BELLONA EUROPA brief

Electric Vehicles: The Norwegian Experience in Overcoming Barriers

March 2015

Norway saw the adoption of its first incentives to electric vehicles (EVs) in 1990 following the efforts of Bellona to foster their introduction by the government. Now, 25 years later, Norway has the highest penetration of EVs in the world. This substantial growth in EVs can to a significant extent be attributed to the Bellona-led efforts, inducing the government to put in place a favourable regulatory framework, which requires car manufacturers to meet stringent emission performance standards. Moreover, Norway has built consumer confidence in EVs through the implementation of substantial financial incentives rendering EV-ownership a cost-saving opportunity in relation to fossil fuel models and by rolling out an extensive re-charging infrastructure to counter fears of limited driving range.

The overall picture in Europe, however, is less positive. Despite the significant benefits EVs offer in terms of cutting CO_2 emissions, boosting energy security and improving local air quality, EVs still make up less than 1% of the total market share of around 12.55 million passenger cars sold in 2014[1]. This has been the result of a number of actual or perceived regulatory, financial and psychological barriers. This brief will examine the Norwegian experience in overcoming these barriers by implementing various regulatory and financial measures aimed at incentivising EV uptake.

Frederic Hauge and pop group A-HA with their law-bending EV

[1] http://www.acea.be/statistics/tag/category/key-figures

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Early days: Activism drives politics

In true 1980s style, Bellona teamed up with pop group A-HA to import the first modern EV to Norway in 1989 - a FIAT. Thus began a year-long battle for Bellona to get EVs exempted from Norwegian road tax, tolls, and parking fees. Bellona toured the vehicle through a total of 17 tolls, often with various celebrities and media in tow. Bellona was fined on all occasions, refused to pay and the car was repeatedly impounded. The EV was repurchased by Bellona time and again at foreclosure before the authorities finally admitted they had lost the battle and opened up for EV incentives from 1990.

Common misconception about EVs: *Regulatory framework – inadequate for change*

An EV-conducive regulatory framework, featuring stringent CO_2 emission performance targets for vehicles, is an important pre-requisite to ensuring widespread EV deployment. The absence of such regulations may threaten EV uptake in particular in the face of falling oil prices as observed today.

Climate change policy has been a major driving force behind Norway's commitment to EVs. In 2012 Norway adopted a legislation setting the ambitious target of achieving a carbon-neutral transport sector by 2030. To achieve this, it set out to attain fleet-average CO_2 emissions from new passenger cars in Norway of 85 grams per kilometre by 2020; this is 10 grams below the EU target of 95 grams[2]. Norway has acknowledged that meeting this ambitious goal will require the significant uptake of zero emissions vehicles, such as EVs.

Besides legislation to cut CO_2 emissions, renewed interest in local air quality was observed as well as interest in industrial development, which made the establishment of a national EV-industry plausible. **Noteworthy is also the fact that pieces of legislation, mandating cuts in CO_2 emissions from cars, for instance, act to break the relationship between zero emission vehicles and fossil fuel prices.** Therefore, despite the current oil price collapse, car manufacturers still have to comply with the strict limits on fuel economy and CO_2 emissions in order to sell cars in Norway.

Moreover, Norway has ensured an almost carbon neutral electricity sector, with hydropower facilities covering over 95% of domestic generation[3]. This has contributed in building the business case for EVs.

March 2015: Status of EVs in Norway

Latest figures show that over 43,253 EVs are now registered in Norway, utilising and charged via the country's overwhelmingly renewables-generated electricity. The most popular EV models sold in Norway, the Nissan Leaf and Tesla Model S, have accounted for 13% of new car sales since the beginning of 2014. Norway became the first country in the world where 1 in 100 cars on the road are electric. This substantial growth in EVs is attributable to the competitive incentives the Norwegian government has provided.

Common misconception about EVs: *Higher costs*

EVs remain more expensive relative to conventional cars; this has acted as a barrier to their wider uptake in the majority of EU Member States.

Norway has introduced a car import tax which is calculated on the basis of a car's CO_2 emissions, NO_X emissions, effect and weight. By gradually transforming the system so as to ensure the rewarding of low-carbon emissions, and penalisation of more polluting cars, the import tax plays an important role in making EV purchase

[2] http://www.evnorway.no/

[3] http://climateactiontracker.org/countries/norway.html

more attractive to consumers, as well as in rendering the 85 gram target by 2020 achievable.

What is more, the Norwegian government has implemented a very generous package of financial incentives for consumers. For instance, those who purchase an EV in Norway are exempted from high rates of purchase tax as well as from VAT. This has an enormous effect, given Norway is a country where taxes can double or even triple a car's purchase price. Moreover, owners pay no road and ferry tolls and enjoy free parking in public charging spots. They also benefit from more affordable insurance and may re-charge their vehicle for free from thousands of points across the country.

