



Government of Kerala
Abstract

Transport Department – Policy on Electric Vehicles for the State of Kerala - approved
– Orders Issued.

Transport(B) Department

GO(Ms) No.24 /2019/Trans

Dated, Thiruvananthapuram 10/03/2019

- Read : 1. GO(Rt) No.242/2017/E&ITD dated 10/10/2017
2. GO(Ms) No.58/2018/Trans. dated 29/09/2018

Order

The vehicular transport of the State predominantly depend on fossil fuels. The extensive use of fossil fuels leads to environmental pollution and health hazards, which necessitates the exploration of alternative energy. The over dependancy on fossil fuels badly affects the balance of payment of the country and the political instability of oil producing countries always remains as a threat to the economic stability of our nation.

In this alarming circumstance, the State of Kerala, which is a forefront runner in many reforms and innovations, initiated early steps in the direction of framing a road map of Electric Vehicle Policy for the State. As per the GO read as 1st paper above, Government had appointed a Special Task Force under the chairmanship of Prof.Jhunjhunwala, Principal Advisor to the Minister for Power, Govt. Of India, for framing a draft EV Policy for the state. The committe had prepared a draft policy and submitted before the Government. In light of the proposal of the committee a draft Electric Vehicle policy for the State of Kerala had been published as per the GO read as 2nd paper above.

After detailed discussion with the various stakeholders, the draft policy was modified according to the prevailing circumstances of the State incorporating various changes, the Government are pleased to approve the Electric Vehicle Policy for the State of Kerala as appended herewith.

By Order of the Governor
K R JYOTHILAL
Principal Secretary to Government

To :

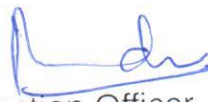
✓ The Transport Commissioner, Thiruvananthapuram
The Chairman, K-DISC, Thiruvananthapuram

The Principal Secretary, Finance Department
The Principal Accountant General(Audit), Kerala, Thiruvananthapuram
The Director, Information & Public Relations Department
GA(SC) Department
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Copy to:

Private Secretary to Minister (Transport)
PA to Principal Secretary (Transport)

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Section Officer

Government of Kerala Electric Vehicle Policy

1. Introduction

The high vehicle population of over ten million vehicles on road in Kerala State has made mobility a challenge, and it is accompanied by increase in road accidents and air pollution. The State Government is taking several measures like improving the conditions of roads, upgrading and widening the National Highway to 45 meters, constructing a Coastal Highway, and improving the Inland Waterways to permit large cargo traffic from Thiruvananthapuram in the south to Kasaragod in the north.

Electric Vehicles (EV) or e-mobility is another step forward. Kerala is known for its environmental sensitiveness, bio diversity and tourist attractions, and the State wishes to maintain its texture and ensure sustainable development for its people. The transition to electric vehicles is a natural choice for the State in line with its development ethos.

The number of vehicles on the road is expected to get reduced with the introduction of modern shared transport systems like Electric Buses and e-Autorickshaws. They will provide comfortable and fatigue free ride, with no polluting gases, and much reduced vibration and noise. This will attract vehicle owners to move to shared mobility. The State plans a no-subsidy regime for EVs, as articulated by the NITI Aayog.

The State Government plans to ensure a robust infrastructure for electric vehicles that includes adequate power availability, network of charging points, and favorable power tariff. KSEBL will provide quality power for 24x7 throughout the year for a rate variable based on time of the day and season of the year.

The development of e-mobility must be integrated to the State's manufacturing ecosystem, particularly for the EV components. Kerala has developed a large number of start-ups and some of this talent pool is expected to be utilized for the e-mobility initiative.

Registered Vehicles in Kerala (2016 Economic Review)

		Kerala	TVM	EKM	KKD
Goods	3W	419,857	36,478	69,643	34,296
	4W	136,938	12,186	17,124	13,984
Buses	Stage	42,707	13,247	4,074	3,630
	Contract	64,051	10,251	9,945	3,802
4W	Cars	2,070,635	278,468	336,445	155,605
	Taxis	107,567	9,027	17,276	9,729
3W	Autorickshaw	610,235	70,689	58,271	51,449
2W	Scooter/Motorcycle	6,472,302	834,151	1,004,232	639,437
Tractor/Trailer	Tractor	14,213	741	2,117	434
	Trailer	699	143	147	35

Others		232,609	25,211	39,996	14,987
	Total	10,171,813	1,290,592	1,559,270	927,388

2. Vision

To embrace electric mobility as a tool to promote shared mobility and clean transportation and ensure environmental sustainability, pollution reduction, energy efficiency and conservation, and to create an ecosystem for manufacturing EV components in Kerala.

