



## Exclusive Interview with EUROBAT: The battery industry's view on the electrification of cars



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*EUROBAT is the Association of European Automotive and Industrial Battery Manufacturers, uniting 85% of the battery industry in Europe with the objective to support the development of new battery solutions especially in areas such as e-mobility and renewable energy storage. cars21.com has talked to Mr. Alfons Westgeest, Secretary General of EUROBAT, about trends and needs in the battery market as well as necessary regulations and standards to move the sector forward.*

**cars21.com: What is your general outlook on the EV market as association of European automotive and industrial battery manufacturers? How do you evaluate the business opportunity for your members in the EV market, also with the Chinese competition in mind?**

**Alfons Westgeest:** We have to look at the definition of what electrification is. The whole automotive market is in transformation in terms of how cars are built, designed and imagined. In this respect, we see EUROBAT as part of an Eco-system where the entire automotive industry is involved. And interestingly, our link to battery technologies in other applications now brings the different areas together, when we regard for example the charging of electric vehicles and the use of renewable energies.

We are very optimistic on the opportunities that electric mobility offers to battery manufacturers. It has become clear that Europe will take leadership in CO<sub>2</sub> reduction. In that sense, Europe is a good place to launch EVs and test how they work and fit in. However, technology wise and in regards to standardisation and manufacturing, Europe has to move fast.

**cars21.com: How do you evaluate the global competition in the battery market?**

**Westgeest:** Our members are global. They manufacture in Europe but can be headquartered or stock-listed on other continents.

However, our base is around Europe. When we look at competition, we think there is room for collaboration, simply because of the need for standardisation to enable market take-off. And secondly, because manufacturing of cars, battery systems, packs, and cells is a global supply chain.

We see that China's car market is growing, so yes, there are opportunities. On the other hand, if we look at the size of the European market, it is still very large. The Chinese market has not reached that size yet. They start from a small base and grow fast. But for the next five years, Europe has still a good opportunity to roll out the hybridisation and electrification of cars.

**cars21.com: What is EUROBAT's role in promoting a healthy EV eco-system?**

**Westgeest:** We are involved in the debate on the environmental aspects of battery production, battery handling, the end-of-life of batteries. We are in constant dialogue with the European Commission about existing and future regulation in manufacturing quality and environment, the collection of batteries and the recycling of batteries. These are legislations where EUROBAT has a very strong position.

We also play a role in bringing about the electrification of vehicles and the use of renewable energies. We do this in participating in high-level meetings with European Institutions and are, for example, co-chairing the CENELEC group for standardisation of batteries.

**cars21.com: How do you evaluate statements such as by President Obama who wants 1 million**



**Electric mobility opens new opportunities for the battery industry**

Contact A. Westgeest in ou

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**EVs on U.S. roads by 2015, versus more conservative estimates by ABB who claims that the car industry calculates with the production of only around 255,000 EVs and PHEVs in the same time frame? Can you give us realistic figures from a battery manufacturer's point of view?**

**Westgeest:** Well, there is a difference in having 1 million EVs on the road or having 1 million EVs produced per year. Because if the manufacturers produce around 255,000 EVs and PHEVs per year from 2011 on, you might just have 1 million EVs on the roads by 2015. Indeed, we think that a lot will depend on announcements by car manufacturers this year. And the question is also if it will be full electric vehicles or plug-in or range-extended vehicles. EVs and PHEVs are not really the same.

We do think that we are at a turning point, however. Car manufacturers and the entire supply chain are moving in a new direction.

**cars21.com: Which governmental initiatives to promote electric mobility in general and battery technology in particular do you personally estimate to be the most effective ones? Which country does it right?**

**Westgeest:** Firstly, we need security of legislation. We need to know what restrictions there are on battery systems. We have to ensure that all battery systems can be deployed, that there is a lot of innovation. From a manufacturing point of view, you need to be able to bring new systems to the market and not be constrained by regulatory aspects.

In order to allow for that, the European Commission has earmarked quite large amounts of core funding under FP7 for battery research, both basic research in materials as well as in deployment of batteries in projects, under DG MOVE for example in the Green eMotion Project. Those are critical projects that look at the commercialisation of e-mobility and how cities can relate to it.

Then EUROBAT is also involved in the project ELVA, Advanced Electric Vehicle Architectures, which has only been launched in December 2010. Research funding and an innovative environment are crucial, but it is also important to capture what is happening in the different member states. There are good initiatives on national level to promote electric mobility. They are sometimes European funded but because of the time European Institutions take for decisions, many cities move ahead with their promotion of electric mobility. EUROBAT will, for example, having its annual event – the EUROBAT Forum – in Barcelona in May, because Barcelona is rolling out a very good system.

