

## Article

The British government has extended its subsidies for electric cars but is again reducing the subsidy amount. For other electric vehicles, such as vans, trucks, taxis or motorcycles, the subsidy has been extended but the subsidy rates remain the same.

Specifically, the so-called “Plug-in Car Grants” will be extended until 2023, but for electric cars, only grants of 3,000 pounds instead of the last 3,500 pounds will be issued, and this only up to a list price of 50,000 pounds. By the end of 2018, the premiums had already been cut from 4,500 to the aforementioned 3,500 pounds. Despite the designation, plug-in hybrids have been virtually excluded from the subsidy since the 2018 reform (the minimum range is 70 miles), which applies practically only to BEV and FCEV. The new subsidy of 3,000 pounds is effective immediately.

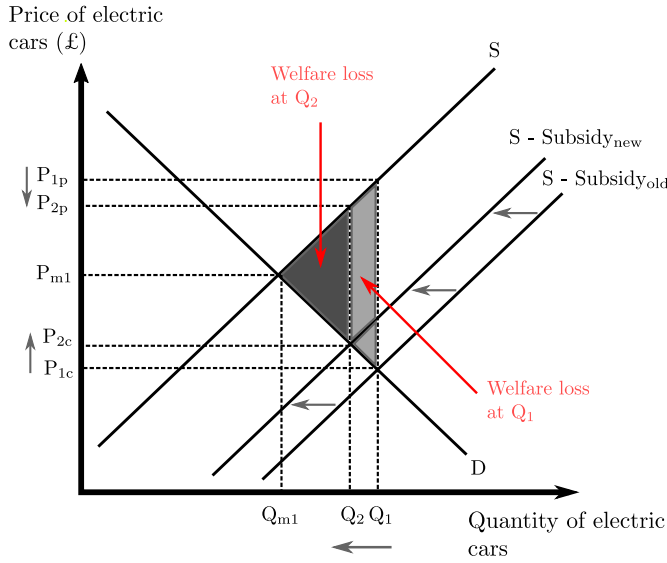
The government said that the reduced subsidy rate for electric cars and the price cap will “allow more drivers to benefit from making the switch for longer”. An opinion not everyone shares. The Association of Car Fleet Operators (ACFO) is disappointed with the decision, according to its own statement, and fears “an enormous impact on many currently popular electric cars”. The £500 cut is “goes against the raft of ‘green’ motoring-related initiatives,” said AFCO chair Caroline Sandall. Other experts generally welcomed the extension of financial incentives, but also called for non-monetary subsidies such as special parking spaces or entry permits.

Subsidies for electrically powered vans, large vans and trucks, taxis and motorcycles were also extended until 2023. There is no cutback here, so that 8,000 pounds for electric vans, 20,000 pounds for large vans and trucks, 7,500 pounds for taxis and 1,500 pounds for electric motorcycles will continue to be granted.

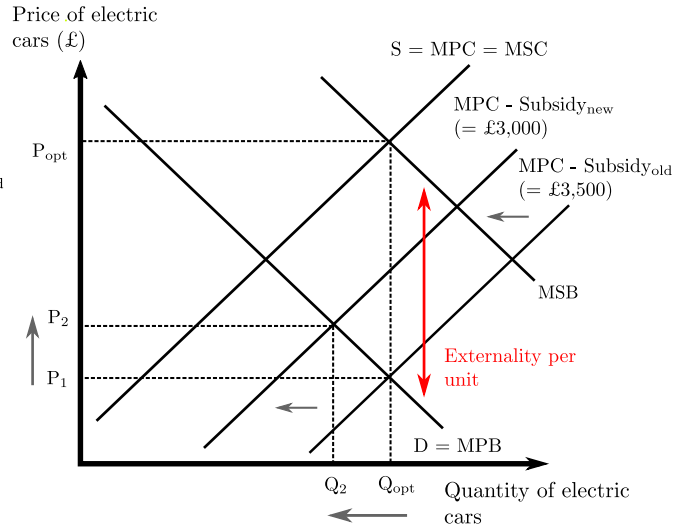
Further changes in funding practice are not ruled out: Depending on how the market develops, the subsidy rates may be reviewed and adjusted over time, the government said. So they will not necessarily remain at this level until 2023. The budget amounts to a total of 532.5 million pounds, of which 403 million pounds for electric cars and 129.5 million pounds for the other electric vehicles.

