

Electric Vehicles Market in India 2017

Determining Plug-in Opportunity for
Value Chain Players

Report Summary



Enincon's Key Findings

The Indian automobile industry is one of the largest growing markets of the world, and contributes highly in the country's manufacturing facilities. Not only this, the automotive industry in India is further expected to pull up the share of manufacturing in India's GDP to 25% by 2022 from 15% currently, with production of Electric Vehicles being new talk of the town. However, India's electric vehicle industry is a newly born baby when compared with the other international markets such as US, China & Europe etc. But, a face change is definitely anticipated for India's EV industry with major thrust given by the government.

Enincon's report on "Electric Vehicle Market in India 2017" highlights the initiatives taken by the Indian government in this regard and the underlying opportunities in the Indian EV market. The report examines India as potential market for investing into e-transportation. Some of the key findings of this report are given as-

Signposts	Degree of Challenge	Results in Near Term	Path
Long Range Success Strategy for OEM's in India			The key shall be integrating EV's in their fleet plan
Collaborative Approach			Collaborative approach by OEMs, charging infra enablers, battery suppliers & smart grid service utilities are must to power EV's business case in India
Charging Infrastructure			Setting up of level 2 charging infra at public level shall be the toughest challenge
Customer Awareness			A must to future growth of EV's in India
Shift from "Product - Only" Strategy			Enhancing extended scope capabilities in Indian EV market
Government Support			Government support and subsidies, key to embellish EV market in India



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1 Long range success strategy in India

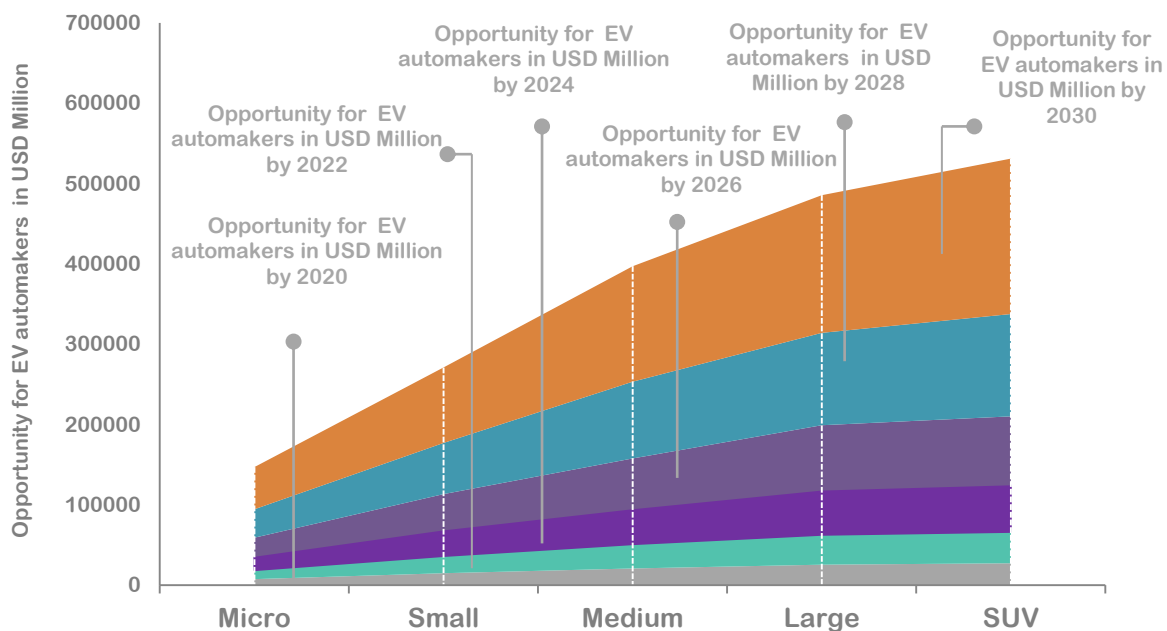
For OEMs to have a long range success strategy in India, the key shall be integrating EV's in their fleet plan. Better still shall be developing a market strategy looking into end to end service integrator.

It is anticipated that market of India alone shall be close to US \$ 393 billion by 2030 even if we go by pessimistic market adaptation.

