



Dear Reader,

India wants to achieve 30% emobility by 2030.

While this might be a herculean task, we are witnessing small sparks of change in the offing. Many states have already published their draft electric vehicle policy, while others have notified their policy and are in the implementation phase. Slowly but surely, the behemoth that is India, is rising to the challenge of e-mobility adoption.

Consequently, the electric vehicle industry in India has seen a sustained growth. Despite being a relatively miniscule part of the larger vehicle market, the recent uptick in growth is heartening and will have a telling impact in the near future. Electric vehicles are pivotal to India's sustainable growth and the Government of India has been working diligently to enhance the adoption and proliferation of EV's in the country.

This newsletter shines a light on the various challenges to e-mobility adoption in India in the article What it will take to make EVs consumer friendly and discusses plausible solutions for mitigating them. We then trace the e-mobility journey of the nation and look at the various milestones and learnings along the way. We also delve into the Policy Landscape of States for Electric Vehicles, as we examine the groundwork being laid at the state level, for building an e-mobility ecosystem. In the article Electric Vehicle Charging Infrastructure – A Perspective and BHEL's Contribution, we critically appraise the charging infrastructure and readiness of India and explore BHEL's Contribution towards developing it. We then look into Indian government's focused efforts towards the adoption of e-mobility in the country and scrutinizes the recent FAME II policy, and its ramifications.

India is still at a nascent stage when it comes to the adoption and promotion of e-mobility. Targets have been set and the laying of groundwork is underway. However, much still needs to be done. The infrastructural ask is monumental and substantial investment is needed to overhaul the current power capacity of the nation, in order to establish a robust electric vehicle charging infrastructure. E-mobility holds the key to a better, cleaner future and we need to work together with the government to be the harbingers of change.

With Regards,

Mr D.G Salpekar

Chief General Manager (Technical)

Energy Efficiency Services Limited



Amit Kumar
Partner, Clean Energy
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The world is rapidly moving towards electric mobility. There has been a sharp increase in the sales of electric vehicles globally, as seen in 54 percent year-on-year growth in 2017. Today, China has about 40 percent of the world's electric vehicles, with significant volumes in the United States and the European Union, while Norway, at 39 percent¹, enjoys the world's highest market share for electric vehicles.

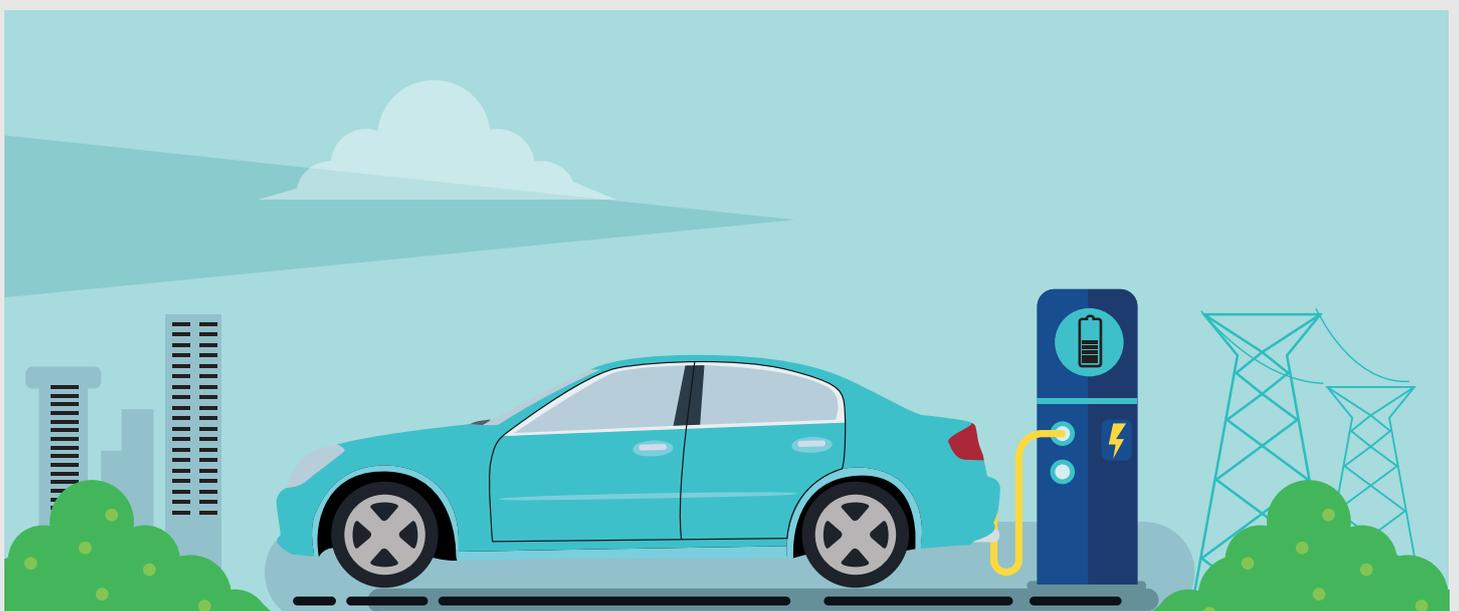
Under the Clean Energy Ministerial², a high-level forum to promote clean energy policies and programmes, eight countries have committed to the 'EV 30@30' campaign. As part of the campaign, the countries, of which India is a member, aim to achieve a 30 percent electric vehicle penetration by 2030.

