Noise: Future operational impacts of electric vehicles on national European Roads (FOREVER)

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Presentation

The FOREVER project addresses future vehicle technologies, specifically electric (EV) and hybridelectric vehicles (HV) and low-noise tyres, as part of Objective C (Developing future visions for noise management on national road networks) in the Description of Research Need for the CEDR Transnational Road Research Programme Call 2012 on Noise.

The project aims primarily to provide data and information on the potential future noise impacts and noise-related safety impacts of electric vehicles on national roads, the latter considering the safety of other road users. As such, this takes a different focus from much of the previous research in these areas, which has generally focussed on the noise impacts in city (low-speed) environments and the potential safety risks posed to pedestrians.

Objective

The objectives of the project can be summarised as follows:

(1) To identify noise emission levels for EV and HV for use in noise prediction models. Where applicable these will use innovative test methods suited to EV that are adapted from standard/existing methodologies;

(2) To identify the noise emission levels from low-noise tyres;

(3) To assess the potential future noise impacts of HV and EV;

(4) To assess the future potential noise-related safety impacts of HV in terms of the influence of interior noise on driving safety and the influence of exterior noise on vulnerable road user safety. The latter will focus on bicyclists; detailed analysis of how bicyclists use auditory cues to judge their environment has never previously been investigated.

Benefits

The benefits of the project can be summarised as follows:

(1) The work packages will provide data and knowledge, applicable to all NRAs across Europe where EV and low-noise tyres are likely to be used;

(2) It will enhance the capabilities of the forthcoming CNOSSOS-EU noise prediction model, thereby allowing more realistic traffic noise modelling within future rounds of END noise mapping and scheme assessments

(3) The results will give NRAs an indication of how the noise climate may change in the future with increased uptake of electric vehicles;

(4) The work on noise-related safety will inform on how driver behaviour may change and allow the development of programmes to address this.