



Electric Vehicles in India



The Future of Indian Automobile Sector



September 2018



Plug In to a Better Future

Indian Automobile Industry



4th
Largest auto maker in the world.



Export CAGR: 6.86%
Overall automobile exports from India grew at 6.86 per cent CAGR between FY13-18



FDI: USD 18.14 bn
Total FDI investment during the period Apr'2000 to Dec'2017 in this industry.



Year:2026
India is expected to be the world's third largest auto maker.



6 million
Government of India's vision of **Electric and Hybrid vehicle by 2020**

Source: SIAM, IBEF



Overall Performance

Apr-Sep'16
Apr-Sep'17
Number of Vehicles



Production



▲ 9.18%
13.4 mn
14.6 mn



Segment-wise Domestic Sales (Apr-Sep'17)

Domestic Sales

▲ 9.40%
11.6 mn
12.7 mn

Export

▲ 10.71%
1.7 mn
1.9 mn

Passenger Cars

▲ 6.63%
1.02 mn
1.09 mn

Two Wheelers

▲ 10.14%
9.53 mn
10.5 mn

Three Wheelers

▼ 9.89%
0.28 mn
0.26 mn

Total Passenger Vehicles

▲ 9.16%
1.49 mn
1.63 mn

Total Commercial Vehicles

▲ 5.96%
0.33 mn
0.35 mn



Reasons for Shift of Automobile Companies to Electronic Vehicle (EV)

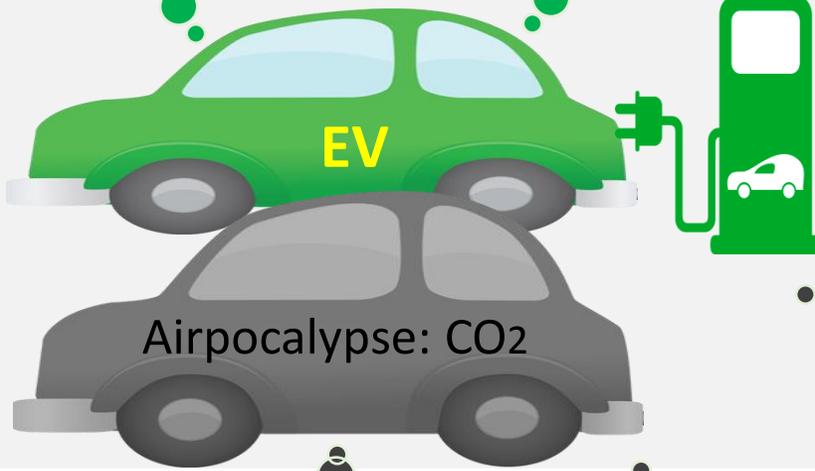
50,000 vehicles registered everyday

There is Need for EV to curb the Carbon Emission

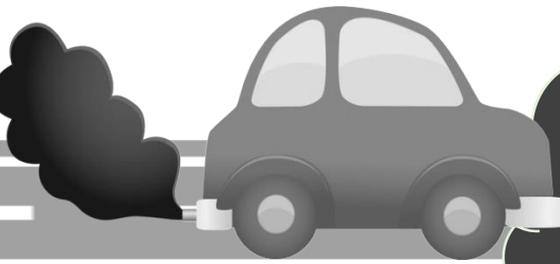
Carbon Emission can be reduced by ~37%

Emissions are expected to increase by 4 times by 2030

Transport Sector contributes majority of NOx and 30-50% of PM emissions



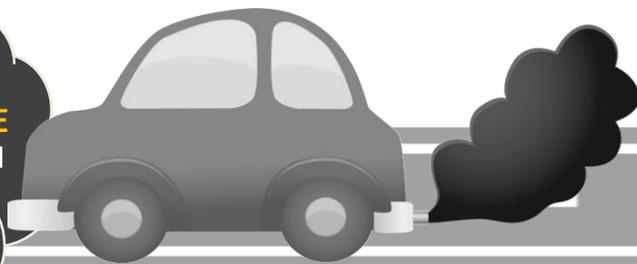
Delhi likely to face loss of INR100 crore/day due to poor air quality



