

INTELECT

Incentives and actual cost calculations for electric transport in the Nordic countries

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Electric Transport - NER Oslo, April 1st





INTELECT-partners

- Partners from all the Nordic region:
- Icelandic New Energy (IS) coordinator
- VTT (FI)
- Nukissiorfiit (GL)
- Dansk Energi (DK)
- AF-Industry AB (SE)
- Elfelagid SEV (FO)
- Grönn Bil (NO)
- Orkusetur (Energy Agency Iceland) (IS)



Salomon fishing using an FCEV





Problem description

- All of the Nordic countries have taken steps towards increasing the use of environmentally friendly transport
- As part of their policy different incentives have been put in place
 - They are different on country and city level
 - They are fisical and non-fisical
 - Some have worked well others not as well
- Different regulations also exist
 - Barriers
 - Certification
 - Homologation
 - Fuels





Map available incentives in all of the Nordic countries, including

- Governmental incentives
 - Financial, tax, etc
- Municipal incentives
 - Each country will map available incentives in the 3 largest municipalities (Faroe Island and Greenland are different as only the capital areas will be used)
- A matrix will be made showing all the different incentives for different fuels/technological solutions
 - Including a brief description of which have been successful and which not



Environmentally friendly?







- It can be difficult for the public and private players to understand what the incentives mean - financially
- The project will therefore create a calculator which an calculate the different benefits including TOC (total cost of ownership)
 - Example of such calculators exist for Norway and Iceland (see <u>www.gronnbil.no</u> and <u>www.orkusetur.is</u>
 - Will be made for all the Nordic countries
 - Will be in all the nordic languages currencies and fuel price
- It will have two layers
 - Layer 1 User friendly and will give the user a simple picture to compare the cost of an envrionmentally friendly vehicles and conventional
 - Layer 2 A more comprehensive with more parameters and exact conclusion.
 Mainly aimed for the final decisions support.





Regulatory barriers

The INTELECT project will map if there are any regulatory barriers to the introduction of environmentally friendly fuels - focusing on ZEV and if any regulations prevent or delay the early introduction of such vehicles

- Including
 - Homologation certification
 - Fuels
 - Other



iMIEV at fuel source





Dissemination

- The matrix will be made available electronically to all partners and all other key players along with NER
- The same applies to the calculator
- Both can support decision makers
- Provides a tool which can be used by many different actors specifically early adopters
- Will identify if there are any regulatory barriers
- Will support cross boarder discussions and policy fomulation





Timeframe and budget

- The INTELECT project is a 12 month project kick off was February 24th 2011
- The total budget of the project is 1,3MNOK
- Conclusions will all be made public and should be available from early 2012
 - Work has already started



THINK arrives in Iceland



Example Vehicle taxation in Iceland

Fossil fuel vehicles

- Total change in 2011,
 - Taxes were based on engine size and weight
 - Now only on CO_2 . Vehicles carry 0-60% CO_2 tax + VAT.
 - Vehicle with less than 80g/CO2/km 0% and then roughly 5% per $20g/CO_2/km$ increase.
- Alternative vehicles
 - Methane: Taxes same as for fossil fuels NOK 50.000 as a subsidy
 - Battery: Carry only VAT
 - It should though be mentioned that the parliament has recommended that VAT should be temporarily revoked
 - Hydrogen: No taxes (no VAT)
- Eco-Energy (Græna Orkan)
 - Platform for public private partnership
 - Established by the Minister of Industry in partnerships with other Ministries
 - Should propose and recommend actions from the government and policy











EcoEnergy has asked for increased incentives

Number of new incentives have been suggested and are currently being evaluated

- NoVAT on vehicles with zero emission vehicles (ZEV)
- Annual tax on ZEV to be 0 (zero)
- Public transport should get special incentives if alternative vehicles are used
- Increased incentives if vehicles are converted to use environmentally friendly fuels
- Reduced taxation on companies if they use alternative vehicles
- Environmentally friendly fuels should not carry taxation like gasoline/diesel
- Use of bus lanes for ZEV
- Special free parking spaces
- No fee on toll roads
- Etc.





Examples:

Vehicle taxes in Nordic countries

SWEDEN

- Fossil fuel vehicles carry 25% VAT
- Hydrogen and battery vehicles carry 25% VAT but get a € 5.000 subsidy if <50gCO2/10km
 Annual road tax: fossil fuels €200-400; hydrogen; € 0 (first 5 years if<37kWh/100km
 Additional €5.000 subsidy possible in early tender programs

NORWAY

- Fossil fuel vehicles carry 25% VAT and 50-100% import duty
- Hydrogen/battery vehicles carry 0% VAT and 0% import duty
 Annual road tax: fossil fuels 350 €; hydrogen; 350€

ICELAND

- Fossil fuel vehicles carry 25% VAT and 0-60% import duty (depending on emission)
- Hydrogen vehicles carry 0% VAT and 0% import duty (BEV carry VAT)
 - Annual road tax: fossil fuels € ~133; H₂/battery; € ~33
- DENMARK
 - Fossil fuel vehicles carry 25% VAT and up to 180% import duty (depending on emission)
 - Hydrogen/battery vehicles carry 25% VAT and 0% import duty
 - Annual road tax: fossil fuels € ~70-2.000 (CO2 emission); hydrogen; € 0

ZEV vehicles also carry other advantages like free parking, special parking spaces, driving on bus lanes etc.





Taxes are a unique opportunity

- The Nordic region is known for very high taxes on vehicles and fuel
- This gives the region a special opportunity to install relatively powerful incentives for early adoption of low emission vehicles
- If there are f.ex. no taxes on ZEV they are already commercial in the Nordic countries though they would cost 2x the price of conventional vehicles
- Such early adoption in Nordic countries would also be powerful as large portion of electric production is already renewable in the region







Nordic cooperation

- Already a strong cooperation in this field exist in the Nordic region
- Joint approach from the region strengthens all players
- Simular Nordic incentives would make stakeholders approach to OEM's and other technical providers more direct and fruitful
- The stakeholders in hydrogen (electric vehicles) have already made important progress

FCEV - plug in Dream car of the Nordic countries?













Example of Nordic cooperation

Key players in the Nordic countries signed an MoU, Jan 31st 2011, with Hyundai for deployment of FCEV in the Nordic countries in 2011-2015





One thing needs future attention: public confusion

Public is very confused regarding different alternative vehicles

- Public seems to be waiting for one solution, what will come instead of gasoline
- The future will probably have many different alternatives
 - Even in different locations depending on local resources
- Terminology of different technologies (confusing)
 - Battery
 - Hybrid / Plug-in hybrid
 - Methane (possibly plug-in in the future)
 - Hydrogen (possibly plug-in in the future)
 - More.....
- Most people want electric mobility
 - Expectations are very high
 - Druing the battery hype, last few years, statements have been made about simplicity of fast refuelling, 10-20 min, range similar to fossil fuel vehicles or at least 400 km
 - Will this affect the marketing of the first battery generation vehicles?
 - 8 hour refuelling / 150 km range





Iceland today



& also for future generations