User perceptions of Evs and the role of Evs in the transition to low-carbon mobility

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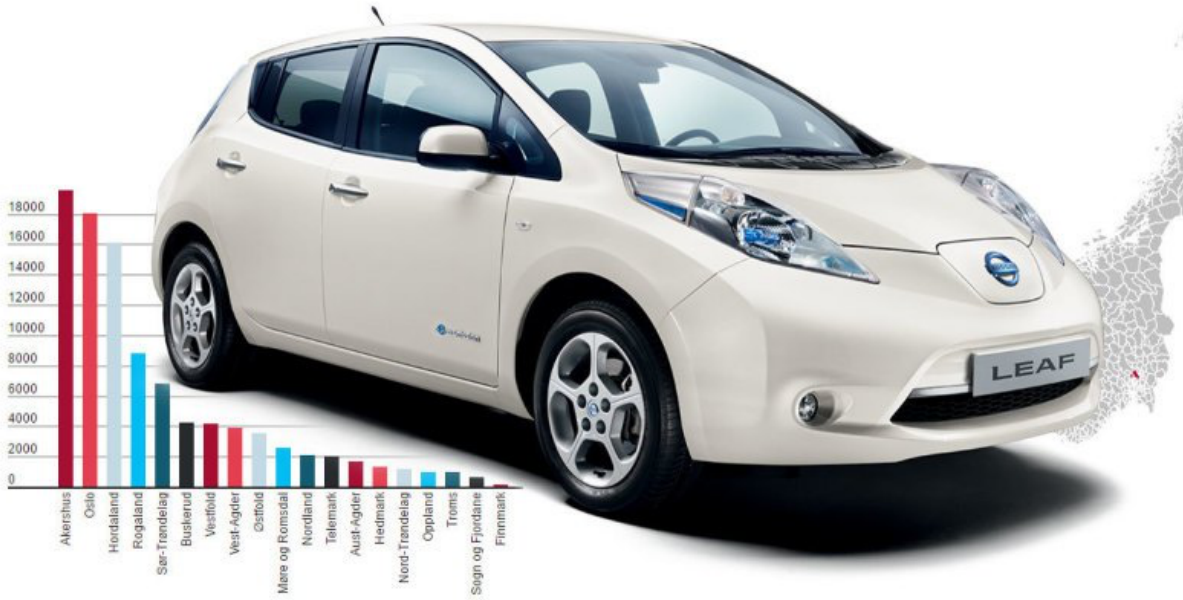
Norway: leading electric car society



- 85 000 cars (3 % of all person cars)
- The top selling car was an EV for many months
- Second largest market for Teslas in the world

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Incentives to promote electromobility in Norway

- Strong financial and regulatory incentives
  - reduced taxes (purchase tax, etc)
  - free passage on toll roads
  - free passage on ferries
  - can utilize bus lanes
  - free charging on most public charging stations
  - free public parking
- Conventional cars heavily taxed →make electric cars affordable in comparison
- In addition: running costs are lower

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Focus of the paper

- User perceptions of different models of Evs
  - How EVs have been domesticated into Norwegian households
- The importance of
  - incentives and policies
  - environmental concerns
  - Properties of the car, comfort etc
- Explore the interplay between technology, policies and user preferences

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Methods

- Qualitative interviews with different segments of EV drivers from 2013-2015
  - Driving different EV models from Buddy, to iMiev, Nissan Leaf, VW eGolf and Tesla
- Quantitative analysis of 3654 EV drivers in Norway from 2016

Technology related user experiences

- All EVs described as very comfortable
  - charging of batteries:

"I am glad I don't have to care about filling gas at the station anymore. Electric cars are easier for me; they are actually more comfortable than petrol cars, because I can charge at home."

- The comfort aspects were related to the EV
  - safe, silent, aesthetically pleasing and exciting technology.
- Experiences partly co-produced with symbolic aspects

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Environmental aspects to EV ownership and driving

- A clear symbolic dimension present in the domestication process
- Rewarding feeling of driving a green, non-polluting vehicle:

"I think of myself as a more environmentally friendly person when I am driving the EV. I drive with a better conscience, and it feels less polluting to drive the electric car. That is very important to me."

- 68.3% "EVs are environmentally sound" as a reason for buying an EV

Environment and type of EV

- Compact EVs: related to having pro-environmental attitudes and self-image
- Tesla drivers: environmental aspects “a positive consequence” or a “bonus”
  - triggered an interest in sustainable mobility and energy

“I am very aware trying to drive energy efficiently and thus go as far as possible with the electricity available”

Environmental ”effects”

- Interested in producing (solar) energy (40%)
- Substituting air plane travel by car travel (19%)
- Got rid of the second car
- 60% claimed to have become more energy aware after acquiring an EV

The importance of different EV incentives

- Vary strongly according to where the EV drivers lived, their family situation, and not least their established driving routines.

Incentives	No purchase or Value added tax	No road tolls	Free use of ferries	Access to bus lanes	Free public parking	Lower operating costs (cheap fuel)	Reduced annual fee
Less important			X	X			
Some important					X		
Important		X					X
Highly important	X					X	

Perception of economic incentives

- EV policy described as successful + long term consistency important
  - a tool to make electric cars affordable
  - a compensation for early adopters having to deal with the technology's teething problems
  - an "extra bonus" given to EV drivers
  - a catalyst that get sales going, determined their choice of car, "got a lot of car for the money."
- 66% claimed they would not buy an EV tomorrow if the purchase tax were removed.

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Conclusion

- Norway's successful introduction of the technology
  - economic and technical aspects of EVs were important
  - symbolic aspects related to EVs, such as feeling more environmentally friendly, comfortable driving experience
  - Incentives play a double role: certification of electric cars as green technology
- Interpretative flexibility

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