India’s Electric Vehicle Transition

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India’s Electric Vehicle Transition : Unlocking a $200 Billion Opportunity by 2035

Context

NITI Aayog recently launched a report titled **“Unlocking a $200 Billion Opportunity: Electric Vehicles in India”**, which outlines a comprehensive roadmap to accelerate **Electric Vehicle (EV)** adoption in the country by **2035**. The report highlights the economic, energy, and environmental benefits of transitioning to EVs, along with the reforms, investments, and institutional actions needed.

Introduction

India’s shift towards electric mobility is driven by the dual objectives of **environmental sustainability** and **energy security**. As one of the fastest-growing automobile markets, India has the potential to become a **global hub for affordable and clean EV technologies**. The report presents a structured vision of how India can tap into a **$200 billion opportunity** through green mobility, create jobs, reduce emissions, and enhance self-reliance in energy and manufacturing.

Key Highlights of the Report

- India’s EV market has the potential to unlock a **$200 billion opportunity by 2035** through growth in **manufacturing, services, and clean energy sectors**
- The transition can help avoid **1 gigatonne of CO_2 emissions** and save up to **₹3.7 lakh crore** in oil imports
- EV sales have grown significantly from **0.5 percent in 2018 to 7.7 percent in 2024**
- Over **6.5 million EVs** are currently operational, with **12 lakh EVs** registered in **2024 alone**

- India had **25,000 public chargers** as of October 2024; around **2.9 million** chargers are required by **2035**
- **29 States and Union Territories** have notified EV policies; **4 more** are in the drafting stage
- India's annual battery demand is projected to exceed **250 GWh** by **2035**
- The EV sector could create over **10 million direct and indirect jobs**
- The shift to EVs could result in savings of **474 million tonnes of oil equivalent (MTOE)** and reduce **839 million tonnes of CO_2 emissions** by **2035**

Strategic Opportunities from EV Transition

- Reduces dependence on imported crude oil, thereby enhancing **energy resilience**
- Boosts **green manufacturing** under **Atmanirbhar Bharat** through domestic production of EVs, batteries, and components
- Facilitates cleaner and more efficient **urban mobility systems**, including shared and public transport
- Encourages growth of an **innovation ecosystem**, with startups and R&D in **battery technology, software, and smart mobility**
- Drives the development of **sustainable infrastructure**, such as **smart grids and energy-efficient urban planning**

Key Enablers for Accelerated EV Adoption

- Need for a **stable and long-term policy architecture** at both central and state levels to reduce uncertainty for investors
- Ensure **low-cost and accessible financing**, particularly for informal sector buyers and MSMEs

- Strengthen the entire **EV value chain**, including manufacturing, recycling, and reuse of batteries and components
- Rapid expansion of **public charging infrastructure**, with a target of **2.9 million chargers by 2035**
- Introduce **demand-side incentives**, such as **subsidies, tax reductions**, and **carbon credits** to lower the initial cost of EVs

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Challenges Highlighted

- **High upfront cost** of EVs, mainly due to expensive battery components
- **Limited access to financing**, especially in rural areas and among low-income groups
- **Uneven distribution of charging infrastructure**, with a focus on metro cities, leaving smaller towns and rural areas underserved
- **Underdeveloped recycling ecosystem** for batteries and low R&D in localisation of EV components
- **Policy fragmentation** across states, leading to inconsistent regulations and lack of national-level coordination

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Way Forward

- Establish a national-level framework such as **Mission EV@30**, with cross-ministry representation and state collaboration
- Prioritise **localisation of battery cell production** and secure access to **critical raw materials**
- Create a **Unified Green Transport Fund** to finance public transport electrification, retrofitting, and charging networks
- Expand the **India EV Market Index (IEMI)** into a dynamic **EV Readiness Index** to track and incentivise state-level progress

- Ensure a **just transition** by retraining workers from the internal combustion engine sector in EV manufacturing and servicing

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Conclusion

India’s EV journey is not just an environmental necessity but a powerful economic and strategic opportunity. With coordinated action on **policy, financing, localisation, and infrastructure**, India can become a leader in **clean and inclusive mobility**. The benefits span across **energy savings, job creation, carbon reduction**, and **technological self-reliance**, placing India at the forefront of the global green mobility revolution.