EV Population targets

2022: 1 million EV's on the road

2020: Pilot Fleet of 200,000 two-wheelers, 50,000 three wheelers, 1000 goods carriers, 3000 buses and 100 ferry boats.

Investment targets

- **Component Manufacturing:** Attract investments and create employment opportunities around Power Electronics, Battery Pack Assembly, Battery Management System (BMS), Electric Motors, Accessories and skilled areas like IT, R&D etc.
- **Electric Vehicle manufacture in the long term:** Create an enabling ecosystem of skilled manpower, infrastructure, R&D centers, favourable regulations and initial volumes through Government programs.
- **Centers of Excellence (CoE) in the EV value chain:** build world class training/ skilling centers for EV professionals with niche skills for the global EV industry

3. Key Policy Drivers

The EV drive for Kerala has been triggered by multiple forces viz.

1. Support the National commitment to reduce greenhouse gas emissions
2. Improving air quality, especially in cities
3. Promoting shared mobility and clean transportation
4. Balancing of the peak and off-peak power demand for the electric utility (KSEBL),
5. Operational efficiency and savings for the transport utility (KSRTC) as well as the transport sector in general, and
6. Strategic intent to boost hardware and software manufacturing in the State.

Managing the Electricity Grid

In Kerala, nearly 80% of the demand is the variable load from the domestic and service sectors which is unpredictable because a variation in atmospheric temperature can spike the power consumption. The Kerala State Electricity Board Ltd. (KSEBL) is looking at EV adoption as an option for generating demand during the off-peak hours. It would mean cheap electricity for EVs and load balancing for the grid. KSEBL will participate in

the e-mobility development for ensuring a firm and optimally high baseload on the grid at attractive power tariffs.

Upgrading the Bus Transport Fleets

The Kerala State Road Transportation Corporation (KSRTC) shall transition its entire fleet of 6000+ buses into Electric Vehicles by 2025. This is expected to substantially reduce the heavy outflow due to fuel cost. KSRTC currently procures around 1000 new buses annually and these can be replaced with EVs. With appropriate sizing of the batteries, charging infrastructure and innovative electricity tariff, the cost of the bus operations is expected to be comparable with the present fleet of diesel buses. The huge reduction in maintenance cost of electric buses, reduced break down losses coupled with the reduction of fuel cost per KM can be securitised for a longer period and used to service the initial capital cost of deploying the EV Buses.

Industrial Growth

Kerala needs to focus on growing its internal manufacturing ecosystem and turn away from being an import-dependent, consumption-driven economy. This drive can be given an initial boost by providing an early market in the Government driven programs (aggregation of demand). The highly skilled manpower and a buoyant domestic demand will help to establish high tech manufacturing in niche areas like design, power electronics and IT components for Electric Vehicles.

4. Structure

A technical advisory Committee "E-Mobility State Level Task Force" (e-MobSLTF) has been set up by the State Government to initiate, develop and sustain e-mobility in the State. This Committee shall be mandated to define the policies and strategies for the development and growth of the sector in the State and shall also scrutinise the technology adoption and manufacturing proposals in this area and recommend to the Government for the adoption of the same.

The State Government has also constituted a high-level, inter-departmental Steering Committee for the smooth implementation of the EV roadmap. The Steering Committee shall review the progress of the plans and also suggest necessary course corrections.

5. Vehicle Categories

Conversion of three wheelers and transport buses to electric would be the first priority for the State along with a promotional role in conversion of two and four wheelers.

Kerala has also done a pilot in the area of electric boats using solar power for ferrying passengers, which has been running successfully. Steps shall be taken

to extend this further by introducing more electric boats as well as the introduction of electric propulsion in house boats in the tourism sector.

6. Strategic Initiatives

The policy aims at improving affordability and acceptance leading to adoption of electric vehicles through the following strategic initiatives:

1. Addressing the viability gap
2. Creating adequate charging infrastructure
3. Promotion of local manufacturing
4. Awareness creation and promotion
5. Human capacity building and re-skilling

6.1. Addressing the Viability Gap

The Government shall consider the following incentives to the vehicle owners to adopt EVs:

The Road tax on the electric vehicles may be fully exempted for the initial 3 years (new registration).

6.2. Creating Charging Infrastructure

6.2.1 State Nodal Agency:

The KSEBL, the State DISCOM, shall be the State Nodal Agency for establishing the charging infrastructure in the State.

