

## **Hybrid Vehicles – A Massive Trend, at Least in the US. Yet, how High is Real Demand and How Will it Develop?**

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**The massive trend towards hybrid vehicles in North America combined with a low demand for elaborate Diesel engines create the question for the real demand for hybrid vehicles in the key markets USA, Japan and Europe.**

Schlegel and Partners as a specialist for market research in the automotive segment analysed this question already two years ago and has since then constantly updated its knowledge.

### **What are we actually talking about?**

Hybrid vehicles are equipped with a drive train containing an internal combustion engine and at least one electric motor contributing to the propulsion of the vehicle. Endless variations of hybrid drives have been designed.

Thus hybrid drives are distinguished by several criteria which are drive train layout, power relation between combustion engine and electric motor, voltage of the electric motor, functions of the hybrid drive train or the need for external electric energy for recharging.

Three major types of hybrid drives are distinguished according to the functions the system can perform.

- Micro hybrid can only perform the stop-start function e. g. by means of a belt-driven starter generator.
- Mild hybrid additionally can perform boost function and energy recuperation during braking.
- Medium and full hybrids additionally provide pure electrical drive and massive electrical torque contribution.

Press Release

## Why are people buying hybrid vehicles?

Our analyses in the key markets Japan, USA and Europe revealed that depending on region and vehicle segment the criteria which turn consumers to buy a hybrid vehicle are rather different.

- While mini and small vehicles are chosen in favour of low gas consumption and low lifecycle costs.
- Compact and medium vehicles are preferred for environmental friendly properties and low gas consumption, too.
- Upper medium and luxury vehicles as well as SUVs are rather bought for the combination of environmental attitude and increased comfort and performance.
- Pick-ups are bought due to additional properties as for instance power outlet for the use of mobile electric devices.
- Vans should offer reduced gas consumption despite the high vehicle mass.

In 2005, in all three regions the registration of hybrid vehicles sums to just 370,000 vehicles. Following a moderate scenario, in 2015 this figure will be at 4.1 million newly-registered vehicles per year. The US alone will show registrations of 2.3 million. At the same time registrations in Japan will be at 1.0 million and in Europe at almost 800,000 vehicles per year.

Production will sum up to the same total amount (4.1 million). Japanese production will be twice as high as registrations. On the other hand production in USA (-800,000) and Europe (-200,000) will be far lower than registration figures. In 2015, just some 540,000 hybrid vehicles will be produced in Europe. And while in Europe main production will be mild hybrids, the major share in USA and Japan will be full hybrids.

### **Every automotive OEM has his own hybrid strategy.**

**Toyota** neglects that the hybrid technology might only be a transition technology towards fuel cell vehicles. Yet, it is

obvious that Toyota wants to use its hybrid technology to gain market share by exploiting the competitive advantage being the first and the most experienced hybrid vehicle manufacturer worldwide. Toyota's aim is to reach high production volumes in order to generate immediate cost advantages. Accordingly, Toyota supports licensing the (previous) technology (by now to Nissan and Ford). According to the current production, the forecast hybrid vehicle introduction and our assumptions, Toyota will produce more than 1.7 million hybrid vehicles in 2015.

**Honda** has a totally different strategy. They introduced three hybrid models with lower production volumes than Toyota. By now, Honda offers just sedans and the small Insight coupé. Thus, Honda is currently unable to address SUV or pickup drivers. Even if Honda will introduce the forecast Ridgeline hybrid pick-up the total production of Honda hybrid vehicles will not exceed some 550,000 vehicles. Most other OEM will stay behind these two manufacturers.

**Ford** decided to use Toyota's technology as it was first implemented in the downsized Escape SUV. In 2015, the total of Ford hybrid vehicles will mainly be SUVs and a few sedans.

**DaimlerChrysler** launched an SUV and a pick-up in the USA. In Europe, almost the whole product range has been presented as hybrid prototypes of different kinds. Despite the handcrafted sprinter van, no serial production started yet. The OEM is expected to produce a full hybrid based on the ML-, R-, and G-platform mainly produced in the US plant in Tuscaloosa. A clear strategy for European hybrid production is still not visible. An S-class hybrid is expected also for US sales. A-class as a mild hybrid seems to be probable. DaimlerChrysler co-operates with GM and BMW at the development of hybrid drive trains as a shared technology platform.

**General Motors** introduced mild hybrid SUVs and pickups using the Conti ISAD technology. For the European market no proposal for serial production has been made.

All other OEMs are expected to play a minor role in the hybrid market for the next 10 years. **VW** might reach a volume of 400,000 hybrid vehicles per year supported by the Mexico built Jetta, its European derivatives and the Touareg. **Nissan** licenses Toyota technology and comes up with a US Altima and Japanese Tino. **Renault** presented several prototypes and will probably introduce 2 or 3 platforms with hybridisation. **PSA** is expected to focus on microhybrids and a broad Diesel range.

For the European auto industry, it is essential to focus on few joint component platforms to realise low-cost high-benefit solutions providing competitive advantages compared to current Diesel DI technology. Most marketing arguments Toyota currently claims for its hybrid are already used and exhausted by current Diesel products. Thus, despite further increased economies of fuel and a reduced CO2 output no new arguments are available for the new product. As a consequence for Europe, Diesel hybrids seem to become mandatory.

If you have any question please do not hesitate to contact:

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