

HOW ELECTRIC PASSENGER CARS IN TRAFFIC USE ARE SUBSIDISED IN FINLAND

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This article discusses subsidies to electric cars in traffic use in Finland, as well as which fees are available for electric cars in Finland and how taxation on electric cars compares to the rest of the car fleet. The report also deals with subsidies for the construction of the charging infrastructure for electric cars. The report highlights the relevance of electric cars in reducing CO₂-emissions, and how the electric car fleet should develop in the future in order for Finland to achieve its climate goals.

INTRODUCTION

The article HOW ELECTRIC PASSENGER CARS IN TRAFFIC USE ARE SUBSIDISED IN FINLAND is part of the Green Energy Regional Markets Development (Green ReMark) project, funded by the South-East Finland–Russia CBC 2014–2020 programme and project partners. The aim of the project is to promote cooperation across the border between the EU Member State Finland and the Russian Federation. The Green ReMark project supports the growth potential of the new and attractive green economy, its commercialisation, and awareness raising. The Green ReMark project partners are Peter the Great St. Petersburg Polytechnic University, the South-Eastern Finland University of Applied Sciences, Miksei Oy and Neva Energy Ltd.

The challenges of climate change are globally recognised and scientifically proven. International efforts have been made to reach agreements to curb greenhouse gas emissions as well as global warming. One part in reducing greenhouse gas emissions is limiting traffic-related CO₂ emissions. Traffic CO₂ emissions can be reduced by low-emission vehicles. In order to respond to the agreed CO₂ emissions targets in Finland, both EU and national legislation can be used to increase the number of low-emission vehicles and at the same time reduce greenhouse gas emissions. Increasing the number of electric cars is part of the Finnish Government's solution to cut CO₂ emissions from traffic.

This article discusses Finland's national subsidies for electric cars and their infrastructure. The impact of transport on greenhouse gas emissions reduction is also highlighted.

TRAFFIC TRANSFORMATION IN FINLAND TOWARDS LOW EMISSION VEHICLES

In Finland the CO₂ emissions from the three largest sectors account for nearly three-quarters of GHG emissions: industry CO₂ emissions cover 27 %, power and heat 26 % and transport 20 % of national GHG emissions in CO₂.

SITRA's study (Cost-efficient emission reduction pathway to 2030 for Finland) suggests that transport's share of Finland's CO₂ reduction should be 6.2 MtCO₂ abatement, a 25 % share of the total targeted emissions reduction. The study recommends that diesel and petrol vehicles are rapidly and extensively replaced by battery electric vehicles and plug-in hybrids both in consumer and commercial use, reaching 800,000 electric passenger cars, 200,000 lorries and almost 8,000 buses on Finnish roads by 2030. Electric lorries, buses and passenger cars could realise an abatement of about 4.6 MtCO₂ by 2030, while increasing the biofuel blending rate to 30 % and internal combustion engine (ICE) efficiency improvements could realise another 1.6 MtCO₂.

To be in line with international CO₂ reduction commitments, Finland will also need traffic transformation to low emission vehicles to cut emissions. The SITRA study (Cost-efficient emission reduction pathway to 2030 for Finland – opportunities in electrification and beyond) shows that electrical transportation could be one of the most cost-effective measures to cut CO₂ emissions in Finland.

CURRENT SITUATION AND THE NUMBER OF ELECTRIC PASSENGER CARS IN TRAFFIC USE IN FINLAND

The total number of electric cars in Finland has grown slowly since 2010. The number of electric passenger cars in traffic use by the end of the year 2018 was 15,499 pcs. Battery electric vehicles were 2,404 pcs and plug-in hybrid vehicles 13,095 pcs. However the number of electric passenger cars in traffic use has more or less doubled every year since 2010. (Finnish Transport and Communications Agency 2019a).

Considering the number of electric cars, Finland has been left behind by some other Nordic and EU countries. For example, Sweden and Norway have invested more in purchase subsidies for electric cars to increase their electric car fleet than Finland. In Sweden and Norway, subsidies and advanced infrastructure for electric vehicles have encouraged consumers to make the transition from combustion to low emission electric vehicles. Even if the total number of electric cars is modest in Finland, electric cars' relative share of car sales is better when compared to EU countries. In EU countries, the relative share of PHEV (Plug-in Hybrid Electric Vehicle) and BEV (Battery Electric Vehicle) sales was highest in Sweden, Belgium and Finland, with shares of 5,5 %, 2,7 % and 2,6 % of national car sales in 2017. (The European Environment Agency 2018)

PURCHASE SUBSIDY FOR ELECTRIC PASSENGER CARS IN TRAFFIC USE

The purchase subsidy for electric passenger cars was introduced at the beginning of 2018. For the period 2018–2021, people who are either buying a new electric passenger car or signing a long-term lease agreement for an electric passenger car may receive a €2,000 purchase subsidy from the Finnish Government. (Finnish Transport and Communications Agency 2019c).

LEASING AN ELECTRIC CAR

If applying for the subsidy is not possible directly from the car dealership, the service provider may apply for a leased car purchase subsidy through a separate application. The subsidy is paid to the service provider's bank account.

The service provider may apply for the purchase subsidy between 1.1.2018 and 30.11.2021. The service provider must apply for the reimbursement from Traficom no more than six months from the time when the car was delivered to the leaser.

The leaser must authorise the service provider to apply for the purchase subsidy on their behalf. The service provider must keep the letter of authorisation for inspections for a period of two years. The decision on whether to grant the purchase subsidy is made based on the application, and the leaser is informed of the decision. (Finnish Transport and Communications Agency 2019c).

