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.

Contents:
1. EXECUTIVE SUMMARY AND CONCLUSIONS
1.1. Why and What
1.2. Carbon dioxide reduction
1.3. First generation
1.4. Powertrain winners and losers 2016-2026
1.5. The technological heart
1.6. Company positioning: best solutions for market needs 2016-2030
1.7. Hype curve for car powertrains in 2016
1.8. When will it be entirely 48V?
1.9. Market Forecasts
1.9.1. 48V cars - forecasts, end game 2016-2031
1.9.2. Powertrain forecasts 2016-2031
1.10. Technology Roadmaps
1.10.1. Four generations 2015-2031
1.10.2. Other roadmaps putting 48V in context
1.10.3. Technology timeline 2016-2026

2. TECHNOLOGY ANALYSIS
2.1. Types of conventional and electric vehicle - two 48V opportunities
2.2. Synergy between 48V mild hybrids and 48V pure electric powertrains?
2.2.1. Voltage trends for pure electric vehicles: 48V opportunity
2.2.2. Voltage choices by powertrain
2.3. Heart of a 48V mild hybrid: popular starting point
2.4. The widening choice of 48v components
2.5. Engine downsizing and boosting
2.6. Safety
2.7. Suitability of 48V by car size over time 2017-2027 and 2031
2.8. Progress with the 48V building blocks
2.9. Future of 48v rotating machine technology
2.9.1. Evolution from stop-start to multifunctional rotating machines
2.9.2. Operating modes, design priorities
2.9.3. View of Continental: BAS
2.9.4. Construction options for reversible machines
2.10. Future of the DC DC converters
2.11. Projects comparing 48V options: examples
2.11.1. Jaguar Land-Rover and Partners UK
2.11.2. LC SuperHybrid UK
2.11.3. Volvo Sweden, China
2.11.4. Hyundai Korea
2.11.5. US Department of Energy Civic Ultrabattery Road Test
2.11.6. ARPA-E Award USA
2.11.7. ADEPT: one of the most significant 48V development projects worldwide
2.11.8. Healthy disagreement about system functions and components
2.11.9. Schaeffler, Ford, Continental
2.12. Batteries for 48V mild hybrid
2.12.1. Overview
2.12.2. Powertrain battery choices
2.13. 48V superchargers
2.14. Flywheel KERS
2.15. Future 48V motor controllers
2.16. Energy harvesting including regeneration
2.16.1. Vehicle fuel wastage by origin - target of regeneration
2.16.2. Energy harvesting choice for vehicles

3. CONFERENCE REPORT
3.1. Lessons from 48V event Dusseldorf Germany 24-26 Nov 2015

4. EXAMPLES OF INTERVIEWS 2015-2016
4.1. Ongoing interviews in USA, East Asia, Europe
4.1.1. Accepted trend
4.1.2. Window of opportunity for 48V MH cars
4.1.3. 48V PbA batteries?
4.1.4. When will 12V batteries be gone?
4.1.5. 48V MH buses and off road
4.2. ALABC/ILA London 12 Jan 2016
4.3. Visit to Controlled Power Technologies CPT Ltd UK 18 January 2016

4.4. MAHLE

APPENDIX: FROM SYSTEM TO PRODUCT TT ELECTRONICS/AB MIKROELEKTRONIK GMBH

Ordering:

Order Online - [http://www.researchandmarkets.com/reports/3680545/](http://www.researchandmarkets.com/reports/3680545/)

Order by Fax - using the form below

Order by Post - print the order form below and send to

Research and Markets,
Guinness Centre,
Taylors Lane,
Dublin 8,
Ireland.
Fax Order Form
To place an order via fax simply print this form, fill in the information below and fax the completed form to 646-607-1907 (from USA) or +353-1-481-1716 (from Rest of World). If you have any questions please visit http://www.researchandmarkets.com/contact/

Order Information
Please verify that the product information is correct and select the format(s) you require.

Product Name: Mild Hybrid 48V Vehicles 2016-2031 - Market Forecasts and Technology Roadmaps for Cars, Trucks and Other Vehicles
Web Address: http://www.researchandmarkets.com/reports/3680545/
Office Code: SCPLEYUF

Product Formats
Please select the product formats and quantity you require:

<table>
<thead>
<tr>
<th>Product Format</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic (PDF) - 1 - 5 Users</td>
<td></td>
<td>USD 5077</td>
</tr>
<tr>
<td>Electronic and Hard Copy (PDF) - 1 - 5 Users</td>
<td></td>
<td>USD 5383 + USD 57 Shipping/Handling</td>
</tr>
<tr>
<td>Electronic (PDF) - 1 - 10 Users</td>
<td></td>
<td>USD 7618</td>
</tr>
<tr>
<td>Electronic and Hard Copy (PDF) - 1 - 10 Users</td>
<td></td>
<td>USD 7924 + USD 57 Shipping/Handling</td>
</tr>
</tbody>
</table>

* Shipping/Handling is only charged once per order.

Contact Information
Please enter all the information below in BLOCK CAPITALS

Title:  
Mr ☐  Mrs ☐  Dr ☐  Miss ☐  Ms ☐  Prof ☐

First Name: ___________________________  Last Name: ___________________________

Email Address: * ___________________________

Job Title: ___________________________

Organisation: ___________________________

Address: ___________________________

City: ___________________________

Postal / Zip Code: ___________________________

Country: ___________________________

Phone Number: ___________________________

Fax Number: ___________________________
Title:  Mr  Mrs  Dr  Miss  Ms  Prof

* Please refrain from using free email accounts when ordering (e.g. Yahoo, Hotmail, AOL)
Payment Information

Please indicate the payment method you would like to use by selecting the appropriate box.

☐ Pay by credit card: You will receive an email with a link to a secure webpage to enter your credit card details.

☐ Pay by check: Please post the check, accompanied by this form, to:
Research and Markets, Guinness Center, Taylors Lane, Dublin 8, Ireland.

☐ Pay by wire transfer: Please transfer funds to:
Account number 833 130 83
Sort code 98-53-30
Swift code ULSBIE2D
IBAN number IE78ULSB98533083313083
Bank Address Ulster Bank, 27-35 Main Street, Blackrock, Co. Dublin, Ireland.

If you have a Marketing Code please enter it below:

Marketing Code: __________________________

Please note that by ordering from Research and Markets you are agreeing to our Terms and Conditions at http://www.researchandmarkets.com/info/terms.asp

Please fax this form to:
(646) 607-1907 or (646) 964-6609 - From USA
+353-1-481-1716 or +353-1-653-1571 - From Rest of World