While the first electric car can be traced back to the 19th Century, they have become accessible to the public fairly recently. The major hurdle in their commercialization has been the high cost of power storage. Research and advancements in battery technologies have brought down the cost of batteries enabling the electric vehicle revolution. Another hurdle that has stalled the commercialisation of electric vehicles is the existing ecosystem of competing Internal Combustion Engine (ICE) vehicles, as well as the massive network of petrol and diesel vending stations. Adaption to new technologies is a time-consuming process. This is evident from the fact that Compressed Natural Gas (CNG), which offers better economy than the petrol or diesel vehicles, is limited only to the National Capital Region and continues to struggle to gain ground in India.

To understand the adoptability of electric cars in a market like India, it is important to first glean learnings

from similar initiatives undertaken across the world. Most of the developing world have been focusing on sustainable development, reducing energy intensity and curbing pollution. India's road transport sector accounts for 25-27 percent of crude oil consumed in the country, and, according to the National Green Tribunal (NGT), vehicular emission is one of the major sources of India's urban pollution. Hence, adoption of low-emission transport solutions like electric vehicles is the need of the hour.

Electric vehicles have a higher upfront cost in comparison to conventional fuel vehicles, but have a lower operational cost due to lesser maintenance and lower energy costs. This has led to most global governments giving an upfront incentive in the form of capital subsidy or reduced taxes while purchasing. This seems to work generally, but once the upfront incentives are removed, sales tend to drop significantly, as was seen in Denmark. Thus, while



¹ Global EV Outlook, 2018 by International Energy Agency

² Clean Energy Ministerial, EV30@30 fact sheet (May 2018).pdf

capital subsidies provide the initial push, the aim should be to enable the adoption without such incentives to make it sustainable. This is when other initiatives – such as public procurement, regulatory measures and other incentives such as preferred driving lanes and reserved parking areas – come into play.

India started its e-mobility journey in 2011, with the launch of the National Mission for Electric Mobility (NMEM). Following this, the National Electric Mobility Mission Plan (NEMMP) 2020 was launched in 2013. On March 13, 2015, the government launched the first scheme under this mission, namely Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME India) under NEMMP 2020. The scheme aimed to provide a major push for early adoption and market creation of both hybrid and electric vehicles in India, and enable these vehicles to become the first choice for car buyers, thereby reducing the consumption of crude oil as the base for petrol and diesel.

