

Key Conclusions: Bellona's Electric Taxi Report

Disclaimer

This report has been prepared by Bellona with economic support from Transnova. The report analyzes the possibilities for - and barriers against - large-scale deployment of electric vehicles in the taxi industry in Oslo. Rooted in Bellona's cooperation with Oslo Taxi, the latter has contributed with statistics on driving patterns and other information utilized in the discussion section and several exemplifications. However the conclusions and regulatory recommendations in this report solely represent Bellona's views.

Context

In Norway the transportation sector (including all land transportation, domestic sea and aviation, in connection to fisheries and non-road mobile sources) is responsible for 32% of overall national greenhouse gas emissions. Emissions from transportation have increased by 29% in the period 1990-2010. Within the transportation segment, usage of public roads is the biggest contributor accounting for 19% of overall emissions in 2012. Globally the transportation sector accounts for approximately 15% of greenhouse gas emissions, which displays a considerable growth since 1990. This is due to the increased number of cars on the roads, in addition to increased activity in both shipping and aviation (OECD, 2010).

**Within the private market, Oslo is displayed as the world's "electric car capital".
Now it's time for the taxi industry of Oslo to establish a leading position as well, by introducing innovative technologies within zero-emission vehicles in its taxi fleet.**

Prime Minister Solberg's government has emphasizes the role of the taxi industry as part of the public transportation segment in its new political platform dated October 7 2013 (Sundvollen Declaration). Chapter 15 "Transportation" section "Public", says that "Taxi policies should be seen as part of the overall public policy, and the industry has an important mission and role in society." In the Declaration Chapter 13 "Environment and

Climate" section "Climate", emphasizes that the government will "develop and implement requirements that all new government vehicles, and all new taxis, ferries and trains run on diesel has to utilize low, or zero-emission, technology - when the technology is developed accordingly". Oslo City Council has additionally launched taxi regulations in 2013 which sets forth stricter environmental requirements and higher expectations to the local industry.

Conclusions

- Oslo is a city with favorable conditions to introduce electric vehicles in its taxi industry. The study shows that the area with the highest activity is limited to the city center, meaning that most trips are short both in time and number of kilometers. It is periodically a very high level of local air pollution in the city center, thus the transition to electric vehicles can benefit the environment greatly. Additionally, the large number of cars in this limited area is beneficial in terms of strategic and accessible deployment of the necessary charging infrastructure.

The first hypothesis scrutinized was whether "Ring 3" as a geographically limited area could provide a market segment particularly suitable for electric vehicles. Statistics on driving patterns from Oslo Taxi show that as much as 40 % of the total number of customer trips are short trips, limited to the Ring 3 area. This confirms the hypothesis.

- The report argues that Nissan Leaf is particularly suited for this specific market segment.
- If implemented, the use of Nissan Leaf would require for the taxi companies to restructure the booking service; more information would need to be disclosed when booking a taxi to ensure that the trip does not exceed a certain number of kilometers. E.g. making use of a booking application for mobile phones could provide the needed information.
- A key conclusion in the report is that new innovation provides the necessary technology to surpass limitations in driving/ battery range: The Tesla Model S provides the needed range (of 500 km +) to cover trips *outside the area* of Ring 3, thus has the possibility to cover the majority of trips in Oslo county.

- To ensure a successful introduction of electric taxies, the necessary charging points need to be in place. This calls for deployment of a number of charging stations across the city center of Oslo, with particular focus on Oslo west. It is emphasized that these stations need to be strategically placed; easy accessible areas and public places can be utilized. Parking lots outside public buildings and schoolyards are examples of centrally located areas that are usually unused after working hours/ at night.

Bellona's recommendations for decision makers to introduce zero-emission technologies in the Norwegian taxi industry.

1. A. Bellona believes that there should be a **policy requirement for each license holder to acquire a zero-emission vehicle** within a given timeframe to keep his/her existing license. This is viewed as the most effective regulatory action to phase in an electric taxi fleet. This recommendation sees this as the key instrument to achieve an efficient transition to electric taxies.
B. Bellona recommends that new taxi licenses are only granted to electric vehicles, preferably with an additional requirement that reserve licenses are only granted to zero-emission vehicles. This could be introduced in parallel with the first recommendation (A.).
NB: An important clarification needed is whether the current legal framework has sufficient authority for the government to introduce this type of requirements on existing licenses, or if these changes require a modification of the Administrative Transportation Act (Yrkestransportloven) – here the industry and the government has divergent perspectives thus far. Bellona takes no position in this dispute – our focus is on achieving improved environmental results.
2. **Oslo Municipality possesses a unique position** to play a key role in promoting the transition to electric vehicles in the taxi industry in Oslo, by ensuring public economic support for the charging infrastructure deployed for the taxi industry. Decision makers can implement this type of measure alone, or in cooperation

(cost sharing) with the industry, e.g. Oslo Purchasing Office for the taxi industry (Drosjenes Innkjøpslag) or the taxi centers/ head offices. Local authorities can contribute with both needed areas and economic support to deploy necessary charging infrastructure. Bellona urges Oslo City Council to be proactive in this type of adaptation, which can reduce the perceived barriers against electric vehicles within the taxi service industry.

3. **Oslo Municipality is a key customer**, hence possesses power to influence the market both due to purchasing a large number of trips, and in other areas of public procurement processes. The current government has expressed an increasing awareness of the need to take e.g. environmental issues into account in public procurements. An implementation of a higher environmental standard could create and increase a demand for electric taxis due to the large number of daily, weekly and yearly taxi trips ordered for public employees. Thus a stricter standard when utilizing Oslo based taxi companies would greatly encourage the industry to reform and implement electric vehicles in their fleet.
4. **The dedicated bus lines** in and out of Oslo city center are currently reserved for buses, taxis and electric vehicles. For the latter two, this is a unique benefit that cannot be taken for granted. With an ever increasing number of electric cars on the roads, there will be less excess space in these dedicated lines. The greatest challenges will occur in areas where lines are merging. Bellona suggests a regulation to limit crowded bus lines, e.g. by limiting the bus lines to only allow buses and electric taxies. If this would be implemented parallel to the other recommendations (1., 2. And 3.), this could be a great incentive for taxi license keepers to invest in electric cars. However, a current disadvantage is that customers to date do not have the opportunity to choose type of vehicle, and thus would have to take the consequences of ordering a conventional taxi involuntarily.