

# Science for Environment Policy

## What makes consumers buy alternatively-powered vehicles?

**Better fuel economy**, lower emissions and longer driving ranges are important factors for people considering the purchase of alternatively-powered vehicles (APVs), new research suggests. The German study also found that people would consider paying more for an APV if they could enjoy vehicle tax exemptions, free parking or bus lane access.

**Transport** is a major contributor to the EU's [greenhouse gas emissions](#) and many Member States have devised programmes to encourage consumers to purchase APVs. However, uptake remains very low.

This study issued a web-based survey which asked respondents to consider features that would influence their choice of vehicle. Seven car types were presented: biofuel, natural gas, hydrogen fuel cell electric, hybrid electric, plug-in hybrid electric, fully battery electric and conventional (petrol or diesel). A total of 711 individuals completed the survey and all had either purchased a car (of any type) in the last year, or were intending to purchase a car in the coming year.

Price, fuel cost and CO<sub>2</sub> emissions all had significant impacts on stated car choice. Younger individuals, and those looking for cars mainly for city trips, were more likely to have a preference for fully electric or hybrid vehicles. Driving range (distance possible on a full tank or battery) and battery recharging time influenced preferences for fully electric vehicles.

The researchers also explored consumers' willingness to pay for different vehicle features. Depending on their target price range, it emerged that consumers would be willing to pay between €530 and €1 070 for savings in fuel costs of €1 per 100 km, suggesting they would accept a payback period of three and a half to seven years.

Consumers would also pay between €20 and €90 to reduce CO<sub>2</sub> emissions by 1%, again according to target price. Willingness to pay for improved driving range varied considerably with vehicle: it was greater for fully electric cars at €16 to €33 for every kilometre of increased driving range, whereas for other APVs it was €8 to €17.

Government incentives also had a substantial influence. For example, if there was a tax exemption for the vehicle over its entire lifetime, respondents were willing to pay between €2 330 and €4 700 more compared to other cars. Consumers would also be willing to pay €1 620 to €3 280 more if there was free parking and permission to use bus lanes.

Finally, the researchers examined the impacts of policy and actions by the automotive industry on the uptake of APVs. This scenario analysis combined the preferences identified in the survey with current market data. It indicated that conventional vehicles are expected to continue to dominate the market with natural gas vehicles and hybrid electric vehicles are APVs most likely to make a substantial market entry. Market share of plug-in hybrid and biofuel vehicles could be improved through monetary incentives (e.g. tax exemption) and non-monetary incentives (e.g. permission to use bus lanes). In the case of battery vehicles, a guaranteed driving range of 750 km could substantially increase their market share.

The researchers concede that the survey did not analyse the actual purchasing decisions of all respondents and more research is needed to compare the preferences reported in this study with real behaviour.



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