

# PRESS RELEASE



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## **E-Mobility Production: PEM Advises Industry to Carry out PCF Analyses During Development**

In a new white paper, the Chair of Production Engineering of E-Mobility Components (PEM) of RWTH Aachen University has outlined the key challenges arising in technology planning in electric motor production with regard to environmental sustainability. The publication – produced in collaboration with automotive industry management consultancy Berylls by AlixPartners as well as product cost and CO<sub>2</sub> analysis software company Tset – therefore recommends that companies use product carbon footprint (PCF) analyses as a key tool in the early development process.

“The search for efficient, reliable and cost-effective electric drive systems is a complex technical task in itself,” says PEM Director Professor Achim Kampker. “If you add climate-friendly aspects that are necessary today, the complexity increases even further.” To be competitive as a producer in the long term, one needs to have an accurate picture of the products’ emissions and their impact, the paper claims. The recording of mass flows requires a complete description of the production system. Depending on the product in question, extremely different materials, processes, and supply chains are involved, meaning that a wide range of data points and data sources can be relevant for the analysis.

PCF analysis as a special form of life cycle analysis (LCA) is proving to be a crucial tool for quantifying and reducing a company’s carbon emissions. According to the authors, the early inclusion of PCF considerations in product development enables companies to make informed decisions that strike a balance between performance, cost, and environmental impact. “Professional management of PCF information requires specialized software. Linking it with product cost analysis yields great synergy,” says Sasan Hashem, CEO & Founder of Tset.

The white paper uses detailed case studies to show how the theoretical concepts can be implemented in industrial practice. The examples are also intended to illustrate “that the perspective of sustainability must be embedded in all phases of product development and that carbon emission tracking is a strategic imperative, not just a regulatory obligation,” says Dennis Röhr, Partner & Managing Director of Berylls by AlixPartners. According to the publication, the automotive industry is currently under increasing pressure to achieve a significant reduction in carbon emissions throughout the entire vehicle production value chain.

The 30-page “Production Emissions in Technology Planning: Challenges and Approaches Using the Example of Electric Drives” publication is available as a free download: <https://t1p.de/vu34c>

*Caption for PM\_PEM\_Whitepaper\_LCA\_E-Motor-Produktion.png:*

The “Production Emissions in Technology Planning” white paper.

Credit: PEM RWTH Aachen University

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## About PEM:

The Chair of Production Engineering of E-Mobility Components (PEM) of RWTH Aachen University was founded in 2014 by StreetScooter co-inventor Professor Achim Kampker, who, in addition to his expertise in components and concepts for electric mobility in teaching and research, also has many years of experience in the management of start-ups and established companies. In numerous research groups, the PEM team is dedicated to all aspects of the development, production, and recycling of battery systems, electric motors, hydrogen technologies, and their respective components, as well as their integration, particularly into heavy-duty commercial vehicles.

At its headquarters in the German-Dutch Avantis business park, as well as in the Electric Mobility Laboratory (eLab) on the RWTH Aachen Campus and in an electric truck research workshop, a total of 78 researchers, 29 non-scientific employees and around 120 student assistants are employed. PEM is active in teaching as well as in nationally and internationally funded research projects and in collaboration with renowned industrial partners. The focus is always on sustainability and cost reduction – with the aim of a seamless Innovation Chain from basic research to large-scale production in close proximity. In this context, the PEM Chair provides the breeding ground for partially interconnected comp

## About Berylls by AlixPartners:

Berylls by AlixPartners is a top-management consulting firm focused exclusively on the automotive sector. Its mission is to make automobility sustainable, practical, scalable, profitable, and thus future-proof. Berylls by AlixPartners is an experienced team of strategy consultants that covers the entire automotive value chain from long-term strategic planning to operational performance improvements.

## About Tset Software:

Tset Software GmbH was founded in 2018 and provides leading solutions for product cost and CO<sub>2</sub> analysis. The company's holistic software enables manufacturers to realize cost-efficient and CO<sub>2</sub>-efficient product development, production, and procurement. Customers include major automotive, medical, electrical, and aerospace companies like Brose, ZF, Chiron and Stabilus. The team of more than 80 experts in mathematics, software development, and manufacturing continues to grow rapidly.