Focus

DRIVES ARE CHANGING

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Hybridization and electrification are picking up speed. What this means for added value in the drivetrain is the subject of the VDMA study "Drives are Changing" ["Antrieb im Wandel"].

By Katrin Pudenz

LExperts from FEV Consulting GmbH examined the markets in Europe, the USA and China for cars, commercial vehicles and mobile machinery on behalf of VDMA. They found that sales of combustion engines - including hybrid drives - will fall by 10 percent in these markets between 2016 and 2030. Furthermore, the study's authors expect around 22 percent of vehicles to be powered exclusively by electric drives by 2030.

Effects of electrification on added value

The authors describe how electrification will have a significant impact on production processes. For example, added value for production of battery-powered electric drives falls in comparison to a mildhybrid drive train by an average of 64 percent (exclusive battery cell production). This stands in contrast to plug-in hybrid drives, where added value increases by 24 percent - this drive involves installing a combustion engine alongside the electric motor. All in all, according to the authors of the study, the combination of hybrid drives, increased complexity in the combustion engine and rising sales of vehicles, especially in China, will have a positive impact on added value. When it comes to car engines, the researchers expect added value to grow by an annual rate of 1.7 percent until 2030 for Europe, the USA and China. "And this does not include battery cell production, which would offer further potential," emphasizes Hartmut Rauen, Deputy Executive Director of VDMA.

More complex picture for commercial vehicles and mobile machinery

The study also predicts opportunities for additional added value for commercial vehicles, albeit to a lesser extent than for the car segment. In commercial vehicles, electrification is predominantly being advanced by lightweight commercial vehicles, such as delivery vans for parcel services. One example that is already up and running is the vehicles from Streetscooter, a company in the Deutsche Post DHL Group. Originally developed in connection with RWTH Aachen University as a vehicle solution for deliveries, they are now practical everyday commercial vehicles with 100 percent electric drives, available in various models and as a complete solution with charging infrastructure. In mobile machinery, on the other hand, the researchers predict a lower level of electrification.

Study introduces new index

The study also created a new index called the zero-emission vehicle (ZEV-index). This incorporates more than 40 parameters from different dimensions: regulation, availability of technology, expansion of charging infrastructure, industry behavior, economic aspects, and acceptance of electromobility. "This makes the index a real yardstick for changes in mobility that goes far beyond merely counting electric cars," explains Professor Dr.-Ing. Stefan Pischinger, President and CEO of FEV Group GmbH. "The creation of the ZEV-index gives us a monitoring system that provides orientation - even when the volatile environment changes," emphasizes Hartmut Rauen. With the ZEV-index, we give our members a tool that creates greater transparency and a basis for planning.

Electric vehicles becoming more attractive

In Europe, the index predicts that cars with combustion engines and electric vehicles will be equally attractive as early as 2024. The crucial factor here is a wide range of models, acceptable range and the expansion of the charging infrastructure. China will reach this level two or three years earlier than Europe. This prediction is based on the strict regulatory framework. In the USA, equal attractiveness is expected to be achieved by 2028.

Opportunities for added value

What conclusions does VDMA draw from the study? The most important result highlighted by VDMA President Carl Martin Welcker during the presentation of the study is: The transformation process in mobility offers opportunities for additional added value. Hartmut Rauen explains: “We are delighted that mechanical engineering can look forward to a positive future. Ultimately, we believe that we will see an increase in potential for value creation over the next few years.” The study covers the period until 2030. It predicts average growth potential of 1.7 percent per year for the typical value creation processes in the drive chain. In the long term, participation in the market for components of electric drives is an absolute prerequisite for economic success.

VDMA supports its members in the transformation process to electromobility. Joint research offers opportunities to work with the scientific community and other market players to discuss research questions, develop results and also plan for the future value chain. This creates transparency and feasibility of the solutions in a pre-competitive environment. Rauen highlighted that mechanical engineering on the one hand produces mobility, for example as a supplier to the automotive industry. On the other hand, the mechanical engineering industry itself uses state-of-the-art drive technologies within its mobile machinery. “This makes mechanical engineering a technology supplier that is crucial to competition. Mobility of tomorrow leads through mechanical engineering. Openness to technology is the basic principle that advances the best solution in fair competition. It is therefore vital to work together towards a regulatory framework that does not promote or ban a specific technology,” concludes Rauen. ■

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