

TRANSITIONING TO ELECTRIC MOBILITY IN GUJARAT

IMPACTS AND BENEFITS



Source: Charu Lata, NRDC

Across India, states are implementing electric vehicle (EV) policies to support the country's goals on electric mobility, climate change, and air quality. EV sales need to drastically increase to advance electric mobility in India by 2030. Over 15 states in the country have notified or drafted EV policies.¹ Karnataka was one of the first states to approve its policy in 2017, while Gujarat initiated a draft policy in 2019. Since then, Gujarat has made progress on transportation electrification. The time is right to release the final Gujarat State EV policy to keep up with market trends as well as reap the economic, environmental, and societal benefits of a robust EV market.

Over the past two decades, Gujarat has emerged as an investment destination for major automobile players. The state is on course to become India's leading auto hub in the next few years and presents tremendous opportunities in automobile and component manufacturing. Gujarat is uniquely poised to leverage its strength as a growing auto hub in the global shift toward EVs. EV manufacturing will open new opportunities across a range of products and services such as EV components, batteries, EV chargers and charging infrastructure. Transportation electrification aligns well with the "Make in India" and "Atmanirbhar Bharat" (self-reliant India) campaigns.

AUTOMOBILE MARKET IN GUJARAT

Over the past two decades vehicle registration has increased in Gujarat's urban areas.² The number of vehicles on the road in Gujarat has grown from 5.6 million to 25 million between 2001 to 2019.³ Gujarat has emerged as a key investment destination for major automobile players and presents an opportunity of billions of Rupees for several component manufacturers.⁴

STATUS OF ELECTRIC MOBILITY ADOPTION IN GUJARAT

The state has made limited headway in shifting to electric mobility without formalizing its state EV policy. The state leveraged incentives provided under the Faster Adoption and Manufacturing of Electric Vehicles (FAME) scheme and initiated state-level programs to increase adoption of EVs.



Source: Charu Lata, NRDC

DRAFT GUJARAT ELECTRIC VEHICLE POLICY

The draft Gujarat EV policy targets the planned migration to EVs including deployment of 100,000 EVs over three years.⁵ This includes EV adoption targets of 80,000 two-wheelers, 14,000 three-wheelers, 4,500 four-wheelers, and 1,500 buses. The policy plans to provide capital subsidies on the purchase of EVs over and above the financial support provided by FAME II. The policy is not applicable to low-speed EVs, which do not require RTO registration and private four-wheelers, in line with FAME II. Also, the demand incentives under the policy are not applicable to vehicles based on lead-acid chemistry batteries. Under the policy, the state plans to exempt motor vehicle tax and vehicle registration fees during the policy period.



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CHARGING STATIONS INCENTIVES

The state government plans to support the same number of charging stations over and above the number allocated by Department of Heavy Industries (DHI) to Gujarat. Fast charging stations and/or battery swapping stations will be established at an interval of 25 kilometers on both sides of state highways. The government plans to exempt electricity duties for EV charging stations. Further, a special tariff is approved for EV charging: for LT connections, ₹4.10/kWh and demand charge of ₹25/installation; for HT connections, ₹4.00/kWh and demand charge of ₹25/kVA/month for all public charging stations.⁶

MANUFACTURING INCENTIVES

All manufacturing incentives for the electric mobility sector will be provided under the recently released Gujarat Industrial Policy 2020. Per the policy, Gujarat identified 15 thrust sectors, including EVs and its components, for industrial promotion. The policy is offering land on lease and the de-linking of incentives from tax structure and replacing it with capital subsidy without any upper ceiling.

POTENTIAL IMPACTS OF THE GUJARAT EV POLICY

The transition to transportation electrification will include tradeoffs. The transition will improve air quality, address climate change, and create a more equitable and inclusive Gujarat. The policy would achieve two billion clean vehicle kilometers (km), accounting for reduction of 0.3 million tons of CO₂ equivalent (CO₂e) emissions, save 98 million liters in terms of oil import (petrol and diesel) and reduce consumption of 26 million kilograms of CNG, and lead to savings of more than ₹2 billion (\$27.4 million) in terms of avoided emissions over the policy period.

