Land Transport Authority UITP

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LTA-UITP SINGAPORE INTERNATIONAL TRANSPORT CONGRESS AND EXHIBITION

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Singapore

Framework to Enable Public Transport Electrification in Indonesian Cities

Organised by

Land Transport Authority UITP msi GLOBAL

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Public Transport Electrification Targets in Indonesia

10%

Source: National General Energy Plan/RUEN

2025

90% **~15,500 units**

Source: Ministry of Transport's Urban Bus Fleet Electrification Roadmap

2030

51 units

0.32% from 2030 target

Current adoption

Microbus: Semi-Formal Public Transport System in Indonesia

- **Typical public transport service in many cities**
- **Established routes with no fixed timetables, headway, nor stops**
- **4.5-5 m microbus with 12-14 passenger capacity**
- **Affordable fares, often used by low-income and vulnerable groups**
- **Informal/semi-formal institutional setup, weakly regulated**

Issues

- **Level of Service**
  - Many aging vehicles with poor conditions and high fuel consumption rates
  - Lack of adherence to designated routes
  - Cash payments are made on board with no clearly informed fare
  - Passengers do not board and alight at designated stops
  - Low service reliability
  - Lack of accessible and high-quality transit facilities
- **Operational Sustainability**
  - Rapidly declining ridership in most cities
- **Limited government support**
  - All capital and operational costs are burdened to drivers or individual fleet owners who have a very limited financial capacity and whose incomes depend only on farebox revenue

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Issues in Introducing Microbus Electrification

	Principles of Electrification Readiness	Gaps in the Current Microbus System
Planning	Availability of daily distance, route characteristics, and transit locations data to plan fleet technology and charging strategy	**Irregular operations, difficulty to identify future charging locations due to lack of depot facilities**
Fleet Procurement	Financially strong/bankable institution, sustainable business model, and government support to address the high capital costs	**Informal business model, low bankability of the operators, no PSO mechanisms from the government**
Fleet Operations	Predictable daily distance and operational hours and potential charging location identification to ensure sufficient State-of-Charge (SoC) during operations	**Irregular operations impose higher risk of battery depletion during the service**
Fleet Maintenance	Skilled maintenance workers and availability of maintenance facilities for the electric fleets	**No dedicated maintenance facility for the fleets; maintenance is typically done by owners or at public workshops**
Infrastructure Provision and O/M	Financially strong/bankable institution to address the high capital costs, institution to maintain and operate the infrastructure, land availability, and stable grid connection	**Operators' lack of financial capacity to provide, operate, and maintain the infrastructure, lack of existing depot, unstable grid in many cities**

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Framework to Enable Microbus Electrification in an Existing System

Build the basics

Local Transport Agency to:

1. Develop PT master plan and electrification roadmap
2. Issue LoS regulation
3. Establish a Public Transport Authority (PTA)
4. Provide accessible transit facilities

Improve the operators

Operators to:

1. Improve their capacity to operate both conventional and electric fleets according to the LoS
2. Provide depots

Transport Agency to provide capacity building programs

Set up the Public Transport Authority

PTA to:

1. Develop operational plan
2. Develop contract documents for operators
3. Establish fare collection system
4. Establish command center and ITS system
5. Explore and develop business models for electric fleets and charging stations provision

Update listings on the e-catalog system

Local Transport Agency to list eligible operators in the e-catalogue system

Contract and manage fleet operators

The PTA to:

1. Establish contracts with the fleet operators that successfully fulfilled all the qualifications
2. Collect fleet operational data

Plan for electric fleets

The PTA to:

1. Develop electrification plan, including technical plans based on collected operational data and financing needs
2. Identify financing options and iterate business models

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Thank you

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