6.2.2 Load Generation Balancing:

The State while seeking the promotion of EV Charging Infrastructure, also needs to balance the demand during peak and off-peak hours. Time of the Day (ToD) tariff will be made applicable for all Public Charging Stations (PCS), Bulk Charging Stations (BCS) and all charging infrastructures having Connected Load / Contract Demand above a specific limit. Uncontrolled nature of charging facilities in a plug-in-mode could increase peak load and network congestion. Hence, although consumers are free to choose their preferred modes of EV charging technologies, two and three wheelers with swappable batteries, which can be charged at Bulk Charging Stations during off peak hours will have preferential treatment over conventional vehicles with built in batteries in the matter of State incentives, for permits and allocation of power.

6.2.3 Charging Network:

The Public Charging Infrastructure should be interoperable, vendor neutral and type independent capable to meet the requirement of major EV and battery manufacturers, and complying with relevant national standards and regulations. Battery Swapping Facility (BSF) would also be provided.

Public Charging Stations and Bulk Charging Stations shall be provided across the State in a phased manner. In the first phase, it will be deployed in Thiruvananthapuram, Kochi and Kozhikode cities and will be subsequently extended to other cities and municipal corporations and major roads connecting them.

Ideally in major cities, at least one Charging Station should be available in a grid of 3km x 3km. Further on, Charging Stations should be set up every 25 km on sides of highways and major roads connecting major cities. However the

The operators (of battery charging infrastructures) will have the option to meet their power requirement from renewable or conventional energy sources or from Distribution Companies within the State.

6.2.5 Financial Incentives for setting up Charging and Swapping Stations:

- Capital Subsidy of 25% of the value of the charging station equipment/machinery up to a maximum subsidy of INR 10,00,000 for Direct-Current (DC) Chargers (100V and above) (for first 100 stations), INR 30,000 for Direct-Current (DC) Chargers (Below 100V) (for first 300 stations).
- Capital subsidy of 25% of Fixed Capital Investment (for eligible assets excluding cost of battery inventory) up to a maximum subsidy of INR 10 lakhs for swapping stations for the first 50 stations.

6.3. Manufacturing in the State

The State is keen to promote manufacturing facilities in the following areas in an attempt to boost localisation of the components/vehicles. Manufacturing of the following components shall be promoted and they shall be eligible for the incentives under the ESDM and IT Policy

- a. Complete Vehicle: Steps are being taken for constituting an e-Auto manufacturing facility under Kerala Automobiles Ltd (KAL)
- b. Electric Drive Train and Power Electronics: This includes the major constituents of the electric drivetrain and power electronics viz., Motor, motor controller and Inverter, On board charger, Power distribution unit, DC/DC converter, Vehicle control unit
- c. Energy Systems and Storage: This includes the Battery management system (BMS), Cell technologies and battery pack assembly and Second life applications for retired batteries
- d. The manufacturing units setup for EV shall enjoy all the benefits (financial and regulatory) of manufacturing units applicable under the industrial and IT policies of the State.
- e. Incentives for localisation:
 1. Support to local manufacturers to acquire and develop technology and collaborate globally with technology suppliers. A Fund shall be created for technology acquisition for multiple manufacturers in the state
 2. To support local R&D for development of EV's as per the ESDM policy
 3. Concession in electricity tariff, property taxes and tax breaks as per IT& ESDM policy
 4. Priority allotment of land and speedy execution of land allotment as per the IT policy
 5. Investment allowance or capital subsidy provisioned in ESDM policy shall be available to EV manufacturers
 6. Support to the auto-component industry, especially for MSMEs, start-ups and academia. (In alignment with the respective policies)
 7. Setting up of EV clusters where EV and EV component manufacturing can be incentivized through speedy land allotment, availability of reliable supporting infrastructure like roads, power and water

State Government may give exemptions considering the availability of space and other factors. Local Bodies in the areas to be notified by the Government shall give permits for new constructions of public buildings / commercial establishments etc. after ensuring provisions for PCS.

PCS / BSF with Smart Payment facilities shall be provided in Public Buildings. Public parking spaces and public places will be mandated to have charging stations. These will be accessible to both Government as well as private vehicles.

Existing private buildings such as malls and other commercial buildings will be incentivized to setup charging/battery swapping stations. All new permits for commercial complexes, housing societies and residential townships with a built-up area 5,000 sq.mt and above will mandate PCS.

All new and renovated non-residential buildings with more than 10 equivalent car spaces ('ECS') will need to have at least 20% 'EV ready' ECS spots with conduits installed. All new and renovated residential complexes and colonies with more than 10 ECS parking space will need to make 100% of demarcated ECS parking, EV ready with conduits installed.

