



## Electric Vehicles

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India has set itself an ambitious and rather stiff target of completely changing over to all electric fleet by 2030. In fact Rameswaram Island can also think on similar lines. But most important and pertinent question is “Where is the electricity going to come for charging the batteries”. And what batteries we are going to use? If it is the conventional Lead Acid type, the recycling and recovery of lead is going to be a key issue to be addressed. Is Lithium Ion batteries are more environmentally friendly? Such questions need to be asked before deciding on deployment of EV in large scale.

The Lead in conventional batteries and Cobalt in Li Ion batteries pose problems for the environments. The chemistry of more Eco-friendly Lithium Iron Phosphate (LFP) is much more attractive in this respect. In fact India should do much more research in using Nano materials for such LFP batteries. It has been conclusively proved that LFP with Nano materials have almost 15 - 16 years of life and are far superior in terms of Eco-friendliness.



Another major issue is about charging the batteries. In case we are going to charge it from power grid, what are the implications? The demand for power would go up substantially and as Folger argues, the cost of power could also increase substantially. The low cost of subsidised grid power may not hold for very long and we may reach a situation where the charging costs may go up substantially in future.



And if we are using grid power for battery charging, are we really contributing to ecology? What about the environmental issues of conventional coal based power stations, which constitute about 65% of the electricity produced in India. We are only shifting the cause of pollution from the user end to the production end! The alternative is to go for a renewable energy sources for providing electricity for charging EV batteries. It is imperative that a proper infrastructure is built in the country for charging batteries of Electric Vehicles. Again it is easy to experiment this in Rameswaram Island before replicating it across the country. Careful planning and experimentation is required before deploying it across the island in a systematic manner.

For their own electric bicycles, a prototype of which is running in the island, Basil has used LFP batteries and solar charging is possible. In fact a hybrid charger, capable of charging from grid power or solar power is possible.

In conclusion it can be said that careful analysis and thought should be given for choosing the panels and batteries and the overall life cycle costs must be evaluated rather than the first cost of acquisition alone. Serious thought must be given during selection of the vendor and the type of panels and planning must be done years ahead for disposal, recovery and recycling of wastes. Only this way the impending environmental issues can be mitigated.



***Hearty congratulations to our partner, Basil Energetics and Dr.Ramarathnam***

Dr.Ramaratnam has been nominated by India (Bureau of Indian Standards) to the SyC LVDC/WG1 committee of the IEC (international Electro-technical Commission). WG1 is to prepare the drafts of the relevant standards for the DC system.

Basil's Ceiling Fan (iBreez) has been selected by Global LEAP as the best performing fan in the world. The testing & certification was done by TUV (Technischer Uberwachungsverein) Germany. Against a 5 Star rated BEE (Bureau of Energy Efficiency) India norms of 55 W and Service Value of 3.64, our fan consumes only 20 W with a service value of 6.85.

However, considering other aspects like Volumes, Aesthetics, Quality and Price which are also given weightage along with performance, BASIL comes out as # 2 in the World - Motivation for Basil team to raise the bar further!

