

Mexico City's Electro TAXI Revolución

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PHOTO CAPTION: Electro Autos Eficaces Chief of Production, Hermann Fuchs shows Señor Jamie Arceo, Mexico City's Chief of Energy, the eLECTROTAXI[®] prototype during EVS 23 in December 2007. Equipped with Kokam lithium polymer batteries, the Nissan Sentra has a range of 135 miles. Also present was Mexico City's Secretary of Roads and Transports, Armando Quintero.

Señor Victor Juarez G. gives EV World an exclusive briefing on the soon-to-be-announced electric taxi program in Mexico City.

Mexico City has a law: no public taxis can be older than 10 years. If they are, they must be replaced.

For Señor [Victor Juarez G.](#) and his associates in the world's second largest city, that presents them with an opportunity. If -- and that's a big IF -- all the licensed and "gypsy" (unlicensed) cab operators in the city comply with the edict, in 2008 some 30,000 taxis -- many of them antiquated VW Beetles -- will have to be retired.

Now Marcelo Ebrard, Mexico City's would-be 'green' mayor, is mandating that from the first 30,000, ten percent of these replacements will be hybrids (only the Honda Civic Hybrid is sold in Mexico), 10 percent will be fueled by compressed natural gas and 10% will be battery-powered electric cars.

In reality, however, Juarez G. doesn't believe any hybrids will be bought because they cost nearly \$8,000 more in Mexico than the regular gas version. Cab operators won't be able to justify the added cost, which opens up the possibility for the introduction of more electric versions.

Electric taxis aren't a new idea. Some of the very first commercial motor vehicles in history were electric taxi cabs that operated in Philadelphia and New York in the 1890s.

More than a century later, a battery electric taxi was tested in New York City with discouraging results [[NYC Electric Taxi Can't Hack It](#)]. The converted Chrysler PT Cruiser was equipped with Kokam lithium polymer batteries, which should have been up to the challenge, leading to speculation that either the technology employed was faulty or the parties involved didn't want the experiment to succeed... or maybe both.

Regardless of the reasons, Juarez G. is convinced that modern electric taxis -- properly done -- can be successful in Mexico City where the average cabby drives about 200 km (107 mi) per day and cold winter weather isn't as much of a challenge. Working in cooperation with the RUTAS UNIDAS association of bus and cab operators, his colleagues at [Electro Autos Eficaces de Mexico](#) (EAE) -- led by Mr. Luis Pérez Quintana -- and Azure Dynamics (AZD) -- headed by their new CEO Scott Harrison -- plunged into the development of a Nissan Sentra taxi conversion powered by an AZD 20kW AC Direct Drive and Kokam energy packs.



Called eLECTROTAXI[®], it is similar to the one found on their first conversion project, [Numero Uno](#), which is now in Tampa, Florida for demonstrations to local officials.

Juarez G points out that there are "several major technical improvements" in this car over the converted government fleet vehicle EV World drove in the Spring of 2007 in Mexico City. Based on the larger, roomier Nissan B-15 platform, the taxi incorporates air conditioning, power steering, electric door locks and a sound system. The prototype model, which was on display at EVS 23, is equipped with 21 kWh Kokam lithium polymer batteries, giving it an operational range of about 135 miles and the ability to rapid charge in under one hour.

The prototype (pictured below) was convincing enough that cab operators have placed orders for 500, which will be produced by Señ José' Luis Fernández's PRO-E company in two nearby, former auto assembly plants. While the details are worked out by Kokam for Fall delivery of fully road-tested lithium battery packs, EAE informed EV World that the first taxis will be powered by Enersys XE 95 amp hour lead acid batteries, unlike those in their first conversion, which were 68 amp hour. While this will reduce the range from 135 to about 60 miles (at 75% DOD), Juarez G. has convinced cab owners that with a 1-1.5 hour charging cycle during the middle of the shift using 220 volts at 50 amps, the batteries can give the taxi another 55 miles. Combining the initial range and the added range, the pack should deliver a service range of 115 miles.



It is, admittedly, an interim solution but it also gets the vehicles on the road *today* and with a somewhat more affordable battery, although EAE confided that Pro-E -- the final integrator of the eLECTROTAXI ® -- has to pay a premium for the 'Pure Lead' Enersys batteries over the renown, but also expensive Optima lead acid batteries many EV converters use. The lead batteries will also have to be replaced more frequently than is anticipated for the lithium ion. To cover this contingency, Enersys is giving full support and the investors have set aside funds to replace any batteries that prematurely fail, which is one of the reasons for going with the Enersys batteries.

Señor Juarez explained that typically if a battery in the string fails, the entire pack has to be replaced for purposes of maintaining a balanced charge across the entire string. His team discovered that this isn't necessary with the Enersys batteries that currently power Numero Uno, which now has some 6,000 miles on it and shows no signs of pack deterioration, other than having to replace one faulty battery

with a new one that then resulted in the entire string returning to a balanced charge and voltage. The extra cost of the Enersys batteries definitely paid for itself in this case.

The program should begin turning out about 120 taxis a month by the end of July.

Mayor Ebrard will be making the announcement of the eLECTROTAXI[®] program, along with Señors Luis Fernández and Pérez Quintana, this coming Monday (February 11, 2008) from his office in the world-famous El Zócalo city square.

As for the previously announced program to retrofit 1,000 of the city's fleet of Nissan Tsurus to electric, that effort is also now back on track. According to sources close to the mayor's office, it had been delayed due of political foot-dragging on the part of Ramón Muúoz, Mexico City's budget chief, who is reputed to oppose electric cars. In response, Mayor Ebrard has ordered the program to go forward by requiring each cabinet Secretary to start financing their share of the program. To date, four Secretaries are now on board and allocating the necessary funds. As a result, the first 40-60 electric car conversions should also be hitting the streets around the same time as the taxis.

Hopefully, EV World will be on hand when both types of vehicles make their debut.

END STORY