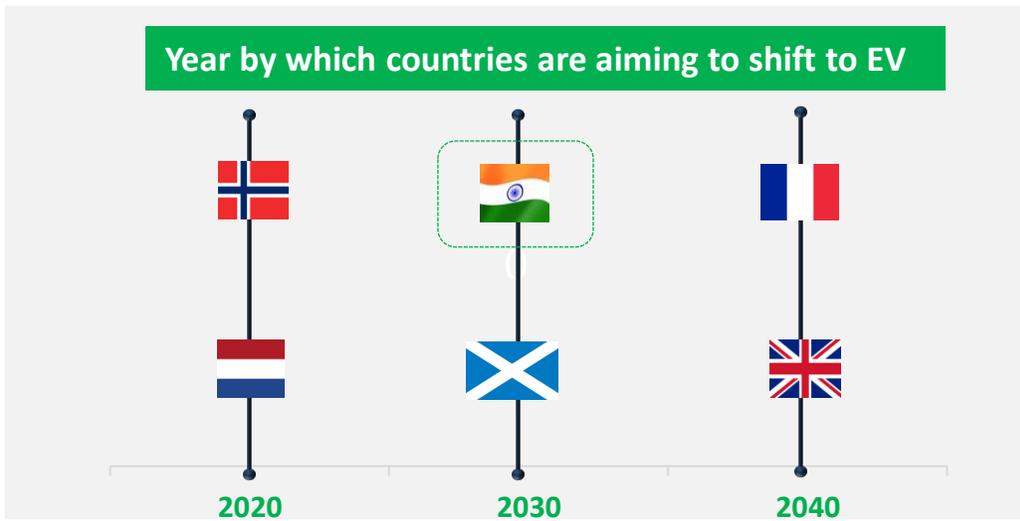
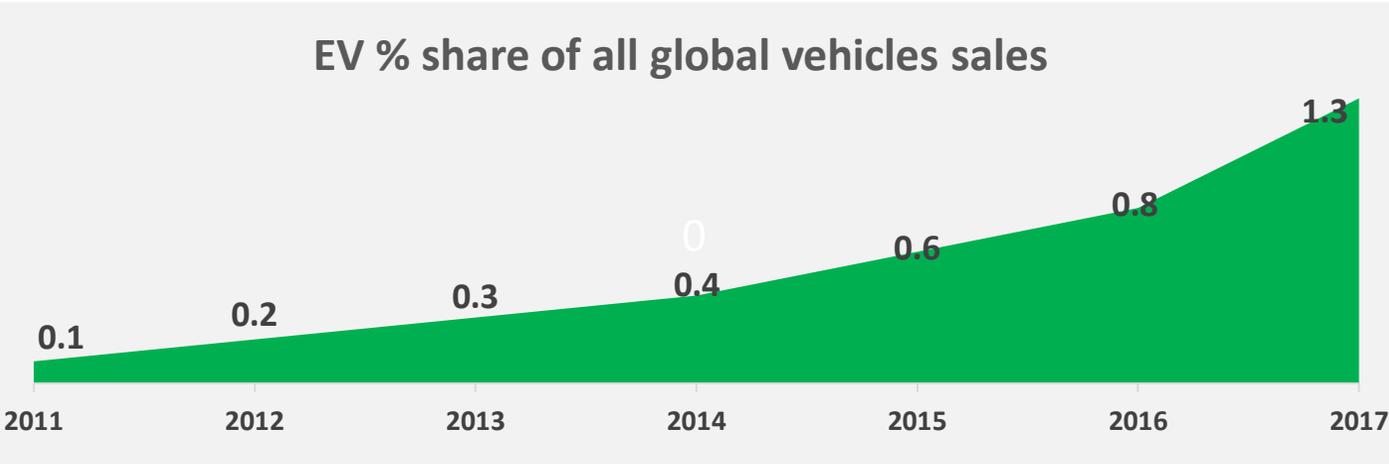
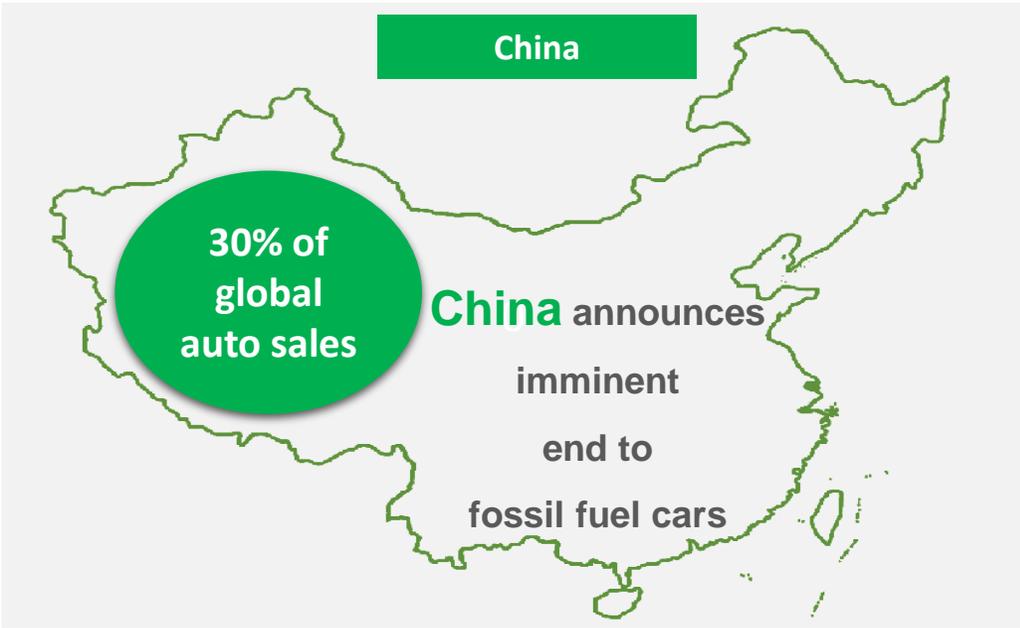
