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Press Release

Mannheim, 11 January 2023

Are Zero-Emission Coaches also Economically Viable?

Researchers at the Mannheim Institute for Sustainable Energy Studies (MISES) at the University of Mannheim are collaborating with Daimler Buses and other partners to develop a concept for zero-emission coaches powered by all-electric drive systems.

Meanwhile, city buses with fully electric drives have become a familiar sight on the streets of many German and European cities. The situation is different for electrically powered coaches, however. Their development is much more difficult, as there are numerous hurdles to overcome before they can be used in the field. Convincing concepts have been lacking up to now. Daimler Buses has now set itself the goal of offering fully electrically powered coaches as of the end of this decade.

For the Electrified Coach (ELCH) project, the business unit is receiving funding from the Federal Ministry for Economic Affairs and Climate Action. To accelerate the development process, the company has joined forces with renowned research institutes and professionals from the industry – including MISES, which is based at the University of Mannheim.

The task of MISES researchers Professor Stephan Reichelstein, Ph.D., and Professor Gunther Glenk, Ph.D., is to conduct a profitability analysis from the operator's point of view and thus to provide an important contribution to the concept definition process. This is intended to ensure the marketability of coaches with battery electric powertrains already in the development phase. Just under EUR 430,000 is being provided to the Mannheim research team for the realization of this sub-project. The aim of the Mannheim sub-project is to identify cost-efficient concepts for individual vehicles and entire fleets of electrically powered coaches for various application profiles. In addition, the competitiveness of these concepts will be compared with conventional coaches powered by combustion engines.

“So far, little is known about the economic viability of individual zero-emission coaches or even entire fleets,” explains Glenk. This is largely due to the fact that such an analysis depends on various factors: A coach that is mainly used for long distances has to meet different requirements than a regional bus line. Temperature, landscape or even the weight of the load also play a role. And while electric city buses can be quickly replaced or charged, if necessary, the operation of electric coaches in long-distance traffic is highly dependent on the charging time and the charging opportunities along the route.

The sub-project hosted at MISES will investigate the influence of these variables on the competitiveness of electric coaches compared to conventional vehicles, both in a model-theoretic and in an empirical way. The results are intended to provide future operators with software solutions that will help them deploy the ideal vehicle type for a given route.

For a detailed description of the ELCH project, please see the Daimler Buses press release at: https://media.daimlertruck.com/marsMediaSite/en/instance/ko/Using-ELCH-to-become-a-locally-emission-free-coach-Daimler-Buses-developing.xhtml?oid=52127581&ls=L3NIYXJ-jaHJlc3VsdC9zZWYyZ2hyZXN1bHQeGh0bWw_c2VhcmNoVHlwZT1mbGV4JnNIYXJ-jaFN0cmIuZz1OTVNfRmxleFNIYXJjaF9OZXdzT25seUNvbXBhbnk-mcmVzdWx0SW5mb1R5cGVJZD00MDYyN-iZmbGV4SW5mb1R5cGVzPTQwNjI2JTJDNDNA2MzA!&rs=0

For a sketch of an electrically powered coach, please see: <https://www.uni-mannheim.de/newsroom/presse/pressefotos/>

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