Institute of Transport Economics
Norwegian Centre for Transport Research

Summary

A green dream: municipal cars driving on electricity

Electric cars in region Innlandet: drivers, barriers and experiences

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In order for Norwegian municipalities to contribute with their share in reducing national greenhouse gas emissions, an important strategy is replacing fossil fueled cars with electric cars. This study examines the drivers for and barriers to investment in electric cars in 14 municipalities in Hedmark and Oppland, and their experiences with these electric cars. Important drivers have been political signals, that electric cars are economically beneficial, their improved driving range and standard, and that entrepreneurial employees have worked for electric cars. Important barriers include the need for cars with four-wheel drive, fear that the driving range will not suffice, limited knowledge about electric cars and structural conditions such as the length of existing leasing contracts. The municipalities generally have positive experiences with their electric cars: they are comfortable, economic, and are easy to drive. Many municipalities will increase their share of electric cars in the coming years.

Background

An efficient way for Norwegian municipalities to reduce their greenhouse gas emissions, is to replace cars in their fleet running on fossil fuels with electric cars. The last years the driving range of electric cars has expanded significantly, and they are viewed as equal to or better in comfort than conventional cars. Thus, electric cars can cover the daily driving needs for many municipal service workers. Much is known about the general drivers of investment in electric cars in Norway, but we know little about how municipalities have started using electric cars and what kind of experiences they have with them. Most municipal services, including nursing, IT and technical services are, generally, well suited for use of electric cars.

The region called Innlandet, which consists of the Hedmark and Oppland counties, is a particularly interesting region in this regard because it includes both several densely and many sparsely populated municipalities with large distances, difficult driving conditions and areas with very hilly terrain. A further important factor is that the municipalities in this region have periods with very low temperatures in the winter, which shortens the driving range of the electric cars significantly. Accordingly, if electric cars are well suited for the services in the municipalities in this region, it will likely also be relevant in most other municipalities in Norway. Therefore, in this report we ask:

1) What are the drivers and barriers in the municipalities in the region Innlandet for employing municipal electric cars?
2) What are the experiences of the users of the municipal electric cars in the Innlandet region?

Method and data

In order to answer these questions, using qualitative methods, we have interviewed or corresponded with 25 persons that represent the roles of a "buyer" and a "user" of electric cars in 14 of the municipalities in Innlandet, supplied with document studies. The municipalities in the sample represent all the densely populated municipalities (>15 000 citizens), including all municipalities with towns. These municipalities have, because of their higher number of citizens, a larger number of cars in their vehicle fleet. In the densely populated municipalities, the services that drive a lot, and long distances, will also have driving routes that are shorter and more central and thus may be well suited for winter driving with an electric car. The study also includes several municipalities that are sparsely populated (< 7 000 citizens) in Hedmark and Oppland. These municipalities have smaller car fleets and thus replace their cars less frequently than the densely populated ones. Therefore, there are fewer options for electric cars for the services that are driving frequently and drive long distances year around.

Findings and conclusion

All but two of the municipalities in the sample had acquired an electric car or was in the process of doing so. The share of electric cars and the level of ambition with regard to rapid electrification of the car fleet varied. Hamar municipality, for example, opts for full electrification of their car fleet, while Søndre Land municipality possesses one electric car, but has no current plans about further increase in their share of electric cars. Most municipalities had one charging station per electric car, and the cars were mainly charged during the night.

The interviews identified several drivers behind the procurement of electric cars. Some of them might be labelled *political signals*. In the municipalities that opted for electric cars, the Municipal Council, the mayor, and/or the head of administrative affairs had decided that the municipality should opt for electric cars. Several municipalities mentioned electric cars in their environmental strategies, and several were part of a national effort for creating sustainable municipalities and businesses called Environmental Lighthouses (*Miljøfyrtårn*). Another type of driver, closely connected with the first, was *attitudes* among the municipal employees. In several of the municipalities, there were employees with "green" attitudes: they regarded environmental protection as important. A third driver was *economic incentives*. The municipal electric cars may be economically beneficial because they have low fuel costs, they benefit from tax exemptions and have low maintenance costs. A fourth driver was the *increased driving range and standard* of the electric cars, making them (more) compatible with the user needs. A fifth driver was the presence of *entrepreneurs* who have worked for electric cars in the municipality. This could be persons in central political, administrative or other positions who over a longer time span had worked for procurement of electric cars to the employees in the municipality. A sixth driver was factors such as participation in the Green Drive Region project and positive experiences with electric cars they had borrowed for trial.

The data also showed some barriers to procurement of electric cars. The first and most important barrier was the *need for four-wheel drive and tow hook*. The need for four-wheel drive due to very difficult driving conditions, particularly in the winter time, was the most important reason why several municipalities did not invest more in electric cars. Per

September 2018, there are no electric cars with four-wheel drive within the acceptable price range for these municipalities, indicating a large potential market for such vehicles. *Critical attitudes* represented another barrier. Several of the persons responsible for procurement had experienced that municipal employees were worried about the electric cars' driving ranges. Several of these critical persons also had limited knowledge about electric cars. The third barrier was *economic issues*. For example, the municipality may have to invest in charging and other types of infrastructure to deploy electric cars. The fourth barrier may be summed up as *structural factors*: the municipalities could not procure more electric cars before their current leasing contracts expired, and some electric car models had long delivery times due to their high popularity.

The municipalities in the sample generally had positive experiences with their electric cars: they are comfortable, economically beneficial and easy to drive. Most of them plan to increase the share of electric cars in the coming years. Negative experiences were first and foremost related to the mismatch between difficult driving conditions in the winter and lack of four-wheel drive in the electric cars deployed.