EESL forayed into e-mobility in 2017 by floating a tender for 10,000 e-cars for use in public offices. The initiative aims to provide impetus for Indian e-vehicle manufacturers, charging infrastructure companies, service providers, etc. to gain efficiencies of scale and drive down costs in the electric mobility ecosystem. It is expected to create local manufacturing facilities, grow technical competencies for the long-term growth of the EV industry in India, and enable Indian EV manufacturers to emerge as major global players. After the launch of the National e-Mobility programme on March 7, 2018 by the Hon'ble Minister of State (Independent Charge), Power, and the Ministry of New and Renewable Energy, Shri R.K. Singh at New Delhi, EESL has been deploying electric cars for use of government officials across India. To ease government agencies in replacing their fleet of conventional vehicles, EESL opted for bulk procurement to reduce per-car cost, and employed a leasing model to mitigate the high-upfront cost.

After the launch of FAME India, many states have simultaneously launched their electric vehicle policies to establish their support for e-mobility, with a focus on manufacturing and charging infrastructure. The states that have published their EV policies are Andhra Pradesh, Maharashtra, Uttar Pradesh, Kerala, Karnataka and Delhi. The policies outline incentives and initiatives to be undertaken that will lead to widespread EV adoption. A transition to electric vehicles will significantly reduce tailpipe emissions. Every state policy appoints a nodal agency to carry out the implementation strategy; the nodal agency can

be any state department, such as the urban development department or the state transport department. These agencies are made responsible for the implementation of electric mobility in the state.

The policies offer incentives that are primarily focused on two basic categories: demand-side incentives and supply-side incentives. The demand-side incentives are provided to the end-consumer to aid the transition to electric vehicles, in the form of capital subsidies such as FAME, tax incentives, low/no registration, road tax, lower insurance premiums, etc.

Supply-side incentives are aimed to encourage local manufacturing of electric vehicles and associated services. The government has reduced the import duties on EV components, while keeping duties high on the finished products, and plans to increase customs duty on components in due time to encourage indigenous manufacturing.

The Ministry of Power issued guidelines and standards for charging infrastructure of electric vehicles on December 14, 2018, specifying the minimum requirement for public charging stations. The guideline mandates the presence of international charging standards (CCS and CHAdeMO) in charging stations. These two charging protocols will be compatible with a majority of the electric vehicles selling in the international markets. This will enable and encourage global vehicle manufacturers to bring their latest technologies to India. In addition, leading brands specialising in EV technologies entering the Indian market will provide a pathway to design and manufacture e-vehicles in India. FAME-II, scheduled to be applicable from 1st April 2019, has been devised to subsidize EVs based on battery capacity.

Electric Mobility brings profound benefits to a country like India. While on the path of sustainable development, EVs present an opportunity for India to be at the forefront of this new technology. The country has made some progress towards achieving the target of 30 percent electric car sales by 2030 in the recent past. However, to ensure that the nation achieves this target, it is important for the EV ecosystem, including OEMs and related service providers, to actively collaborate and create new and sustainable business models that enable India's leadership in e-mobility.

Disclaimer: The views represented within this article are the personal views of the author and only the author is responsible for any acts of omission or commission.



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India's electric mobility vision has several dimensions. In terms of numbers, India will be, with an estimated 400 million customers¹ in need of mobility by 2030, one of the largest auto markets in the world. If powered by conventional, greenhouse gas emitting fossil fuels, India's mobility choices will set back the environmental sustainability agenda, while increasing imported fossil fuel dependence.

There are clearly many positives to electric vehicles. Yet, only 56,000 EVs were sold in FY 2018 according to Society of Manufacturers of Electric Vehicles (SMEV) data². Clearly, consumers are still doubtful whether they can seamlessly switch to EVs, which indicates that India's goal of 30 percent electric mobility by 2030 requires much more support.

Foremost is addressing the lack of awareness of electric vehicles and their benefits; petrol and diesel are the two de-facto options that reign over the market. However, these benefits are still not well defined. Electric cars are expensive, which goes against India's traditional preference³ for low-cost cars. However, what will drive consumers towards electric vehicles is when it starts to realise the long-term benefits an electric car provides, both in terms of environment and savings to the consumer.

