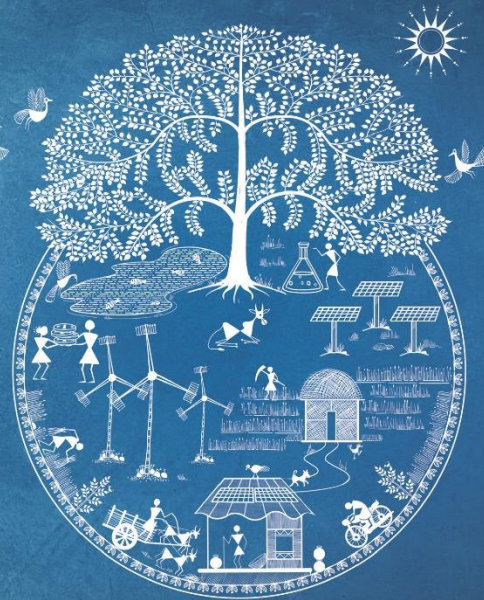




# WORLD SUSTAINABLE DEVELOPMENT SUMMIT 2023

MAINSTREAMING SUSTAINABLE DEVELOPMENT AND CLIMATE RESILIENCE FOR COLLECTIVE ACTION

February 22-24, 2023  
New Delhi



## Towards Net-Zero Emission Target: Electric Vehicles in Freight

**Date:** February 23, 2023

**Time:** 11:30 – 13:00 IST

**Venue:** Gulmohar Hall, India Habitat Centre

### Background

India recently overtook China to be the most populous country in the world. With economic growth; India has witnessed a massive increase in urbanisation. The number of towns and cities has doubled since independence with more than a third of Indian populace living in urban centres.<sup>1</sup> Rapid urbanisation associated with economic growth has increased the demand for mobility, and road freight transport has grown significantly with expansion and improvement of road network.<sup>2</sup> Freight activity in India has quadrupled between 2000 and 2019<sup>3</sup>, and it is estimated to rise almost 5 times to 9.6 trillion tonne-kms by 2050.<sup>4</sup> Road transport accounts for more than 70% of India's freight transport and even with the Indian Railway's ambitious 45% freight share target by 2030, road transport will still remain the dominant mode of freight transport for near future.

India faces a challenge of worsening (of already high) import dependency for fuel, with more than half of the oil demand being on account of transport demand. Commercial vehicles (buses and trucks) account for more than 68% of total diesel sold in the country.<sup>5</sup> From the emission perspective, transport sector accounts for more than 13% of India's CO<sub>2</sub> emission (third largest share after electricity and industry), and more than 90% of total GHG emission from transport is on account of road transport. Shift to zero emission trucks (ZETs) can be a possible solution to reduce emission from the trucking sector, presently accounting for over a third of GHG emission from road transport sector.

<sup>1</sup> <https://www.orfonline.org/expert-speak/managing-india-urban-transition-2021/>

<sup>2</sup> From 23.27 lakh kms in 1990-91 to 63.72 lakh kms in 2021-22 (Basic Road Statistics 2016-17, Annual Report 2021-22, MoRTH).

<sup>3</sup> IEA India Energy Outlook, 2021. Available at: <https://www.iea.org/reports/india-energy-outlook-2021>

<sup>4</sup> *Transforming Trucking In India: Pathways to Zero*

*Emission Truck Deployment*, September 2022, available from <https://www.niti.gov.in/documents/reports/>

<sup>5</sup> PPAC, available from [https://ppac.gov.in/uploads/rep\\_studies/1666932000\\_ExecutiveSummarySectoralConsumptionStudy.pdf](https://ppac.gov.in/uploads/rep_studies/1666932000_ExecutiveSummarySectoralConsumptionStudy.pdf)

As per the updated *Nationally Determined Contributions* (NDC), India has committed to reduce emissions intensity of its GDP by 45% by 2030 from 2005 level. India's *Long-Term Low Emission Development Strategy*, submitted to the United Nations Framework Convention on Climate Change Studies in 2022, acknowledges a 'just' transition from fossil fuel; based on rational use of natural resources and addressing energy insecurity. It includes increasing the use of battery electric vehicles (BEVs) and green hydrogen fuel for vehicle propulsion, modal shift to public transport for freight operation (railways), and expansion of circular economy (through efficient material use and recycling) among others. In this regard it is imperative to increase ZET penetration in the freight transport across India, as envisaged under the *Shoonya Campaign* launched by the NITI Aayog.

With this background, TERI is organizing a thematic session on **Towards Net-Zero Emission Target: Electric Vehicles in Freight** at the WSDS 2023. The focus of the session will be primarily on future of electric vehicle (EV) transition in road freight transport (*light, medium and heavy-duty commercial vehicles*). The opportunities and challenges from demand and supply sides as well as the infrastructure requirements (charging and swapping) will be discussed in the session.

Panellists for the thematic track will include experts, including key stakeholders from government and non-governmental organizations, academia, original equipment manufacturers (OEMs, financial institutions, and other private sectors. The key issues for discussion will be on: low penetration of EVs in road freight transport, supply and demand constraints (OEMs and freight operators), range and battery anxieties and solutions (through overhead charging, new battery technologies, swapping), and fuel-cell electric vehicles (FCEVs) as (possible?) complements to BEVs.

### **Guiding Questions**

1. What major technological challenges exist for the BEV trucks (range, carrying capacity, speed, acceleration, etc.)? What problems exist for the light commercial BEVs used in urban freight?
2. What constrains the OEMs from introducing ZETs in India? What policy change do the OEMs expect from the government to boost production of ZETs?
3. How do the financial institutions see themselves as the promoters of BEV and FCEV financing? What support do they expect from the government in terms of policy guidelines and what inhibits their financing (what challenges they face in financing BEVs and financing of ZETs in future)?
4. What policy changes (at the infrastructure development level) are planned by the Central Government and any possible demand incentives for the large unorganized truck owners (low, medium, and heavy duty) to switch to/purchase BEVs and ZETs? Complementary nature of BEVs and FCEVs?
5. How effective electric kit retrofitting can be in offsetting (postponing) the upfront cost of a new BEV? What policy directives are essential for a successful retrofitting business? Which segment is best suited for retrofitting- urban or long-haul freight transport?
6. What major challenges exist at the demand side for ZET adoption?
7. Can battery swapping and overhead power for ZETs solve the range of operation issue for long haul freight movement?