

BATTERY SUBSCRIPTION FACILITY

TYPE: MITIGATION

SECTOR: TRANSPORTATION; URBAN DEVELOPMENT

GEOGRAPHY: INDIA

LAB CYCLE: 2018

PROPONENT: MYTRAH MOBILITY
(FORMERLY NN4ENERGY)

Electrification of transport in India is crucial to meeting the nation's climate goals. The transport sector alone accounts for 13% of energy related carbon emissions and over 40% of the total particulate matter emissions in cities.

Electrification of buses in public transit can be a good starting point as they have high greenhouse gas mitigation potential and high vehicle utilization per dollar of investment. Moreover, large scale deployment of electric buses is key to meeting India's decarbonization target of 33-35% by 2030 under its Nationally Determined Contribution to the Paris Agreement. But high upfront costs, lack of long term financing, perceived technology risk, and lack of supporting infrastructure are barriers to their mass adoption.

The Battery Subscription Facility aims to lower the upfront cost of the electric buses in India by investing in batteries and providing them to bus operators on a subscription basis, charging for use on daily or per kilometer rates.

INNOVATION

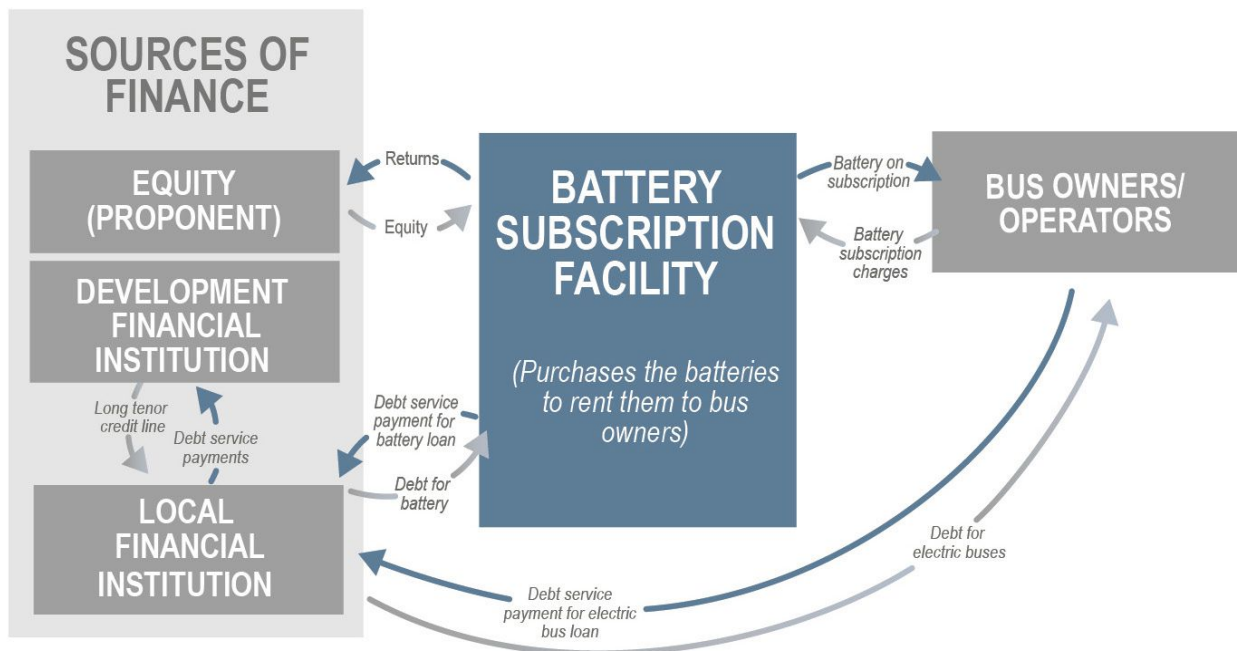
The Facility addresses key barriers to the mass adoption of electric buses in India:

- The Facility will purchase and own the battery, while the bus owner will purchase only the bus without batteries, thus lowering the high upfront cost for the bus owner by 40-50%.
- The Facility will ensure that the overall operation cost, including the battery subscription fee and charging infrastructure, remains lower than that of a diesel or CNG bus.
- The Facility will ensure battery performance and other related services over the contract period, thus taking away the perceived technology risk faced by the bus owner.

The Facility can reduce the upfront cost of electric buses to achieve parity with diesel buses. It can also lead to estimated savings of 13-16% in the total cost of ownership over the bus's lifecycle, and a reduction of 250,000 tons in carbon emissions for 1,000 buses.

IMPACT

- For the proposed pilot of 30 buses for a corporate client in New Delhi, the total cost of ownership of an electric bus over their 10-year lifetimes would be 13% cheaper than the CNG buses that they would be replacing, which is US\$ 5.2 million of savings for the client.
- In the intermediate phase, the Facility plans to raise financing for ~1,000 buses for corporate clients, which is around 4% of corporate buses sold annually in India. The Facility would reduce the total cost of ownership to 16% cheaper than a diesel bus and would avoid 250,000 tons of carbon emissions over a 10-year period.
- At scale, the Facility could deploy up to 10,000 electric buses in the next 3-5 years.



DESIGN

The Facility, set up as a Special Purpose Vehicle (SPV), invests in batteries for electric buses, and provides the batteries to bus operators for use on either a daily or per kilometer basis. The Facility and the bus operator will jointly approach a local finance institution (LFI) to raise long term debt capital to purchase batteries and electric buses respectively.

All three parties – the bus operator, Facility and the LFI – will enter into a tripartite agreement. The electric bus and battery contracts would need to be financed by the same financier because batteries on a standalone basis are not considered or proven to be income generating assets; therefore, debt capital providers cannot finance these assets separately.

The subscription fee will be designed to ensure the following criteria to ensure viability for all the stakeholders:

- The operating cost including the subscription fee and charging infrastructure of an electric bus operator will always be less than an equivalent diesel bus.
- The Facility is able to service its debt taken for the battery and also meet the return expectations of the equity investors within the warranty period of the battery.
- The Facility can recover its investment from savings in cash flows from operations.

INVESTMENT OPPORTUNITIES

TYPE	ROLE OF CAPITAL	AMT FOR 1,000 BUS TRANSACTIONS	AMT FOR 10,000 BUS TRANSACTIONS
EQUITY	Commercial investment into the sector	\$12M	\$118M
DFI DEBT	Catalytic effect to crowd in private investors into Indian e-Bus market and also provide longer tenor debt	\$39M	\$179M
COMMERCIAL DEBT	Senior Lender to on-lend the DFI debt plus co-finance to the bus owners and the Facility	\$70M	\$918M
GRANT	Develop and scale technology tools to plan, manage & monitor assets	\$0.3M	N/A

TEAM



ANKIT SINGHVI
FOUNDER & CEO, MYTRAH MOBILITY



SHIRISH NAVLEKAR
SENIOR ADVISOR, FORMER JOINT MD & CFO, MYTRAH ENERGY

The India Innovation Lab for Green Finance is a public-private initiative in India that brings together experts from government, financial institutions, renewable energy, and infrastructure development to identify, develop, and accelerate innovative investment vehicles for green growth in India. Analytical and secretariat work of the India Lab has been funded by Shakti Sustainable Energy Foundation, the David and Lucile Packard Foundation, the Oak Foundation, and the UK Government. Climate Policy Initiative's team in Delhi serves as Lab Secretariat and analytical provider.