Another aspect is of Range Anxiety. While EVs in international markets have already benchmarked 250 km per charge and are aspiring even higher, India's currently ranges close to 130. India also needs the service and ancillary ecosystem that conventional, internal combustion engine (ICE) cars offer. India has the world's third highest⁴ number of petrol pumps, making ICE mobility a more reliable proposition. In comparison, if India were to launch large-scale EV deployment today, it would result in long queues for charging. Even aftersales service, in the form of EVs maintenance, needs to be strengthened. India should offer EV service stations and a five-year annual maintenance contract that mitigates apprehensions.

The Union Cabinet's recent approval of the National Mission on Transformative Mobility and Battery Storage is a positive intervention. The mission encourages setting up large-scale, export-competitive integrated batteries and cell-manufacturing giga-plants in India through a Phased Manufacturing Programme (PMP), thereby enabling holistic and comprehensive growth of the battery manufacturing industry in India. Localization of production will enable reduction of costs of battery storage, which has till date been a substantial contributor to costs – the affordability discovered can further drive EVs adoption.

Additionally, the government's ongoing EV initiative – whereby the entire government fleet of over five lakh cars will be electrified – can deliver a massive multiplier effect for the entire EV ecosystem. This, in turn, can trigger the infrastructure access that will benefit EV adoption, while bringing down costs of the cars. Over time, the synergy achieved by these initiatives, combined with India's own desire for affordable and sustainable mobility will bring about the mobility transition.



¹ https://www.tfeconsulting.com/_website/wp-content/uploads/2018/05/TFE_Report-India-electric-mobility.pdf

² <http://www.autocarpro.in/news-national/ev-sales-in-india-grow-to-56-000-units-in-fy2018--demand-up-for-2ws-but-abysmal-for-pvs-41063>

³ <https://qz.com/india/1323337/indias-electric-vehicles-dream-will-stall-over-its-love-for-cheap-cars/>

⁴ <https://timesofindia.indiatimes.com/business/india-business/more-than-60000-petrol-pumps-in-india-45-jump-in-6-years/articleshow/61848964.cms>

Electric Vehicle Charging Infrastructure A Perspective and BHEL's Contribution

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Electrification of transport is being viewed as the best alternative to address issues like CO2 emissions, along with helping in cutting down on crude oil import. Government of India has a vision of electrifying all vehicles on Indian roads progressively.

As per a NITI Aayog report, India can reduce 64 percent of the energy demand for road transport and 37 percent of carbon emissions by 2030, by pursuing a shared, electric and connected mobility future.

E-mobility in India is still in a nascent stage, with some initial significant developments seen over the last two years. To enable this transformation, towards a new mobility landscape, both the government and industries must

work together.

Deployment of a reliable Charging Infrastructure is the key to driving EV penetration in the country. Additionally, suitably addressing the issues of Range Anxiety and Charging Time will be pivotal in the proliferation of E-mobility. Easy and affordable access to charging infrastructure—both standard AC charging as well as rapid DC charging—also plays a central role in meeting customer needs. Effects of extra load on the grid, due to EV charging needs to be assessed and addressed suitably as well and smart grid management solutions need to be integrated.

Globally, a number of DC fast charging standards are prevalent, with CHAdeMO being more popular in Japan, GB/T in China and CCS in Europe. In India, Bharat AC-001 standard for AC slow charging @ 3.3 KW and Bharat DC-001 standard for DC charging @ maximum 15 KW, 72 V have been defined. However, standards for DC fast charging @ ≥ 200 V are yet to be finalized. The BIS committee is working towards it and the draft is currently in an advanced stage. A recent MoP guideline specifies the installation of minimum 1 no. (50 KW or above) CCS gun/ point, 1 no. (50 KW or above) CHAdeMO gun/ point and 1 nos. Type-2 AC gun/ point (22 KW or above), in addition to minimum 1 no. DC-001 and AC-001 charger at each charging station.

BHEL, as a pioneer of E-mobility in India, is committed to the nation's EV mission, aided by a diversified portfolio, including complete range of E-Buses, EV Power Train and EV Charging Solutions. As a part of the Make in India Initiative, several in-house developments on e-Buses, EV Motor & Traction Electrics and EV Chargers have been undertaken. A few of them have already undergone successful completion and testing at ARAI. To extend its offerings, BHEL has also entered into strategic tie-ups with renowned companies, for E-mobility products.

