



# Position Paper

**Silent but dangerous: when absence of noise of cars is a factor of risk for pedestrians**

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## **1. Introduction & Background**

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Silent cars (electric and hybrid vehicles) are becoming more and more popular and the number of such cars in Europe is rising from year to year. In 2006, 39.880 cars were sold and the latest study shows the growth rate will rise from half of one percent to five percent by 2012.<sup>1</sup> Reasons for this increasing demand are the EU policy objectives of achieving the 2020 target for reducing carbon emissions and rising consumer awareness of climate change and the need to reduce use of fossil fuels.

With silent cars, manufacturers aim to meet the expectations of certain consumers knowing the benefits of lower fuel consumption and emissions. As electric and hybrid cars make little or no sound when running at low speeds, their use can also contribute to quieter urban areas.

But not everyone benefits from this innovation. There are needs of other consumers that have not been considered. This group comprises people with visual and auditory impairments, children and older people and other road users (such as cyclists). All of them are exposed to danger as they are no longer warned by audible noise from a vehicle engine and so are unable to react accordingly.

Silent cars have created unforeseeable tension among car manufacturers, environmentalists and organisations representing pedestrians.

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<sup>1</sup> <http://www.greencarsite.co.uk/GREENNEWS/hybrid-car-market.htm>

## 2. The main issues

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Different groups of people are affected by the proliferation of silent cars. The Guide Dogs for the Blind Association in the United Kingdom has raised concerns about the implications of hybrid and electric vehicles, as silent cars may limit the independence of blind and visually-impaired people in everyday life<sup>2</sup>. Moreover, guide dogs are equally vulnerable to the dangers of silent cars.

Children are exposed to the dangers of traffic daily. Most children involved in accidents are under 10 years old. The risks raised by the distractions of playing in the street do not need to be stressed<sup>3</sup>. Such risks are increased by the use of silent cars.

Furthermore, the youngest children have great difficulties in assessing the speed of an approaching vehicle. Silent cars would increase this risk as speed cannot be associated with engine noise. Although road accidents involving children have been on a downwards trend, it is doubtful whether this will be continued as the use of silent cars becomes more prevalent. A report released by the National Highway Traffic Safety Administration (NHTSA) stated that hybrid and electric vehicles are nearly twice as likely to be involved in accidents with pedestrians as vehicles with internal combustion engines.<sup>4</sup>

But it is not only pedestrians with visual impairments and children who are affected. Cyclists who do not look behind before making a manoeuvre, people listening to PMPs (Personal Music Players) or using mobile phones, and older people are all at risk if they do not hear a vehicle approaching. These risks are heightened where vehicles share the pedestrian surface, a growing practice in modern urban environments.

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<sup>2</sup> <http://www.guidedogs.org.uk>

<sup>3</sup> [http://ec.europa.eu/transport/road\\_safety/specialist/knowledge/pedestrians/crash\\_characteristics\\_w\\_here\\_and\\_how/age\\_groups\\_most\\_involved\\_in\\_fatal\\_crashes.htm](http://ec.europa.eu/transport/road_safety/specialist/knowledge/pedestrians/crash_characteristics_w_here_and_how/age_groups_most_involved_in_fatal_crashes.htm)

<sup>4</sup> <http://www-nrd.nhtsa.dot.gov/Pubs/811204.PDF>

### 3. State of play

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Regulation 51 of the United Nations Economic Commission for Europe (UNECE) Working Party 29 (WP 29), restricts cars to a maximum noise emission, in order to limit noise pollution, but there is no minimum level<sup>5</sup>. However, WP 29 believes road transport vehicles propelled in whole or in part by electric means (and so silent) present a danger to pedestrians<sup>6</sup>. Hence the World Forum asked an informal group, created under the GRB (Working Party on Noise), to define a minimum level of noise emission for vehicles.<sup>7</sup>

The first objectives of this dedicated working group will be to examine the safety risk for blind pedestrians arising from silent (or quieter) cars; to identify the information needed by blind pedestrians and assess the likely effectiveness and acceptability of technical solutions. In a next step, the task of the group will be to develop a 'sound system' enabling pedestrians and other road users to make an informed judgement about the location of a vehicle, its driving direction and its speed. Such sound is of crucial importance for the orientation of visually-impaired pedestrians in traffic.