~600
\$ Million

Of investment, Suzuki planning to infuse into a new manufacturing facility in Gujarat, India

Opportunity Assessment for EV automakers Under BBB Scenario with High PEV Bear Case in India till 2030 from 2020 in USD Million



Source: enincon research & analysis, D2I Model for EV by enincon



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Collaborative Approach

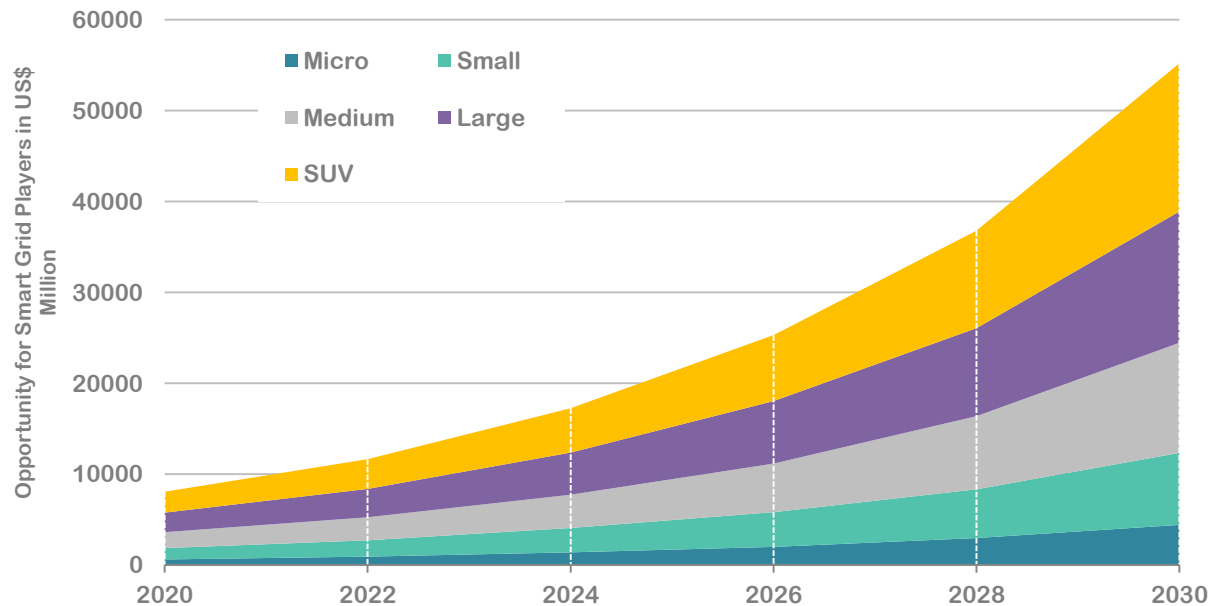
Collaborative approach by OEMs, charging infra enablers, battery suppliers and smart grid service utilities are must to power EV's business case in India and turn it a growth market.

Over time, the growth of EVs can lead to a significant increase in the load requirements put on distribution grids, depending on whether the charging is unconstrained or controlled

Grid Challenges in terms of embellished demand of power through EVs & other reasons leading stress onto Indian Grid system -

- i. **Supply volatility** - The growth in renewable energies creates more intermittency and volatility in the power supply, as wind and solar energy are not consistent in terms of production over time.

Opportunity for Smart Grid Players Under BBB Scenario with High PEV Bear Case in India till 2030 from 2020 Trend



Source: enincon research & analysis, D2I Model for EV Battery by enincon



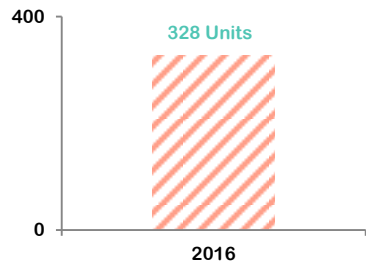
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3 Charging Infrastructure

Charging infrastructure, mainly setting up of level 2 charging at public level shall be the toughest challenge in terms of service integration for India. For fast DC charging; cost & high renewable energy biggest factors.