BHEL is installing a network of Solar based EV Charging Infrastructure, on the Delhi-Chandigarh Highway, to promote E-Mobility and Green Initiative. The establishment of EV chargers at regular intervals, over the entire stretch between Delhi and Chandigarh would allay range-anxiety among the EV users and bolster their confidence for inter-city travel. BHEL's scope of work in the project includes design, engineering, manufacturing, supply and installation of the EV charging stations, along with the CMS. The first charging station, as a part of a planned series on the entire 250-kilometre stretch, has already been successfully commissioned at Rai, Sonapat, Haryana. BHEL has also installed EV Chargers at Udyog Bhawan and is also executing other commercial orders for EV Chargers.



Inauguration of chargers at Udyog Bhawan by Honourable Union Cabinet Minister for Heavy Industries and Public Sector Enterprises



Inauguration of Solar EV Charging Station at Rai, Sonapat, Haryana by Honourable Secretary (HI)

The Central government has identified electric mobility as one of the drivers for encouraging resource efficiency in transport sector. To meet this objective, Energy Efficiency Services Limited (EESL) is procuring Electric Cars (4-wheeler car), and a service provider agency (for end-to-end fleet management) , by aggregating demand from various government agencies. The business model that EESL has developed is simple, flexible and easy to scale. The present lease terms of petrol/diesel cars have been used for leasing of e-cars. The benefits of aggregation, in terms of lower capital cost, will be passed on to the Govt. and its agencies.

The goal of this initiative is to provide an impetus for Indian vehicle manufacturers, charging infrastructure companies, service providers etc. to gain efficiencies of scale and drive down costs in the electric mobility ecosystem. It will also create local manufacturing facilities, grow technical competencies for the long-term growth of the EV industry in India and enable Indian EV manufacturers to emerge as major global players.

Electric vehicles offer profound benefits to the users, that include the following:

- Minimized environmental impact due to development and deployment of electric vehicles in place of fossil fuel powered vehicles
- Reduced city-level greenhouse gas emissions

- Reduced dependence of the state on imported energy sources
- Improved competence of the EV industry
- Enhanced employment generation in the state
- Increased awareness among masses, on the advantages of electric vehicles
- Enhanced consumer satisfaction level, with better quality of cars, complaint management, and maintenance services
- Improvement of the system stability, reliability and transparency
- Reduced financial burden on the state



The National e-Mobility programme was launched on 7th March 2018, by Hon'ble MoS (IC), Power & MNRE, Shri R.K. Singh at New Delhi.

EESL has been aggregating the demands from different government departments and PSUs and is entering into agreements to provide the e-cars on lease basis, or outright purchase, as per the requirement of the organisation. Agreements have been signed with prestigious government departments, such as the Prime Minister's Office, Ministry of Finance, Ministry of Power, NITI Aayog, Airports Authority of India, UN Environment, NDMC, SDMC, GMDA, NTPC, PGCIL, PFC, among others

EESL has procured 10,000 e-cars and 2,125 chargers via the tendering process. In the business model adopted, EESL purchases the e-cars and chargers from OEMs and provides them to the clients via the following options

- **Wet Lease:** A brand new e-car is provided along with a chauffeur. The chargers required for charging the e-cars are also installed at the client's premises, under this option. The e-cars are provided with insurance, registration, AMC, Battery and tyre replacement.
- **Dry Lease:** A brand new e-car without a chauffeur is provided under this option. The chargers required for charging the e-cars may also be availed under this option. The e-cars are provided with insurance, registration, AMC, Battery and tyre replacement.
- **Outright Purchase:** The e-car may be purchased via EESL.

The e-cars procured by EESL are 5-Seater Sedans, that are powered by a lithium ion battery. They can travel more than 130Km¹ in a single charge and have regenerative braking. The largest advantage of e-cars is that they have zero tailpipe emissions and produce almost no sound while running. The e-cars can be charged by AC or DC chargers, as specified under Bharat Charging Standards.

