

SAUR ENERGY

INTERNATIONAL

R.N.I. No: DELENG/2016/74125 | VOL. 7 | ISSUE 4 | TOTAL PAGES 64 | PUBLISHED EVERY MONTH



Raman Bhatia
Founder and Managing Director
Servotech Power Systems

Solar Charging for EVs

ATUM and Servotech are among the Indian firms that are building a case for charging EVs with Solar power. While ATUM claims to have installed the country's first self-sustaining solar-powered electric vehicle charging station (it is connected to the grid as backup), there are multiple challenges involved.

Servotech claims that under ideal conditions, it can meet up to 90% power requirement from solar. However, on an average from 40%-85% requirement of the total capacity can be met from solar, depending upon the irradiation available at the time. Raman Bhatia, Founder and Managing Director, Servotech Power Systems, defines it as "an innovative structure with a dual function that shelters vehicles while also producing solar energy. A fleet of electric vehicles may then be charged using this free electricity, which can also be used for on-site consumption." Currently Servotech is working on 14kW EV charging capacity. This can be leveraged in two ways, first by way of installing 2 units of 7kW AC chargers and can suffice 4 wheelers, and second, by setting up 4 units of 3.3 KW chargers which can help power 2-,3-, and light utility 4-wheelers.

Bhatia adds that "the solution is also very user-oriented as each unit can be designed from scratch, and tailored to budget and requirements. Quick, easy to install, and offering savings on time and cost, they can be branded, adapted, repositioned, and help increase their value over time."

Cost-wise, it is a viable option worth exploring. "It typically costs about Rs.100 per watt with battery backup for 1 hour for any emergency use. Depending upon the application and use, it ultimately decreases the cost of charging in the long run," Says Bhatia. Storage is an added requirement. "When

there is no EV to be charged, solar energy is fed back and stored in the batteries, which can then be consumed when required even during night hours. Further, if the system is connected to the grid, the surplus power can also be fed back to the grid," shares Bhatia.

However, solar charging comes with its own challenges. To begin with, there is paucity of land for solar installations that can generate enough power to charge an EV. Then there is of course the issue of time of day, as without storage, customers looking to charge in the evening hours or cloudy days will need to look at alternatives.

However, we believe there is a real case for ministries to work together to perhaps consider integrating something like Component A of the PMKUSUM scheme, that envisages setting up 10,000 MW of decentralised grid connected solar plants on barren land with large, EV charging stations on national highways at least. With support on storage, these larger solar plants could possibly generate enough power to run such EV charging points on the highways, and the higher realisations for this power would reduce the need for subsidies for storage possibly. Keep in mind that Component A has been a major underperformer till date.

A more obvious immediate solution of course is for EV charging networks to contract an equivalent amount of renewable energy to go green.

Firms like Electrify America, an EV charging network in the US, have shown the way by going for a combination of virtual power purchase agreements for renewable energy and on site solar charging. It has experimented with solar charging at level 2 charging stations that are off grid. Each station includes a sun-tracking solar array that can charge two vehicles at a time, with a maximum rate of 3.5 kW. An attached energy storage on the off-grid system adds to the ability and flexibility to charge at most times.

