CONTINENTAL | **BETS BIG ON 48 V MILD HYBRID SOLUTIONS**

Considered one of the world's mobility pioneers, Continental has been consistently at the vanguard of developing solutions that addresses mobility challenges. The Hanover-headquartered company has carved out a reputation in areas of electrification, connected mobility and automated driving aimed at creating a cleaner, safer, more intelligent and affordable future. Auto Tech Review caught up with **Anil Yadav, Head of Region Asia, Business Unit Hybrid Electric Vehicle, Powertrain Division, Continental,** to get a perspective on the electric vehicle landscape globally as well as in the Indian context.

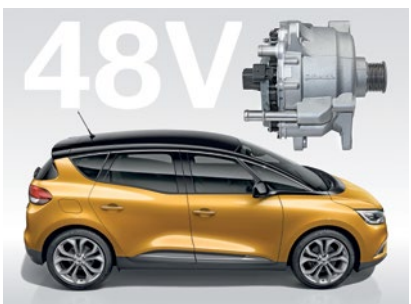
BACKGROUND

Electric vehicle has been generating buzz globally and although India has been late in the game, EVs have started to trigger hype with little action on the ground. Continental feels that EV transformation cannot happen without a strong government push. China has transformed from a traditionally ICE vehicle market to an electrified powertrain market and such a transformation was only possible because of the phenomenal government push.

Yadav believes that the transition from a traditional powertrain to an electric powertrain will be a gradual process and will be different from market to market owing to various factors such as infrastructure availability, legislation, incentives, and government push.

48 V MILD HYBRID SYSTEM

There is a lot of debate surrounding 48 V mild hybrid systems, but Yadav is convinced that this cost-effective technology will enable various automotive customers and governments to attain fuel efficiency and further emission reduction, especially in a diesel car. The 48 V mild hybrid system is a much desired option over the 12 V mild hybrid system, as the latter limits the usage of certain technologies that are available but cannot be used due to the voltage ladder. Yadav explained that an additional board net of 48 V helps leverage additional technologies such as anti-roll protection, e-compressor that enhance the comfort features.



The NVH performance of a 12 V mild hybrid system leaves a lot to be desired. There is a need for high surge, when one cranks the engine and the initial torque to be provided has to be very high and that's where the 48 V mild hybrid system comes into play, Yadav explained. The 48 V mild hybrid system can provide a starting torque of up to 66 Nm and when one combines it with the belt ratio of 2.7 or 2.8, it will provide close to 300 Nm of additional torque that makes cranking smoother, faster and quiet, he added. Additionally, the 48 V mild hybrid system switches-off the engine, when it is not needed and provides the necessary torque required to keep the vehicle on the move. The 48 V lithium-ion battery ensures all the electrical components on the vehicle are provided the necessary energy, Yadav noted.

CONNECTED ENERGY MANAGEMENT

Continental also focused on its connected energy management solution that was demonstrated in the 2017 Consumer Electronics Show, where it worked closely with the Las Vegas government to obtain signalling data information. This connected energy management solution not only saves more fuel but also reduces CO2 emissions. A driver, for example, already knows that the approaching traffic signal 400 m away is going to turn red in the next few minutes, and he decides there is little point in accelerating. Switching-off the engine then provides enough torque to take you to that area, Yadav reasoned. The company is witnessing good traction for this solution (the first SOP has already started in Europe) and it will soon unveil this solution in North America and China.

In the area of power electronics, Continental has come up with an integrated solution, where the e-motor, electronics and gearbox are combined into one unit – an integrated axle drive or an integrated e-machine. Yadav said such an approach eliminated the need for all the cables, connectors, electrical interference and also helped achieve 38 % weight reduction and 30-50 % cost reduction.

Like it has done in the past, Continental is keen to get into battery packs, said Yadav. Yadav stressed the importance of integrating, monitoring and managing the cell and how it could extend the efficiency of the battery system. In March this year, Continental established a joint venture with China-based CITC for production of 48 V batteries. The JV will also see CITC's subsidiary CALB develop and produce battery cells. The investment risk of lithium-ion battery is not big and the safety levels are not as huge you see in high voltage batteries, Yadav noted. In fact, the company accords supreme importance to safety, and offers ACIL C/D Safety specifications on its battery management systems. Such specifications cannot be achieved by hardware and requires strong software capabilities, Yadav observed.

Sharing his thoughts about EVs in the Indian context, Yadav said India has the right elements to fast-track implementation of electromobility. India may not just be a battery-powered electric vehicle market, as the market has the potential to absorb different kinds of hybrids as well. Plug-in hybrids are expensive but if the right set of incentives and volumes are created, it can be localised and help achieve economies of scale, he said. Yadav also underpinned the importance of ride-sharing, because all commuters are looking for is a timely, convenient and affordable mobility. And all these aspects will be addressed by electromobility, he concluded.

TEXT: Suhrid Barua