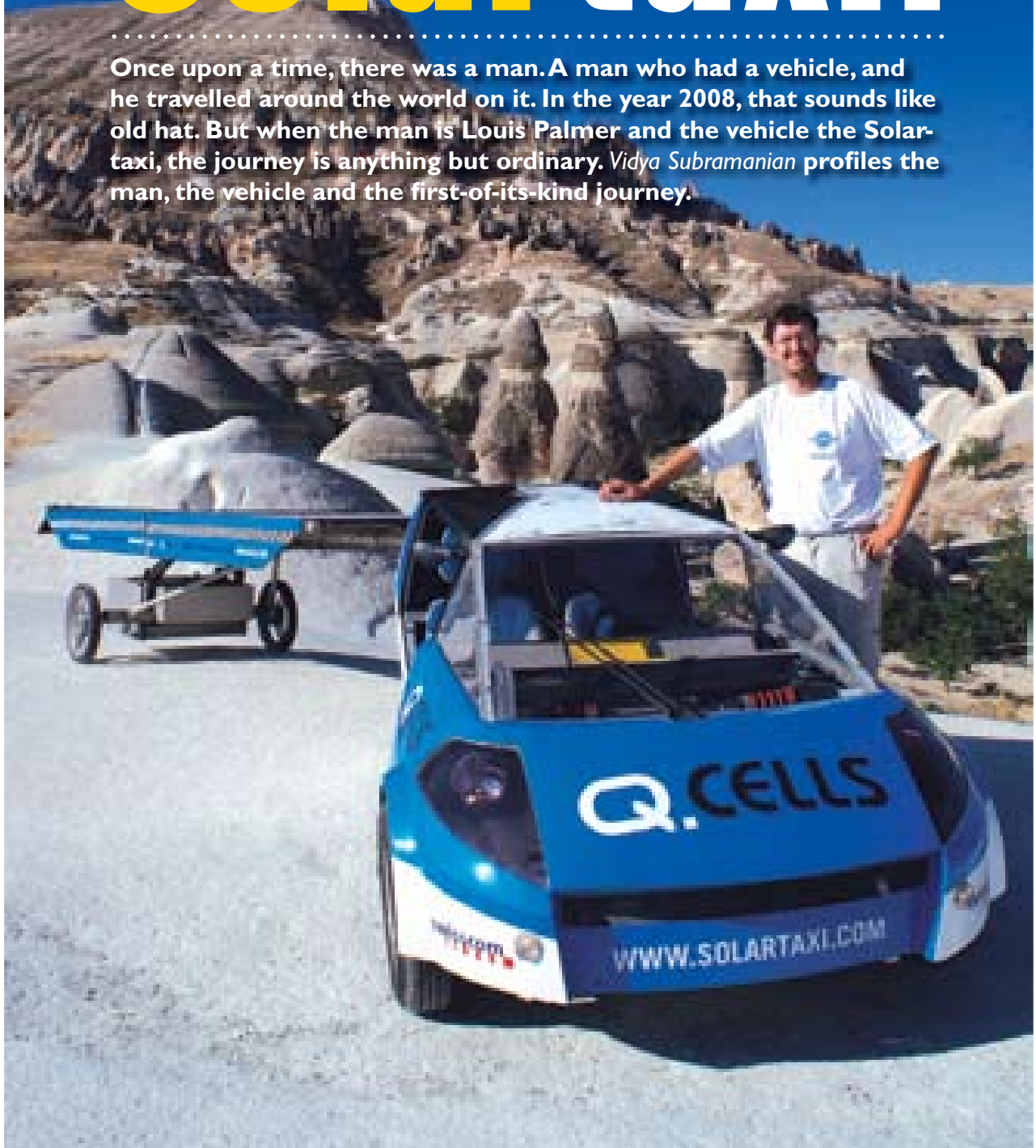


Around the World in a **Solar**taxi!

Once upon a time, there was a man. A man who had a vehicle, and he travelled around the world on it. In the year 2008, that sounds like old hat. But when the man is Louis Palmer and the vehicle the Solar-taxi, the journey is anything but ordinary. *Vidya Subramanian* profiles the man, the vehicle and the first-of-its-kind journey.



The Solartaxi began its journey in Lucerne, Switzerland in July 2007 and hopes to be back there in 18 months, after having travelled 40,000 km, through 40 countries, and all 5 continents. The dream of the Solartaxi began, as a lot of great accomplishments do, as a childhood dream. A 14-year-old Louis Palmer wanted to travel across the world in a car that wouldn't destroy the earth. After 20 years, that dream resulted in the Solartaxi.

