



TRANSJAKARTA ELECTRIC BUS

IMPLEMENTATION PLAN

Busworld Southeast Asia

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BACKGROUND & ROADMAP

Government Regulation

Presidential Decree number 55 of year 2019

Acceleration of Battery-Based Electric Motor Vehicle Program for Road Transportation



Ministerial Decree

- * Minister of Home Affairs Regulation number 8 of year 2020
Basic Calculation of Motor Vehicle Tax and Transfer Fee
- * Minister of Energy and Mineral Resources Regulation number 13 of year 2020
Provision of Electricity Charging Infrastructure for Battery Based Electric Vehicles
- * Minister of Transportation Regulation number 44 of year 2020
Physical Type Testing of Motorized Vehicles with Motor Propulsion Using Electric Motors

Local Government Regulation

Governor Regulation number 3 of year 2020

Exemption of motor vehicle transfer tax fees

BBNKB Tax: 0%



Governor's Instruction number 17 of year 2021

Encouraging the provision of 100 electric buses by 2021

Governor's Regulation number 90 of year 2021

A more environmentally friendly fuel replacement, using electric buses for Bus Rapid Transit

C40 Fossil-Fuel-Free Streets Declaration

In September 2019, the DKI Jakarta Provincial Government declared their commitment to participate in Fossil-Fuel-Free-Streets, initiative carried out by C40 Cities which already followed by 34 other cities around the world

A

Only procure zero-emission buses from 2025 onward

B

Ensure the most areas of Jakarta City are emission-free by 2030



Electric Bus Implementation Stages

Each type and model of electric buses proposed to be operate under Transjakarta will go through 3 stages to ensure bus reliability and the readiness of APM and Operators.

1

TRIAL

- Conducted for 3 months on certain bus makes and models.
- To ensure the completeness of vehicle legality, obtain vehicle specifications (energy efficiency kWh/km), and certification of conformity following Transjakarta requirements.

2

FULL IMPLEMENTATION

PILOT PROJECT

- Conducted for 2 years through service contract.
- The term of the service contract refer to warranty period of the electric bus.
- However, at the end of the second year, the cost of maintenance and operation will be reviewed

- Continue the service contract from pilot project stage for the remaining period of the contract.
- Using figures and price calculations that are fixed and have complete references.
- The operator has prepared all the infrastructure needed to able operate electric bus well.
- Operators have been certified to be able to operate and maintain electric bus fleets following to Transjakarta specifications.

Deployment of Electric Bus Transjakarta 2021-2030

2021

2025

2030

Target

Pilot project 100 Electric Bus

Type of Bus:

- Low Entry

Passing stage:

- Operation trial
- Procurement scheme
- Extend Contract Period

Target

- More than 50% Electric Bus used

Type of Bus:

- Low Entry
 - Single Bus
 - Medium Bus
 - Articulated Bus
 - Micro Bus
- Only procure Electric Bus

Target

100% Electric Bus

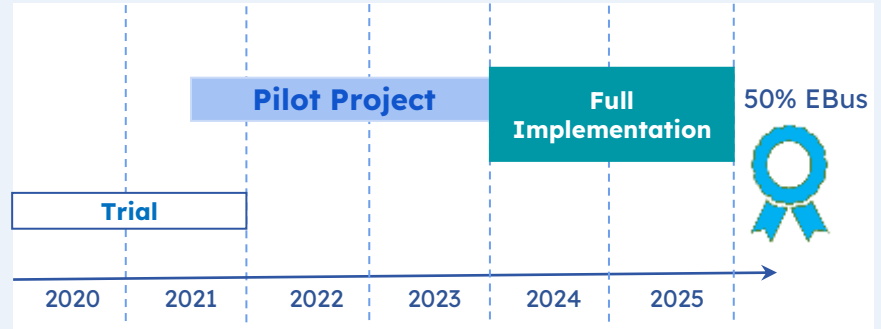
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PILOT PROJECT

Objective of Pilot Project

Before entering the full implementation phase, where all procurement and rejuvenation of fleet will use electric buses, a phase called Pilot will be carried out on 2 years with the aim:

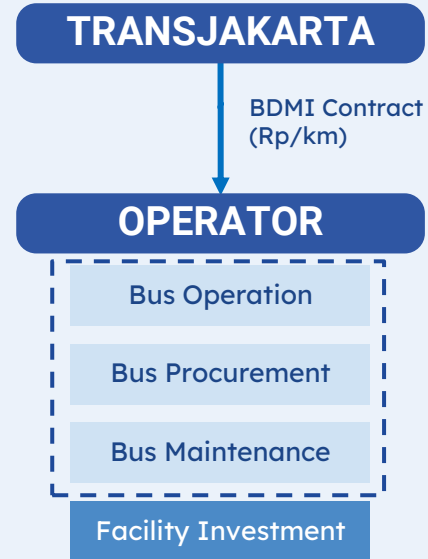
- Ensure the suitability of battery technology and the selection of charging strategies on various routes
- Understand and evaluate the cost of assets, operation and maintenance of electric buses in term of TCO (Total Cost of Ownership)
- As a learning and preparation stage for bus operators towards 2023, where all operators operate electric buses



PILOT PROJECT PLAN OF TRANSJAKARTA ELECTRIC BUS

Bus Operator Service Contract

- Transjakarta uses Bus, Driver, Maintenance, and Insurance (BDMI) contract with bus operators
- The scope of operators for contracts includes:
 - Electric bus investment
 - Charging operation
 - Provision of a depot
 - Maintenance of electric buses
- The bus service contract between Transjakarta and the operator is quality-based, where the operator is required to provide services according to the quality standards set by Transjakarta, and is paid according to the kilometers traveled by the bus being run.



