

The logo for MRAC+, consisting of the letters 'MRAC' in a bold, sans-serif font enclosed in a rectangular box, with a plus sign to the right.

# Electric Vehicles Market in India 2018

January 2019

# Why eninrac's report upon “ Electric Vehicle Market in India 2018 ”

As automotive industry moves through second decade of the 21st century, dilemma over whether or not electric vehicles (EVs) in India will become a key part of the mainstream local car-buying market remains largely unchanged, though biggest disruption is anticipated by mid 2020's

GOVERNMENT SUPPORT & SUBSIDIES KEY TO EMBELISH EV MARKETS IN INDIA – PARADIGM FOR SUCCESSFUL ENDORSEMENT SHALL BE REPLACEMENT OF ICE IN PHASED MANNER FROM THE COUNTRY

Harping the focus on EV's are ever tightening CO2 emissions regulations and the investment of billions in subsidies and incentives by governments around the world, encouraging greater industry participation and adoption in the marketplace, hence expected to be a no different in India either. By 2020, CO2 emissions will be regulatory limited at 95 g/km as an average value throughout the vehicle fleet, which means that distinct Bharat norms have to be placed for ICE drive trains in the country.

In order to outbalance the CO2 performance of cars with higher emission values, OEMs need to have zero-emission vehicles like the EV. The U.S. Government recently invested \$5 billion in electric cars, including loans and grants to automakers and battery producers, spending on charging stations, and \$7,500 tax credits to car buyers with the goal of having another one million EV's on U.S. roads by 2020 post FY 2015. In addition, more and more global cities will become networked, integrated and branded smart cities, where electric vehicles can be ideally deployed in order to offer a better, cleaner urban mobility experience and help balance future smart electricity grids.

Although, Gol has announced initiative like FAME & NEMMP but penetration shall happen only when the end consumer is finds the EV as cost competitive with compatible charging infrastructure available publically in the country starting from tier 1 and tier 2 cities in a phased manner. Also, both forward and backward integration shall be key in terms of developing a robust electric vehicles market in the country by 2030. Having said that turning completely reliable upon eMobility by 2030 might be overambitious unless aggressive support environment for EV's are established in the country.

