

Report: Safety and CO2 conference

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In transportation, safety and CO2 reduction are not always good friends. Improved vehicle safety standards have been to the benefit of vehicle occupants, but at the same time have led to an increased average weight of cars. This is one of several causes of the average car's fuel efficiency not having dramatically improved over the last half century.

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Judging from past results it seems a tough job to reconcile the transport safety and environmental agendas. Cracking a hard nut is easier done together, the Low Carbon Vehicle Partnership (LowCVP), the Parliamentary Advisory Council for Transport Safety (PACTS) and the Institution of Mechanical Engineers (IMechE) must have thought. Together, they dedicated a symposium to this issue, which took place on 23 November at IMechE's stylish premises, in the heart of London. Your reporter was there.

[F087 Image 1](#)

Shift of focus

Mark Fowkes of MIRA Ltd. signals an end to a trend. Although growing in dimensions and upholding at least the same safety standards, the fifth generation of the Volkswagen Polo is eight per cent lighter than the previous Polo. Mark notes that, as opposed to safety concerns, environmental concerns have only recently become a major driving force in vehicle design.

Crashing in phases

Just as vice versa, technologies designed to improve fuel efficiency may influence safety. To illustrate this, Julian Hill, research fellow of the Vehicle Safety Research Centre of Loughborough University, runs us through three phases connected to vehicle safety.

1. Pre-crash: very quiet vehicles – think of a hybrid running on its electric engine only – may pose a threat to pedestrians.
2. During crash: the vehicle's characteristics (such as mass and structural performance) determine its crash behaviour and impact on its occupants, as well as other vehicles and road users. Vehicle parts such as those related to vehicle electrification (notably high voltage components and chemicals) may pose a threat.

Furthermore, the demand for more efficient vehicles may trigger vehicle downsizing, which can have safety consequences.

3. Post-crash: above mentioned new vehicle parts put an additional demand on emergency service personnel's knowledge.

Not sexy

According to Duncan Forrester of Volvo, to consumers safety is no longer sexy. They perceive safety as a standard vehicle feature. Forrester wonders though, if there is a 'safety wash' going on and if the time hasn't come to further up the safety demands for cars.

He adds that commercial reality doesn't help either to improve vehicle safety, as the demand for smaller and more efficient cars makes it more "challenging" to improve on safety standards. Besides this, for car manufacturers smaller vehicles mean slimmer margins. But commercial reality also teaches us that manufacturers who did not put all their cards on larger, inefficient vehicles, did better than others.

Grip or slip

Michelin, besides generously sponsoring the informal part of the meeting, also threw in their two cents. Steve Dolby of the tyre giant explains that due to its rolling resistance the tyre is responsible for twenty per cent of a vehicle's fuel consumption. Heat generation is essential for better grip, while at the same time it increases fuel use. The challenge for tyre manufacturers therefore is to increase grip when it is really needed, while reducing rolling resistance under normal circumstances.

Starting 2012, European legislation (regulation 661) will prescribe a minimum wet grip performance, maximum rolling resistance and noise levels. Additional regulation, which is in the making, should inform consumers about relative tyre performance, analogous to already known energy labels ranging from A to G.

[F087 Image 2](#)

Black box

According to Jason Airey of SupaTrak, a vehicle's driver is the single most important factor in improving car safety fuel efficiency. To convince organisations of potential cost savings, his company offers EcoTrak: an on-board 'black box' keeps track of driving behaviour and submits the data to a data pool. The system compares the individual's performance to the average and keeps track of performance development over time. Very 1984...

The results of an initial trial process, including benchmarking, training and feedback phases, were extrapolated. They claim 9.5 per cent fuel savings through driver behaviour and another four per cent improvement through simple technical adaptations to the vehicle (so-called 'economy remapping').

No speeding allowed

A fully technical aid is 'intelligent speed adaptation' (ISA), a built-in car system that either gives speed advice to the car driver or controls the maximum speed of the car. Professor Oliver Carsten of the University of Leeds presents the results from two consecutive ISA projects carried out in the United Kingdom.

Advisory, voluntary (overridable) and mandatory ISA were tested, resulting in overall CO2 emission reductions and significantly less serious and fatal crashes. For more details, check our 'Highlight' at the end of our earlier [conference announcement](#).

Speed enforcement is another way to reduce speeding and its negative effects. Timo Thornton of Speed Check Services Ltd (SCS) presents results from 'average speed enforcement' (SPECS) in the UK. The only other country where such a system is deployed is the Netherlands, where the system is known as *trajectcontrole*. Apart from the obvious safety effects of speed limit compliance, according to Thornton, CO2 savings for 70 mph motorways can add up to eleven per cent. By enforcing a 50mph limit on the same motorway (for example during roadworks) you even achieve a 29% reduction in CO2 emissions.

It can be done

The symposium clearly demonstrates that it is useful that representatives from both the environmental and the safety 'world' have found each-other and start exploring ways to mutually strengthen their agendas.

The environmental cause could gain much more strength by connecting to the safety agenda. Potential monetary savings due to accident reductions may trigger attention from those trying to mitigate rising costs of health care, such as national governments and insurance companies.

The other way around, the environmental argument is a strong ally these days and when safety improvements *de facto* go hand in hand with environmental benefits, the case only gets stronger.

Bringing the safety and environmental agendas together "can be done," says Julian Hill, "if we choose to do so." We agree.

More

Do you want more information? Download the presentations from the [LowCVP resources library](#).