

Why Solar Powered Mobility?

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Summary

Since an **electric car is only as clean as the energy which it uses**, the "Real Zero Emission Vehicle" is defined as vehicle with clean energy supply from solar, wind, water or similar sustainable and clean power source. The German Solar Car Federation (Bundesverband Solarmobil e.V.) demands laws or regulations for Europe for "Real Zero Emission Vehicles" similar to the USA "Clean Air Act".

The **solar power supply** is feasible for so-called "LEMs" (Leicht-Elektro-Mobile = light electric vehicles) with low power requirements. LEMs require typically less than 10 kWh per 100 km. Solar power stations of 1 kWp would be sufficient for more than 10.000 km per year. This is more than the typical commuter vehicle requires, which runs about 6.500 km per year.



The report includes quotations of two research reports, both from the "Forschungszentrum Jülich" and the DLR (Deutsches Zentrum für Luft- und Raumfahrt), showing the possibilities for solar supply for all commuter cars in Germany by using the area of typical parking lots only for solar panels, and showing the low energy requirements for battery cars in comparison to any other cars (power from petrol or hydrogen).

The possibilities of small solar panels of 100 W or so on the vehicle is mentioned as well together with some very good experiences from owners regarding the life of the batteries.

The main solar panel of typically 1 kWp is installed on the roof of the house. This model is called the solar-net and is the basis for the "**Park & Charge**"[®] system of public charging stations for electric vehicles, which at present exists in Switzerland, Germany, Austria, France and Italy. There is a common key for all **Park & Charge**[®] stations in Europe. More information can be found in the Internet at www.twikeklub.ch. There is a printed version of the LEM-NET as well.

The report shows clearly, that solar mobility is possible now. The number of photovoltaic installations of more than 1 kW in Germany will reach a 100.000 or more in the next few years. The vehicles are available: the well known City-El, a single seater, needs 6 to 8 kWh only per 100 km, the TWIKE, a two-seater, needs even less with 3 to 6 kWh per 100 km. Other cars like the THINK will be marketed soon, and "larger" electric cars like the Citroen Saxo and Berlingo are available as well. There are also electric scooters like the Peugeot Scootelec and the Taiwan made EVT 4000 and a growing number of electric power assisted bikes are available. Besides solar mobility on land, there are many solar boats and ships, and solar planes and solar railways are already demonstrated (see www.solarmobil.org).

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