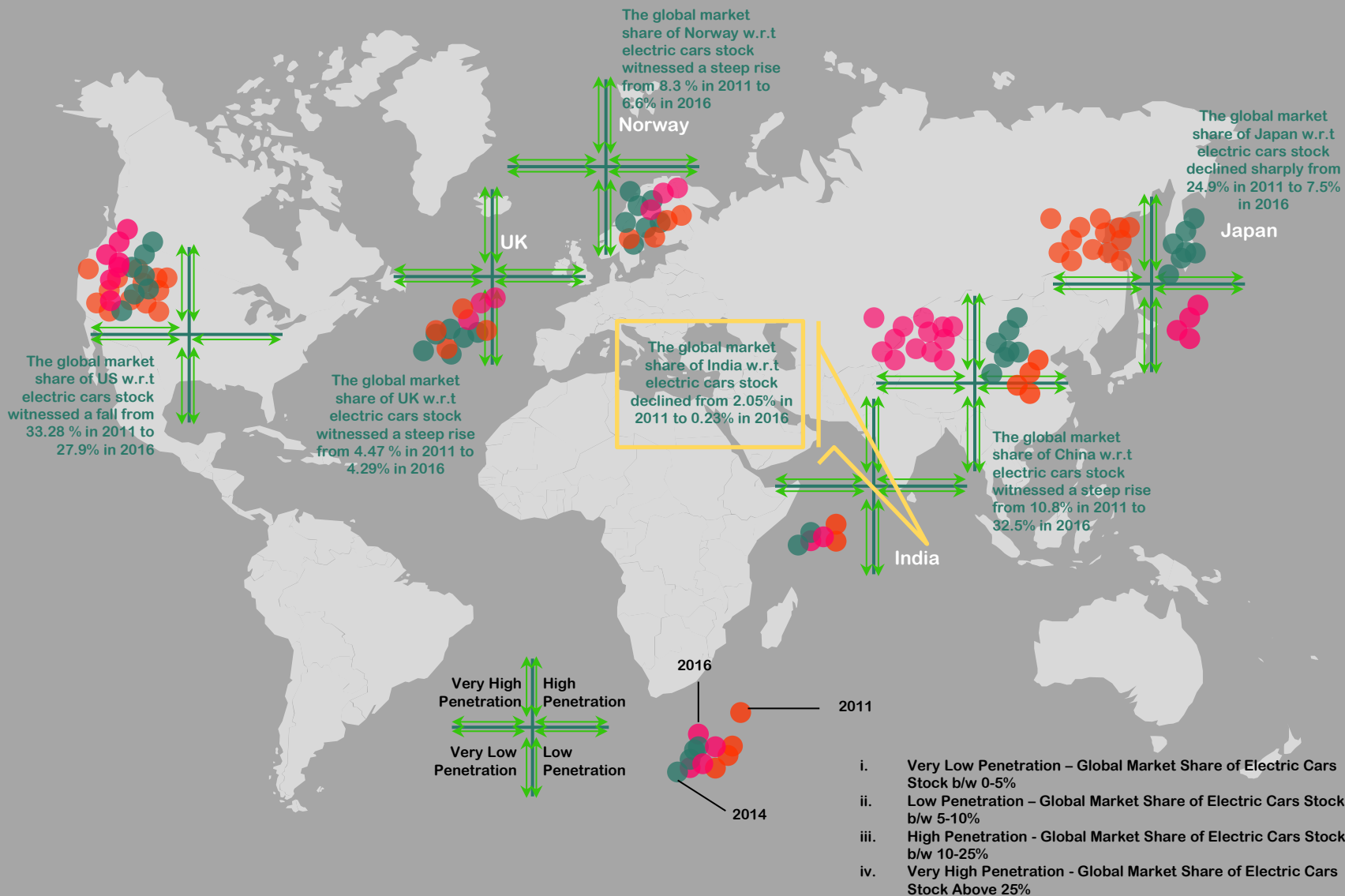
**Collaborative approach by OEMs, charging infra enablers, battery suppliers & smart grid service utilities are must to power EV's business case in India & turn it a growth market**

This first phase of electric vehicles in the marketplace presents new challenges for OEMs in terms of executing an effective and sustained growth strategy. As a departure from conventional automobiles, EVs are engaged in an eMobility ecosphere comprised of a wide range of players that, while not part of the sector, are critical to its success in the EV space. They represent a new value chain with which OEMs must collaborate and innovate to establish a viable, global eMobility market. The mentioned players include utilities, charging location owners, charging infrastructure operators, service providers, vehicle users, mobility providers, and financial services and leasing companies.

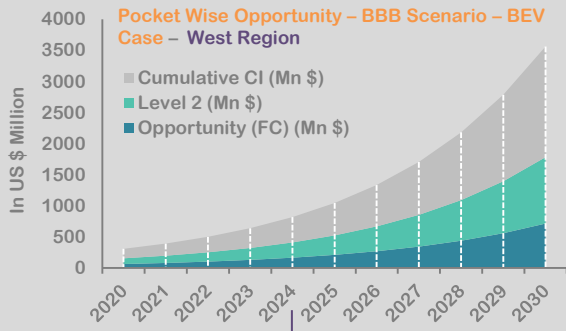
To increase consumer acceptance of EVs, an interconnected partners' ecosphere will need to be designed and organized on many levels, including developing contracts, processes and exchanging data. Although integration platforms are emerging, they are not broadly established yet. Realizing this interconnectivity is crucial for ensuring the success of eMobility. Utilities, for example, may want to offer CO2-neutral energy products and integrated charging solutions, while charging location owners integrate charging offerings like a cooperative parking business model. Investments in charging infrastructure that result in profitable business models will be required. eMobility solutions will need to be simplified to increase their appeal, and mobility providers can play a key role in EV market growth through innovative mobility offerings.

India has in its hands a lifetime opportunity to make a remarkable contribution towards a sustainable future. To unearth the underlying opportunities for the electric vehicle market in India, eninrac consulting pvt. ltd. has delve deep to identify business potential for such an unconventional industry segment. Key queries which shall be addressed in the report are opportunity assessment for battery manufacturers , market sizing for Hybrid EV , Plug-in EV and Battery EV, identifying growth barriers, domestic manufacturing potential of India w.r.t electric vehicles and many more.

