

## Markets Share Models for EVs - DTU Orbit (09/11/2017)

### Markets Share Models for EVs

A number of electric vehicles (EVs) matching ordinary conventional cars is on (or close to) the market and by now several stations and battery switch stations has been set up. Electrical vehicles are widely seen as an important tool for reducing CO<sub>2</sub> emissions with a considerable reduction potential. The recent development has increased the knowledge of costs of stations and cars, but the knowledge of the market potential of EVs is still limited.

In the traffic agreement of January 2009 electric vehicles were highlighted as part of the solution for future CO<sub>2</sub> problems. Here, the target for the transport sector is announced to be a reduction of greenhouse gas emissions by 20% in 2020 compared to 2005. It is the plan to obtain part of this reduction through the EU targets of 10% renewable energy by 2020 in surface transport and a requirement for EU car producers to lower average CO<sub>2</sub> emissions from new cars to 95 g/km on average in 2020. The energy agreement from March 2012 states that the transport sector is facing a radical change from fossil fuels to electricity and bio-mass in the long run. Here, the target for 2020 is 10% bio-fuels in 2020 and the tax exemption for EVs is prolonged to the end of 2015. More ambitious greenhouse gas reductions are announced and EVs may contribute to such targets. However, no specific target has been set for the share of electric vehicles.

In order to investigate the potential role of electric vehicles (EVs), DTU transport has constructed a small car choice model with the objective to project future sales of electric vehicles and to assess the effect of a number of political initiatives on the sales. The car choice model is based on a Danish stated preference experiment. The results from the choice experiment are condensed in the estimation of a logit choice model and based on the estimated parameters a simulation model is set up.

The model will be available for assessing different scenarios and forecasts of the sales of EVs under different assumptions of prices of the cars, life-time of batteries, the operations costs, the driving range, the number of quick charging or battery switch stations etc. The simulation model is an update of the model described in Flader et al. (2011).

The purpose of this paper is to describe the model and to present a suggested base forecast. The paper furthermore discusses the effect on the forecasted car park from different assumptions about calibration of the model. In addition, the model is capable of carrying out socio-economic analyses of the alternatives for the base scenario, and this is shown by the end of the paper.

### General information

State: Published

Organisations: Department of Transport, Transport policy and behaviour

Authors: Jensen, T. C. (Intern), Christensen, L. (Intern)

Number of pages: 17

Publication date: 2013

### Publication information

Place of publication: Kgs. Lyngby

Publisher: Technical University of Denmark, Transport

Original language: English

Applicant: Energistyrelsen

Main Research Area: Technical/natural sciences

Links:

<http://www.transport.dtu.dk/Forskning/Rapporter-og-notater>

Source: dtu

Source-ID: u::8769

Publication: Commissioned - peer-review › Report – Annual report year: 2013