Mild Hybrid 48V Vehicles 2016-2031 - Market Forecasts and Technology Roadmaps for Cars, Trucks and Other Vehicles

Description:

This unique report is presented in very detailed wide format slides. Only a global up-to-date view makes sense in this fast-moving subject. Therefore the multilingual PhD level analysts have travelled intensively in 2015 and 2016 to report the latest research, conferences and expert opinions and to analyse how the markets and technologies will move over the coming 15 years. Original tables and infographics pull together the analysis.

The comprehensive Executive Summary and Conclusions embraces market forecasts 2016-2031 for 48V systems in cars and for the different types of electric car which compete with 48V systems to replace conventional cars. For clarity, many infographics are presented. This is analysis by experts not simply a consolidation of information out there.

The new, original figures for the addressable market for 48V cars is plotted alongside the figures likely to be achieved for this period. The 48V technology roadmap is put in context by overall electric vehicle technology trends in infographics. Based on Volkswagen methodology, the four generations of 48V system are scoped in time this extra information giving a wider opportunity than that normally addressed. For example, many forms of multiple energy harvesting and recuperation will be enabled.

There is then a Technology Analysis which includes a look at the synergy with 48V pure electric powertrains. The widening range of 48V parts being added to the basic 48V systems is investigated as they progress towards 48V alone. The relevance to small vs large cars and premium vs mainstream cars is clarified by year then the progress with the different building blocks is examined in depth.

In particular, the reversible torque assisting motor generator is examined, comparing the different options being pursued such as permanent magnet vs switched reluctance synchronous and the option of asynchronous. Throughout, the views and forecasts of leading vehicle manufacturers and their Tier One suppliers is surfaced as well as those of the innovative small companies.

The component analysis is thorough, embracing, for example, lithium-ion vs Advanced Lead Acid batteries and what comes after them. Latest progress with the most significant collaborative programs is revealed and the proliferation of energy harvesting and recuperation options is studied in detail.

Subject summary

Vehicle emissions regulations for 2025 and 2030 are unlikely to be met by conventional vehicle technology as applied to most vehicles beyond small cars. Going to strong hybrid and pure electric powertrains involves considerable expense and delay and often totally new platforms.

However, an intermediate technology has reached a very exciting stage where it can incrementally improve traditional powertrains by replacing the alternator with a reversible 48 V electric machine and adding a larger battery that is at 48V not the 12V of a car or 24V of a bus or truck though, for now, these is retained. Much more of the braking energy can be regenerated.

The electric machine can provide torque boost, facilitating considerable downsizing and down-speeding of the internal combustion engine. Call it the 48V mild hybrid. Not only will it definitely allow all cars, trucks and buses to meet the impending regulations, it can be incrementally improved with new parts such as electric superchargers, pumps, aircon etc.

The improvements - new forms of which are being announced all the time - permit the 48V mild hybrid to have increased acceleration, quiet start stop, near-silent electric take-off and other improved driver experiences stealing the clothes of strong hybrids, all at less than half the cost and effort.

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