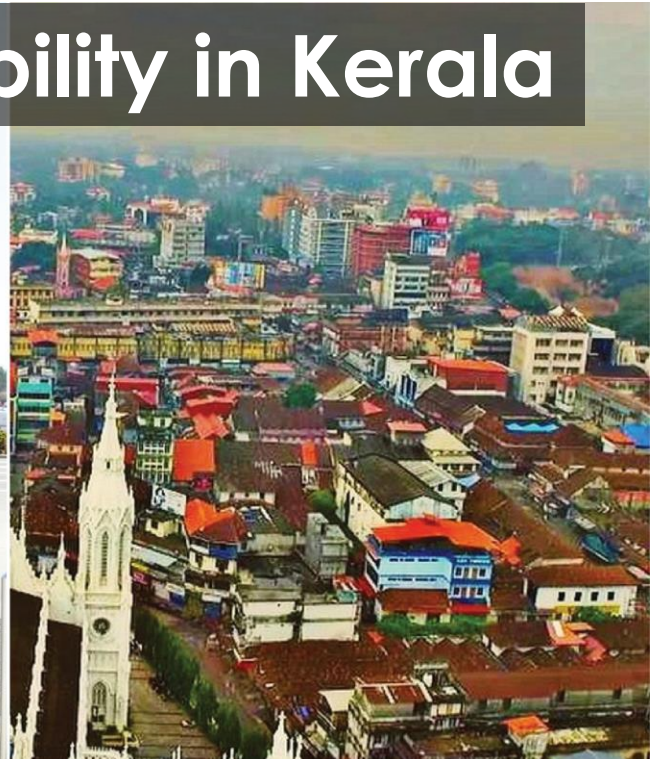


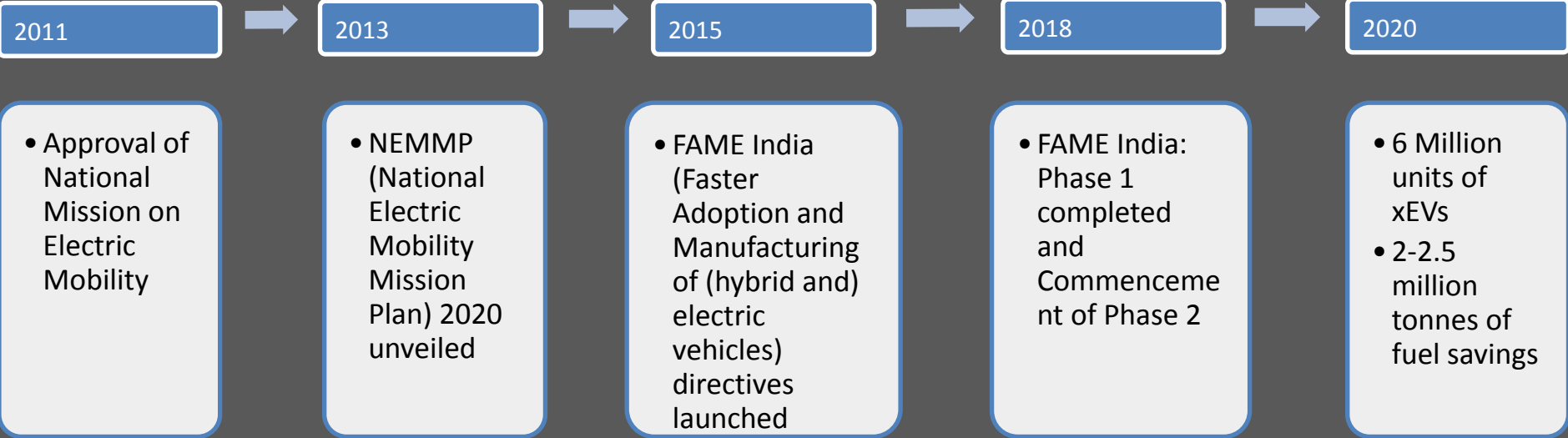


Government of Kerala

# Accelerating Electric Mobility in Kerala



# ROAD MAP FOR ELECTRIC MOBILITY IN INDIA



# KERALA EV POLICY

## VISION

*' 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'*

## KEY POLICY DRIVERS

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

# Kerala's EV Policy Targets

## **By 2022:**

*1 Million electric vehicles on the road*

## **By 2020:**

- 200,000 two wheelers*
- 50,000 three wheelers*
- 1000 goods carriers*
- 3000 buses, and*
- 100 ferry boats*



# HIGHLIGHTS OF KERALA EV POLICY

- Key focus on growing internal manufacturing ecosystem, thereby shift from import-dependent ecosystem to consumption-driven economy.
- Attracting the vehicle owners to shift to shared mobility.
- 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.
- ToD tariff is expected to diversify consumption behaviors of the consumer as differential tariffs will be charged between the peak and off peak hours.
- 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 by KSEBL
- In major cities, charging station to be made available in a grid of 3 kmx3 km. On Highways and Major Roads it is to be at every 25 km.



