

**Summary:**

# **Attitudes, ownership and use of Electric Vehicles – a review of literature**

*TØI Report 1261/2013  
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Oslo 2013, 37 pages Norwegian language*

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*Early adopters of Electric Vehicles (EVs) are middle aged, between 30 and 50 years of age; a majority are men, they have high education and income, live in the vicinity of cities and belong to households with more than one car. Early adopters of Hybrid EVs are also men, but in the age range 50-60 years. Studies show that the EV is used by commuters mostly as a complement to the conventional car, especially in Norway where favourable incentives include: no VAT, free parking, permitted driving in bus lanes, free driving on toll roads, reduced annual road tax and reduced tax on company cars. Some studies show that EV drivers are, for the most part, former public transport commuters.*

## **Owners, use and motives for buying an EV**

Studies of early adopters of electric vehicles (EVs) indicate a large number of common socio-demographic characteristics across countries. They are relatively young, a majority are men, they have high education and income, and belong to households with more than one car. The majority also live in, or in the vicinity of, larger cities.

Travelling from one's home to place of work is the most often cited reason for using EVs in most countries, and in Norway the special conditions that apply (no VAT, free parking, permitted driving in bus lanes, free driving on toll roads, reduced annual vehicle tax and tax on company cars) have a major bearing on the decision to buy.

Adjustments drivers have to make when driving an EV include better planning of journeys – due to battery limitations – and adoption of a smooth (non-erratic) driving style. Motives behind the purchase are the special regulatory advantages (such as in Norway), environmental considerations, lower operation costs and simply the convenience and fun it is to drive these vehicles.

## **The potential of EVs and incentives for purchase**

Since electric vehicles are a relatively new technology under continuous development and with greatly reduced GHG emissions, studies have been carried out to evaluate the potential ownership and to promote initiatives that would increase their number on the roads. The methods and data used to calculate or evaluate this potential are very different, and so the results cannot be compared

directly, although in Paris and Birmingham a potential of about 10 percent has been estimated. In the USA (California), the share of owners who could recharge at home has been estimated at about one-third. Surveys of people's interest in buying an EV also vary between countries, i.e. between those with and without knowledge of the technology and survey method.

Reduced taxes, other benefits (parking), appreciated convenience over public transport and environmental benefits were areas of interest. Knowledge of the technology and practical experience of driving an EV are likely to raise one's interest in buying.

### **Positive and negative attitudes**

Attitudes towards and perception of EVs, both positive and negative, vary by experience, knowledge and the everyday context. In many of the surveys and studies of people's opinions of different aspects of EVs, there is little or no information about the respondent's level of knowledge and experience. Questions can vary and therefore answers can be difficult to compare. However, two negative aspects of the EV mentioned in many studies are: range and battery charging. "Range anxiety", i.e. the fear of being stranded due to a depleted battery, is not uncommon. Size, price, security and distrust of the technology are also mentioned as negative factors. Praiseworthy aspects of the EV found in several studies are that it is environmentally friendly, easy to park, low on noise, is well regarded and economically advantageous.