

## **Analysis of the influence of vehicle usage pattern on the optimum range extender drive-line configuration for a compact-class passenger car**

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### **ABSTRACT**

This paper examines the influence of vehicle usage pattern on the CO<sub>2</sub> emissions of a compact class passenger car, using a correlated drive-cycle simulation. A variety of drive-cycles will be used to illustrate how variation in daily driving range and mean vehicle speed influence the optimum drive-line configuration. Various drive-line configurations, including series and parallel electric hybrids, are analysed using a variety of logged usage patterns and legislative drive-cycles, including the NEDC and WLTP. The results show which vehicle architecture yields the lowest tail-pipe CO<sub>2</sub>, well to wheel CO<sub>2</sub> and total life-cycle CO<sub>2</sub>.