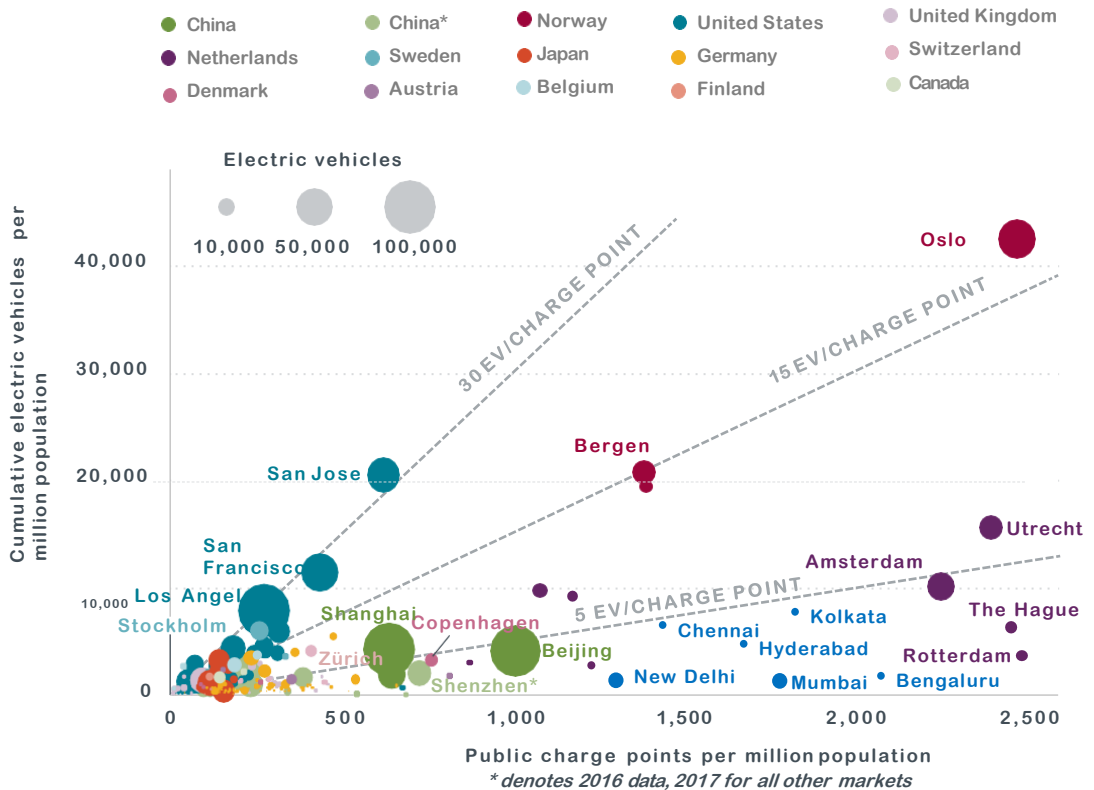
It is also assumed that 10% of the charging infrastructure required in India shall be composed of fast charging station and rest 90% shall come from level 2 public charging set ups.

Publicly Accessible Slow Chargers Stock in India



Note: Slow chargers include AC Level 2 chargers (> 3.7 kW and ≤ 22 kW)

Public charging infrastructure and electric vehicle registrations per million population by metropolitan area, with size of circles indicating total electric vehicles – India & Global Comparison



Source: enincon research & analysis and ICCT White Paper on EV



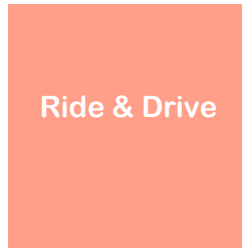
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4 Customer Awareness

Customer awareness a must to future growth market of EV's in India. Long-term benefits of EV in terms of savings need a similar approach by OEMs as that of solar OEMs in developing solar roof-top market in the country

The need for OEMs is to effectively respond to and shape consumers' perceptions. Here are some of the most pressing questions: What are the advantages of driving an EV? Will there be an accessible infrastructure? Where should an EV purchase be made? What is the best purchase decision: Lease or Buy?

Public Events



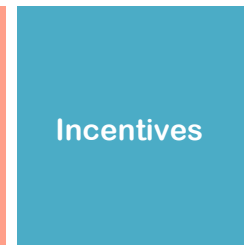
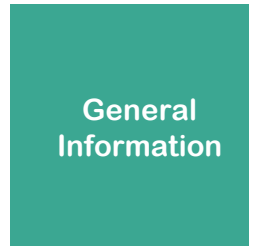
The ride & drive events occurred at least once in a year in the states of US which are promoting e-mobility. Such events can be organized in India too, with greater frequency

Regularly occurring public events such as ride-and-drives and electric vehicle showcases are effective ways to draw media attention and allow consumers to experience electric vehicles



