



# WORLD SUSTAINABLE DEVELOPMENT SUMMIT 2022

**TOWARDS A RESILIENT PLANET:  
ENSURING A SUSTAINABLE AND EQUITABLE FUTURE**

February 16-18, 2022 (Virtual)



## Electrification of Heavy-Duty Vehicles: *An Emergent Economic Opportunity*

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### THEMATIC TRACK SUMMARY

Venue: Hemis

Date: February 17, 2022

Time: 10:00 AM – 11:30 AM (IST)

#### **Suggested Citation**

World Sustainable Development Summit (2022), Electrification of Heavy-Duty Vehicles: An Emergent Economic Opportunity, Thematic Track Summary (Rapporteur: Faiz Jamal and Akshaya Paul), New Delhi: The Energy and Resources Institute.

## Actionable Messages

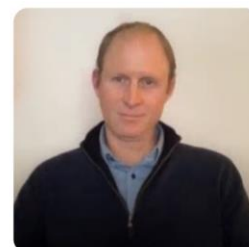
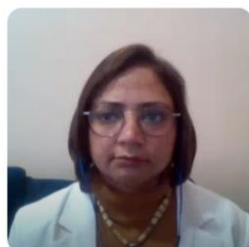
**Message 1:** Formal financial institutions in India need to support the transition by early adoption of electric heavy duty vehicles (HDVs) and at competitive rates.

**Message 2:** There is a need for improvement in battery performances, battery production and affordability to be able to scale it to country wide.

**Message 3:** Immediate strong integrated policies propelling supply-side requirements, which should be synchronous with the demand, are needed for electric heavy-HDVs such as FAME II and National Mission in Transformative Mobility and Energy Storage to expedite India's role as a manufacturing and export hub.

**Message 4:** Creation of infrastructure for faster adoption of e-HDVs such as road corridors of zero emission, either providing battery system or charging facilities along the highways, will be critical for the success of e-HDVs.

**Message 5:** There is a need to set mandates, yearly targets and action plans and should identify corridors to carryout pilot projects for this sector.



## Narrative

The session on '**Electrification of Heavy-Duty Vehicles – An Emergent Economic Opportunity**' commenced with an introduction of the heavy-duty vehicle (HDV) segment and welcome address by **Mr IV Rao, Visiting Senior Fellow, TERI**. He highlighted the immense opportunities in the HDV sector, as per the Ministry of Commerce and Industries India's logistics sector contributes 14% to GDP and provides livelihood to 22 million people but HDVs contribute to 53% of emissions in the transport sector. Hence, decarbonization of HDVs becomes important. Currently, India does not have any policy supporting the electrification of HDVs. The major challenges are high electric demand for propelling HDVs therefore demanding a big battery assembly with high battery capacity, electric charging infrastructure and the difference in the lifespan of batteries and HDVs will create a demand for batteries for replacement. There are multiple technologies being tested such as in Germany, Sweden, Norway and UK are testing e-highway technologies that supply trucks with electric drives via overhead cables, Finland is electrifying and retrofitting old HDVs with electric powertrains and battery/fuel cell electric vehicles for HDVs.

A special address by **Mr Sudhendu J. Sinha, Adviser, Transport Infrastructure and EVs, NITI Aayog**, assured the support of the government in accelerating the transition to electric heavy duty vehicles (HDVs) and to the overall ecosystem for a sustainable freight movement. He highlighted that the majority of fuel consumption is in freight transportation and requires transition to cleaner fuels. The clarity in evidence is missing for government support to both the manufacturers and for demand creation in incentives. According to him, an evidence-based approach needs to be followed for developing a sound business case for the adoption of e-HDVs.

The context setting presentation on electrification of HDVs was presented by **Mr Sharif Qamar, Fellow and Area Convener, Transport and Urban Governance Division, TERI**, highlighting the shift to e-HDVs will have savings worth \$97 billion in oil imports and 7 GT of carbon emissions by 2050. The domestic sales in the market have been growing significantly since 2019 and fleet utilization is over 75% (June 2021) which is increasing due to higher export import and movement of essentials. The key components are advanced battery technology to manage higher load requirement, manufacturing ecosystem, charging infrastructure along highways, retro-fitment technology, battery disposal, finance support structure and learning from international experience.

The panel discussion was moderated by **Mr Siddharthan Balasubramania, Senior Adviser, Climate Works Foundation**, who highlighted the rapid and successful transition from pilot projects to commercial viability on e-trucks in the last 2-3 years couple of the few reasons being playing a commercial business opportunity enable by strong policies and significant public health benefits. According to Mr Balasubramania, India has a very big opportunity to become the biggest manufacturing and export hub of electrified heavy-duty vehicles specifically trucks. The reason being, India already has a vibrant EV ecosystem like incentive structures, policies like FAME, etc. and past evolving infrastructure.

The chair presented that electrification will lead to huge savings in oil imports and carbon emissions with already a heads up with policies and infrastructure for EVs, supply-side incentives should complement the demand supply policies.

**Mr Ruchir Shukla, Director, Electric Mobility Program, Shakti Sustainable Energy Foundation** emphasized on the zero-emission truck segment and the crucial role that they can play in achieving India's target of net-zero emission by 2070. According to Mr Shukla, we all must grow and enable the economic developments while decoupling it from the negative environmental externalities. There is a real positivity and acceptance of the need of a cleaner carbon freight transport sector among all the stake holders and therefore it is the right time to talk about the electrification of heavy-duty vehicles or introducing zero-emission trucks as a segment. With the large highway development plan which has increased the highway penetration and the year-on-year increase in the sales of HDVs, the sector presents a big opportunity to mitigate emissions by electrification of trucks and he concluded by urging for immediate action to address the problems in HDV segment.

