# Brainstorming Session on Fast Tracking e-Mobility Plans in India

**25th September 2018 | World Bank Office, 70 Lodhi Estate, New Delhi**

## AGENDA

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker/Moderator</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.00 – 11.00 am</td>
<td>Registration and Tea</td>
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<tr>
<td>11.00 – 11.15 am</td>
<td>Welcome and Introductory Remarks</td>
<td>Rakhi Basu - World Bank</td>
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<td>Suvranil Majumdar - IFC</td>
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<tr>
<td>11.15 – 11.30 am</td>
<td>Introductory Presentation – Challenges in EV Rollout</td>
<td>Reji Kumar Pillai - ISGF</td>
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</table>
| 11.30 – 12.30 pm    | **SESSION 1: EV MANUFACTURERS, EV ASSOCIATIONS, BATTERY AND MOTOR MANUFACTURERS**  

**Challenges**
- Commercial viability of EVs for adoption for public as well as commercial fleet considering vehicle cost, range, performance etc.
- What are the challenges/risks w.r.t. product - especially around batteries
- Assembling of EVs and import of equipment and parts
- Battery choices considering the ambient temperature, charge time, life cycle and cost
- Access to raw materials for battery manufacturing
- Manufacturing of motors in the country – key players, trends
- BMS - cost and performance
- Development of BMS in the country

**Expectations**
- Conducive investment climate for EV, Batteries, Motors and BMS manufacturing in India - subsidies, single window clearance, creation of special EV manufacturing zones

**Group Discussion**
Moderated by: Reji Kumar Pillai - ISGF
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<table>
<thead>
<tr>
<th>12.30 – 01.30 pm</th>
<th>SESSION 2: FINANCIAL INSTITUTIONS</th>
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<tbody>
<tr>
<td><strong>Challenges</strong></td>
<td><strong>Group Discussion</strong></td>
</tr>
<tr>
<td>• Absence of proper implementable action plans</td>
<td><strong>Moderated by:</strong></td>
</tr>
<tr>
<td>• Uncertainty in numbers and timelines for large scale EV adoption for both public and private transportation</td>
<td>Suvranil Majumdar - IFC</td>
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<tr>
<td>• What are the kind of guarantees /tenures that FI’s will need for EV financing and from which entities? For example, is there potential role for OEMs and others in the vehicle financing process?</td>
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<td>• In addition to direct financing, can leasing be viable options for EVs</td>
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<tbody>
<tr>
<td>01.30 – 02.00 pm</td>
<td>Lunch</td>
</tr>
<tr>
<td>02.00 – 03.00 pm</td>
<td><strong>SESSION 3: CHARGING STATION MANUFACTURERS &amp; SERVICE PROVIDERS</strong></td>
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<tr>
<td></td>
<td><strong>Challenges</strong></td>
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<tr>
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<td>• Need of a firm EVSE roll out plan</td>
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### Can banks look into particular segments as priority such as 2 and 3 wheelers compared to financing large vehicles such as buses
- Potential need for training of bank staff to structure EV finance products
- Will banks fund EV Charging Infrastructure Service providers?
- Financial support to EV Charging Station Manufacturers in the country

### Expectations
- Government support for manufacturing companies and start ups
- Commercial viability of the EVs, EVSE, Battery making and Battery leasing businesses
- Market need of EV finance product(s) – perspectives from EV players across value chain such as OEMs, aggregators, FI’s, charging infra developers as well as retail customers

### Policy Support
- Government support to improve the credibility of the start ups
- Incentives for the manufacturing sector
- PPP guidelines

### Next Steps
- PPP projects (mainly with start-ups to improve their financing credibility)
- Technology transfer and its future prospects
- Risk management framework

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**Group Discussion**

**Moderated by:**
Reji Kumar Pillai, ISGF
# AGENDA

**EVSE Standards**  
Integration of electric vehicle roll out plan with charging infrastructure  
Interoperability issues  

**Expectations**  
Sustainable EVSE Business Models  
Conducive investment climate for charging station manufacturing and support to start ups  
Standards for EVSE and communication protocols  
Grid upgrades for EVSEs – who will bear the cost?  
Minimum capacity charges for EVSE (INR/kW)  

**Policy Support**  
EVSE Rollout Plans and Business Models that are sustainable  
Support for V2G  
Allocation of land for EVSEs  

**Next Steps**  
EVSE Standards – final standards  
Grand Challenge outcome  
EVSE Management Systems – scheduling, management, billing and settlement of charging  
Time of Use Tariff for charging  

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<tbody>
<tr>
<td>03.00 – 04.00 pm</td>
<td><strong>SESSION 4: STATE TRANSPORT AUTHORITIES AND TAXI FLEET OPERATORS</strong></td>
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<tr>
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<td>Challenges</td>
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<tr>
<td></td>
<td>Fleet replacement with electric buses</td>
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<td>Financing of electric buses and taxi fleets</td>
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**Group Discussion**  
Moderated by: Rakhi Basu, World Bank
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<tr>
<td>04.00 – 04.15 pm</td>
<td>Tea Break</td>
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<tr>
<td>04.15 – 05.00 pm</td>
<td>VALEDICTORY SESSION</td>
<td>Presentation of the Outcomes of each Session by the Moderators of the Group (10 mins each)</td>
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<td>Chair: Anil Shrivastava, Niti Aayog <em>(invited)</em></td>
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### Selection of battery capacity/driving range versus charging infrastructure
- Cost of grid upgrade for charging stations

### Expectations
- Funding support from Govt for EV and charging station procurement
- Subsidised electricity tariff for charging including Time of Use Tariff

### Policy Support
- Firm policies for transition to electric bus fleet – all new procurement to be electric from a set time frame
- Subsidies for electric bus procurement and manufacturing
- Policies for mandatory replacement of bus and taxi fleets with EVs in select cities and states in phased manner

### Next Steps
- Electric bus rollout plans by STUs
- Domestic manufacturing support
- Capacity building of the institutions
- Build citizen awareness to maximize usage for shared transport – electric buses are air conditioned, pollution (air and noise) free and fatigue free
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<tr>
<td>05.00 – 05.20 pm</td>
<td>CLOSING REMARKS</td>
<td>Mr Anil Shrivastava - Niti Aayog (Invited)</td>
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<td>05.20 – 05.30</td>
<td>VOTE OF THANKS</td>
<td>Rakhi Basu - World Bank</td>
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