Creating awareness vis-à-vis information & tools

Five distinct elements of electric vehicle awareness that relate to information and tools: general information, cost comparison, public charger location, incentives, and model availability. In this regards, availability of online electric vehicle-related resources that address most of these potential information needs can be really helpful



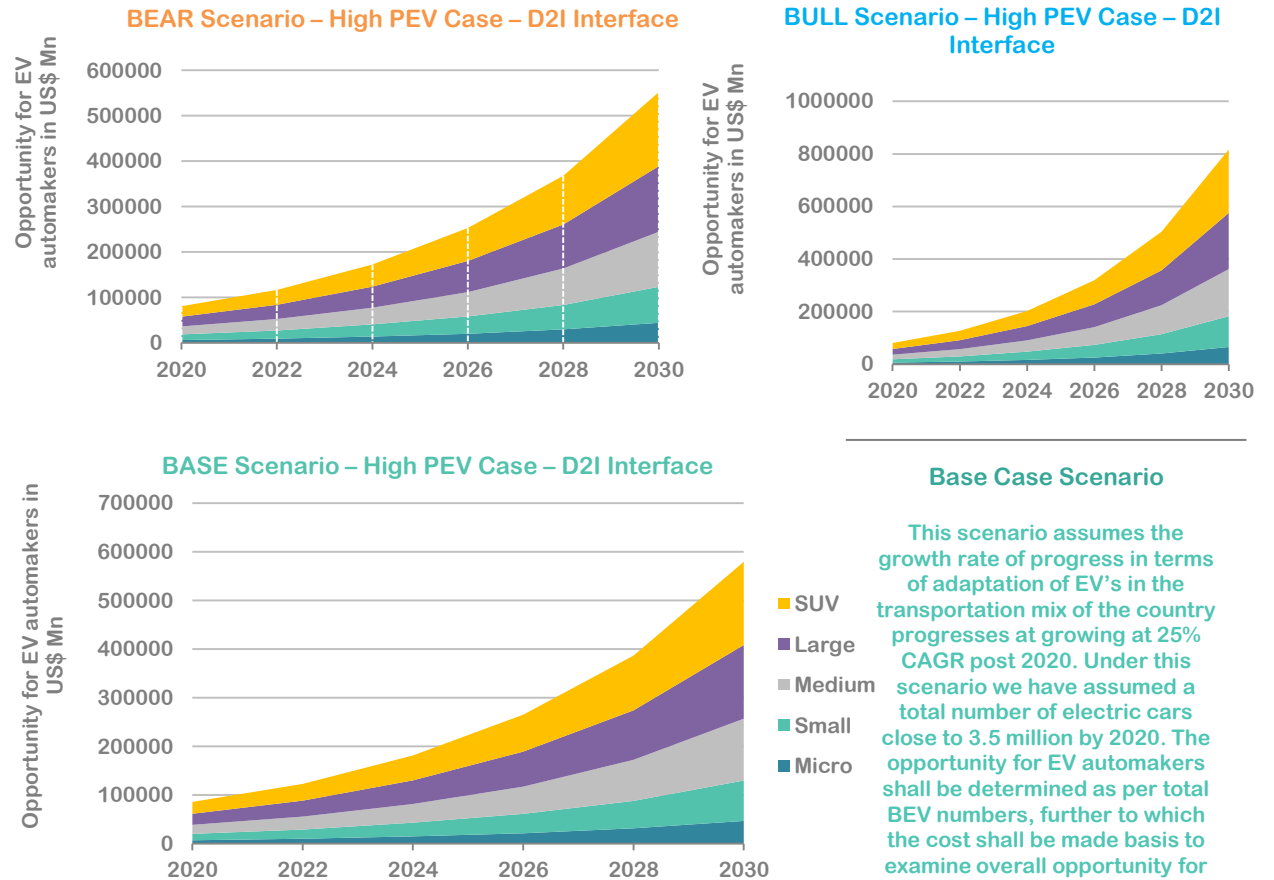
5 Shift from “Product- Only” Strategy

Automotive players have to move on from product-only strategy and be more flexible to cutting edge processes enhance their extended scope capabilities in Indian EV market for long-term sustenance

These developments in the EV market also will be key to EV success. State-of-the-art sales channels, financial products, sales and distribution and service and after sales are just a few among many other innovations.

The concept includes eco-friendly forms of transport—from electric vehicles and vans to mopeds and bicycles, emphasizing vehicle electrification in a multimodal way that should help support the OEM’s EV service and after sales. Other OEMs will need to pursue similar strategies and create new services and after sales approaches to keep the momentum for EVs going in the marketplace.

