

## Green Energy– Pune, India

# Electric Buses for Clean Mobility

### Introduction

Located along the Deccan plateau in the state of Maharashtra, Pune is called one of the most 'liveable cities in India'. As per Pune Municipal Corporation, the city census population 2011 is about 31.32 Lakhs in an area of 243 sq km. Pune is the second most populous city in Maharashtra and bags the eighth spot in highest populated cities in India. Known as the IT and the education hub of the state, Pune is one of the fastest expanding cities as well.

As a fast expanding city with a population that vast, dependency on urban mobility becomes crucial. And, the more the demand for public transport, more is the level of carbon footprint and other greenhouse emissions. To decarbonise urban mobility, the Pune Smart City Development Corporation Limited (PMPML) along with Pune Mahanagar Parivahan Mahamandal Limited (PMPML) and Pune Municipal Corporation aims at switching over to electric public transport.

### Objective

The PMPML is on a mission to accomplish 25% electrification of the public transport bus fleet by 2025, as directed by the Government of Maharashtra's Electric Vehicle (EV) Policy 2021. While it has already launched 220 e-buses which are running all around the city, it aims at completing the target of bringing 500 on road e-buses before 2025. The project cost is Rs 2.5 billion and periodic payments will be made to the operator by PMPML.



Photograph 1: PMPML Electric-Bus

### Implementation

PMC, PCMC, and PSCDCL worked together in partnership with PMPML for the implementation of electric buses in Pune. In this case, PMPML works on a model where it pays a per-km fee; sets service standards along with handling scheduling, route planning, and fare collection work. This reduces capital and technology risk.

Pune's e-bus procurement was conducted in two phases. PMPML first issued two tenders for 150 e-buses 25 units of 9-metre AC e-buses and 125 units of 12-metre AC e-buses, respectively. PMPML then issued two more tenders for 350 and 150 units of 12-metre AC e-buses. The e-buses began its operations since February, 2019. The buses are a mix of 9- metres and 12-metres, compliant and noncompliant with PMPML's Bus Rapid Transit (BRT) system with air-conditioning.

### Learning and Management

Several factors worked as an accelerator in the implementation of the e-buses objective. It was realised that political leadership and interdepartmental co-ordination can lead to faster achievement of goals. The deployment of e-buses can bring down the public transport cost for the government and make travel convenient for passengers. The gross cost contract (GCC) or operational expenditure

(OPEX) procurement model where a public transport agency pays an operating team to manage fuelling, maintenance, crew and other factors is easier to adopt.

PMPML signed service level agreements (SLAs) with the selected service provider, BYD-Olectra, for all tenders to ensure efficient commissioning thus avoiding breakdowns, and ensuring regular maintenance. Properly trained drivers also ensured zero breakdowns.

### **Challenges addressed and scalability**

Since India is still at a nascent stage when it comes to electric vehicles, production capacity is currently low thus affecting high volume supply. Once the production increases, the cost is expected to go down. It will pave the way for more customization and timely delivery. A better structure in bank guarantees can lead to lowered cost of financing and reducing the fund gap. The energy consumption rate of the bus has been broadened to accommodate more people during peak hours.

The e-buses are sensitive to the topography and traffic conditions. Hence diligent efforts are put in finalising the route maps of the e-buses to ensure faster movement and reduce contact with CNG buses route. There is continuous work on making the scheduling of buses more convenient and rapid for the consumers. The PMC is also looking at installing more charging stations for smoother functioning.

When it comes to scalability, Pune has the scope and infrastructure that can accommodate and guarantee successful shifting to a hundred percent electric fleet.

### **Conclusion**

The adoption of e-buses offers significant environmental advantages alongside economic benefits. This transition effectively diminishes carbon footprints, PM levels, and other greenhouse emissions. Moreover, it proves to be a cost-effective strategy for local governments. Furthermore, passenger preference for e-buses over CNG alternatives is evident due to their quieter operation, smoother functioning, absence of vibrations, cleanliness, and enhanced comfort levels.