Operation Planning

BUS

Type of bus that will be proposed in the Phase-1 of Pilot Project is a **Low Entry** with **Big Battery** (320 kWh) considering operational fulfillment.

CHARGING

Type of charging that will be proposed in the Phase-1 Pilot project is Normal Speed Charging with **Overnight** Charging Application

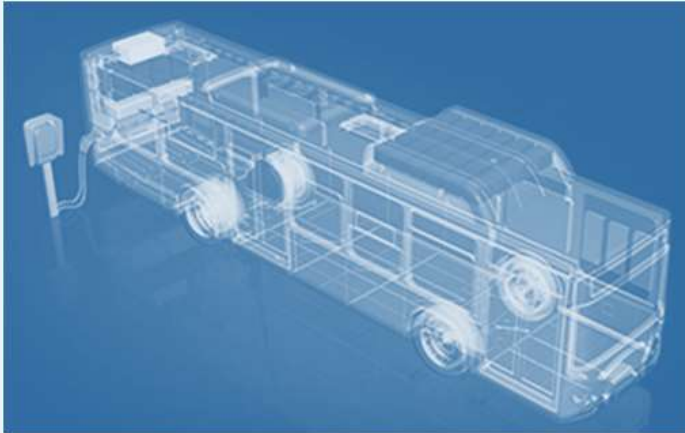
ROUTE

Route to be proposed in the Phase-1 of Pilot Project are **Non-BRT**

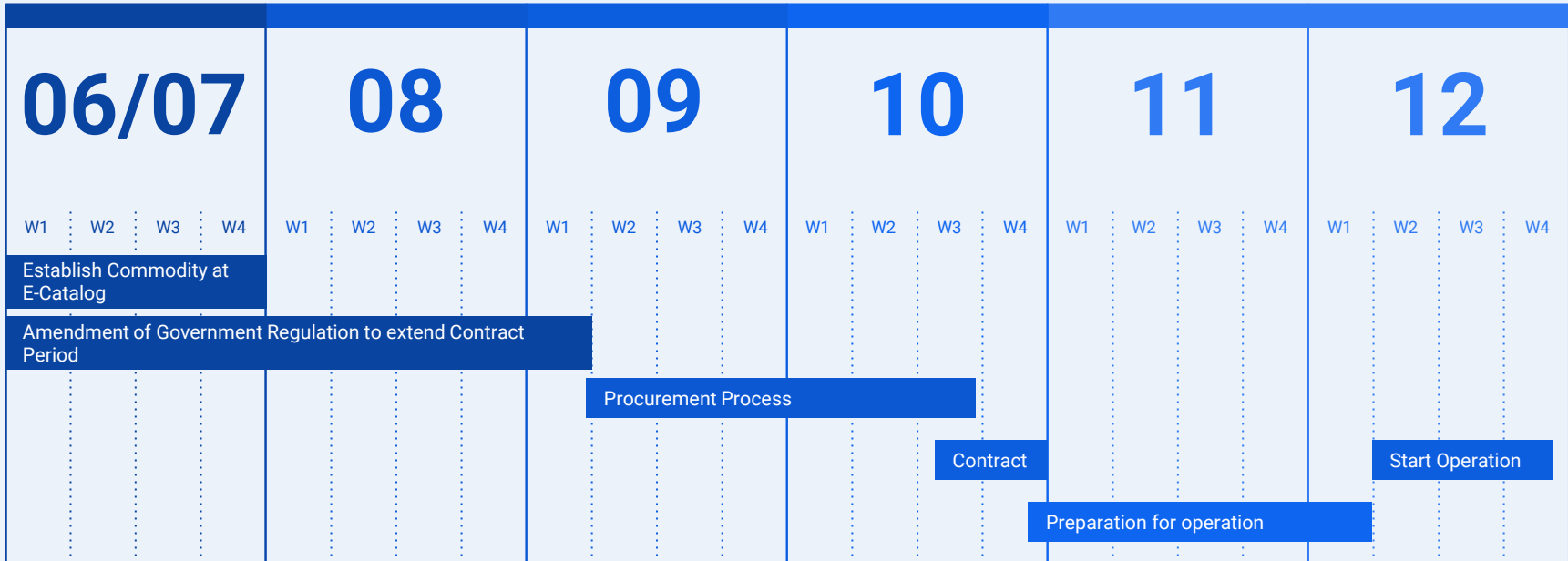
The selected route will be based on optimization of TCO

OPERATOR

The procurement of electric buses will be carried out by operators who will be selected by considering aspects of financial and operational capabilities



Operation Schedule of 30 buses



▲ LOREM

3

CHALLENGE

Operation Challenges

EMPLOYEE

- Training and providing Safety Equipment related to electricity
- Training and certification from APM and Principal related to operation, maintenance and repair of Electric Buses

ELECTRIC BUS

Price of electric buses currently two-and-half times of ICE Bus price, where the most expensive component is battery

INCENTIVE
TAX

CHARGER & GRID

Large investments are required to prepare Fast and Ultrafast Charger; grid include electrical network equipment and licensing for PLN network connection

INCENTIVE
PLN

OPERATION

- Provide representative depots for fleets, chargers and grid
- Providing an advanced Information System to manage operation follow battery charging scheduling

Challenges in Technology

SINGLE BUS (BRT)

MEDIUM BUS

ARTICULATED BUS

MICRO BUS

Should prepare **opportunity charging** technology considering to provisions of the gross vehicle weight (GVW) limitation.

IDEAL

Provide SPKLU



Waiting for more efficient battery technology.



Availability of depots for charging facilities.





THANK YOU