Proposed Program

Inaugural Session	**Creating a Favourable Ecosystem to Meet India's Climate Change and Strategic Imperatives through rapid implementation of E-Mobility and Shared Mobility**

10:00 – 11:30	- Increasing the Nation's **Energy Security** by Distributed Energy Storage Systems through E-Mobility and Transport
	  o Policy
	  o Regulation
	  o Business Opportunities
	- Challenges in setting up Charging Infrastructure
	  o Where would cars be charged?
	  o Models of EV Charging
	  ▪ By Discoms
	  ▪ By Discom Franchisees
	  ▪ By Third Parties (By Battery Swapping)
	  o How should the e-vehicle charging tariff be determined?
	  o Where would the Recharge take place?
	  o Promoting Competition, Efficiency in EV charging; Consumer Choice
	  o International Case Studies
	- Provisions of the Electricity Act (EA) 2003 relevant for e-mobility; **What changes are required in EA 2003?**
	- Will E-Vehicles operating as 'Battery Storage Devices' contribute to grid stability by supplying **energy storage** for the Indian electricity Grid
	- **Roadmap:** 'Make in India' and Employment generation

Session 1	**Regulatory & Policy Frameworks for Expeditious & Sustainable Development of E-Mobility**

11:30 – 13:00	- **Existing Policies and Regulations at National & State Leve**l (including Role of subsidies and tax exemptions)
	  o The National Electric Mobility Mission Plan 2020
	  o Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME India Scheme, 2015)
	  o Karnataka E-Mobility Policy 2017
	- Incentivising **'net metering'** options for electric vehicles
	- Issuance of **Electricity Credit Notes / Green Certificates** for injection of electricity units by EVs into the Grid
	- Exemption of **Charges and Surcharges** (Cross-Subsidy Surcharge, Additional Surcharge, Transmission & Wheeling Charge, Transmission & Wheeling Loss) for EV charging in certain cases

13:00 – 14:00	**Lunch**

<u>Session 1 continues</u>	**New Regulatory & Policy Frameworks for Expeditious & Sustainable Development of E-Mobility (continued)**
14:00 – 15:45	- Promoting **Information technology and Data Analytics** based apps and solutions to enable e-vehicle user to **monitor power usage and serve as a billing and accounting interface** between Discom, Charging Station and EV user (Online portal or Mobile Application) - **Impact of Electric Vehicles on the electricity grid** - **Adoption of Charging Standards** - **Tariffs at multiple locations(residential/Industrial/commercial) fixed for charge and discharge of stored energy** - **Overcoming Challenges in Mass transportation** - **Skilling of Manpower for servicing of EVs** **Optimising Land Use for charging** (Underutilised Municipal spaces, Parking Lots, Under transmission Towers, Airports, Flyovers; Metro Stations); Utilising space at Petrol Pumps, Bus Depots as well as residential complexes.
15:45 – 16:00	**Tea**
<u>Session 2</u>	**ICT, Legal, Security and Cyber Security Issues in Integrating Multimodal / Shared Mobility transport options**

16:00 – 17:30	- Mobility Management using Shared Mobility /Mobility as a Service (MaaS) Options (Focus: Integration of Multiple modes of transport using IT enabled solutions for Bus, Metro, Railways, Cars, Cabs, E-rickshaws, Two wheelers)
	- Intelligent Transport Systems for improving road safety and urban mobility
	- Addressing Security Issues in shared mobility
	  o Applications for SOS for users (esp. Lady users) and interface with law enforcement /security agencies
	  o Reducing crisis response time of law enforcement/security agencies
	  o Legal implications for transport solution providers arising out of security/safety related incidents
	- Increasing Cyber Security Preparedness and Resilience
	- **Integrating Perspectives of**
	  o Regulators
	  o Policymakers
	  o Discoms
	  o EV Manufacturers; Battery Manufacturers
	  o Investors
	  o Users

Concept Note on E-Mobility & Shared Mobility

The Government of India's target of 100% Electric Vehicles (EVs) by 2030 is a potential game changer for the Indian economy. **Facilitating this revolution at the confluence of information technology, power regulation and E-Mobility is the Internet of Things which could transform how we travel** by offering clean energy driven, multimodal transport options across e-vehicles such as two wheelers, cars, buses, trams and rickshaws, metro and long distance trains.

Further, as a strategic move, it could lessen India's dependence on fossil fuel imports (e.g. [1]83.5% of crude oil is imported and therefore exposes the economy to oil price volatility and loss of foreign exchange) and help meet India's climate change commitments.

However, there are challenges faced in the implementation of **E-Mobility and Shared Mobility** across the country which include:

1. **Where would electric vehicles be charged?**
    a. Models of EV Charging
        i. By Discom
        ii. By Discom Franchisees
        iii. By Third Parties (By Battery Swapping)
    b. Provision for setting up of charging stations
        i. Optimising Land Use for charging (Underutilised Municipal spaces, Parking Lots, Under transmission Towers, Flyovers; Metro Stations)
        ii. Integration of existing fuel (oil/gas) stations for charging EVs
2. How should the **e vehicle charging tariff** be determined?
3. **Standardisation of Batteries and Adoption of Charging Standards**
4. Impact of Electric Vehicles on the **stability of the electricity grid.** Will E-Vehicles operating as **'Battery Storage Devices' contribute to grid stability** by supplying energy storage for the Indian electricity Grid
5. Promoting **'Make in India'** and increasing **employment** generation
6. **Skilling** of manpower for servicing of EVs and of charging infrastructure
7. Intelligent Transport Systems for **improving road safety and urban mobility**
8. Addressing simultaneously the **Energy Security Issues in shared mobility and the Power Grid through Distributed Energy Storage concepts which are secure from Cyber-attacks. As well as:**
    a. Explore the possibilities of making transportation free using Energy Storage as a revenue model with the support of the policy and Regulations.
    b. Reducing crisis response time of law enforcement/security agencies

[1] Source: Energy Statistics 2016, CSO

9. Increasing **Cyber Security Preparedness and Resilience**
10. **Legal implications** for transport solution providers arising out of security/safety related incidents.
11. **Using AI to make the usage of batteries more efficient and quicker to re-charge.**

If India is able to take the lead in development and implementation of these innovative technologies, we will have to work to **overcome these challenges and harmonise competing or conflicting interests of different stakeholders** to achieve the goal of 100% EVs by 2030.

Global leadership in implementation of E-mobility and Shared Mobility in India can lead to multiple benefits such as **an increase in employment generation, improving productivity in the infrastructure sector and create a base for export of systems and services to other countries.**

IPPAI proposes to examine what enabling regulatory and policy frameworks may be required across sectors to enable the expeditious roll out of E-Mobility and Shared Mobility in the country as envisaged by the Government at a conference to be organised in New Delhi with the **kind support, guidance and participation of the Central Electricity Authority.**