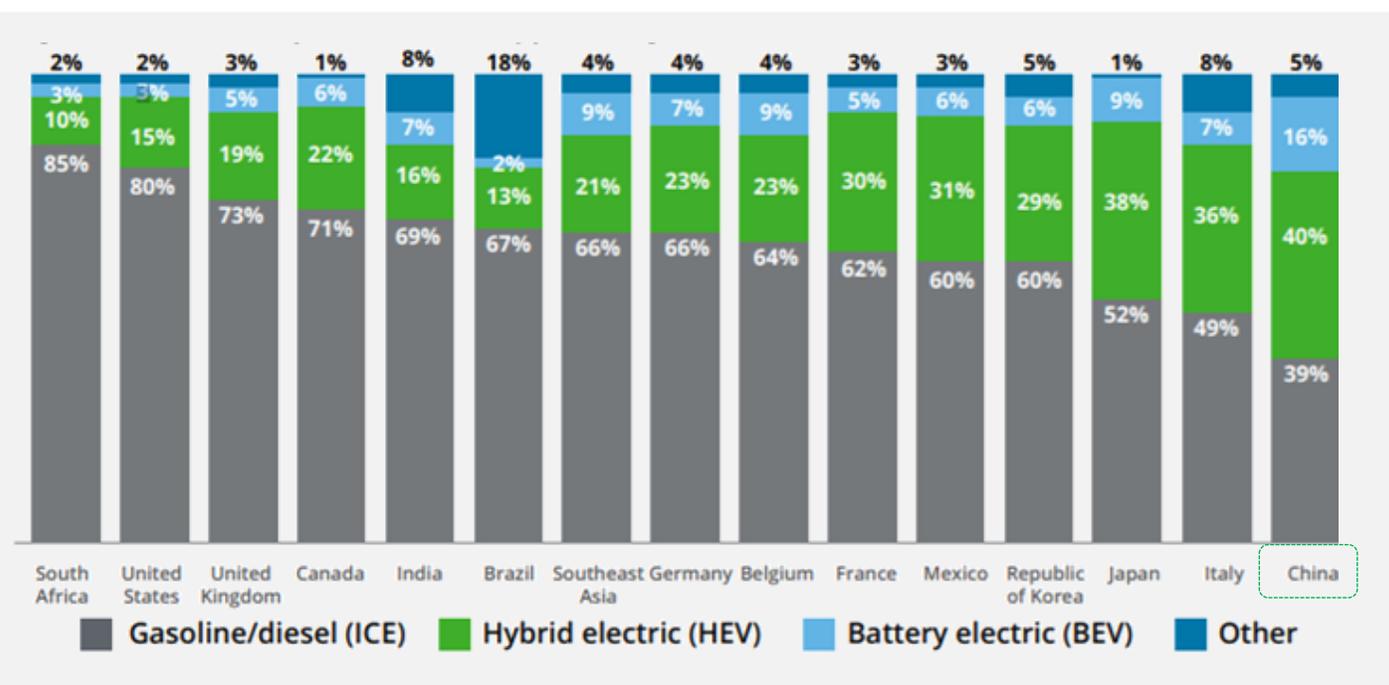
10 out of world's 20 most polluted cities in India