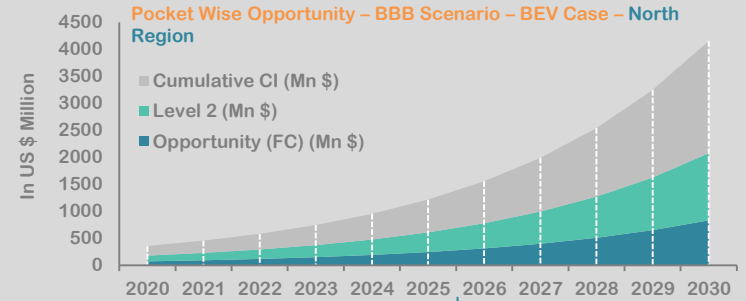
# Exhibit : Examining Penetration of Electric Cars for Key Countries Basis Global Market Share - Movements shown in Major Countries with India in Picture



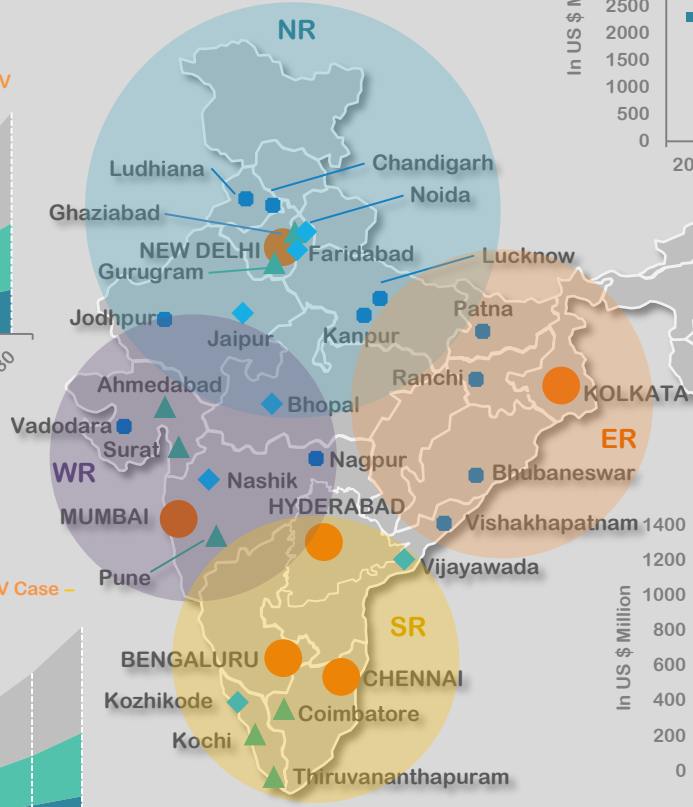
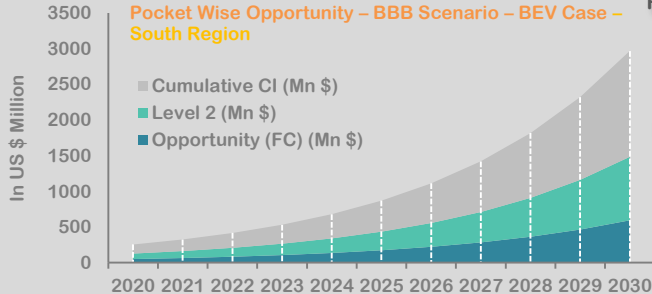
# Exhibit : Pocket Wise Opportunity for Developing Charging Infra Under BBB Scenario with BEV Bear Case in India till 2030 from 2020