In the meantime, awareness is growing in the USA and Japan.

General Motors has been working with the US National Federation of the Blind on solutions to develop a safe level of sound to alert pedestrians.<sup>8</sup> A call for sound-making functions on silent cars has also been made by Japanese organisations representing blind people.

For deaf people, a vibering sensor<sup>9</sup>, which transmits sounds as vibrations, has been proposed. However, its effectiveness is dependent on the vehicle emitting a sound.

Although sound is a critical component of the increased safety of silent cars for vulnerable pedestrians and other road users, experts in the USA believe there is also need for indication of direction and the acceleration or deceleration of cars.

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<sup>5</sup> <http://www.unece.org/trans/main/wp29/wp29regs/r051r1e.pdf>

<sup>6</sup> <http://www.unece.org/trans/doc/2010/wp29grb/QRTV-01-02e.pdf>

<sup>7</sup> [http://www.unece.org/trans/main/wp29/meeting\\_docs\\_grb.html?expandable=0&subexpandable=99](http://www.unece.org/trans/main/wp29/meeting_docs_grb.html?expandable=0&subexpandable=99)

<sup>8</sup> <http://www.dbusiness.com/DBusiness/November-December-2009/National-Federation-of-the-Blind-Teams-with-Chevrolet-and-GM-to-Incorporate-a-Safe-Sound-Alert-for-Electric-Vehicles-and-Hybrids/>

<sup>9</sup> <http://www.tuvie.com/vibering-sensor-to-help-detect-noises-for-hearing-impaired/>

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In Europe, the Guide Dogs for the Blind Association has worked with Lotus Engineering on development of a synthesised sound system that can be added to vehicles. The United Kingdom government is also commissioning the Transport Research Laboratory to conduct two items of work: the first to assess whether there is increase in the incidence of accidents between silent (or quiet) vehicles and pedestrians; the second is to assess sound requirements through simulated trials.

In a Written Question of 22 April 2010 to the European Commission, Artur Zasada MEP asked whether consideration was being given to prevent pedestrians from possible accidents with silent cars. The Commissioner for Industry and Entrepreneurship, Antonio Tajani, replied the Commission is aware of possible safety risks if quiet vehicles are not perceived by the pedestrians on the road. Hence the Commission supports the working group (GRB) of the UNECE.<sup>10</sup>

#### **4. Possible Solutions**

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Opponents claim artificial sounds will do more to cause noise pollution in the environment than aid pedestrians or other road users.

ANEC believes there needs to be a clear definition of a recognisable sound and requirements set to ensure that this sound conveys distance, speed, acceleration (or deceleration) and size of the vehicle to the pedestrian or other road user. Although these safety aspects must be paramount, we believe that the contribution to noise pollution should be minimised.

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<sup>10</sup> <http://www.europarl.europa.eu/sides/getDoc.do?type=WQ&reference=E-2010-2707&language=EN>

## 5. Conclusions

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Noting the growing demand for electric and hybrid vehicles in Europe and elsewhere, ANEC believes it essential to introduce technical solutions that can address the novel risks posed by silent cars. As most manufacturers of silent vehicles are not based in Europe, an international standard with global relevance is needed.

We welcome and support the developments within UNECE WP 29, which has established an informal working group to carry out the activities vital to achieving appropriate audible acoustic signalling techniques and their potential global harmonisation.

Moreover, ANEC welcomes the European Commission's intention to review crash safety requirements and to consider whether the quietness of these vehicles is potentially dangerous to vulnerable road users<sup>11</sup>. However, we regret this action is not foreseen before 2012. We believe it essential for the Commission to take action sooner.

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<sup>11</sup>, Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee, A European strategy on clean and energy efficient vehicles COM (2010) 186 final, 28 April 2010

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## **Acknowledgements**

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## **APPENDIX – About ANEC and other documentation**

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### **A.1 About ANEC**

*ANEC is the European consumer voice in standardisation, defending consumer interests in the processes of technical standardisation and conformity assessment as well as related legislation and public policies. ANEC was established in 1995 as an international non-profit association under Belgian law and represents consumer organisations from 31 European countries. ANEC is funded by the European Union and EFTA, with national consumer organisations contributing in kind. Its Secretariat is based in Brussels.*

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