India accounts for 2nd highest number of premature deaths

Pollutants from ICE affect respiratory and cardiovascular systems



Global Trends in EV



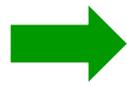
Source: EV-volumes.com; Mckinsey

Challenges in Indian EV Market

01

Lack of Resources (Lithium and Cobalt)

Lithium and cobalt are critical elements in batteries that power mobile phones, laptops and electric vehicles, the centerpiece of future transport solutions. India is scrambling to acquire lithium and cobalt mines abroad, along with other resources, to ensure that it has access to such strategic minerals, with China having already taken a substantial lead in the race, much in the manner that it has done so in oil and gas.



02

Need A Clear Cut Policy for EV

The world is moving towards electric vehicles and India too needs a clear-cut policy. But for a country that still meets 75% of its electricity needs by burning fossil fuel, government should look into demands of the industry and only after that, go for an EV policy. Global players such as Renault-Nissan and Honda have clearly said that they are interested in bringing EVs into the market but awaiting a policy to finalise their next course of action.



03

Charging Infrastructure

Finding a petrol pump is not a big deal, but finding a public charging points is absolutely a pain. There are a few types of charging points, level 1 and 2 AC slow chargers, and Level 3 DC fast chargers. The latter is absolutely uncommon. Although for the former types, there are some companies that are coming forward to install public EV charging points, such as TATA Power, Fortrum etc.



04

Higher Battery Prices

Although fuel costs and maintenance costs are low, but the cost of the battery isn't that low. A typical 12 kWh battery can easily cost around two lakh rupees. Given that Mahindra only provides 3 years of warranty on its e30, this means that you might need to replace your battery every five years or less. However, it is expected that the costs for current Li-Ion batteries will get reduced through till 2030.



Push and Pull Factors Driving the Indian EV Race

01 Price of The Batteries

- ❖ Battery prices to decline at 12% CAGR
- ❖ EY study reports a 22% lower TCO for electric scooter as compared to petrol run scooter



03 Consumer Adoption

- ❖ Rising pollution concerns leading to smart buyers
- ❖ Early adoption of PV to be led by high end users



02 Infrastructure

- ❖ EESL tender for 2,000 EV chargers allocated. 10,000 additional chargers planned
- ❖ Lucrative market potential projected to be around 90 billion units (BU) of electricity.