The UK Government has decided to extend the subsidy on electric cars until 2023, however, lowering the subsidy provided from £3,500 to £3,000, and removing the subsidy for cars priced over £50,000. A subsidy is a government grant given to individuals or firms to reduce costs of productions. Positive externalities of consumption are benefits that are gained by a third party as a result of a consumption of a good. Market failure occurs when the market allocates resources inefficiently. A welfare loss refers to a loss of portion of social surplus occurring from market failure.

## Analysis



(a) Figure 1: The market for electric cars



(b) Figure 2: The effect of the reduced subsidy of electric cars on society.

**Figure 1** shows the effect of the reduced subsidy on the market for electric cars, assuming that there are no externalities produced by electric cars. Without government intervention,  $Q_{m1}$  cars would be produced, but with the addition of the initial subsidy in 2018, the supply curve shifts from  $S$  to  $S - \text{Subsidy}_{\text{old}}$ , making quantity rise to  $Q_1$ , with a welfare loss illustrated by  $WL_1$ . However, the new policy lowers the equilibrium quantity from  $Q_1$  to  $Q_2$  due to rising costs of productions, raising price from  $P_{1c}$  to  $P_{2c}$  and reducing welfare loss from area  $WL_1$  to area  $WL_2$ , meaning that the reduced subsidy causes slightly more allocative efficiency in the eyes of society.

An electric car is a merit good as it reduces pollution emissions, and thus, has positive externalities of consumption, illustrated by the vertical distance between  $MPB$  and  $MSB$  - the extra benefit received by consumers and society for the consumption of an extra unit of a good respectively - in **Figure 2**. At the old subsidy, the market consumed at  $Q_1$ , but the reduction in subsidy led to a shift from  $MPC - \text{Subsidy}_{\text{old}}$  to  $MPC - \text{Subsidy}_{\text{new}}$ , bringing it closer to  $MSC$ , which lowers consumption to  $Q_2$ , and increases market price from  $P_1$  to  $P_2$ . This brings consumption further from the optimal quantity  $Q_{\text{opt}}$  from society's point of view (calculated by the intersections of  $MSC$  and  $MSB$ ) making electric cars more unprovided in society.

This policy may lead to less electric cars on the road as it raises the price for electric cars from  $P_{m1}$  to  $P_{m2}$ , going “against ... ‘green’ motoring-related initiatives”. This would increase the total cost to society, and decrease the total benefit to society.

However, the reduction in subsidy has an opportunity cost, where electric cars may be less funded, but the burden on government budget is reduced, allowing the government to invest in other merit goods such as healthcare and education, or decreasing the environmental footprint of petrol cars. If these were to happen, society could potentially benefit from the new policy despite lower supply and demand for electric cars.

In evaluation, petrol cars, a substitute good for electric cars, have greater negative externalities than electric cars, and the reduction in the subsidy would reduce the number of electric cars on the road, and

increase the number of petrol cars, increasing the external costs to society. Also, cars have a high price elasticity of demand as they take up a large proportion of the average person's income, which may have "an enormous impact on [the demand of] many currently popular electric cars".

Additionally, as petrol cars have been part of the market for longer, there are more producers, and also more consumer trust in petrol cars. For this reason, there will be certain price ranges where petrol cars will be the only option, limiting the consumption of electric cars at certain price points and therefore, the effectiveness of electric car subsidies, which the new policy partially addresses by removing the subsidy for cars costing greater than £50,000.

Moreover, the effect of the new policy also depends on the impact on the petrol car market. If the market preference was still petrol cars even with the £3,500 subsidy, the new policy may cause a lower reduction in quantity demanded.

Ultimately, if the UK government wants to "allow more drivers to benefit from making the switch for longer", the infrastructure for supporting electric cars needs to grow in order to meet the rising number of electric cars on the road. As such, the government could focus on using the extra budget on increasing the number of charging stations to make electric cars more appealing to consumers, thus reducing consumption of petrol cars and its associated negative externalities.

**Word Count:** 745