced ICT infrastructure
- R&D possibilities for “second-life” of car batteries (1000 EVs after year 2017)

Challenges so far

- Extreme timescale: everything must be completed by the end of 2012
- We have to be robust and decisive
- How to gain a public support in these conditions?
- How to get big car manufacturers to bring EVs to market?
- Mixed public opinion about EVs: lot of discussion about EVs in cold climate, range/price seen as a main problem

Conclusion

GOV

we provide 360° framework conditions to wider adoption of EV's.

EV value chain

must demonstrate the sustainable, competitive solutions for private transportation. Estonia is the best place to do that.

Questions and answers

More slides: <http://www.slideshare.net/jarmotuisk>

THANK YOU!

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