

Evaluating Emerging Multi-billion Electric Vehicle Charging Infrastructure Creation Opportunity in India by 2030: Opportunity Sizing, Go to Market Strategy, Business Model, for Charging Stations & Battery Swapping Stations

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Abstracts

India aims to go transform its mobility landscape and has set a target of 100% EVization of its mobility landscape by 2030. While there are skeptic that sees this as a bold ambition and an impossible target to achieve, there no denial that electric mobility is the future. Countries like USA, France, and Norway were the early adopters of electric vehicles but were overtaken significantly by China and China is now the largest electric vehicle market both in terms of yearly new registrations as well as total population of electric vehicles plying on the road. Interesting to know that US, U.K that started its EV journey in 2004, 5 years ahead of China is showing signs of exhaustion as against China wherein the journey started from 2009 and its growing from strength to strength and have registered 148% growth in EVs plying in road between 2009 and 2016. The same growth is exhibited in terms of public charging infrastructure creation, in US where the charging stations grew from 375 in 2007 to 40473 in 2016, reflecting a CAGR growth of 32%, when compared to China's EV charging stations network growth of 30000 in 2014 to 141254 in 2016. The charging stations numbers have direct correlation with the growth trajectory of EV adoption and is evident from the table below, where one can see that the countries like China, Netherlands, and Germany demonstrate 20-25 EV charging station per 100 EV vehicles on road.

Above clearly indicates that EV charging infrastructure and EV vehicle adoption is a classic chicken and egg case and India in same breathe will have to layout roadmap on building EV charging infrastructure that can grow at a pace and reach scale required to support 100% EVization of its mobility landscape. Recently, GoI cleared confusion

around how the EV charging station infrastructure will be treated and whether an entity will have to acquire license for setting up EV charging stations which thereby provides charging solutions to electric vehicles. As per the latest GoI notification, Setting up charging stations for electric vehicles does not need a separate license under the Electricity Act of 2003. The clarification followed confusion over whether during charging of battery for use in electric vehicles, the charging station performs any activity of transmission, distribution or trading of electricity, which would require a license under the Act. The charging of battery essentially involves utilisation of electrical energy for its conversion to chemical energy, which gets stored in the battery. Thus, charging of the battery of an electric vehicle by a charging station involves a service requiring consumption of electricity by the charging station and earning revenue for this purpose from the owner of the vehicle,” the power ministry said in a recent statement. The announcement provided clarity on best fit business model to be adopted for providing charging infra for consumers. Now, PSUs, private players, discoms, original equipment manufacturers, etc can join hands in developing a robust and appropriate charging infra for wider adoption of EVs in India. Realizing that merely announcing its intent to go complete EV by 2030 as added more confusion than clarity on several building blocks of an EV mobility landscape, Government recently also announced proposal for compulsory sourcing of minimum 50% domestic content for electric vehicles in the first year, 60% in the second year and 70% in the third year. Currently, local content in electric vehicles is at about 35% as most companies import batteries that account for a major cost of electric vehicles. Local auto makers, however, said moving to high local content with incentives and tax breaks was not difficult.

As far as charging infrastructure is concerned, Government proposes to set up charging stations for electric vehicles every three kilometres in cities with million-plus population and smart cities, and every 50 km on busy national highways. It is likely to offer fiscal incentives and facilitate land from municipal authorities for those interested in setting up the infrastructure, which is a key requirement for the proliferation of electric vehicles. As per a senior government official estimates, it is expected that 30,000 slow charging and 15,000 fast-charging stations will be required to be put up in a phase-wise manner in the next 3-5 years. However, the number seems to be way below what will actually be required for achieving the electrification goals. Government which earlier completely rejected the idea of swappable battery model, realized that a hybrid approach as far as charging infrastructure is concerned is a way ahead and many commercial vehicle manufacturers that recently bid for electric bus tenders have provided provision of battery swapping based capability in its vehicle. There are lot of grey areas that the industry will have to address and also clearly understand challenges in terms of getting business model right, local technology capability for charging stations equipment and

components, charging stations standard etc..and there is a need to clearly understand the factors that needs to be critically evaluated before venturing into the electric vehicle charging solutions business space in India. InfraInsights research report "Evaluating Emerging Multi-billion Electric Vehicle Charging Infrastructure Creation Opportunity in India: Opportunity Sizing, Go to Market Strategy, Business Model, for Charging Stations & Battery Swapping Stations" aims to help the companies take informed decision and get their business strategy and business model around charging stations opportunity right and also recommend a sound got market strategy for those interested in entering this very lucrative space in the times to come. The study will provide an in-depth analysis of electric vehicle charging system market with current and future trends to elucidate the major investment pockets in the market. Also, do location shortlisting that will be very attractive and to be considered for setting up EV charging stations or swappable battery stations.

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