

The prospects for true zero emission vehicles

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Abstract

A life cycle assessment is presented for the greenhouse gas impact of a current car when using a combination of electrification and renewable fuels. Various degrees of electrification are assessed, and various electricity mixes and fuels are considered. Renewable fuels are found to have a greater potential to reduce the life-cycle greenhouse gas emissions than a low carbon electricity mix. The results are discussed in terms of the supply potential for renewable fuels and battery minerals. It is found that plug-in hybrid vehicles may enable the automotive sector to reach more ambitious climate goals than battery-electric vehicles.

Biography

After his research studies in Combustion Physics, Öivind Andersson worked for seven years with development of diesel combustion systems at Volvo Car Corporation. He was recruited to the division of Combustion Engines at Lund University in 2007 and is full Professor at that division since 2011. His research has mainly related to combustion in diesel engines, especially in-cylinder soot processes. Lately, he has focused on hydrogen as a transport fuel, both in combustion engines and fuel cells. Öivind Andersson is a Fellow of the Society of Automotive Engineers (SAE International).