AC Charger (AC-001 Standard)

Single Phase AC output

Charges E-Car in 6-7 hours

Charges 3 E-Cars simultaneously

DC Charger (DC-001 Standard)

DC output

Charges E-Car in 90 minutes

Charges 1 E-Car at a time

The programme implementation began in the National Capital Region but has now expanded beyond Delhi. The e-cars and chargers have been deployed in government offices in Andhra Pradesh, Gujarat, Uttar Pradesh, Jharkhand, Haryana, Maharashtra, Madhya Pradesh, Telangana and Andaman and Nicobar Islands. The e-cars provide multiple benefits to the users and officers have expressed their delight at using the electric vehicles. They have complimented the overall experience of using the electric vehicles, including the appearance, low noise and overall comfort. EESL's clients pride themselves in contributing to a cleaner environment, that not only sets them apart, but their organizations as well.



Electric Vehicles and Charging Infrastructure in India: An insight into the future of E-Mobility sector with FAME 2

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Robust charging infrastructure is key to encouraging the adoption of electric vehicles. However, due to various challenges, the current status of EV charging infrastructure in India has not been very impressive.

These challenges include lack of data to quantify system-level savings and benefits vis-à-vis costs; perception about the technology not being commercially ready; higher cost compared to conventional solutions; policy uncertainty; mixed targets being set by different government departments; and lack of market mechanisms for driving investments amongst others.

However, step by step, the Indian EV ecosystem's hurdles are being addressed, thereby contributing to creating an enabling environment for growth. With the

government's focused efforts towards initiating a process to define standards and guidelines for electric charging stations, a new confidence has emerged amongst the sector's stakeholders.

The government's recent announcements on phase-II of the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles scheme (FAME II), which will be implemented between 2019 to 2022, and road tax and registration charge exemption for hybrids and EVs, will bring a major turnaround in growing India's EV space. The Centre has also asked states to frame their EV policy and provide additional fiscal and non-fiscal incentives to manufacturers and buyers.

These initiatives, combined with policy clarity from the government, have encouraged many public and private sector players, including discoms and original equipment manufacturers to confidently participate in EV adoption by partnering towards developing robust and appropriate charging infra.

Highlighting this critical aspect, FAME-II aims to establish 2,700 Public Charging Systems (PSCs) in metro and cities with a population of over 1 million people, as well as hill regions where ecosystem conservation is vital. The market

is also expected to get a boost from corporate and commercial space owners who can readily put together the supply, infrastructure and services vital for EV proliferation in India.

Thus, the revised FAME-II removes all the uncertainty and will put Electric Vehicles in the fast lane. Exicom supports the Central government's focus on boosting EVs in public transportation. We believe that the government is leaving no stone unturned to fulfil the dream of achieving 30 percent electric mobility by **2032** in the country.

Various state governments have also made a number of EV-related policy announcements over the past few months, showing strong commitment, concrete action, and significant ambition for the deployment of electric vehicles in the country.

The previous year has been historic for EVs, Energy Storage, and Batteries. And there is a strong prediction that this trend will continue in 2019 and beyond. The e-mobility sector will further evolve in the context of several larger trends, some specific to India, and some relevant globally.

In sum, the future looks bright for electric vehicle (EV) growth in India.



Many Indian states have taken the initiative to enable the policy framework for electric mobility. While Delhi, Kerala and Uttar Pradesh have already published their draft electric vehicle policies, others states, such as Andhra Pradesh, have notified the policy and are in the implementation phase.

These policies establish the direction that the states want to take with respect to electric mobility, as they await a central EV policy. The policies contain incentives and initiatives that will lead to a widespread adoption of this technology in the states. A move to electric vehicles will significantly reduce the tailpipe emissions in various states. The policies offer incentives that are primarily focused on two basic categories – demand and supply side incentives.