Green lights for EVs: EV owners in Norway are granted automatic access to bus lanes, allowing them to avoid traffic jams and commute more rapidly during rush hour

As a result of these financial incentives, the total cost of ownership of an EV in Norway has been lower than that of their internal combustion engine (ICE) counterparts. **In fact, a recent study in Norway has shown that 41% of EV buyers consider cost-saving as the primary reason for buying an EV.** This share of price-conscious EV buyers is even higher in the general population compared to early EV adopters[4]. It is clear that EVs have entered the main stream for consumers considering a new car. "Carbon footprint reduction" is the second most frequently cited motivator for purchasing an EV. Interestingly, EV ownership seems to trigger a dynamic change in terms of bringing about a stronger sense of environmental consciousness within EV drivers over time.

Common misconception about EVs: *Incompatibility, lack of re-charging points and limited driving range*

Perceived or actual lack of charging points as well as the lack of compatibility between these, have been important factors undermining consumer confidence in the EV technology.

To improve consumer confidence in the technology and its practicality, local government and manufacturers in Norway offer free re-charging from thousands of points across the country and will also provide subsidies amounting to up to €6,000 a year per vehicle for the installation of charging points in homes. Thanks to a concerted effort to complete EV charging routes, it is now possible to drive an EV from the South of Norway to the Russian border – a distance equivalent to driving from Oslo to Rome. Evidence has illustrated that the limited driving range of EVs is only a psychological barrier. In fact, lead EV model Nissan LEAF revealed that European owners of this EV model travel more than 50% further per year (10,307 miles) than the European average for the traditional ICE vehicle (6,721 miles)[5].

Future Outlook for EVs in Norway:

The incentives put in place in Norway were aimed at boosting the total EV number of the country by

[4] http://www.mckinsey.com/~/media/McKinsey%20Offices/Netherlands/Latest%20thinking/PDFs/Electric-Vehicle-Report-EN_AS%20FINAL.ashx

[5] http://electriccarsreport.com/2015/01/leaf-drivers-cover-miles-average-ice-vehicle/

another 50,000 by 2018. Given the current rate of EV penetration, this number might be reached as early as the summer of 2015. This has raised questions of how long EV owners can expect to benefit from the successful incentive schemes. Despite potentially having to rethink its EV policies, Norway's Prime Minister Erna Solberg has promised that significant fiscal advantages to driving EVs will remain to ensure their popularity is retained and allow Norway to reach its climate goals with the attainment of its 85 gram target. Moreover, there are indications of increased competition which could lead to future price reductions, leading to further increases in EV sales.

The Norwegian experience shows that in order to be successful, an incentives scheme should be composed of both push and pull factors. The combination of the EV-friendly car taxing system together with the possibility to drive EVs cheaply (i.e. escaping road fees and using bus lanes) has enabled the massive uptake of EVs in Norway. The country's ability to ensure further building of fast charging stations has been key to building consumer confidence and continuing the EV success.

Over time, as battery prices drop further and increasingly efficient cars become mandated, the optimisation of ICE cars will become increasingly difficult. These developments, alongside progressively lowered EV manufacturing costs, will ultimately become the primary market drivers for the technology. This in turn will justify the loosening of government-provided financial incentives over time. Bellona expects of the Norwegian government to ensure sustained and targeted support to EVs as their continued uptake will be essential in attaining the country's objective of achieving a carbon-neutral transport sector by 2030.

Spot the internal combustion engine?

Bellona-driven EV Victories

1990: Temporary exemption from the one-off purchase tax

1996: Final exemption from the one-off purchase tax; Exemption from annual tax

1997: Exemption from road tolls

1999: 'EL' on license plates; Exemption from parking charges at public sites

2000: Reduced taxes on electric company cars

2001: Zero rate VAT-charge for purchase

2003: Trial period for free usage of bus lanes (in Oslo and Akershus)

2004: Renewed annual tax exemption

2005: Renewed reduced taxes on electric company cars; Free usage of bus lanes introduced nationally

2008: Development programme for charging infrastructure in Oslo; Additional km-remuneration incorporated in state travel regulation

2009: Further reduction of reduced taxes on electric company cars; Free travel on highway ferries; Transnova grant (NOK 50m) for national charging infrastructure

2011: Double parking made legal for smaller EVs; EV Exemption from congestion charges

2012: Governmental climate agreement ('Klimaforliket') secured tax exemptions till 2017 or till 50 000 EVs are on the road

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