04 Selection and Range

- ❖ Auto companies investing in R&D and bringing EV variants of existing models
- ❖ Startups focused on making efficient EVs accessible to consumers



Source: Economic Times, Business Standard, Industry Research

Government Regulatory Support

India switching to **BS-VI** norms

\$40.5Mn allocated in Union Budget of 2018

Adoption of **BS-VI** for more efficient fuel norms



GST slashed on electric vehicles at **12%**

FAME India Scheme launched with an initial outlay of **\$11.2 Mn**



BENEFITS

Gap between emissions from Diesel & Petrol will narrow down with reduction in Nitrogen Oxide emissions & Particulate Matter

	NOx Emissions (g/km)	PM emissions (g/km)
Diesel Cars	68 % ↓	87 % ↓
Heavy Duty Vehicles	82 % ↓	67 % ↓

Boost for Eco-friendly Vehicles



Phase I of the FAME-India Scheme was launched for a two-year period between April 1, 2015, and March 31, 2017, at an approved outlay of ₹795 crore

Under the scheme, a total of 150,550 hybrid and electric vehicles received incentives till July 26, 2017

As per the scheme, depending on technology, battery operated scooters & motorcycles are eligible for incentives ranging between ₹1,800 and ₹29,000, three-wheeler for incentives in the range of ₹3,300 and ₹61,000. In four-wheelers, the incentives range from ₹13,000 to ₹1.38 lakh, in light commercial vehicles it is from ₹17,000 to ₹1.87 lakh, and for buses it is from ₹34 lakh to ₹66 lakh

Scheme was subsequently extended for six months till Sept 30, 2017

FAME-India is part of the National Electric Mobility Mission Plan, which was launched by the erstwhile govt in 2015

NEMMP 2020 projects sales of six-seven million units of e-vehicles & a resultant fossil fuel saving of 2.2-2.5 mt



India's EV Market: An Attractive Destination (Domestic Players)

A. Big Players



Mahindra

- Committed **\$ 139 mn Investments** in EVs over the next four years
- Plans to invest \$61.9 Mn (INR 400 Cr) in Karnataka and \$77.4 Mn (INR 500 Cr) in Maharashtra to establish a strong network of EV manufacturing facilities
- Has **invested \$92.9 Mn (INR 600 Cr) in EVs** in the last five to six years
- Bus called e-COSMO and a lithium-ion battery-powered three-wheeler called Treo unveiled



TATA MOTORS

- The Company has announced a **partnership with Coimbatore-headquartered Jayem Auto** to launch an EV version of Tata Nano called Jayem Neo.
- Tata to supply chassis and body shells
- In January 2018: **Tata Power** launches two EV charging stations in Mumbai: one at a mall in Lower Panel and another at Kurla's Market city
- Tata planning **to launch two more EV charging stations**



Way of Life!

- Committed to **infuse \$600 Mn (INR 3,900 Cr)** in new plant at Hansalpur, Gujarat
- To **increase annual manufacturing capacity in Gujarat** to more than 750K units in next few years
- Plans to set up another factory to manufacture lithium-ion batteries for electric and hybrid cars
- Suzuki, Denso, and Toshiba** have committed \$180 Mn (INR 1,151 Cr) to the project
- Partnered with Toyota** to launch EVs suitable for Indian traffic and road conditions by 2020

B. Small Players



- JSW Energy, a division of the Sajjan Jindal-led JSW Group, **announced plans to launch EVs** by 2020.
- To diversify its business operations into EVs and renewable energy storage, the company also **committed \$545.72 Mn - \$623.68 Mn (INR 3,500 Cr-INR 4,000 Cr)** for the next three years.
- In March 2018, JSW Energy **acquired JSW Electric Vehicles Private Ltd** to further strengthen its presence in the EV, energy storage, and infrastructure segments.



- Essel Infraprojects, to enter the EV segment with a **\$651.6 Mn (INR 4,250 Cr) investment**. The capital will be utilised for installation of charging stations and to manufacture e-buses and e-rickshaws.
- Of this, around **\$460 Mn (INR 3,000 Cr) will be spent to introduce 1,000 e-buses** from intrastate Uttar Pradesh to the NCR region.
- Essel Infraprojects has signed an **MoU with the UP government**. It will also be **investing \$76.6 Mn (INR 500 Cr) to develop e-rickshaws** and battery charging and swapping stations across the region.



- Another company that is **looking to tap into the EV market** is Ashok Leyland.
- Owned by the Hinduja Group**, the Chennai-headquartered company promised **to invest \$61.5 mn - \$77 mn (INR 400 Cr-INR 500 Cr)** to bolster its EV business in October 2017.
- Spread over the course of the next three to five years, the **investment is aimed at making the company "future ready"**.

