

**‘Electric vehicles in India: The Resource Efficient Way’**

**February 15, 2018**

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**Speakers**

**Mr A Deshpande, Deputy Director, AED, ARAI;**

**Ms Charlotte Pera, President & CEO, ClimateWorks Foundation;**

**Mr Sohinder Gill, CEO, Global Business, Hero Electric & Director, Corporate Affairs, SMEV;**

**Mr Ajit Kumar Jindal, Head EV Engineering, Tata Motors;**

**Mr Guruprasad Mudlapur, Managing Director, Bosch Automotive Electronics India Pvt. Ltd;**

**Mr Tapan Sahoo, Sr Vice President, Engg. Research, Design & Development, Maruti Suzuki India Ltd;**

**Mr Abhishek R Ranjan, Head, Renewables BSES Rajdhani Power Ltd BRPL;**

**Mr Rahul Walawalkar, Executive Director, India Energy Storage Alliance;**

**Mr Saurabh Rohilla, Deputy Director, SIAM;**

**Mr Abhilash ET Nair, Sr Marketing Manager, ABB;**

**Mr Ajoy Raychaudhuri, Founder Director, Battery and Recycling Foundation International**

## **REPORT OF THE SESSION**

The thematic track ‘Electric vehicles in India: The Resource Efficient Way’ was jointly organized by TERI and the European Union. It was organized as a workshop. While electric vehicles (EVs) are not a new concept in India, they have begun gaining momentum only recently; major leaders, such as Maruti Suzuki, Mahindra, Tata Motors, and so on have provided the necessary push. Not only are EVs more efficient, they have a higher reliability as compared to internal combustion engines; they are critical from the viewpoint of sustainability, and a step towards addressing fiscal as well as social concerns such as air quality. The session panelists also identified the many challenges that EV adoption faces in India today.

Around 60 participants from Indian stakeholders attended the session. Representatives from vehicle OEMs, auto component manufacturers, charge network technology providers, and government and industry experts were present during the thematic track. The participants shared their views on ways at enhancing resource efficient penetration of EVs in the Indian ecosystem.

The workshop started with the opening remarks by Mr A A Deshpande, Deputy Director – AED, ARAI, followed by a series of presentations and deliberations by the sectorial experts. An overarching theme of the event was set through two different technical sessions focussing on resource-efficient implications of EVs/hybrid vehicles on the sector and the battery charging infrastructure needed. The ambition of the Indian government to move towards a full electric mobility economy by 2030 was also discussed. It was highlighted that this push from the government along with the support in the clean energy sector, positions India well to take up the challenge of moving towards its defined goals in the renewable energy sphere. The significance of private and public sector to push EVs in the public transport sector including public sharing

vehicles, buses, and two- and three-wheelers was emphasized, which are the largest part of the pie. The suggested strategy entails aggregation of demand (fleet operation of Ola, Uber, etc.) essentially for cost economization instead of cost incentivization.

Referring to India's ambition towards a full electric mobility economy by 2030, it was acquainted that India is yet to launch a comprehensive policy that chalks out clear policy directions, despite there being initiatives in the past through the launch of National Electric Mobility Mission Plan (NEMMP), 2013 and Faster Adoption and Manufacturing of Hybrid & Electric Vehicles (FAME), 2015. Further, it was discussed that under the NEMMP, around 6–7 million EVs/hybrid vehicles have been envisioned to be launched on Indian roads by the year 2020, while under FAME, the government has targeted to offer subsidy on EVs on an annual basis. The scheme was appreciated as it has successfully increased the share of hybrid and electric passenger vehicles sales from almost zero% in 2012 to 1.3% by 2016. One of the panel members submitted that in order to accelerate penetration of these vehicles in the market, the government had earlier declared certain measures that included placement of battery-based electric vehicles (BEVs) in a low GST slab of 12%, as compared to 28% for petrol and diesel cars, and hybrid vehicles. In order to create a market for electric vehicles, the government decided to replace petrol and diesel cars currently used by the Central government and its agencies. In order to promote production of electric buses, the government has already declared incentives of 60% of the cost of the electric bus or ₹85 lakh whichever is lower, that contain at least 15% of the components that have been produced in India.

The panelists' talk that followed the workshop highlighted the means to and bottlenecks in achieving massive penetration of EVs in the Indian ecosystem. In addition to price of the Lithium ion, the concern over the longer term availability of Li-ion was reiterated and therefore it was postulated that a robust scientific understanding of the problem is required. Issues relating to quick and smooth transition from internal combustion engine (ICEs) to EVs were discussed. Opportunity for India to export EVs in addition to ICEs was explored. It was highlighted that like renewables, EVs do not pollute environment and can be 90% energy efficient while ICEs are only 20% efficient, and therefore, there was a need to promote this system of mobility.

Furthermore, the need was suggested to move ahead with EVs. A few benefits of EVs were discussed, that is, they have less moving parts, less maintenance, battery costs of EVs are reducing exponentially, and they are non-air pollutant. However, a concern was raised over resources efficiency challenges that India needs to overcome to meet its goal and become globally competitive in the EV sector. These included consistent availability of supply materials—rare earth elements; India is heavily dependent on imports for their material supply. Effect of planned development of electro-mobility and its effect on supply and future prices were also deliberated. Further, ways were determined to reduce requirements, for example, as battery consumed and speed is correlated, so it was identified that it is important to come up with a sweet spot that guarantees customer satisfaction but also consumes battery efficiently. The panel discussed about the need to develop a decentralized charging infrastructure along with the use of renewable energy technologies. During the discussions, emphasis was laid on recycling strategies and better end-of-life vehicle management. Most importantly, it was agreed by all, that to achieve resource efficiency focus has to be on diffusion of knowledge and capacity building.

In the concluding remarks, it was established by the experts that understanding current and potential future demand, supply limitations, need for EV ecosystem generation, competent supply base, closed loop recycling of material, and for strong policies such as holding manufactures responsible for end-of-life waste (extended producer responsibility) will help reach resource efficiency and enable India to remain globally competitive and stable in the geopolitical scenario.

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