

# Hearing hybrid and electric vehicles while quieting noise pollution

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Europe, as well as most of the world, faces a future with hybrid or pure electronic road vehicles that rely on alternative drive chains. But these low-emission vehicles are considered too quiet for hearing-impaired pedestrians, so the European Union is mandating that they be equipped with acoustic vehicle alerting systems. With these alert systems would come a marked increase in the amount of noise on the roads across Europe.

Noise is an oft-overlooked environmental issue within densely populated regions. Vehicles, railways and airports operating within or near cities all contribute to the growing amount of [noise](#) pollution, which can cause negative health and economic impacts.

During the 174th Meeting of the Acoustical Society of America, being held Dec. 4-8, 2017, in New Orleans, Louisiana, René Weinandy, head of Noise Abatement in Transport for the German Environment Agency, will present his group's work assessing the effectiveness of acoustic [vehicle](#) alerting systems and their downsides.

Weinandy was alarmed to learn that the European Union had drafted regulations to equip electric vehicles with speakers continuously emitting sound during low-speed operation.

"In Germany alone, an estimated 4,000 people die every year from noise-triggered heart attacks—more than are killed in traffic accidents," Weinandy said. "So is it really a wise decision to increase the

noticeability of electric vehicles in traffic by making them spew [noise pollution](#)?"

Regulations to equip [electric vehicles](#) with acoustic vehicle alerting systems "are already being cast into laws both in the U.S. and Europe—without adequate scientific proof of their effectiveness or adequate consideration of their negative side effects," he said. "Less harmful alternatives haven't been systematically sought or explored. Clearly, there must be better alternatives."

Under the European Union's directive, UNECE R138, a vehicle equipped with an acoustic vehicle alerting system "shall not emit an overall sound level of more than 75 dB(A) in the forward driving direction." The noise the acoustic vehicle alerting system emits is "a synthetic, increasing sound that's supposed to be similar to an internal combustion engine vehicle start-up," said Weinandy.

Weinandy and colleagues are striving to make traffic as quiet as possible by addressing all the relevant elements from roads and tracks to vehicles, operational procedures, and measures along their sound propagation path.

"We're working to change the mindset of the general public: while noise may be simply a nuisance in some situations, it acts as a potent environmental poison in others and should be treated as such," he said. "Noise does its harmful job—often without the conscious perception of the people being exposed to it."

The group is now exploring the development of nonacoustic approaches and will assess approaches to parameters such as environmental protection, road safety, feasibility, and usability. "Our goal is to scientifically assess acoustic vehicle alerting systems, as well as to develop a nonacoustic alternative," said Weinandy.

**More information:** Abstract: 2pNSb3: "Electric vehicles - safe and quiet with acoustic vehicle alerting systems?" by René Weinandy, Lars Schade and Jan Gebhardt, Dec. 5, 2017, in Studio 2 in the New Orleans Marriott. [asa2017fall.abstractcentral.com/s/u/qQmPuhpPSig](https://asa2017fall.abstractcentral.com/s/u/qQmPuhpPSig)

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