India's EV Market: An Attractive Destination (Foreign Players)



01



- South Korean auto major Hyundai **plans to invest over \$1 billion (around Rs 6,300 crore) in India** in the next three years on new products, development of powertrain and setting up of a new office building.
- The Company's **first EV in India will be launched next year.** At the moment they are yet to finalise whether it will be the Ioniq EV sedan or the full electric version of SUV Kona."

02



- Japanese carmaker Honda, for instance, has announced **plans to set up a lithium-ion battery manufacturing facility in India.** It has also joined hands with Nissan to build solid-state batteries for electric vehicles.
- According to an earlier announcement by Honda, **EVs will account for up to 65% of the company's overall sales by 2030,** with 15% being pure electric and the remaining being hybrid, plug-in hybrid, and fuel-cell powered cars.

03



Volkswagen

- **Volkswagen Group** is studying the developments on electric vehicles in India closely ... As and when the Indian market is ready for electric vehicles, the Volkswagen Group will also be ready with its products.
- **Under the India 2.0 project, they will be investing around Rs 8,000 crore. The first product will be launched by 2020," top company official said.**

04



- Nissan, on the other hand, might **set up a digital hub in Kerala** soon.
- The Japanese automaker is **keen on introducing its advanced global products into its India portfolio, starting with the Leaf 2.**

Funding Plugged to Indian EV Startups

01.



Ather Energy

- **Founder:** Tarun Mehta and Swapnil Jain
- **Year of Foundation:** 2013
- **Amount of Money raised till date:** \$ 59 mn
- **Investors:** Includes Tiger Global, Hero Motor Corp

02.



Ultraviolette Automotive

- **Founder:** Niraj Rajmohan, Narayan Subramaniam
- **Year of Foundation:** 2015
- **Amount of Money raised till date:** \$ 700K
- **Investors:** TVS Motors

03.



Emflux Motors

- **Founder:** Ankit Khattry, Varun Mittal, Vinay Raj
- **Year of Foundation:** 2016
- **Amount of Money raised till date:** Undisclosed
- **Investors:** Meher Roy, Rishabh Gupta, Samar Singla (co-founder of Jugnoo and Click Labs)

04.



Twenty Two Motors

- **Founder:** Parveen Kharb, Vijay Chandrawat
- **Year of Foundation:** 2016
- **Amount of Money raised till date:** \$ 1.6 mn+
- **Investors:** Includes Ishwar Singh, CEO, Haryana Industries. Farhaan Shabbir, former director of Harley-Davidson

05.



Sun Mobility

- **Founder:** Chetan Maini, Uday Khemka
- **Year of Foundation:** 2017
- **Amount of Money raised till date:** Undisclosed
- **Investors:** SUN Mobility entered into a strategic alliance with Ashok Leyland

06.



Tork MotorCycles

- **Founder:** Kapil Shelke
- **Year of Foundation:** 2010
- **Amount of Money raised till date:** \$ 746K+
- **Investors:** From the Ola founders and a group of angels led by Harpreet Grover, co-founder and CEO of CoCubes

Future Outlook: Impact on Other Sectors



Automotive OEMs

- Parts and service contribute **10-14%** to an automotive dealer's revenue
- Important for OEMs and dealers to develop a roadmap for **re-skilling** of their workforce



Ecosystem

- India can cut its oil bill by **\$60 billion**
- **64% reduction** in energy demand
- **70% of diesel** and **99.6% of petrol** sales used in transport sector. ICEs major contributors to air pollution



Power companies

- NTPC, Tata Power, BHEL have ventured into EV-charging business.
- EVs could bring India's financially strapped power utilities **\$11 billion a year** (700 billion rupees) in revenue



Battery Manufacturers

- Global private and public sector units to look at Lithium Ion Battery production in India
- Market projected to grow at a CAGR of **33% by volume** from 2017 to 2030



