Priorities to move forward on Transport Decarbonisation

Vivek Chandran Associate Director Transport | 11:05 AM | 26 February 2021



Shakti Sustainable Energy Foundation

TRANSFORMATIVE ACTION ON CLIMATE CHANGE MITIGATION AND ADAPTATION





Sustainable Transport



Low Carbon Mobility Systems + Cities



Vehicle and Fuels

Electric Mobility Initiative



Low Carbon Freight



Transport Decarbonisation Pathways



Figure 2. Annual emissions from the transport sector until 2050 – Road focused scenario (MtCO2e).

CLIMATE ACTION TRACKER (2020) "Decarbonising the Indian Transport sector"



Transport Decarbonisation Pathways



Figure 1. Annual emissions from the transport sector until 2050 - Rail focused scenario (MtCO2e).

CLIMATE ACTION TRACKER (2020) "Decarbonising the Indian Transport sector"



Transport Decarbonisation Pathways

Challenges

- Avoid and Shift measures require a multi-systems approach poor policy frameworks make it high effort
- Full electrification of sales by 2035/2040 is necessary
- Long-Haul freight electrification remains a challenge pathways are not clear
- Alternative fuel technologies and their benefits are uncertain

Opportunities

- Electric Vehicle technology is robust, battery prices continue to fall
- India's cities are yet to be build better planned cities can lower emissions
- Public Transport services are used extensively, and needs expansion
- India's extensive rail network could support long-haul electrification



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Policy Context and Priorities

- 1. Electric Vehicles
- 2. Low Carbon Freight
- 3. Low Carbon Mobility and Cities
- 4. Fuels and Fuel Efficiency



11:05 AM | Sustainable Transport Electric Vehicles





Policy Context and priorities | Electric Vehicles

Background

- 1. TCOs are close to ICE on Public Bus, Taxi's, Freight Delivery Vehicles (WRI, TERI)
- 2. Battery Prices are falling, more with localisation (BNEF, ICRIER)
- 3. Tomorrow's auto industry is still unbuilt (CEEW)
- 4. Clear policies have led to industry commitments (EU, China, US)



Mandates lead to Commitments

- California's Zero Emission Vehicle (ZEV) and Truck Program
- China's New Energy Vehicle Mandate
- EU's CAFE norms
- UK ICE Ban by 2030
- Industry Commitments
 - Jaguar full electric by 2025 in EU, 2030 UK, 2036 World
 - Ford full electric by 2030 in EU
 - BMW to be 2/3 Electric 2030
 - GM to be Carbon Neutral by 2040
 - Toyota's first BEV annoucement



Policy Context and priorities | Electric Vehicles

Policy Context

- FAME 2
- Battery Mission
- State Policies

Major Actors

Industry Departments Transport and Urban Departments DISCOMs and Regulators Auto Manufacturers Fleet Operators

Priorities

- Manufacturing
 - Mandates for Electrification 2035
 - Focus on HDV electrification
- Adoption
 - Incentives to support adoption / states
 - Support to pilots and fleet electrification
- Charging Infrastructure
 - Funding CI roll out approaches for PPP
 - Evolving processes and regulations
- Awareness
 - Capacity building and awareness



11:05 AM | Sustainable Transport Low Carbon Mobility and Cities





Policy Context and priorities | Low Carbon Mobility

Background

- 1. Cities of the future are yet to be built
- 2. Urban planning (compact / TOD) can avoid trips and promote low-carbon modes of transport Public Transport, shared and Non-motorised modes
- 3. Public Transport expansion needs funding, planning, innovation, and capacity
- 4. Policy Framework for Low Carbon urban transport needs a revisit
 - 1. Fragmented executive functions and finances
 - 2. Absent planning and regulatory functions
 - 3. Incomplete systems Demand Management measures
 - 4. Solutions today focus on mega cities



Policy Context and priorities | Low Carbon Mobility

Policy Context

- National Urban Transport Policy
- UMTA UTF
- National Metro TOD policy
- Central Missions

Major Actors

State Urban Development and Transport Depts.

City Governments

Traffic Police

MoHUA – Metro, Smart Cities, AMRUT

MoRTH – STUs, Road Safety

Priorities

- Implementing Urban Planning (CEPT, NIUA, CF)
 - Transit Oriented Development
 - Town Planning Schemes, Form Based Codes
- Expand and integrate Public Transport innovation, capacity, private participation, information, obligations, finance (WRI, SGA)
- TDM- Parking, Congestion Charge (ITDP)
- Shared mobility regulations / regulator
- Enabling an integrated state approach
 - Public Authority for Urban Transport
 - Improve revenue, finances, and capacity
- Clean Air Zones EV, PT, NMT, TDM together



11:05 AM | Sustainable Transport Fuels and Fuel Efficiency





Policy Context and priorities | Fuels and Fuel Efficiency

Background

- 1. Several alternative fuel options Biofuels, Natural Gas, H-FCs whose emissions in Indian conditions, cost and feasibility is unclear
- 2. FE Norms not operational
 - Tyre EE norms are ready testing facilities
 - HDVs, MDVs,
 - CAFE for 4Ws in place (ICCT, TERI)



Policy Context and priorities | Fuels and Fuel Efficiency

Policy Context

- National Policy on Biofuels
- Fuel Efficiency Norms
 - HDVs
 - MDVs
 - CAFE

Major Actors

Ministry of Power / Petroleum and NG BEE, PCRA Auto Manufacturers

Tyre Manufacturers

Priorities

- Revise and complete FE Norms EVs
 - Tyre Efficiency Norms
 - Implement HDV norms
 - CAFÉ Norms driving EVs
- Examine alternative fuels closely
 - Life Cycle Assessment
 - Carbon Emissions
 - Economic viability
 - Lock-in
 - Mode specific Infrastructure needs Steel and Cement



11:05 AM | Sustainable Transport Low Carbon Freight





Policy Context and priorities | Low Carbon Freight

Background

- 1. Freight will constitute ~50% of transport emissions in 2050 (IMC)
- 2. Existing rail network across the country congested (35%)
- 3. Rail freight subsidises passenger travel
- 4. $1/3^{rd}$ of freight is coal
- 5. Rail electrification and capacity improvement plans (TERI)



Policy Context and priorities | Low Carbon Freight

Policy Context

- National Logistics Policy
- National Rail Plan

Major Actors

Ministry of Railways Indian Railways Ministry of Road Transport and Highways Ministry of Civil Aviation

Priorities

- Examine strategies for long term increase in railway's carrying capacity
- Developing supportive infrastructure for multimodal integration
- Improve competitiveness of rail tariffs Cross subsides from polluters need consideration
- Explore the potential to plan Rail, Road and Air together national authority



Vivek Chandran

Associate Director, Transport vivek@shaktifoundation.in

Thank you!





Figure 2. The modal split in urban passenger transport in 2050 in the Rail-, the Road Focused and Current Policies scenarios.



Figure 3. The modal split in non-urban passenger transport in 2050 in the Rail-, the Road Focused and Current Policies scenarios. Short- and long-haul refers to domestic aviation





Figure 4. The modal split in long-haul freight transport in 2050 in the Rail-, the Road Focused and Current Policies scenarios.



Figure 5. The modal split in long-haul freight transport in 2050 in the Rail-, the Road Focused and Current Policies scenarios.

