



CONTINUING THE SHIFT TO ELECTRIC VEHICLES

A look at Norway's actions to support electric-vehicle usage

As part of efforts to cut greenhouse-gas emissions, countries around the world are transitioning to electric vehicles. Norway began its journey toward widespread use of electric vehicles in the 1900s¹ and today the country is a recognized leader. In the following Q&A, Julia Obrovac, Head of Planning and Advisory Services, Transport & Infrastructure, WSP in Norway, discusses challenges that come with increasing electrification and steps to further advance it.



How can the transport sector help in reducing greenhouse gas emissions in Norway?

Julia Obrovac: Norway aims to reduce greenhouse gas emissions by fifty to fifty-five percent by 2030 compared to 1990. The major sources of emissions in Norway are oil and gas extraction, industry and transport in general; a sharp reduction in emissions in the transport sector is a clear focus area.

To reduce emissions in the transport sector, the government has made a significant investment in climate-friendly transport solutions. Among other measures, the government is subsidizing the purchase of zero-emission cars and has set a goal for this segment that only zero-emission passenger cars will be sold by 2025, and the same goal applies to light vans. New city buses will be zero-emission vehicles or use fossil-free fuel, also known as biogas, in 2025. By 2030, seventy-five percent of new long-distance buses and fifty percent of new trucks, including lorries, will be zero-emission vehicles. Furthermore, it is a goal that the transportation of goods and services in the largest city centers will be carried out by zero-emission vehicles by 2030.

Norwegian cities are setting targets in line with the national targets, and some of the larger cities have set an even more ambitious goal—zero emission² in all road traffic by 2030.

Relative to other countries in terms of the number of electric cars per capita, Norway leads the way. What are the main challenges that come with increasing electrification of road vehicles?

Julia Obrovac: Today, Norway is certainly in an advanced position; no country in the world has more electric cars per capita.³ In Norway in 2019, forty-three percent of all new passenger cars sold were electric vehicles. Though Norway continues from a strong base—increasing electrification of road traffic depends on a number of factors, such as availability of electric

¹ Institute of Transport Economics, Norwegian Centre for Transport Research, Summary of TØI report 1281/2013

² Zero-emission includes battery electric and hydrogen-powered fuel cell vehicles.

³ Government.no, "Norway is electric," November 29, 2019

cars and other electric vehicles, batteries with sufficient range, renewable energy, sufficient capacity in the local electricity grid and sufficient charging infrastructure.

Currently, shifting to an electric vehicle [EV] is voluntary. The passenger car segment—driven by policies and incentives created by the authorities—has taken the lead in the transition to zero-emission transport. Within this segment, it has been the innovators and early adopters who have transitioned to electric cars. The broad challenge now is to get the rest of the consumers to make the shift.

Market dialogues we have had with car importers in Norway convey that availability and easy access to charging infrastructure is key to greater consumer adoption; today's and tomorrow's electric car users are more demanding than the early adopters who have greater enthusiasm and personal interest in electric cars. The new users that we seek are less willing than early adopters to accept potential inconvenience. If it is more difficult to use an electric car than a fossil car—to access charging versus petrol—then people will not switch; it must be easy to charge the electric car.

Another challenge is to get the transition going in the commercial sector, the vans segment [small light commercial vehicles]. For the vans segment, in Oslo, for example, sixteen percent of all new vans sold in 2019 were electric, and five percent of the fleet were electric.⁴ In this segment, the cost of using an electric vehicle and the associated technical limitations, in addition to lack of sufficient charging infrastructure, have been the major barriers for making the shift. However, we are now seeing a rapid change in the commercial sector, as new electric van models enter the market with better

battery range and thus a better business case for using an EV.

As I mentioned earlier, with an increase in demand comes the challenge of establishing the necessary charging infrastructure to support the current transition to emission-free vehicles. The development of the infrastructure-charging network must keep pace with the sales of EVs, and preferably be ahead; otherwise there is a risk that the transition towards zero-emission road traffic will slow down or, worse, stop.

