

SUPPLEMENTARY

Part 3. Additional information which was given to the respondents (experts) related to the first round of the Delphi study

Purchase subsidy

When the Delphi study was conducted in autumn 2021, a EUR 2,000 purchase subsidy had been in place for new EVs in Finland from the year 2018, but there was no decision whether it would continue after December 2021. About one week after the second round of the Delphi study closed, on 11th of November 2021 the government of Finland proposed continuing the EUR 2,000 subsidy and the decision was made accordingly in 13th of December 2021. The decision was made to continue the purchase subsidy so that the EUR 2,000 subsidy is available for people who buy or make a long-term rental for a BEV which costs EUR 50,000 at the maximum, which is like the previous regulation (Finnish Parliament 2021a) (Finnish Parliament 2021c). The decision to continue the subsidy also in future was expected in the public discussion but was difficult to estimate how the Delphi study respondents (experts) thought about the baseline, i.e., is the purchase subsidy continuing or not.

Annual taxation

Annual taxation was included in the Delphi study as it was considered important in previous studies. However, Finnish annual taxation of passenger cars is already strongly determined by the CO₂ emissions. Therefore, it is already highly favourable towards EVs which probably decreases the possibility that can be gained through changes in this factor.

The annual vehicle tax consists of a basic tax and a tax on driving power. The basic tax is affected by the level of the vehicle's CO₂ emissions. Currently, the basic tax for BEVs with 0 g CO₂/km is approximately EUR 50 per year. The tax on driving power is imposed on vehicles that are powered by some other source or fuel than a petrol engine. Currently, tax on driving power for BEVs is 1.5 cents per day for each partial or complete 100 kilograms of total vehicle mass. Therefore, at present, the BEVs benefit from a low CO₂-based basic tax, but an annual tax is collected on the driving power, which is not the case for petrol-powered cars. Therefore, a petrol-powered car with low emissions may have a lower annual tax compared to a BEV. Currently, midsize petrol car with 140g CO₂/km has around EUR 20 lower annual vehicle tax compared to a similarly sized BEV. The respondents (experts) were instructed to focus on annual taxation of midsize cars, and Nissan Leaf and Skoda Octavia were mentioned as examples. Table C1 presents an example of how the annual tax is calculated for different types of cars in Finland.

Table S1. Example of annual taxation of medium-sized passenger cars (2000 gross mass) in Finland.

Types of cars	Basic tax (EUR)	Tax on driving power (EUR)	Total (EUR)
BEV (0g CO ₂ /km)	50	110	160
Petrol car (110g CO ₂ /km, WLTP)	110	-	110
Petrol car (140g CO ₂ /km, WLTP)	140	-	140

Use cost difference

If the purchase price, maintenance costs and estimated resale value are considered, the total cost, with a 5-year lifetime and an annual mileage of 15,000 km, of 38 cents/km for a petrol-powered car, 40 cents/km for a diesel car and 37 cents/km for a BEV can be estimated. The tax is estimated based on the average weight and emissions of the size class. Fuel consumption is based on the declared fuel consumption (based on WLTP, Worldwide Harmonised Light Vehicles Test Cycle) and an additional 20% increase is based on previous Delphi study results (e.g., Dornoff, Tietge & Mock, 2020, On the way to "Real-world" CO₂ Values: The European Passenger Car Market in its First Year After Introducing the WLTP). Electricity consumption by a BEV is the declared electricity consumption and an additional 40% is estimated according to Finnish conditions and winter weather. However, the size of the difference between the use costs will hardly change, even if the rate would be substantially smaller. Regarding electricity for charging, it is assumed that the charging will take place entirely at home and the purchase of a home charger (EUR 1,200) has been included in the purchase price. Table C2 shows the unit values of the components of use costs.

Table S2. Unit values of components of use cost of different types of cars in Finland.

Factors	Petrol-powered car	Diesel car	BEV
Purchase price (EUR)	23,000	24,000	37,000
Vehicle tax and tax on driving power (EUR/a)	184.32	487.27	182.86
Residual value (EUR, after 5 years)	12,000	10,000	20,000
Unit cost of driving power	1.599 EUR/l	1.399 EUR/l	0.13 cents/kW