

23rd September, 2019

Implementation of eBuses - Challenges and Opportunities



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Opportunities for electric mobility in India

- INR 10,000 Cr for demand incentives and charging infrastructure
- Focus on public transport 7 K buses, 500 K 3-wheelers, 55K Cars
- 64 cities expected to release tenders for 5,500 electric buses



Electric buses powered by
REVOLO - Start operations in
Kolkata, May 1st, 2018

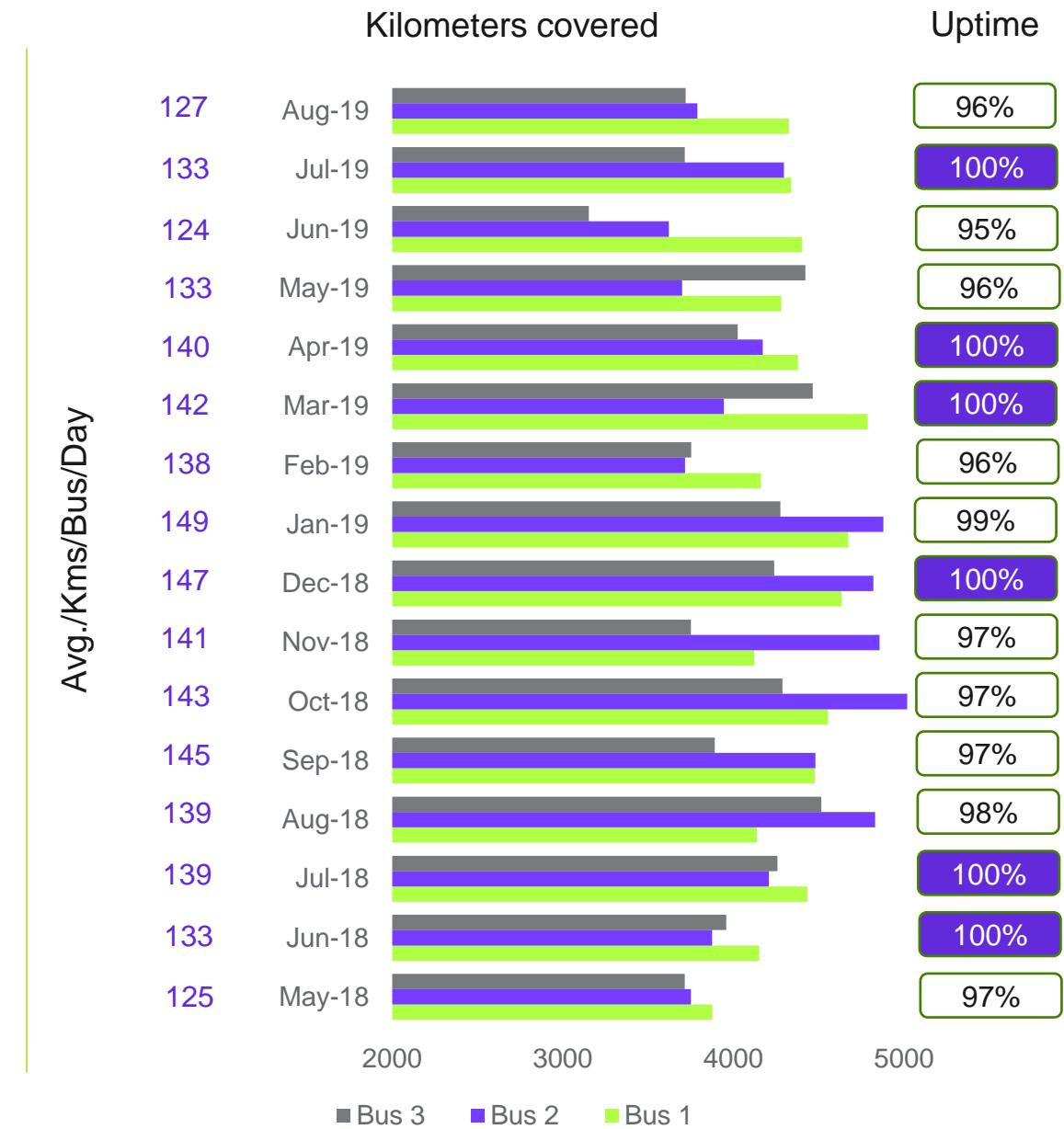


- Mr. Debasish Sen, IAS Chairman HIDCO
- Three electric buses with dedicated facilities