¹Impact

Exploration

Refining

Marketing

Generation

Charging

¹Auto Ancillary

Auto Components

EV Components



¹Including Dealerships, Repair, and Spare Parts business

Recent Developments

01. Finnish-Indian tech for first electric vehicle charging stations

Source: Times of India (8 July'18)

State-owned oil and gas giant, IndianOil, along with Finnish energy player, Fortum, announced the launch of two electric vehicle charging stations at its outlets in Hyderabad. The two companies intend to set up 50 EV charging stations in the city in the near-term

02. Suzuki plans to bring electric bikes to India

Source: Economics Times (5 July'18)

Suzuki Motorcycle India, the local two-wheeler subsidiary of Japanese automaker Suzuki Motor Corp, is planning to bring in electric two-wheelers to the Indian market by 2020. The company has also committed to investing about \$246 Mn (INR 1.7K Cr) in setting up a battery-making facility in Gujarat

03. Volvo cars to bring hybrids, plug-in EVs to Indian market

Source: Economics Times (6 July'18)

Swedish luxury-car manufacturer Volvo Cars is betting on plug-in hybrid and electric technology over the conventional internal combustion engine (ICE) in the Indian market. Volvo bets on plug-in hybrid and electric cars for India

04. Finalization of second phase of FAME India scheme for EV

Source: Autocar India (24 Aug'18)

The second phase of FAME (Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles) India scheme has been finalised by an inter-ministerial panel. According to PTI, this will include an investment of about Rs 5,500 crore over five years which will provide subsidies for all types of electric vehicles.

05. ₹1,000 crore subsidy likely for EV charging infrastructure by Govt.

Source: Livemint (31 Aug'18)

The Union government plans to provide ₹1,000 crore as subsidy for building a nationwide charging infrastructure for electric vehicles as it seeks to expedite the roll-out of India's ambitious EV programme. Further, Government looks to install a charging station every 25 km on highways

Concluding Remarks

- 01 Huge opportunity exists**

Unlike other countries, opportunity lies in a variety of automobiles and not just passenger cars business in India. Many other opportunities like E-bike, E-cycles, etc. could emerge as we move ahead.
- 02 Regulatory support, a must**

Regulatory support would play a primary role in EV adoption. A combination of both fiscal and non-fiscal incentives will be required for the evolution of this segment in India.
- 03 Infrastructure creation**

A big bottleneck straining pace of adoption is the limited range of commute for consumers. Public investment in charging infrastructure could be a solution.
- 04 Technology play**

Emerging technologies (startups) can play a key role in making the entire EV charging value chain more efficient and profitable.

About Transjovan Capital

TRANSJOVAN CAPITAL is a premier new-age Board Advisory firm, focused on providing advice to clients pertaining to Corporate Strategy, Mergers & Acquisitions (M&A), Joint Ventures (JV), Capital-raising (Equity & Debt) and Organization Development.

With offices in New Delhi and Mumbai, the Firm is a preferred Board-advisor to emerging as well as established corporates. The Firm’s team has advised clients spread across SMEs, large Indian Conglomerates, Institutional Investors, Fortune 500 Corporations, Government Authorities and New Ventures.

- The Firm has received top industry recognition, some of them being:
- 'Fastest growing BFSI Companies in India' - 2016
 - 'Most Promising M&A Advisory Companies in India' - 2015
 - 'Most Promising Financial Consulting Companies in India' - 2014

Select Team Credentials:

- ✓ Advised on 100+ assignments for clients in the areas of corporate strategy and finance.
- ✓ Collective deal experience of USD 1+ Bn in the transaction advisory space.
- ✓ Access to 200+ PE/VC/Corporate investors
- ✓ Advised 4 of the top 10 largest Indian conglomerates in the areas of M&A advisory and business strategy.
- ✓ Advised across various geographies in India (i.e., Metros, Tier-II & Tier-III locations, etc.).
- ✓ Advised on India entry strategy and JV advisory to various MNCs.
- ✓ Extensive relationships with major Financial Institutions, Private Equity funds and various Institutional Investors - in India and globally.

For more info about the company, you may refer to: <http://www.transjovancap.com>

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