

## **Product Innovations in Hybrid Electric Vehicle Vehicles: Comparative Study of Carbon Dioxide Emissions and Operational Parameters of Selected Passenger Cars\***

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### **Abstract**

Observations from the automotive sector indicate that hybrid cars are becoming more and more popular and constitute a cheaper and more efficient alternative to electric cars. Therefore, from a scientific point of view, it is important to evaluate them in terms of selected operational parameters. The aim of the article was to analyze road carbon dioxide emissions of selected models of passenger cars HEV on the roads of one of the European countries. Additionally, an analysis of fuel consumption depending on mileage and an assessment of the energy efficiency of individual passenger vehicle models were carried out. The research process used both secondary data from vehicle manufacturers and proprietary simulations performed in real road conditions. It was found that the road carbon dioxide emission of selected HEV vehicles from the presented sample (30 vehicles) was reflected in the average carbon dioxide emission value most similar to the Volvo S90 T8 Twin vehicle after driving 96 km (117 g/km). The conclusion from the research is that HEV cars not only emit less harmful substances into the environment, but their energy parameters are more optimized than in the case of vehicles equipped with conventional drive units. The recipients of the study are both the demand side - vehicle users who are considering purchasing an HEV vehicle.

**Keywords:** innovation, technology, new product, hybrid vehicles, green IT.