**cars21.com: Do you see a difference between Western and Eastern member states in the level of interest and in the initiatives that are taken to promote electric mobility?**

**Westgeest:** We cannot tell for every country, but Poland for example is certainly moving along. Poland has a large manufacturing base in the car industry and for such countries it is in their self-interest to move to electric mobility as to be part of the future. So you see countries that you would not expect like Belgium, Poland or maybe Sweden, are doing a lot of research and they try to get their manufacturing industry up to speed up in producing EV components.

Another example would be Denmark. Denmark has no automotive manufacturing base but has specific interest in rolling out electrification to combine it with their high share in renewable energy. Danish people are also open to try out new technologies and they are environmentally conscious. Furthermore, it is a small country, which makes a country-wide roll-out easier. The move to the electrification of transport is certainly a political choice in Denmark, supported strongly by the electric utilities. Better Place is also active in Denmark.

**cars21.com: Seen the impressive sums that are invested into battery companies around the world, how do you evaluate the risk of a "battery bubble"?**

**Westgeest:** I believe that a rich supply in batteries will create more incentive, momentum and enthusiasm to move forward in electrifying transport. There are so many different applications in which batteries are employed, I am certain that the batteries will be put to good use.

**cars21.com: Do you have any estimates on the price development of EV batteries over the next five years?**

**Westgeest:** We do not have any concrete estimates but all indications are that the price of batteries will go down when production is ramped up and economies of scale are achieved.

The price of batteries is developing naturally, I would say. It is however important to find a good price equilibrium that reflects investment, R&D and production ramp-up.

**cars21.com: Many established battery makers are now moving into the production of EV batteries as well. Do you still see room for new comers?**

**Westgeest:** Indeed, we do. The companies that are currently market leaders are important of course, but considering the innovation curve in the battery market right now, we might see some surprising new companies finding their way into the market.

**cars21.com: What are the key areas in battery technology that still need development and improvement from your point of view?**

**Westgeest:** Innovation is needed in Battery Management Systems (BMS) and cell technologies. As I

said, there is room for new comers who offer innovation in these fields. They could quickly grab the attention of the market or be swallowed by the bigger companies, but nonetheless BMS and new cell technologies offer opportunities.

**cars21.com: How do you evaluate the Chinese competition in the market?**

**Westgeest:** The advantage of the Chinese competition is that they have less incumbent systems and China is important to help create the market. But in Europe, we need to stick to reliable and safe products. It is important that Europe holds on to our high level of safety. It is extremely important that the technology is solid.

**cars21.com: What could be competing technologies to li-ion?**

**Westgeest:** Well, there is for example sodium-based battery technology, currently used in several projects for light vehicles as well as buses. Also, inductive charging is an interesting technological charging alternative, although it is not a battery technology strictly speaking.

Then you have to consider that li-ion technology is competing with itself - there are about ten different li-ion battery technologies. And lithium is not in short supply in the next decades, despite what we sometimes hear.

But, I am convinced that we have not seen all technologies yet.

**cars21.com: If you would be asked to formulate a global action plan for a rapid introduction of electric vehicles, what would be your top 3 points on the agenda?**

**Westgeest:** First of all, we need security, in terms of regulations, policy AND investment. Stop-and-go policies and investments that fluctuate with short-term funding will not create a sustainable EV ecosystem. The market needs a stable incentive system.

Secondly, we need to educate consumers and raise awareness about the importance of EVs in regards to environment and sustainability.

The technology seems to be getting there on its own, but as third point I would say we need some security in terms of standards, however without impeding innovation. Standards are needed to enable cross-border traveling but it can still be different systems in the different countries. Innovation needs to prosper, and we need a competing environment that furthers this.

**cars21.com: You are co-chair of one of the working groups within CENELEC that has been mandated by the European Commission to develop EV standards for Europe. Can you tell us anything about the progress?**

**Westgeest:** Internationally, there is a lot of good standardisation work being done for battery management systems and battery cells. For example, IEC for batteries and ISO are collaborating for a joint memorandum on batteries. But the big discussions are around charging protocols and connectors. CENELEC will not set all the standards. It only looks at what needs to be done on European level to help implement the global standards in Europe.

**cars21.com: Thank you, Mr. Westgeest!**

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