

Tuesday, February 23rd, 2010 | Posted by [admin](#)

Can Electric Vehicles change the world?

Part 2/3: EVs in Singapore

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In the [first part of the blog](#), we asked if electric vehicles are making a third comeback globally. In Singapore too, there are some interesting developments taking place, thanks to the initiative of green entrepreneur start-up, **Zeco Systems Pte Ltd** which sets up infrastructure for charging electric vehicles.



Zeco Systems Pte Ltd, a Singapore born and bred clean technology company, is paving the way for a quiet revolution in the way we move around. The firm launched a global rollout of its EV charging solutions last week on Feb 11, 2010 called '[Greenlots](#)'.

Greenlots Point is a charging station which enables EV users to simply plug in and charge their vehicles via a simple authentication process.

It can be located at carparks of private homes, office buildings, residential buildings and shopping malls. Greenlots managing director Oliver Risse said, "The beauty of electric vehicles is that the infrastructure is already in place." By plugging into the existing grid, it helps to keep costs low and allows for scalable growth.

Ten charging stations have so far been set up in Singapore such as the INSEAD campus at Buona Vista, Parkway Parade and the Swiss Club.

Zeco Systems also introduced the first electric vehicles in Singapore through the E-Max scooters in early 2009. Come September 2010, Singapore will see the introduction of electric cars such as the i-MiEV model by Mitsubishi.

What makes Singapore ideal for EVs?

Singapore is perfect for EVs as it is a city of short distances, with limited urban sprawl. On an average, people here drive about 40 kilometres a day mostly for commuting between home and work; something that takes no more than 2 hours a day. About 90 per cent of vehicle users park their vehicles for around 22 hours a day at home, office, shopping and leisure. So it's easy to use that stationary time for charging.

Environmental pros and cons

I touched upon some of the environmental impacts of EVs in [my previous blog](#). The biggest benefit for cities is that it will clear up the air, as EVs have virtually no exhaust emissions. Just think about all the smog and soot that has the potential to disappear from cities and towns and the beneficial impact on health.

Battery production and recycling are very important issues, as the inputs of battery making requires mining processes, some of which can be toxic. So it's critical to ensure good recycling facilities for batteries, and good mining practices at the extraction areas. It's also beneficial to have EVs plug into a grid which is powered not by more coal plants, but renewable energy.

David Tan, Deputy Chief Executive of the Energy Market Authority mentioned at the Singapore International Energy Week in 2009, that this island can reduce up to 4% of the land transport sector's carbon emissions by 2020 with only a 2% EV penetration rate, and this is despite the dependence on natural gas.

I took the opportunity to **test drive the E-Max 90S** electric scooter recently. Here is the video :



The E-Max brand of scooters that Zeco systems introduced in the Singapore market in 2009 comes in two models : the E-Max 90S with a driving range of 45-60 kms, and the E-Max 110S with a driving range of 70-90 kms which is enough for a majority of trips. Full charging takes about 3 hours, and each charge can last upto 60kms. Operational costs amount to about Sing \$60 per year based on electricity prices in

Singapore. That means fuel savings of about Sing \$1,300 a year. The scooters are priced between Sing \$6,999 and Sing \$7,399 depending on the COE (Certificate of Entitlement licence required for vehicle ownership in Singapore) and run on lead-acid batteries which need to be changed every 3 years or so at a cost of about \$600- \$800.

As you may have seen on the video, I was impressed with the vehicle. It's sturdy and the drive is exceptionally smooth. I don't own a vehicle in Singapore, because I believe that as a city it's very well geared for public transport. However, an electric scooter would be greatly handy for doing short distance commutes, which are too far to walk or cycle, or for out of the way places, which can't really be connected well.

Safety on Singapore roads is an issue for two wheelers. I would really like to see roads becoming user friendly for bicycle and scooter riders. A class 2 driver's licence is required for the scooter, and at the moment, it can't be taken on the highways.

As a city, it must continue to upgrade its public transport system, by increasing the coverage and frequency. Public buses and commercial vehicles can also benefit by moving away from fossil fuels to the electric mode.

For EVs to really take-off, a major push towards infrastructure building needs to take place, for which the right top- down policies have to be created to encourage homes, private estates and shopping malls to install charging stations. The more the demand for EVs, the more the demand for charging stations is likely to be. Consumers on the other hand are more likely to embrace EVs only if it is convenient for them to recharge. They also have to gain confidence that road conditions are safe for them to use Evs, especially scooters. So it boils down to a chicken and egg situation – does the infrastructure come first or the demand for EVs?

There is momentum building up in the EV industry, both as far as the infrastructure building and the commercial acceptance of EVs are concerned. In Singapore, the seeds are being laid by the likes of Zeco Systems to revolutionise the land transport sector with EVs, but whether they germinate and take off here, and elsewhere in the world, only time will tell.

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Part 1 : [Can Electric Vehicles change the world? Part 1/3 A Third Comeback](#)

Part 3 : [Can Electric Vehicles change the world? Part 3/3 The fun stuff](#)



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