Employers / Commercial establishments shall be incentivized to provide PCS at their premises at or below the notified rates.

The EV chargers should meet the harmonic-distortion specifications, using active filters if required.

For heavy vehicles, depot charging mechanisms will be made by the fleet owners based on techno-commercial feasibility and route planning.

State of the art Electric Vehicle Supply Equipment (EVSE) Management Systems will be deployed and made available to the public which will help EV drivers to locate nearest charging/swapping stations, schedule a charging slot, payment settlement etc. The database can be used free of charge by in-vehicle navigations systems and charging apps and maps. In order to meet the requirement of maintaining a national online database of all the PCS and BCS, the operators shall comply with the protocols to be published and revised from time to time.

6.2.4 Role of KSEB:

KSEB will ensure to meet the energy requirement of the State including the additional demand created by the electric vehicles.

KSEB Ltd will be encouraged to set up Bulk Charging cum Swapping Stations, Fast and Slow / Medium speed Charging Stations on its own or in Public Private Participation (PPP) mode. KSEB shall explore the possibility of utilising its available space for setting up such charging infrastructure. KSEB will invest (on its own or through third party operators using appropriate Public Private Partnership models) in setting up both slow and fast charging networks in Government buildings and other public places. The State Government will also explore avenues for providing space in government buildings and public places where KSEB will set up PCS and BCS in one of the two modes mentioned above. 20 PCS / BCS each and 150 swapping outlets for 2/3 Wheelers shall be set up in the initial pilot districts in Thiruvananthapuram, Ernakulam and Kozhikode. KSRTC will set up Charging Station in their depots, service of which will be extended to other fleet owners on payment basis.

Oil Marketing Companies and other energy operators (private or PSUs) will also be permitted to set up PCS and BCS on their own or as PPP at spaces at their disposal. KSEB will provide connectivity to the Public Charging Stations on priority; cost of providing supply shall be met by the investors setting up the Charging Infrastructure.

6.4. Awareness Creation and Promotion

6.4.1 Electric Vehicles Expo:

To create a platform for EV manufacturers to showcase their new products as well as create awareness and familiarity among the public, the State Government will take initiative to conduct an Electric Vehicles Expo where the EVs will be showcased.

6.4.2 Creation of E Mobility Zones (pilot regions):

To familiarise the public on the e-mobility aspects and usage and to create initial demonstration hubs select regions will be adopted as e-mobility zones.

The potential areas are:

- Tourist villages/spots (Kovalam, Munnar etc.) - ebikes, e scooters, e-autos
- Technology hubs (Technopark/Infopark) - ebikes, e scooters, e-autos
- CBD of Trivandrum /Kochi and Kozhikode - e-buses, e-autos, e-scooters
- Last mile connectivity for urban transportation networks (e.g. KMRL) - ebikes, e-scooters, e-autos

6.4.3 Support schemes for early adoption:

To create awareness among public about EV's and to promote adoption of the same the following promotional schemes are proposed -

- Incentives of Rs. 30000 or 25% of the EV whichever is lower for the 3 wheelers that are procured from the empanelled vendors (under the scheme for promotion of EV's)
- Other fiscal incentives on EVs such as state tax breaks, road tax exemptions, and free permits to fleet drivers.
- Non-fiscal incentives such as exemption from toll charges, free parking, etc.

6.4.4 Electricity Tariff:

As a measure for promoting the rollout of EVs, KSEB shall offer energy to Public / Bulk Charging Stations at a rate less than the average during the initial three years. In order to regulate the consumption during peak hours, concession need not be extended during 18:00 to 22:00 hrs. The rate during off peak hours (22:00 to 06:00 hrs) and during peak hours will be 75% & 150% respectively of the normal Energy.

6.5. Human capacity building and re-skilling

6.5.1 Centre of Excellence for Electric and Autonomous Vehicles:

The State Government shall establish centres of innovation and excellence for various components of EVs and Autonomous Vehicles (AV) Industry including battery technology, drive train technologies, software development and charging technologies.

6.5.2 Curriculum updates for EVs and AVs:

The curriculum of the technical schools (in engineering and science) to be updated to incorporate emerging technologies in the industry

6.5.3 Skilling Programs for EV & AV industry:

Specific skilling programs shall be formed to deliver hands on learning for the graduates and professionals in the areas related to EVs & AVs.

6.5.4 Connected and Autonomous vehicle testing corridor:

A state-of-the-art infrastructure for safe testing of autonomous and connected vehicle technologies shall be built in Trivandrum. This Mobility Corridor will be equipped with high-capacity fiber optic cable connecting various road infrastructure.