**Second Best Pocket Opportunity Zone - Western Region**



**Highest Pocket Opportunity Zone - Northern Region**



● Big Six Cities

■ Last 11 Cities of STCs

◆ Top Second Tier Cities

▲ Mid Level Second Tier Cities

Source: eninrac research & analysis, D2I Model for EV CI by eninrac

## BUSINESS CASE FOR ELECTRIC VEHICLES MARKET IN INDIA

- The overall electric vehicle market for storage in India is likely to be 4.7 GW in 2022. Over 50% of the market in 2022 will be driven by e-rickshaw batteries
- Need to counter air pollution coupled with rising fuel prices in India provides for booming business case for establishing a robust EV market
- Favorable policy interface such as FAME I and FAME II and pushing the adaptation of EVs through embellished incentives for end users
- Market orientation of Automobile industry OEMs to invest heavily in manufacturing of all 2W, 3W and 4W category of vehicles and provide for them as value integrator and supplier for EV charging infra as well builds up good industry outlook
- Smart cities and smart grid is promoted which are both the right enablers for developing a robust EV Market growth in India
- Changing charging infrastructure industry structure in India with many global majors planning to enter the market which shall open up scores of opportunity for value chain players with increasing FDI
- PSU's and many local private sector giants also have envisaged to enter this business segment which is promising for India. Further, with the likes of NTPC, Tata Power, BHEL & Fortum India the growth shall be faster than anticipated

## REPORT INSIGHTS

- Business case for expanding electric vehicles market in India with factored growth trends for automobile industry in the country
- Examination of geographical presence of automobile manufacturers in India and its impact of developing the electric vehicle market
- Examining electric vehicle inclusive transportation matrix scenario
- Evaluating market dynamics and positioning of electric vehicle index
- Examining the sales preposition of electric vehicle market in India
- Identifying the city /state level wise incentivizing index for electric vehicles in India
- Evaluating Opportunity for EV/Automakers
- Analysing Opportunity for Supply Chain Players
- Identifying business opportunity in charging infrastructure segment
- Identifying business opportunity in Power Generation segment
- Examining opportunities for battery manufacturers and allied value chain players

## KEY HIGHLIGHTS

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- Identifying gains for energy storage market in India
- Evaluating the cost factor for both batteries and fuel
- Promoting energy storage – DER adaptability
- Opportunity assessment for value chain players
- Opportunity for smart grid player through electric vehicle market
- Scenario wise market assessment for high plug-in hybrid electric vehicle
- Market Sizing as per adaptability of EV's under transportation matrix in India- 2030
- State EVI Determination & Benchmarks in India for Electric Vehicle adaptability

## PRESS EXCERPTS

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“Japanese auto major Honda plans to invest INR 9,200 crore to set up its third factory in India to produce hybrid and electric vehicles, this is going to be the auto major's largest investment in India so far”

Times of India

“The government is planning to introduce a credit system based on carbon dioxide emission to incentivise automobile manufacturers make electric vehicles or low-emission vehicles, as it strives to move towards green mobility in a big way”

Economic Times

## KEY QUERIES ADDRESSED

- What shall be the Business Case for Electric Vehicles in India?
- What are the various growth factors for EV in India?
- What are the various growth barriers for EV in India?
- How much is the domestic manufacturing potential of India in EV segment?
- What are the available opportunities for EV Automakers in India?
- What are the available opportunities for Battery Manufacturers in India?
- What are the available opportunities for various supply chain players?
- What are the available opportunities for Discoms and Charging Infra service providers?
- What are the available opportunities for Smart Grid Players?
- What is the current Regulatory & Policy Landscape for EV in India?

## MUST BUY FOR

- Automobile OEMs (2W, 3 W & 4 W developers)
- Power distribution companies
- PSUs in Power Generation Business
- IPPs
- Smart Grid & Smart City Operators
- EV Charger Suppliers
- EV Charging Station Set up providers
- EV Manufacturers
- Battery Manufacturing OEMs in India
- Power Project Funding Bodies
- Foreign Collaborating Agencies
- Utility Solar Power Project Developers
- Government & Regulatory Bodies
- Research Institutions/Bodies
- Funding Bodies/Banks



## COMPANIES MENTIONED

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- Mahindra
- Tata Motors
- Honda
- BMW
- Mercedes
- Maruti
- Suzuki
- Nissan
- Hyundai
- KPIT
- Renault



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# THANK YOU!

Happiness does not come from doing easy  
work but from the afterglow of satisfaction  
that comes after the achievement of a  
difficult task that demanded our best

- Theodore Isaac Rubin