Opportunity for EV automakers Under BBB Scenario with High PEV Bear Case in India till 2030 from 2020 Trend



Base Case Scenario

This scenario assumes the growth rate of progress in terms of adaptation of EV’s in the transportation mix of the country progresses at growing at 25% CAGR post 2020. Under this scenario we have assumed a total number of electric cars close to 3.5 million by 2030. The opportunity for EV automakers shall be determined as per total BEV numbers, further to which the cost shall be made basis to examine overall opportunity for EV automakers.

Source: enincon research & analysis, D2I Model for EV Battery by enincon

6 Government Support

Government support and subsidies are the keys to embellish EV market in India – Paradigm for successful endorsement shall be replacement of ICE in phased manner from the country

Under the National Electric Mobility Plan (NEMP) 2020, the Indian government plans to raise an investment to the tune of close to USD 3 Billion

~1.4

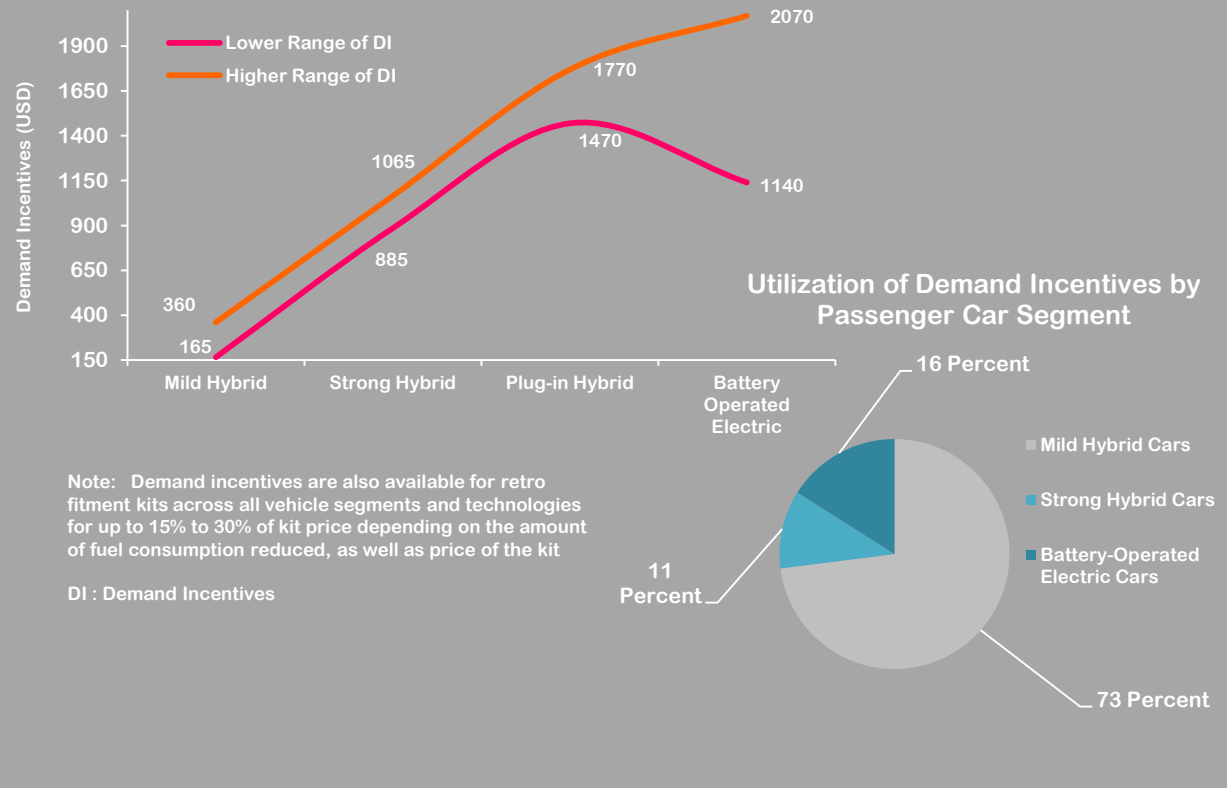
INR Lakhs

Incentives offered under FAME scheme for fully electric & electric Hybrid cars since inception



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Range of Demand Incentives Available for Passenger Cars Segment & Technologies under FAME Scheme



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