The leasing service provider must report to Traficom if the lease agreement ends before the three-year period is complete. (Finnish Transport and Communications Agency 2019c).

TAXATION FOR ELECTRIC PASSENGER CARS IN TRAFFIC USE

Purchase and operational taxes for electric cars are set mainly in relation to the cars' emissions. Both car- and motor-vehicle tax is lower for low emission cars, favouring electric cars. This is expected to increase the size of the electric car fleet in Finland.

MOTOR VEHICLE TAX FOR PASSENGER ELECTRIC CARS IN TRAFFIC USE

Motor vehicle tax for a passenger car is composed of a base tax and, in some cases, an additional tax on the driving power if the car uses a fuel other than petrol. Cars which weigh under 2500 kg and were brought into use from 1.1.2001 or later have a base tax related to the car's CO₂ emissions. The lower the emissions are, the lower is the base tax. Taxation

is the method by which the government persuades car buyers to have a low emission car. (Finnish Transport and Communications Agency 2019d).

TABLE 1. Examples of base tax in the year 2020, WLTP-measuring. (Finnish Transport and Communications Agency 2019d)

CO ₂ emissions (g/km)	Base tax euro/ year 2020
0	53,29
50	72,63
100	103,66
150	160,96
200	285,43
250	424,49

Another element of motor vehicle tax is an additional tax for driving power. For electricity, it is 1.5 cent/day/100kg. When using electricity + petrol, the tax is 0.5 cent/day/100kg. When using electricity + diesel, the tax is 4.5 cent/day/100 kg. For diesel cars, the tax is 5.5 cent/day/100kg and for methane cars 3.1 cent/day/100kg.

This additional tax for driving power is not in line with low emission targets because of the zero tax on petrol, but on the other hand, battery electric cars have low additional tax for driving power compared to diesel, for example. (Finnish Transport and Communications Agency 2019d)

TABLE 2. Additional tax for driving power. (Finnish Transport and Communications Agency 2019d)

Tax on driving power for passenger cars	
Driving power	cent/day/100kg
diesel	5,5
electric	1,5
electric+petrol	0,5
electric+diesel	4,9
methane	3,1

CAR TAX FOR ELECTRIC PASSENGER CARS IN TRAFFIC USE

In Finland, the car tax is determined on the basis of the general consumer price of the car. The tax rate is based on the information from the car manufacturer's CO₂ emissions (g/km), which correspond to the car's specific fuel consumption (l /100 km) of the combined urban and road cycles. (Veronmaksajain Keskusliitto 2018).

From the beginning of September 2018, CO₂ emissions for new passenger cars, and partly for vans, were measured using the new Worldwide Light Vehicles Test Procedure (WLTP). The transformation in the measurement method was based on European Union legislation. The new measurement method is more accurate than before and describes the vehicle specific emissions better.

The amount of the tax rate changes according to the amount of emissions, so that it increases as CO₂ emissions increase. Maximum (48.9 %) and minimum (2.7 %) percentages are set for car tax. (Veronmaksajain Keskusliitto 2018)

TABLE 3. Examples of car tax formation according to emissions. (Ministry of the Justice 2018)

CO ₂ emissions (g/km)	3.-31.12.2018 tax percentage	1.1.2019 tax percentage
0	3,3	2,7
50	4,9	3,9
100	8,1	6,8
150	17,6	16,8
200	29,7	29,7
250	38,6	38,6

THE ELECTRIC CAR AS A COMPANY CAR, UNLIMITED BENEFIT

In the case of all-electric vehicles that run entirely on electricity, the taxable value of an unlimited company-car benefit is reduced, by subtracting either 8 cents per kilometre, or alternatively, €120 from the monthly value (The Finnish Tax Administration 2019)

CONCLUSION

To be in line with international climate change commitments, Finland will need traffic transformation to low emission vehicles to cut its greenhouse gas emissions. Electric cars can be a substantial part of CO₂ emission reduction. Studies show that up to 25 % of the total targeted emission reduction can be achieved with low emission traffic. Electrical transportation could also be one of the most cost effective measures to curb GHG emissions in Finland.

The total number of electric cars in Finland is modest, but has more or less doubled every year since 2010. If it is desired to make further progress towards achieving the required number of electric cars, efforts are needed to increase the number in the electric car fleet. The targets set by Ministries to increase the number of electric vehicles in Finland within the desired timeframe require further efforts to support a low-emission vehicle fleet.

Adequate purchase subsidies for low emission vehicles would speed up the purchase of low emission cars and fossil fuel tax increases would benefit those who use electric vehicles. Lower binding CO₂ limit values for new passenger cars must be regulated at the EU level to increase the number of electric cars, and subsidies are needed for the construction of the necessary infrastructure for electric cars.

Reducing greenhouse gas emissions from traffic in Finland by increasing the number of electric vehicles is possible but challenging. In international climate agreements Finland is committed to reducing emissions within a specific timeframe. Within this timeframe, upgrading the Finnish low-emission car fleet is an ambitious, though not impossible task.

For the fleet to be modernised to low-emission vehicles on the desired schedule, subsidies would be needed not only for the purchase of low-emission cars but also for the infrastructure they require.

Both EU and Finnish national strategies and legislation are needed to increase the number of low-emission vehicles and municipal actors are also required to act, specifically in planning and implementing legislation for the use of electric vehicles.

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