Public transport operations since May 2018



- 7 days a week , 52 weeks a year
- 200,000+ kms covered cumulatively
- 150,000+ happy passengers





Electric buses powered by
REVOLO - Start operations in
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Infrastructure created by KPIT :

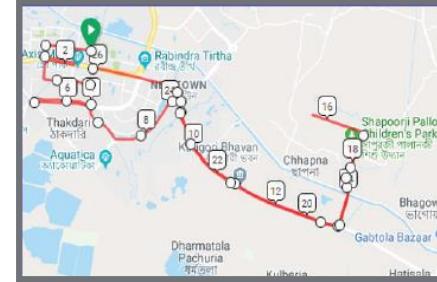
- Charging stations,
- bus bays,
- maintenance pit and bus stops

Electric bus implementation – learnings (1/3)

Depot



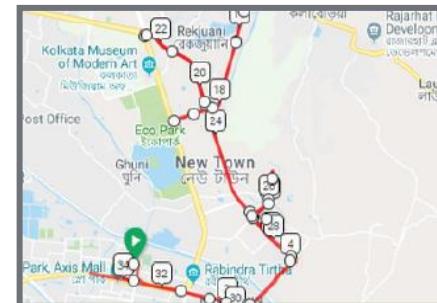
Routes



#1
Pride hotel – Uniworld Mall
– Pride hotels (23 kms)



#2
Pride hotel – Uniworld Mall
– Shapoorji park - Pride
hotels (23 kms)



#3
Pride hotel – Eco space –
Eco urban village- Pride
hotels (34 kms)

Electric bus implementation – learnings (2/3)



