UITP India in partnership with **Shakti Sustainable Energy Foundation** (SSEF) conducted a webinar on ***"Procurement and performance evaluation of electric buses in India"*** on 26th November 2020

Ms Chetna Nagpal from Shakti Foundation gave the welcome address for the webinar highlighting the importance of Performance Evaluation Framework in the future.

It was followed by the presentation by **Dr Ravi Gadepalli,** UITP India office giving an overview of the two reports being published by UITP and Shakti Sustainable Foundation.

- Performance Evaluation Framework for Electric Buses in India
- Electric Bus Procurement under FAME-II: Lessons learnt and recommendations for Phase-II

The focus of his presentation was on the performance evaluation of electric buses, being carried out in the current scenario and framework for the same in the future. The evaluation would enable cities to bring out the data driven outcomes to

- enable learnings from current performances,
- find best use cases and
- to help cities to come up with better operational strategies, in turn helping in the faster adoption of electric vehicle.

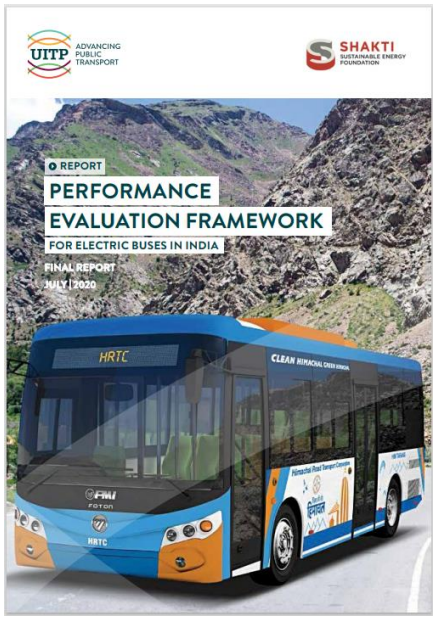
The reports were launched by **Dr. Anshu Bharadwaj,** CEO, Shakti.

He in his address spoke on how the policy of FAME I and II are extremely progressive and ambitious. Its beneficial in terms of environment and local environmental are immense. Thus, focus must be on points like

- The high cost of EV act as deterrent to EVs, but their TCO presents an economic cause factoring in the environment co-benefits.
- Focus must be on reducing upfront cost for uptake requiring completely new infrastructure. There is no unique solution to this but is context based different for each city
- Important to answer the questions like
    - What is the impact on local power distribution network
    - How to factor in route planning,
    - How to distribute charging points
    - What are the impact of local utility points
    - How to make sure uptake of EVs is present given the ground realities

Thus, the reports may help smoothen the transition towards EVs. The harmonising the indicators across cities is an excellent idea for cities to adopt learnings and for risk reduction.

Report Launch



The report launch was followed with a Panel discussion on procurement and performance evaluation of electric buses in India
Panellists:

- **Mr. Gerald P Ollivier** – Lead Transport Specialist, World Bank
- **Mr Chandan Mishra**, Manager (Operations), CRUT, Bhubaneshwar
- **Mr Chandrakant Birajdar**, Executive Engineer (Projects and planning), BEST, Mumbai
- Moderator: **Dr. Ravi Gadepalli**

The key highlights are:

Mr Chandrakant Birajdar:

- BEST focused on E-buses since 2007 and floated several tenders for the same.
- In November 2017, they procured 6 buses on outright purchase and started operations (inhouse)
- Under FAME II, 40 buses were procured, and operations started in 2019.
- Under FAME II, 30 buses are procured and would be put in operation in March 2021
- Installation of charging infrastructure proves to be difficult
- The Life cycle cost of electric buses is lesser than diesel. The hiring rate of these buses should be same for both, but is not reflected practically

On issues:

- BEST cannot give assured km more than 200 km per day leading to higher rates quoted by operators.
- If buses are operated less than the assured km, BEST pays 0.5 of the quoted rate for and 0.75 of the quoted rate for excess km operated
- Operations flexibility is restricted for e-buses in terms of routes. Low vehicle utilisations is present, i.e. 190km, as compared to ideal 225 km
- Training imparted to staff is limited

Why GCC model

- Maintenance of EV is not easy
- Availability of spare parts would be assured
- If battery changes after 5 years, its becomes responsibility of the operator

Closing remarks

- The operation of EV is cheaper than diesel buses even without subsidy. The high costs of EVs are attributed to the capital required.
- Instead of waiting for subsidy, STU may convince management by using TCO analysis

Mr Chandan Mishra

- CRUT (earlier BPTS) , started 2 years ago. Operating buses on GCC model
- 50 buses procured under FAME II, with inhouse RFP, with assured km being 220 per day per bus
- Faced no issue in financing, as the State financed initially and DHI subsidy was received in a smooth process

Issues/ Challenges

- Providing Charging Infrastructure
- Route planning as the assured km need to be 220km minimum
- Supply chain for automotive parts
- Development of continuous power supply
- Limited exposure to training imparted
- Maintenance and battery disposal

Things to reconsider for future based on past experience

- Not many operators could bid for 9m buses
- Timelines for bidding process were narrow,
- Subsidy guarantee is burden for operator

Why opting for EVs if they are expensive

- As AC electric buses would have AC fare
- Yet need to compare with BS VI

End remarks

- There is need to ease the procurement process so many bidder can participate and create healthy competition
- Need to improve EV ecosystem, like supply chain and service management

Mr. Gerald P Ollivier

Current focus of World Bank is to

- Look for bankable business models and have scalable solutions while incorporating innovating financing solutions
- The mechanism of e-bus service delivery needs to be detailed out
- Require new skill sets for the technology handling

Observation of how things can improve

- Establishing a clear mandate
- Understand the historic data of cycle of invest, decay, reinvent for EVs
- Focus on not buying bus but a service
- Learn to leverage private sector involvement
- Need to learn how performance is impacted by different climate, environment and cities
- Cities which could assure higher assured km, for better performance
- Timeline in the tenders is important
- Tweaking the parameters could help in reducing the TCO of E-buses by 25%
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Current issue is in

- Subsidy bank guarantee
- Ambiguity of role and responsibilities of players

Innovative business models

- Need for high capital cost lead to slow uptake of EVs. Hence more unbundling models are coming up
- Models where charging infrastructure at depot is owned by 3rd party
- Model with state level aggregation of asset leasing
- Need to identify elements of contracts which restrict the adoption of EVs
- Optimise of procurement process of buses and charging infrastructure is important
- Need to create pre-qualification process which could be extensive

Why e-buses

- STUs need to learn technology of EV right now, Later the battery cost may go down. To go full electric, we need to start planning now
- People are changing, and so are their expectations, hence need to be dynamic and move forward to EV
- No one solution would work for all. There is a need of combination of solutions

End remarks

- It is the beginning of long cycle which would be much bigger in the future. Hence need to integrate new technology
- Need to train the banks for efficient financing
- Need to have clear tendering process and focus on reducing TCO

Ms Chetna Nagpal, gave the final closing remarks and the thank you note.