

## EVS24 Stavanger 09

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Stavanger, May 2009

### The best way to predict the future is inventing it!

Mobility is around since the beginning of times. Since we are not Neanderthals we don't need to hunt anymore, but we still enjoy a good meal and warm clothes. All these goods need to reach their final destination. And although we ourselves hardly move as much as the Neanderthals we consume more and thus need to 'move' more. Unfortunately all that 'move' became fossil-fuel-based. With an ever growing number of people on our planet this is becoming a huge challenge.

At DuraCar we don't think there is just one 'golden bullet' to make mobility sustainable. There are different solutions to different challenges and best fitting alternatives per specific market. As far as we are concerned, most city distribution can already be fulfilled using 100% battery electric distribution vans. That's why we have developed and now started production of our new car brand **QUICC!** and launched its first type, **QUICC! DiVa** (Distribution Van).

**QUICC! DiVa** is a full battery electric thermoplastic (body and chassis) utility van weighing less than 850 kilogram including battery pack. The autonomous range is 150 kilometres and the top-speed is limited by DuraCar at 120 km p/h. Loading capacity is currently 600 kilogram or 2.2m<sup>3</sup> in volume (we will probably increase the volume to 3m<sup>3</sup>). The car is very compact, only 3.4 meters long, and manoeuvrable, with a turning circle of less than 6 meters. It consumes approximately 2 euro per 100 km in electricity.

By offering **QUICC! DiVa**, DuraCar is making city distribution without pollution possible. There is no particulate matter or nitrogen oxide emission. And the CO<sub>2</sub> emission of the car itself is also zero. Even when the whole W2W is considered, a 100% battery electric vehicle still scores much better than any ICE vehicle.



**QUICC!**

For **QUICC! DiVa** we can show this by the following W2W analysis:

In order to include the CO<sub>2</sub> that originates from the production of gasoline or diesel, the following factors have to be taken into account (source: EJRC-2006, European Commission Joint Research Centre):

Gasoline	17%
Diesel	19%
Natural Gas	15%

The German öko-institute GEMIS, published studies about the energy sector and amounts of CO<sub>2</sub> originating from different types of electricity production. These numbers provide the necessary well-to-tank numbers in order to provide a complete overview.

EU 15 Grid mix	439 g CO <sub>2</sub> /kWh	63 g CO <sub>2</sub> /km
Solar Energy	89-168 g CO <sub>2</sub> /kWh	12 – 24 g CO <sub>2</sub> /km
Wind Energy	19 g CO <sub>2</sub> /kWh	3 g CO <sub>2</sub> /km

**QUICC!** uses 1kWh per 7 kilometers.

Taking the above into account, an 'apple-to-apple' comparison shows these results:

Car	Type of Energy	Published		Total
		Tank-to-Wheel CO <sub>2</sub> g / km	Well-to-Tank CO <sub>2</sub> g/km	
most sold hybrid passenger car	HEV	104 g/km	+17%	122 g/km
2 <sup>nd</sup> most sold hybrid passenger car	HEV	109 g/km	+17%	128 g/km
most sold distribution van	Diesel	161 g/km	+19%	192 g/km
2 <sup>nd</sup> most sold distribution van	Diesel	147 g/km	+19%	175 g/km
<b>QUICC!</b>	Wind	0 g/km	3 g /km	3 g /km
<b>QUICC!</b>	Solar	0 g/km	12 – 24 g/km	12 – 24 g/km
<b>QUICC!</b>	EU15 grid-mix	0 g/km	63 g/km	63 g/km

DuraCar's first launching customer uses solar energy to 'fuel' its **QUICC!**'s.

DuraCar's main shareholder is Econcern ([www.econcern.com](http://www.econcern.com)), the world's largest investor in wind energy.



In order to meet the EU goals of 120 gram CO<sub>2</sub> per km, it is essential to bring electric cars to the market as soon as possible. Efficiency improvements on the ICE alone will not be enough to reach the set goals.

It must also be acknowledged that the innovations will have to come from small, innovative, new companies rather than from the big established players. A lot of the established players have other things on their mind, which is proven by last years' requests for government support in the amount of 25 to 50 billion USD on one side of the ocean and 40 billion Euros on this side of the ocean. Only 1% of that amount would be enough that scale up a number of really good electric vehicle initiatives from newcomers.

Bringing new technologies to market, maybe even disruptive in some ways, takes a different and fresh perspective. We need to take old business models and without fear change them – 100 years after Mr. Benz invented the automobile, the time has come to redefine the industry in many ways. From an environmental point of view we really need to cut emissions. From an economic point of view we need to cut costs. From a political point of view we really need to stop our oil addiction.

We do also need to produce cars smarter, simpler, cheaper and with less pressure on the environment. The production model gives room for improvement as well. The above can be done as DuraCar proves. Since the whole body including chassis (in full color) will be made from new thermoplastics the shell of the car will be brought to the assembly line as one. So no press shop, welding shop or even paint shop is necessary in **QUICC!**'s production model. Since there is no internal combustion engine, also this part of the assembly is relatively easy. The production line is therefore much shorter, only some 20 assembly stations, more flexible and requires far less investment.

In order to get to the market fast, without getting involved in 'chicken-and-egg' discussion about infrastructure versus electric cars versus infrastructure versus electric cars and so on, we have decided to target the segments where electric vehicles can already fulfill all requested mobility needs. By deciding to target the city distribution segment, we are not depending on infrastructure creation by third parties, we offer solutions for the most likely early adopters and large customers and we do not only help to replace a huge amount of now fossil-fuel based distribution for CO<sub>2</sub> free distribution, but also help to improve air quality in cities by offering particulate matter free and nitrogen oxide free city distribution mobility. In other words; city distribution without pollution.



We absolutely believe there is room for passenger electric cars as well, but here the infrastructure issue does have an influence. In the B2B market that we target, the often perceived 'limited range' of battery electric vehicles is a non-issue. We offer a 150 km autonomous range where the average light weight commercial vehicle does not need more than 50 to 70 km per day.

As an example we can state that up to 75% of all current postal fleet vehicles in Europe could be replaced by electric vehicles. This means replacing within the EU alone some 350.000 vehicles, with a current normal life of 36 months. This transition then could take place within the next three years. And mind you, this is just 1 possible group of customers, a niche within a niche. And please also remember that this customer group is very willing to switch to electric vehicles.

So what would be needed to make it happen? Far less than 1% of financial support given to traditional OEMs would be more than enough to ensure sufficient supply of main components, make use of excess production capacity (of traditional OEMs) thereby preventing the construction of new production plants and get things going (scale up, speed up). It would save old and create new jobs. It would offer the opportunity to (from the beginning) offer competitively. It would not require huge infrastructural changes. It would offer the opportunity to increase the request for wind energy, which would be required during the nights (so off peaks). It would give Europe leading edge innovation and technology developments. And it would reduce yearly emissions by millions of tons of CO<sub>2</sub>.

Who wouldn't want this to be achieved?

Gladly now we show you a short video of the **QUICC! DiVa**.

Thank you.

Clear ideas! Great products! [www.quicc.eu](http://www.quicc.eu)