**Ms Divya Sharma, Executive Director, Climate Group** re-emphasized the important statistics about the transport sector as it is the largest source of emissions in countries such as US, UK and India. The 2% of medium and heavy-duty trucks generate 30% greenhouse gas emissions which are highly disproportionate therefore requires a faster transition to cleaner fuels such as electric HDVs. Thus, the sector requires a fast multi-faceted transition to cleaner fuels from the technical providers, government and researchers.

**Dr Cristiano Façanha, Director, Drive to Zero, CALSTART**, stated the need to have an ecosystem approach with clear and ambitious targets supported by stronger regulations, initiatives and incentives for the adoption of e-

HDVs. The challenges unique to the sector in India need to be addressed by taking the learning from international experience such as from California. He pointed out the need to recognize the applications where zero-emission technology is most feasible currently and to focus immediate policies and investment on those applications and develop strategies for the future to scale this technology for commercial viability.

The advantages of an electric fleet to the environment at large are clearly known. In addition **Dr Anup Bandivadekar, Program Officer, Hewlett Foundation Environment Program**, highlighted the current picture of electric heavy-duty trucks and why they no longer need to be considered as hard-to-abate sector. Dr Bandivadekar mentioned about the high driving comfort that electric vehicles provide, increased efficiency that can be achieved in the logistics sector and occupational health benefits that these vehicles will provide to the workers and labors that are working inside the factories, plants, warehouses, etc. because of no tailpipe emissions. The international experiences of manufacturers in Europe and China were also covered.

**Mr Clay Stranger, Managing Director, RMI India** said the transition to cleaner fuel could be a choice-based model and should incorporate the hydrogen fuel and battery-based system. There should be a coordinated approach from all the stakeholders from the transition to e-HDVs. The requirement of dedicated finance for electric trucks is required by providing competitive loans from the financial institutions that will facilitate the transition in the market was accentuated by **Mr Vinit Srivastava, COO, InfraPrime Logistics**. Decarbonization of HDVs is crucial but currently does not have any policies to support in India which is an urgent requirement in the segment.

The session concluded with the panelists answering the questions from the audience. Dr Anup Bandivadekar highlighted that usage of electric vehicles especially how HDVs can ensure energy security for India as the imports for fossil fuels need to be in constant supply throughout the country whereas rare earth minerals are critical during the production of vehicles and can be recycled. The panelists discussed the advantages for India in electrifying HDV segment and opportunities and key challenges to be addressed for a smoother transition. The policy and regulatory measures need to support transition to e-HDVs with the learning drawn from international experience.

## Making Words Count @WSDS 2022

- “ Challenge faced in electrification is high energy demand to propel HDV therefore it demands a big battery assembly with high energy capacity. Life span of batteries is lower than HDV which will create a high demand for batteries.
- Mr IV Rao**  
*Visiting Senior Fellow, TERI*
- “ NITI Aayog completely supports transition of fossil fuel based HDV to cleaner fuel-based system. Going forward, we need more evidence related to performance of e-HDVs for scalable adoption in India.
- Mr Sudhendu J Sinha**  
*Adviser, Transport Infrastructure and EVs, NITI Aayog*
- “ There is a biggest opportunity for India to become manufacturing and export hub in e-HDV segment. India has a vibrant EV ecosystem with institutional structure, policies and growing infrastructure. Policy initiative can create clean market.
- Mr Siddharthan Balasubramania**  
*Senior Adviser and Principal Strategist- Climate Works Foundation*
- “ Transport sector is the fastest growing contribution to climate change and largest source in the countries like US, UK and India. Accelerated EV uptake is essential to keep the world on 1.5°C pathway. There is a specific critical need for increased ambition and faster transition towards clean fuel technologies by the medium and heavy fleet operators.
- Ms Divya Sharma**  
*Executive Director, Climate Group*
- “ We need to have an ecosystem approach with clear and ambitious targets supported by stronger regulations, initiatives and incentives. We need to recognize the applications where zero emission technology is most feasible now and focus immediate policies and investment on those applications and develop strategy to scaling this technology.
- Dr Cristiano Façanha**  
*Director, Drive to Zero, CALSTART*
- “ There is a need to roll out a clean fuel initiative bringing together all the key stakeholders with a targeted approach to bring down emissions from the HDV sector. Transport sector is playing a critical role in India achieving net zero emission or decarbonization target.
- Mr Ruchir Shukla**  
*Director, Electric Mobility Program, Shakti Sustainable Energy Foundation*
- “ HDV is no longer a hard-to-abate sector. The costs are already working in favour of e-HDVs in the high-load segment. It is time to include e-HDVs and charging infrastructure in national schemes like FAME. With electric trucks the driving comfort encourages usage and with no tail pipe emissions it reduces occupational health and safety concerns for workers.
- Dr Anup Bandivadekar**  
*Program Officer, Hewlett Foundation Environment Program*
- “ The transition to cleaner fuel does not require a choice-based model rather it could incorporate the hydrogen fuel and battery-based system, and left to market demand supply to lead the decarbonization pathway.
- Mr Clay Stranger**  
*Managing Director, RMI India*
- “ We need financial supports from institutions, banks, etc. for heavy duty electric vehicles which will help the trucking industry and fleet operators to purchase e-HDVs. HDV should be covered under the FAME-II scheme to address the challenges.
- Mr Vinit Srivastava**  
*COO, InfraPrime Logistics*