How are municipalities contributing to the development of charging infrastructure in Norway?

Julia Obrovac: Municipalities have played a major role as early market supporters, stimulating the transition to electric passenger vehicles at an early stage so that the trend accelerated and it became commercially attractive for commercial players to offer charging. Municipalities have also played an important role in establishing charging infrastructure in areas where it wasn't, or wasn't likely it would be, economically attractive for commercial players to offer charging. This is usually the case in residential areas dominated by apartment blocks, where there typically is a need for in-street charging units.⁵

To establish the necessary charging infrastructure, a few key actions are required: facilitation, financial incentives and regulation. These factors interact and support each other.

As owners of municipal land, or street areas, municipalities can allocate land to charging. They can offer financial support schemes for the establishment of charging infrastructure and, as

⁴ [Opplysningsrådet for veitrafikken \(OFV\)](#). [The Road Traffic Information Council], 2019

⁵ These in-street units are slow-charging: AC charging up to 11kW/22kW.

a regulatory authority, they can set requirements for the establishment of charging infrastructure.

Municipalities can also contribute by supporting pilot projects and testing new technology that can promote the transition to electric vehicles in the transport sector. In Oslo, for example, as part of an effort to make a zero-emission taxi system by 2024, the city is supporting a pilot project aiming to install wireless, induction-based charging stations for electric taxis.

The overall goal of the municipality should be to give all of the city's residents the opportunity to switch to zero-emission transport.

What steps has Norway's capital, Oslo, taken to accelerate the continued transition to electric vehicles?

Julia Obrovac: The City of Oslo has provided good incentives to accelerate the transition to electric mobility. It has been free to park, charge, and free to pass through the toll ring, the congestion charging system. Also, EVs have been allowed to drive in the taxi and bus lane, which has been a benefit for commuters in terms of avoiding cues.

With a sharp increase in the number of electric cars, a cautious user fee for electric cars has been introduced, and the rates are significantly lower than for fossil cars. As of March 2019, payment was introduced for parking and charging at municipal charging stations. This measure is meant to streamline the use of the charging infrastructure, finance new development and make it more attractive for commercial players to enter the market. Charging stations in areas without paid parking are still free.

When using access to charging as a strategic tool to ensure the transition to electric vehicles,

price must be taken into account. If it becomes more expensive to run on electric compared to petrol or diesel, the transition to electric mobility may stop. This operational factor becomes especially critical for the van, truck and taxi segments, which are still in an early transitional stage toward electrification. The choice of vehicle for commercial transport is primarily governed by cost calculations.

As cities support more walking and cycling, how do associated infrastructure changes affect the capability to build more vehicle-charging infrastructure?

Julia Obrovac: In Oslo, the number of parking spaces is being reduced as a means to stimulate walking, cycling and use of public transport, and the allowances regarding where charging infrastructure can be built have been tightened. This makes it very difficult to find suitable locations to establish public charging stations along the road. Use of land outside street areas often presents legal and financial challenges; for example, in Oslo, renting municipal or private land entails very high operating costs for the charging infrastructure. Finding suitable locations in the city is therefore a critical factor for further development of charging infrastructure in the city.

This need demands that the infrastructure that is built today is flexible—resilient—so that it can be adjusted to accommodate changes in future charging needs—and be scaled to meet the needs that come with new mobility. Shared mobility and incorporation of autonomous vehicles will both result in a higher degree of utilization of vehicles compared to today, and this use is likely to increase the demand for faster charging compared to what has normally been available today at charging stations.

Can you suggest a couple of key points to guide efforts in transitioning to EVs around the world?

Julia Obrovac: It is important to give people a real choice—making EVs a practical alternative through ease of use and cost is key to supporting broader emission-reduction efforts. When it comes to the purchase of an electric car, tax exemptions in Norway have meant that the price of an electric car has been comparable to a petrol or diesel car. Localized support for EV infrastructure has also been essential to supporting widespread transitional efforts.

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