A schoolteacher by profession and a traveller by choice, Palmer has travelled extensively around the world. Having travelled around Africa on a bike (no, not a motor bike... a cycle...) in 1994, created a world record by travelling with the smallest aircraft across South America in 1998, and having been a tour observer at the World Solar Challenge in Australia in 1999, he is now on another record making journey – the first ever solar-powered trip around the world.

His vehicle is a 'taxi' because everyone who fancies a ride, gets a ride. From the Maharana of Udaipur to school children in Delhi, from human rights activist Bianca Jagger to Swiss President Michéline Calmy-Rey, the passenger list of the Solar Taxi is as varied and fascinating as the journey itself!

The Technology

The Solartaxi is an energy neutral car. It is an electric vehicle with a five-meter solar trailer covered with 6 square meters of high-energy solar cells made by the main sponsor of the Solartaxi project – Q-Cells. The electricity is stored in a newly invented Zebra battery, to enable driving even at night, when there is no sunshine. The solar cells on the trailer produce enough electricity to run the car for up to 100 km a day. To be able to drive more than 100 km a day, the battery will have to be charged with additional power. For this purpose, they have a solar power plant on a rooftop in Berne, Switzerland. The electricity generated there is fed into the grid, offsetting electricity generated by using fossil fuels. It's like paying money into a bank account and withdrawing it somewhere else: solar electricity is fed into the grid and charged into the battery anywhere in the world. 'If all cars in the world were powered this way', says Palmer, 'cars wouldn't cause global warming!'

The Solartaxi demonstrates how it is possible to produce enough electricity with a mere 9 square meters of solar cells on a rooftop to drive 15 000 km a year, without producing any CO₂ emissions at all!

Its makers claim that it stands for a new way of mobility in cities, filling a niche between a car and a motorcycle. The car is powered by Zebra batteries, which are high-energy batteries made from natrim (common salt), ceramics, and nickel. They store four times more energy than a normal lead-acid battery of the same weight. Apart from being fully recyclable, this battery can be charged about 1000 times. This is equivalent to the Solartaxi covering a distance of 200 000–400 000 km. In contrast to the nickel-cadmium battery, the Zebra battery works without a memory effect, which means it's not necessary to discharge the battery fully. To keep the electrolyte salt liquid, the battery requires a working temperature between 270° and 350 °C. Due to a vacuum-isolation, like what is used in a thermos, the temperature is only 5 to 10 degrees higher than the outside temperature. The heat loss amounts to merely 40

W. The battery is maintenance-free, has a longer than usual life, and is a very reliable device. This makes it particularly suitable for mobile application like in cars and buses.

It took the work of several students in Switzerland to finally figure out the Solartaxi. In the summer of 2004, the first outlines were produced. Students of the Lucerne University of Applied Sciences and Arts were enlisted for its planning and design. Four students worked on the project for their doctoral theses. Meanwhile Roger Zehnder of the division structural strength at the ETH, Zurich worked on the trailer. But it was only in June 2006, that the Solartaxi was ready for the road traffic-licensing department in Lucerne. The vehicle passed the certification and was tested on the passes of the Swiss Alps right after that. It covered 16 km vertically, without any breakdown. After that ensued a drive to Spain and back to test the assemblies in the heat. And in July 2007, the unique vehicle set out on its quest.

The Mission

The Solartaxi endeavour is not a one-man show. Technicians, tour guides and enthusiasts join and leave the entourage at various points along the journey. At the time of writing, the Solartaxi team was just wrapping up a rewarding stint at the Climate Change Summit in Bali and heading onwards towards New Zealand on board The Rainbow Warrior. Spreading awareness about renewable resources of energy and having what seems like a whale of a time along the way, the Solartaxi is now on its way to the southern hemisphere.

Louis Palmer's mission statement, on their website reads 'On 3 July 2007, I set off on my first journey around the world with a solar powered vehicle. Admittedly, as a regular citizen I cannot change the world but I can demonstrate to the world just how dire the global climate situation has become and how many sophisticated solutions to lower the greenhouse gases already exist... The solar taxi should rekindle hope and a zest for life, set an example to counteract resignation and stimulate reflection. And show that every single one of us can take a step towards preserving our planet.'

It goes on to say, 'All the CO₂ found in crude oil, natural gas, coal and forests will be burned within a century and emitted into the atmosphere. But it doesn't have to be like this: stop the overexploitation of fossil resources and switch to new technical solutions! This could create new jobs, a new quality of life and new perspectives for the future... These solutions have already been available for a long time but they still suffer from old ways of thinking. The solar taxi champions these ideas. We visit pioneers, who have solutions, and make them and our own message known to the public worldwide.'

We, at TG, support the cause, wish the Solartaxi the very best of luck, and hope to drive such cars on the roads of our cities in the very near future! ■

Accumulating Solartaxi experiences and lots of other information about the daily adventures of the team—complete with a weather and mood monitor are available at their website www.solartaxi.com.