# ROADMAP

Seeks to lay down specific actions to implement the policy

Moves from high level policy thinking to on ground implementation



# KERALA'S UNIQUENESS

- Virtually no rural / urban divide
- Narrow - Literally one highway connects entire state from North to South
- Dominance of short travel distances even in large urban centers
- Urban bus services largely by the private sector
- Several high demand intercity bus routes exist



# REGISTRATIONS VS TARGETS

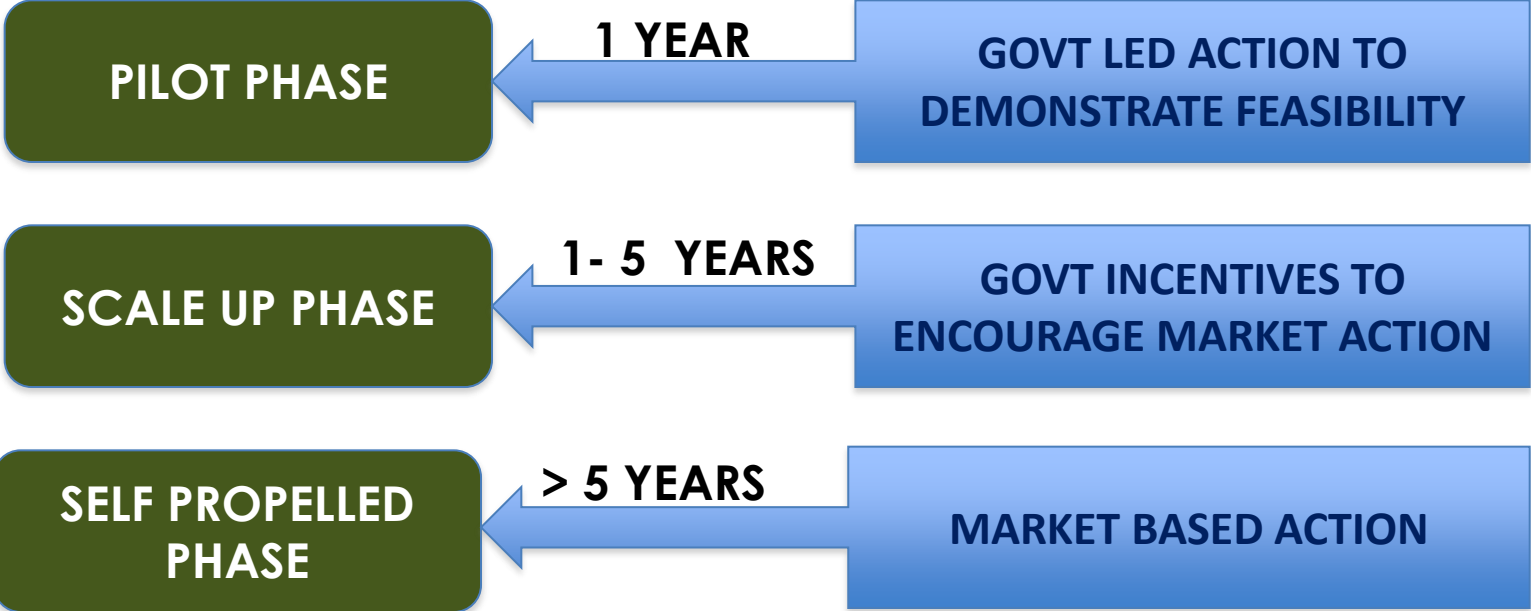
Type of vehicle	Approx. Annual registrations	Target by 2020	Remarks
2 - wheelers	6,00,000	2,00,000	33% of new registrations have to be EV – which 33%?
3 - wheelers	23,000	50,000	Will need significant conversion of existing fleet
Buses	6000	3000	50% of new registrations have to be electric buses
Goods carriers	17,000	1000	Small share of new registrations have to be EV



# CHALLENGES OF TRANSITIONING TO EV

- Comfort with the existing system and resistance to change
- Lack of public awareness
- High capital costs
- Inadequate experience of savings in operating costs
- Limited driving range and high charging time
- Inadequate re-energizing infrastructure
- Impact of road gradient
- Need for coordinated action by multiple agencies

# NEEDS A MULTIPRONGED & MULTIPHASED IMPLEMENTATION ROAD MAP



# ROADMAP

- **Pilot phase**

- KSRTC buses on pilot routes
- Aggressive procurement of EVs for State Govt. use
- Identify electric four wheeler fleets - CIAL taxis, Govt. fleets
- Kochi metro Feeder vehicles go electric
- Establish a nucleus of charging and swapping stations
- Charging and swapping stations for pilot bus routes
- Launch awareness campaign
- **Set up EV Mission**
- **Set up EV promotion fund**
- **Set up 'Directorate of Mobility' & 'State Mobility Fund'**