Charging stations – need for flexibility

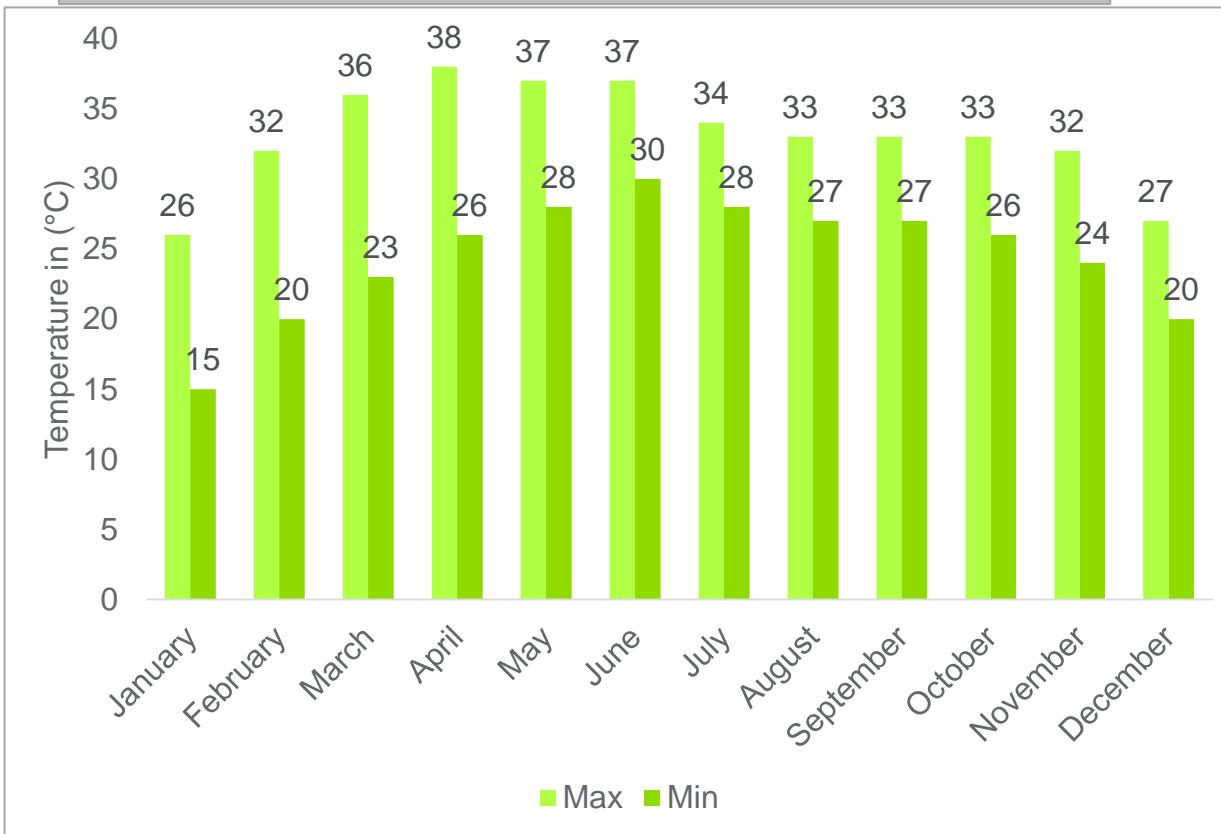


Driver & technician training

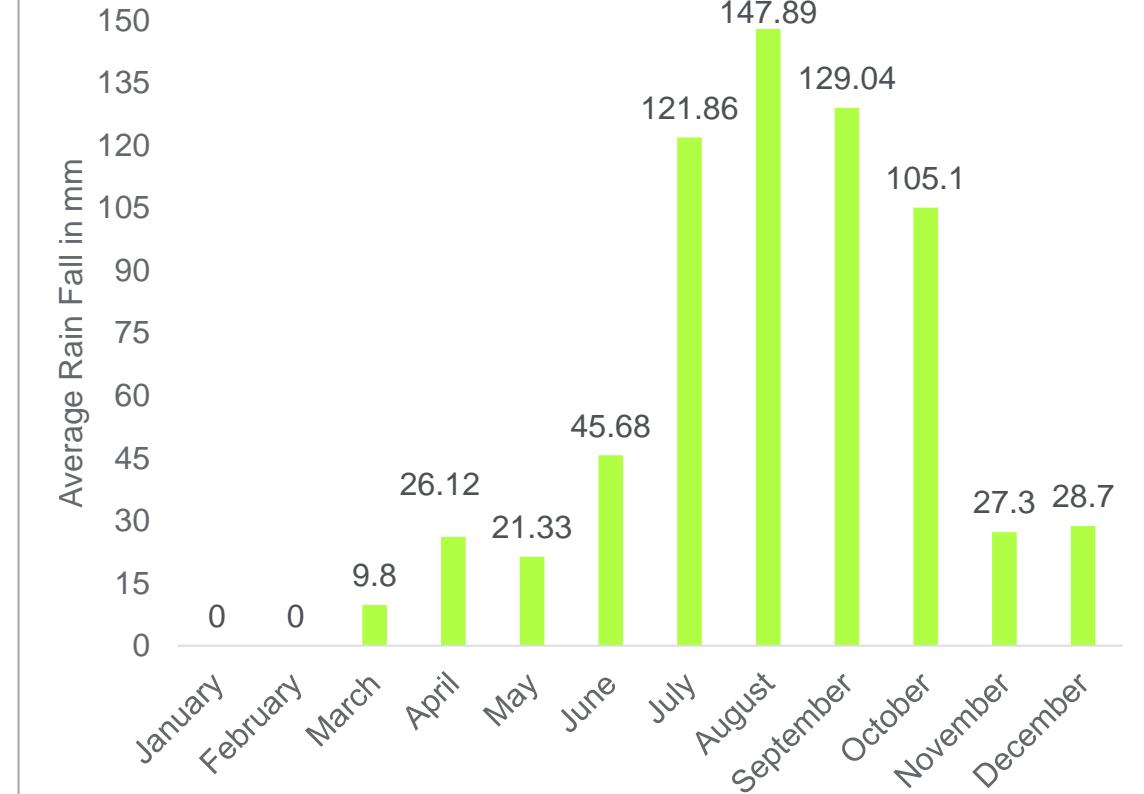


Electric bus implementation – learnings (3/3)

Temperature (Max & Min), by Month (2018)



Average Rain Fall, by Month (2018)



Kolkata weather conditions – heat , high humidity and torrential rains

Eicher Trucks & Buses introduces Smart Electric Buses with indigenously designed technology - REVOLO