Demand Side Incentives	Supply Side Incentives
<ul style="list-style-type: none"> Electric Vehicles in Shared Mobility 	<ul style="list-style-type: none"> Ease of business
<ul style="list-style-type: none"> Electric Vehicles in Public/Institutional Transport 	<ul style="list-style-type: none"> Incentives for Manufacturing of Electric Vehicles, Components and EVSE
<ul style="list-style-type: none"> EV in Corporate Transport, Hospitals and Educational Institutes 	<ul style="list-style-type: none"> Research & Development
<ul style="list-style-type: none"> EV in Freight Transport, Logistics & Delivery Services and other applications 	<ul style="list-style-type: none"> Skill Development
<ul style="list-style-type: none"> EV for personal mobility 	

Every state policy includes a nodal agency to carry out the implementation strategy notified in the policy. The nodal agency can be any state department, such as the urban development department or the state transport department.

The state of Karnataka was the first to prepare energy storage and EV policy, which features incentives for EVSE deployment and focuses on making the state a hub for EV manufacturing. The Karnataka government approved ‘Electric Vehicle and Energy Storage Policy 2017’ to help the state become a hub for production of alternative fuel vehicles, reduce dependence on fossil fuels, bring down pollution levels and push the ‘Make in Karnataka’ initiative. Maharashtra, Uttar Pradesh, Andhra Pradesh, Kerala and Delhi have followed suit by releasing their respective EV policies. A snapshot of all the state electric vehicle policies is presented below:

Policies	Timeline	Salient Features
Karnataka EV and Energy Storage Policy	September 2017	<ul style="list-style-type: none"> Incentives for first 100 charging stations To introduce 1000 EV buses To amend building bylaws for provision of charging outlets, regular electricity supply Establishment of SPV to create more changing infrastructure in Bengaluru and Karnataka. EV to be exempted from taxes Incentives for EV, battery and components manufacturing sector
Maharashtra EV Policy	February 2018	<ul style="list-style-type: none"> First 100,000 e-vehicles registered in state eligible for last user grant - Max 15% of vehicle cost First 250 charging stations to get a 25% capital subsidy E-vehicle exempted from road tax and registration fees E-car manufacturers allowed to create charging station at existing petrol pumps, subject to safety clearance Tariff on par with residential and not commercial rates

Policies	Timeline	Salient Features
Uttar Pradesh EV Policy	March 2018	<ul style="list-style-type: none"> 1000 EV buses to be introduced by the State by 2030. Green routes to be identified by 2020 Tax exemption to buyers, 100% interest free loans, 30% subsidy on road price of EV Electric Vehicle incubation centres to be set up at IIT-Kanpur
Andhra Pradesh EV Policy	May 2018	<ul style="list-style-type: none"> Target INR 30,000 Cr investment in 5 years across manufacturing and charging infrastructure Target 10 GWh EV battery manufacturing in the state Convert 100% APSRTC bus fleet in the state to electric bus fleet by 2030 Target to have 10 Lakh EVs by 2024 in the state
Kerala EV Policy	October 2018	<ul style="list-style-type: none"> Road tax exemption on new electric vehicles for 3 years Charging infrastructure to be setup by Karnataka State Electricity Board EV and accessories manufacturing to be incentivised under ESDM and IT Policy Creation of E Mobility Zones, Subsidized electricity tariff, incentives on 3 W
Delhi EV Policy	November 2018	<ul style="list-style-type: none"> Road tax, registration fees and MCD one-time parking fee to be waived for all electric vehicles that are eligible for FAME India Scrapping and de-registration incentive of up to ₹15,000 for ICE 2W Pure electric buses to be least 50% of all new state-carriage buses procured for starting with 1000 pure electric buses in 2019. Changes in building bye-laws to incorporate 'EV ready' ECS spots with conduits installed Providing accessible public charging facilities within 3 km travel from anywhere in Delhi is a key objective of this policy Recycling of Batteries eco-system will be established

March Snapshots



Workshop on EESL's Procurement Practices and Building a Framework for Enhancing Participation

Date: 7th March, 2019, New Delhi



Roundtable on Integrated Energy Efficiency Services Model

Date: 11th March 2019, Mumbai



Stakeholders' Workshop on Enhancing Market Transformation for Energy Efficiency in India

Date: 25th March 2019, New Delhi



Inauguration Ceremony of Male' Street LED Lights

Date: 31st March 2019, Maldives