Figure 1: Cumulative avoided CO₂e emissions per year (Source: GERMI analysis).⁷



Table 1: Avoided crude oil consumption over three years (Source: EMBARQ, 2020).⁸

| Fuel Type | Vehicle Type | Mileage (Km/liter) | Avoided Fuel Consumption (million liters) | | | |
|-----------|---------------|--------------------|---|--------|--------|------------------------|
| | | | Year 1 | Year 2 | Year 3 | Total over Three Years |
| Petrol | Motorcycle | 50 | 1 | 4 | 12 | 17 |
| Petrol | Car | 11 | 3 | 10 | 23 | 36 |
| CNG | Auto-rickshaw | 25 | 2 | 7 | 17 | 26 |
| Diesel | Bus | 3 | 3 | 12 | 30 | 45 |

Table 2: Cumulative cost of avoided CO₂e emissions (Source: GERMI analysis).⁹

| | Motorcycle | Car | Auto-rickshaw | Bus | Total Million (₹) |
|--------|------------|-----|---------------|-----|-------------------|
| Year 1 | 17 | 50 | 31 | 55 | 2,084 |
| Year 2 | 67 | 167 | 111 | 195 | |
| Year 3 | 203 | 395 | 285 | 509 | |

Table 3: Cumulative revenue loss to state exchequer from fuel sale (Source: GERMI analysis).¹⁰

| Fuel Type | Vehicle Type | Fuel Price (₹/liter) ¹¹ | Tax levied by Gujarat | Revenue Loss (million ₹/liter) | | Total Million (₹) |
|-----------|---|------------------------------------|-----------------------|--------------------------------|--------|-------------------|
| | | | | Year 1 | Year 2 | |
| Petrol |  | 83 | 24.1% | 20 | 79 | 1,519 |
| Petrol |  | 83 | 24.1% | 83 | 59 | |
| CNG |  | 53 | 15.0% | 53 | 16 | |
| Diesel |  | 82 | 24.2% | 82 | 64 | |

In addition to the direct environmental and economic impacts, the Gujarat EV policy also presents job creation and local manufacturing opportunity. With an automotive manufacturing base in Gujarat, the adoption of electric mobility will introduce new high-skilled jobs in the manufacturing of batteries, EV powertrain, components, and charging infrastructure. The additional consumption of electricity will in turn create jobs. Gujarat can demonstrate leadership to grow its EV market and create jobs by investing in high-end technology, securing a local supply chain, and providing a complete mobility solution. This aligns with “Make-in-India”.

KEY CONSIDERATIONS FOR RELEASING THE GUJARAT ELECTRIC MOBILITY POLICY

Shifting to EVs will have major economic, environmental, and social benefits. To keep up with market trends, Gujarat should formally release its EV policy, while national policy continues to evolve. A state policy with clear targets can continue to be tailored. Learning from other states and jurisdictions in India and globally, here are seven key aspects to consider:

- Strengthen inter-departmental coordination.** A planned and structured implementation is key. Clarifying inter-departmental coordination will streamline policy implementation and advance EV deployment. A state-level EV Steering Committee can provide the structure for departments including Gujarat State Road Transport Corporation, Road Transport Authority, Gujarat Energy Development Agency (GEDA), power utilities, municipal corporations, to plan, implement, and modify the EV policy (Figure 2).
- Enhance distribution company (DISCOM) engagement.** Develop utility EV programs and policies that advance electric mobility, allow for streamlined EV grid infrastructure investments, grid connections, land availability, and ensure attractive and stable tariffs for EVs. Frontloaded investments into charging infrastructure and the grid by utilities can lead to large payoffs in the long term, as is being quickly recognized internationally.
- Encourage partnerships with business and civil society.** To leverage limited government resources, developing partnerships with businesses, original equipment manufacturers (OEMs), academic institutions, civil society, are crucial to grow the electric mobility market.
- Incentives to grow the EV market.** Gujarat can introduce policy interventions at the state- and city-level, such as additional incentives for using clean energy for EV charging and setting up a single window clearance system to attract investments for “Ease of Doing Business”. These incentives will create a critical, self-sustaining mass of EVs, manufacturers, service providers, and stakeholders.
- Strong and integrated city actions on electric mobility.** Congestion pricing and other non-fiscal incentives (e.g., mandatory procurements of EVs by state agencies, reserved parking spaces, and low emission zones) in cities can enhance EV adoption, improve air quality, and reduce traffic congestion.¹² The General Development Control Regulations should be updated to account for charging points in housing societies, commercial establishments, and shopping centers.
- Expedite land identification and availability.** Gujarat can facilitate land for charging infrastructure through incentives, such as long-term leases and lower interest

rates. A database of suitable and available land in the state's major cities can be developed after due verification from the respective authorities. Standard Operating Procedures can be developed for deploying public charging infrastructure and periodic evaluation of its performance.

- Focus on freight electrification.** Gujarat can take a lead on EV freight vehicles (medium- and heavy-duty) given the high-level of industrial and commercial activity, especially around ports and dedicated industrial zones. Specialized pilots and use-case specific strategies may be developed for transitioning Gujarat's commercial fleet to EVs.

Figure 2: Proposed state-level inter-departmental coordination for accelerating EV adoption (Source: NRDC and GERMI, 2021).



The full report on Gujarat EV Policy can be found online at: [Transitioning to Electric Mobility in Gujarat: Impacts and Benefits](#).¹³

ENDNOTES

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