Range – 177 kms
9 meters , 32 seats
Gearless driving

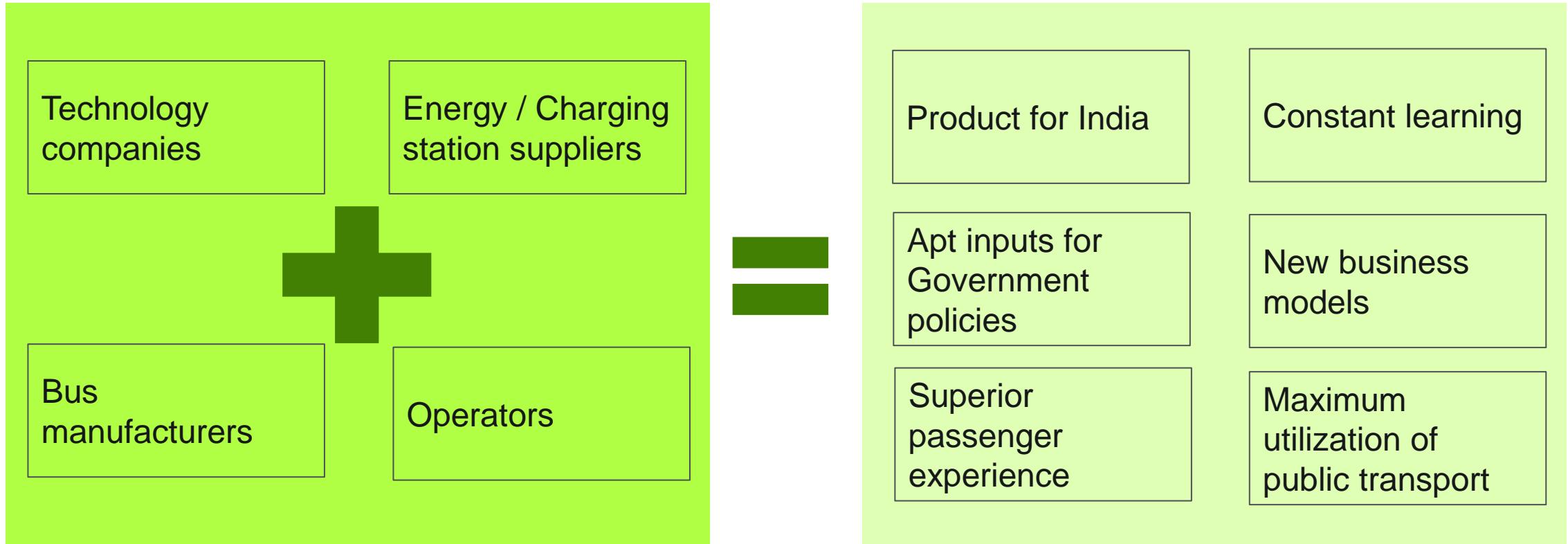


Air conditioning
Intelligent Transport
System



36% Regeneration
Nail penetration test*

Electric mobility is a team game...



Partnerships are the key for electric public transport to succeed in India

KPIT – A technology company focused on mobility



● **Autonomous Driving**



● **Powertrain**



● **Mechatronics**



● **Connected Vehicles**



● **Autosar**



● **Vehicle Diagnostics**

**Headquartered in
India Pune** with
Development centers in
EU, US, Japan, China,
Bengaluru

6600+
Engineers
working on next-
gen technologies

10+

of
Vehicles
uses KPIT
software

300+

Vehicle
productio
n
Programs

10

Out of the top
10 global OEMs
use KPIT
software

Electric Powertrain - Overview

Battery Management, Inverter, Charger, DC – DC Converter, VCU

Years of Experience in HEV/EV domain

10

30+

OEMs & Tier1s who rely on KPIT for HEV/EV technologies

12+

650+

Projects executed on Hybrid and Electric Vehicles

Full Solution

- VCU
- 144 V Architecture,
- 144 V Low Cost Rugged BMS
- 48V BMS
- System Integration (Homologation/Certification)
- Production & after market support

Services

- Software Development
- Power Electronics and Hardware
- Controls Engineering
- Verification and Validation
- Functional Safety
- Model based system engineering



Electric bus powered by REVOLO at the Indian Parliament

Thank you!