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e-Mobility in Denmark

E-cars:

Since 2008 there has been a high focus on E-mobility in Denmark. This has led to some political incentive models but has not generated a specific high number of sales of EV's. EV's have been without taxation for a number of years in Denmark but due to high cost compared to petrol/diesel cars, and the low level of technology and range anxiety – the cars has mainly been sold to municipalities and public organisations, and a widespread carsharing scheme in Copenhagen. This is operated by two actors "Drive Now" and "Green Mobility" both parties are operating a system of about 400 EV's in the area of Greater Copenhagen.

The general number of EV's sold are about 12.500 including a low number of hybrids also. A vast majority of these cars are sold to public and not private customers, and therefore you could state that the market is not matured in terms of cars sold. At the same time a great number of charging spots have been established and deployed in and around Denmark. The majority in Copenhagen but also a well-connected quick charge network along-side the highway roads have been build. A number of about 2.500 charge spots which equals to about 4 cars pr. charge spot in Denmark. This making Denmark probably the country in Europe with most charge spots pr. EV sold.

There has not been carried out any direct incentive programme with discounts or fixed amounts awarded to the buyer of an EV in Denmark, nor have we seen any traffic regulations or benefits that is like the things done in Norway for instance. Free parking was tried in Copenhagen but taken away again by the public authorities. Right now, several talks and promises done by Politicians in Denmark are asking for numbers of up to 500.000 – 1 mio. EV's should be sold in Denmark before 2030, and a total stop for sales of diesel cars in 2030 also – this has yet to be implemented and agreed though.

Denmark has no car production and is seen as a small market. This is a challenge since the OEM's are not prioritizing the Danish market in terms of delivery. Therefore, we see a greater demand than supply right now, and 6-12 months of waiting time for the cars to be delivered to customers. Now, we see a rise in interest and more models and better prices entering the Danish market. Right

now, the most popular models in Denmark are the Renault Zoe and Nissan Leaf – but Hyundai and Kia are facing a rise in interest and purchase now with their new EV-models also. Tesla was the most sold EV beforehand and the Model 3 is also being sold in Denmark now.

E-buses:

Denmark have been testing both E-busses and CNG busses for several years. This year we see the first large scale procurement and installations of E-bus systems in Roskilde (west of Copenhagen) and new political decisions that all new procurements of busses in the City of Copenhagen must be Electric.

At the same time test and small-scale operations on autonomous E-busses in certain save areas has started and will be implemented in the following years.

In general, the largest operators of busses in Denmark and the traffic planning authorities are working closely together to transform the current diesel busses to E-busses, and there is no doubt that this will happen in larger scale around Denmark in the coming 10 years.

E-bikes:

As the biking nation of the World, we have a huge number of bikes on the road daily in Denmark. A smaller number of local projects have been carried out by municipalities to get local citizens to bike and to invest in E-bikes. But there has not been any big effort by politicians to incentive sales of E-bikes. The number of sold E-bikes in Denmark is still very small compared to normal bikes. This is mainly due to the very high prices and small number of different models and price levels.

In the area of Copenhagen, we have a carsharing E-bike system (Bycyklen), which is an initiative owned by several public stakeholders. The bikes are all over Copenhagen and in close distance to metro, bus and train stations. They can be rented on a cost pr. Minute base and needs to be put into a docking station when trip is finished – you will find more than 100 docking stations in the business area of the Bycyklen.

Since no greater political effort has been made to grow the sales of E-bikes we don't expect a revolution in this area in the coming years in Denmark, but with more models on the market and prices are lowed, we can now see a growth in sales and expect further growth over time.



E-logistics:

As part of the Interreg BSR-Electric project we are testing transport of goods and freight with e-vans and small e-trucks in Høje Taastrup Transport Centre.

Besides these activities, Denmark is very limited with e-logistic projects done or planned. This is due to the very limited numbers of products and cars on the market right now.

At the same time the price level of the introduced e-vans and e-trucks are high with limited range and functionalities. Therefore, there general interest in this market and to start transforming the e-logistic area is limited, at the moment.

At the same time this has a rising political interest, and especially municipalities are expected to make concrete actions towards a much "greener" procurement and tendering for climate friendly and zero emissions deliveries. The municipality of Copenhagen have a procurement budget of around 1,7 bill. €, and can therefore contribute to a significant amount of deliveries and business to invest in e-vans to carry out the "last mile" delivery.

Latest we have seen that the municipality of Copenhagen has demanded a small amount of their services to be carried out or delivered by zero emission cars. This is a strategy we expect to spread out to several other municipalities and thereby to accelerate the market in that way.

E-scooters:

There has been not been any direct political strategy or incentive scheme to enhance the uptake of E-scooters or to develop the area of micro mobility in Denmark.

All though there has now been implemented and launched two new E-scooter sharing programs in Copenhagen. These are operated by "VOI" and "TIER" which both are doing a big introduction of these 2-wheel E-scooter programs around Europe right now.

The effect and success of these to programs are not yet analysed or valued since they have been in operation for a very short time in Denmark.

E-ferries:

Two new E-ferries have come into operation this year in the strait between Helsingør in Denmark and Helsingborg in Sweden. The ferries, owned by Scandlines, is cofounded from the EU Elena T programme. The travelling time is about 20-25 minutes, and the ferries are charged on both sides of the strait by a robotic charging system.

Another E-ferry is "Ellen", which soon will start to operate between the island Ærø and Fåborg/Fynshav, cofounded from the EU-Horizon 2020 programme.

Analysis done about the Danish ferries transport, showed that app. 90 % of all ferries in operation in Denmark could be substituted and replaced by matching E-ferries. So, the potential and preliminary discussions about e-ferry usage between the main land and smaller islands in Denmark is definitely taking place.

Key ideas from Denmark:

1. Denmark was the first country to introduce a large-scale free flow carsharing program for EV's. With now about 800 cars running in the area of Greater Copenhagen, we have a lot of experience and knowledge of the challenges

regarding an operation like that. E-car sharing programs is a very effective way to get a lot of people introduced to EV's and to understand and experience the many benefits driving Electric.

2. The Danish electric grid network is very stable, and the huge amount of charge spots installed in Denmark is mainly done by 2 operators (EON & Clever) – So the infrastructure in Denmark is done and paid mainly by private operators – not public money. These two operators have a lot of experience and knowhow on how to create and develop a national network and could assist countries in early stages of that development.
3. In Denmark a public office managed by the Capital Region of Denmark, called Copenhagen Electric was established back in 2013. This office has over time generated a lot of different activities and serviced both private and public entities on questions and challenges regarding E-mobility. By creating a 1 point of contact with experts and funding means – it is possible to kickstart a lot of activities in the country. This also in regard to public tendering, EU-project coordination and engagement, local pilot tests and information campaigns and conferences on E-mobility – all handled by the Copenhagen Electric office.

(https://www.regionh.dk/trafik/elbiler/Sider/Om_Copenhagen_Electric.aspx)

More detailed analysis about different e-mobility solutions in Denmark is available from <https://bsr-electric.eu/materials>.