NITI AAYOG REPORT: EV IN INDIA

Recently, NITI Aayog launched the report "Unlocking a $200 Billion Opportunity: Electric Vehicles (EV) in India" to accelerate the nation's electric mobility transition. The Ministry of Heavy Industries has unveiled detailed guidelines for the "Scheme to Promote Manufacturing of Electric Passenger Cars in India" (SPMEPCI).

Key Highlights of the NITI Aayog Report on EV Transition

1. EV Sales Target

India has set a target of achieving 30% electric vehicle (EV) sales by 2030, compared to the 2.08 million EV units sold in 2024. This ambitious target is projected to unlock a $200 billion economic opportunity by reducing fuel imports, cutting greenhouse gas emissions, and generating new employment opportunities in the EV ecosystem.

2. Global Context

While EV adoption in India is steadily increasing, the country is still behind major markets like the U.S., the EU, and China in both scale and speed of penetration. The report emphasizes the need for accelerated policy measures to close the adoption gap.

3. Segment-Wise Progress

1. Two-wheelers and three-wheelers, Strong growth driven by affordability and lower operational costs.
2. Electric buses, Moderate adoption, mainly in urban public transport fleets.
3. Electric cars, Slow growth due to higher upfront costs and limited charging infrastructure.
4. Long-haul electric trucks, Negligible presence due to cost, technology readiness, and infrastructure constraints.

4. Current Penetration Status

EVs accounted for 7.6% of total vehicle sales in 2024, up from negligible levels a decade ago. However, India has taken nearly 10 years to achieve this level, showing that future adoption needs to be much faster to meet 2030 goals.

5. Future Adoption Requirement

To achieve the 30% EV sales target, India needs to increase EV penetration by more than 22% in the next five years. This requires rapid scaling of both manufacturing capacity and charging infrastructure.

Challenges in EV Adoption

1. Financing Constraints for Heavy EVs

Electric buses and trucks cost two to three times more than internal combustion engine (ICE) vehicles, making them financially unviable for many operators. Over 80% of truck owners and most bus operators are small-scale players, which makes access to affordable financing difficult due to EMI burdens and lack of performance data for heavy EVs.

2. Charging Infrastructure Gaps

Public charging stations face low utilization rates, land acquisition issues, and unreliable power supply. High installation costs (with 18% GST) and lack of coordination between DISCOMs, urban local bodies (ULBs), and transport agencies further slowdown deployment.

3. Awareness and Perception Barriers

Common misconceptions about EV safety (e.g., fire risks) and range anxiety discourage adoption. Fragmented and inconsistent awareness campaigns fail to highlight the Total Cost of Ownership (TCO) advantages of EVs, especially for cost-conscious consumers.

4. Data and Regulatory Deficiencies

Inaccurate EV classification in VAHAN database and the absence of unique battery IDs limit the ability to track battery life cycles and design recycling policies. This weakens evidence-based policymaking and slows the development of a robust EV ecosystem.

5. Indian Market Complexity

India's transport patterns are unique—75% of vehicles are two-wheelers, 98% are small/public vehicles, and only 15% of trips exceed 10 km. EV strategies must be tailored to affordability concerns and short-trip urban travel patterns.

NITI Aayog Recommendations to Overcome Challenges

1. Shift from Incentives to Mandates

Introduce Zero Emission Vehicle (ZEV) timelines to phase out ICE vehicles gradually. Strengthen Corporate Average Fuel Efficiency (CAFÉ) norms to enforce stricter CO_2 emission limits.

2. CAFÉ Norms Overview

Objective

Improve fuel efficiency and reduce greenhouse gas emissions across a manufacturer's entire fleet.

Phases

1. CAFÉ I (2017–22): 130 g/km CO_2 limit.
2. CAFÉ II (2022 onwards): 113 g/km CO_2 limit (13% cut).
3. CAFÉ III (Proposed from 2027): ~91.7 g/km CO_2 limit.

Difference from Bharat Stage (BS) Norms

1. CAFÉ norms target CO_2 emissions (climate change), BS norms target NOx, PM, and other pollutants (local air quality).
2. CAFÉ norms apply fleet-wide, BS norms apply to individual vehicle models.

3. Saturation-Based EV Deployment

Launch pilot projects to fully electrify transport in select cities—starting with 5 cities and scaling up to 20, then 100 cities. The model is inspired by China's "10 Cities, 1000 Vehicles" program (2009), which boosted battery technology, domestic manufacturing, and charging infrastructure.

4. Affordable Financing for Heavy EVs

Establish a blended finance fund combining public and multilateral resources to provide low-interest loans for electric buses and trucks.

5. Strategic Infrastructure and Technology Push

Promote battery leasing models, unified EV mobile apps, and dedicated EV power lines. Develop 20 high-density EV charging corridors and invest in advanced battery chemistries for improved range and safety.

Awareness and Data Systems

Implement a national-level awareness program to address EV myths and promote TCO benefits. Create a comprehensive EV database including battery IDs, charging patterns, and lifecycle data to guide policy decisions.

1. India's Automotive Sector

Global Position

4th largest automobile market in production; 3rd largest in sales globally. Automotive sector contributes 7.1% to GDP and is a major employment driver.

Government Initiatives Supporting EV Transition

1. PLI-Auto Scheme, Boosts production of Advanced Automotive Technology (AAT) products.
2. PLI-ACC Scheme, Promotes domestic battery manufacturing for EVs.
3. FAME I & II, Demand incentives for EV purchase and charging infrastructure.
4. Electric Mobility Promotion Scheme (EMPS) 2024, Extends support for EV adoption after FAME II's expiry.
5. National Electric Mobility Mission Plan (2013), Umbrella framework for EV and hybrid vehicle promotion.
6. Battery Waste Management Rules (2022), Mandates Extended Producer Responsibility for battery recycling.
7. State EV Policies, provide subsidies, tax exemptions, and charging infrastructure support (e.g., Maharashtra EV Policy 2025 with a 10% subsidy on EVs).

Conclusion

India's EV roadmap must combine mandates, financing solutions, infrastructure scaling, and consumer awareness, drawing lessons from successful international models like China. Policies must account for India's unique mobility mix, affordability constraints, and short-trip dominance, ensuring a sustainable, technology-driven, and inclusive transition to 30% EV sales by 2030.

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