# ROADMAP

- **Scale up phase**
  - Bouquet of incentives for market based action
  - Expand routes for eBuses
  - Promote electrification of all paratransit, 2-wheeler delivery vehicles and small freight vehicles
- **Self propelled phase**
  - Withdraw bouquet of incentives and tighten regulations for only EV registration and operation



# INITIATIVES BY THE GOVT.

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# Evolve – Kerala electric mobility conference and expo

- Two day event held in Kochi on 29-30 June 2019.

30 stalls

500 Visitors

10 Sessions

70+ Speakers

500+ Participants

Electric bus

Electric Scooters, E-3W, E-Cars, Wheelers, Autonomous Car, Indigenous Tech., Start ups, etc.

# Initiatives – WRI India

- Engaging with Not for Profit organisation, WRI India in preparation of a Roadmap for electric mobility in Kerala.
- The initial cut of the document was presented to the Govt. during EVOLVE



A Roadmap for

## IMPLEMENTING KERALA'S ELECTRIC VEHICLE POLICY

- by WRI India for the  
Transport Department, Government of Kerala



# INITIATIVES - KSEBL

- Kerala State Electricity Board Ltd. is the nodal agency for charging infrastructure in the state
- KSEB has floated EOI for 183 Electric Charging Stations
- KSEB would be setting up charging centres at first in six corporation areas, namely Thiruvananthapuram, Kollam, Kochi, Thrissur, Kozhikode and Kannur
- KSEB is undertaking a study of available for setting up charging stations





# INITIATIVES - IOCL

- Indian Oil Corporation Ltd. in collaboration with Power Grid Corporation India Ltd. Inaugurated Kerala's first electric charging station at Edapally, Kochi during EVOLVE.
- IOCL is currently planning to set up 24 electric charging stations across Kerala in the first phase and 12 in the second phase



# INITIATIVES - KAL

- Kerala Automobiles Ltd. emerged the country's first state PSU to get the nod for commercial production of electric auto rickshaws from ARAI.
- The zero emission vehicle with fibre body and a 2-kV motor can travel up to 100 km on single charging.
- The battery takes four hours to be fully charged.
- The e-auto, weighing 295 kg, can attain a speed of 55 km an hour and could be charged at home.
- The running cost – 50 Paise per km.
- The vehicle will be priced around ₹2.50 lakh.



# Initiatives – Public buses

- KSRTC inducted E-bus after a trial in Nilakkal – Pampa route which is ecologically sensitive during the Sabarimala season after which they were deployed to connect Trivandrum, Kozhikode and Ernakulam
- Post trial, ten 9m. Buses were procured on wet-lease for operation in Munnar, Sabarimala etc. on 15.09.2018, these buses are now plying between Thiruvananthapuram and Kochi
- **Kerala RTC has been sanctioned 250 e-buses under FAME II for intracity operations**
- Kochi Private Bus Operators approached the Govt. to form 'Kochi E-Bus Ltd.' with 26% stake from Govt.



# INITIATIVES

- **Exchange of MoU between HESS and KAL**
    - ✓ The MoU would make Kerala the first state in India to attract Swiss investment in electric bus manufacturing
    - ✓ A JV of HESS & KAL would be manufacturing electric buses for domestic consumption and export.
  - **Exchange of MoU between Spotimize Energy Pvt. Ltd and GoK**
    - ✓ GoK and SEPL will work towards planning, design and implementation of Hydrogen Fuel Cell powered Electric Vehicle pilots in Kerala.
  - **EESL leasing electric vehicles to MVD**
    - ✓ Motor Vehicles Department, Government of Kerala will lease 14 electric cars from the Energy Efficiency Services Limited.
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# INITIATIVES

- **Setting up of CoE at TrEST Park by ANSYS and Entuple Technologies**
    - ✓ The CoE will pave the way to improved Research and Development in the E-Mobility in Kerala.
  - **Water Metro Ferry Fleet to be Electric with 23 ferry boats & order placed with Cochin Shipyard Limited.**
  - Formulation of **High Powered Committee** for promotion of EV Eco-System
  - Ernakulam District **Autorickshaw Drivers Co-Operative Society Ltd.**
  - **Discussions underway with GoK**
    - ✓ Toshiba India for manufacturing of LTO Batteries.
    - ✓ ABB for manufacturing of various type of electric charging systems.
    - ✓ Siemens for manufacturing of EV propulsion components.
    - ✓ Special Economic Zone for Manufacturing of EV at Vizhinjam Seaport
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**THANK YOU**