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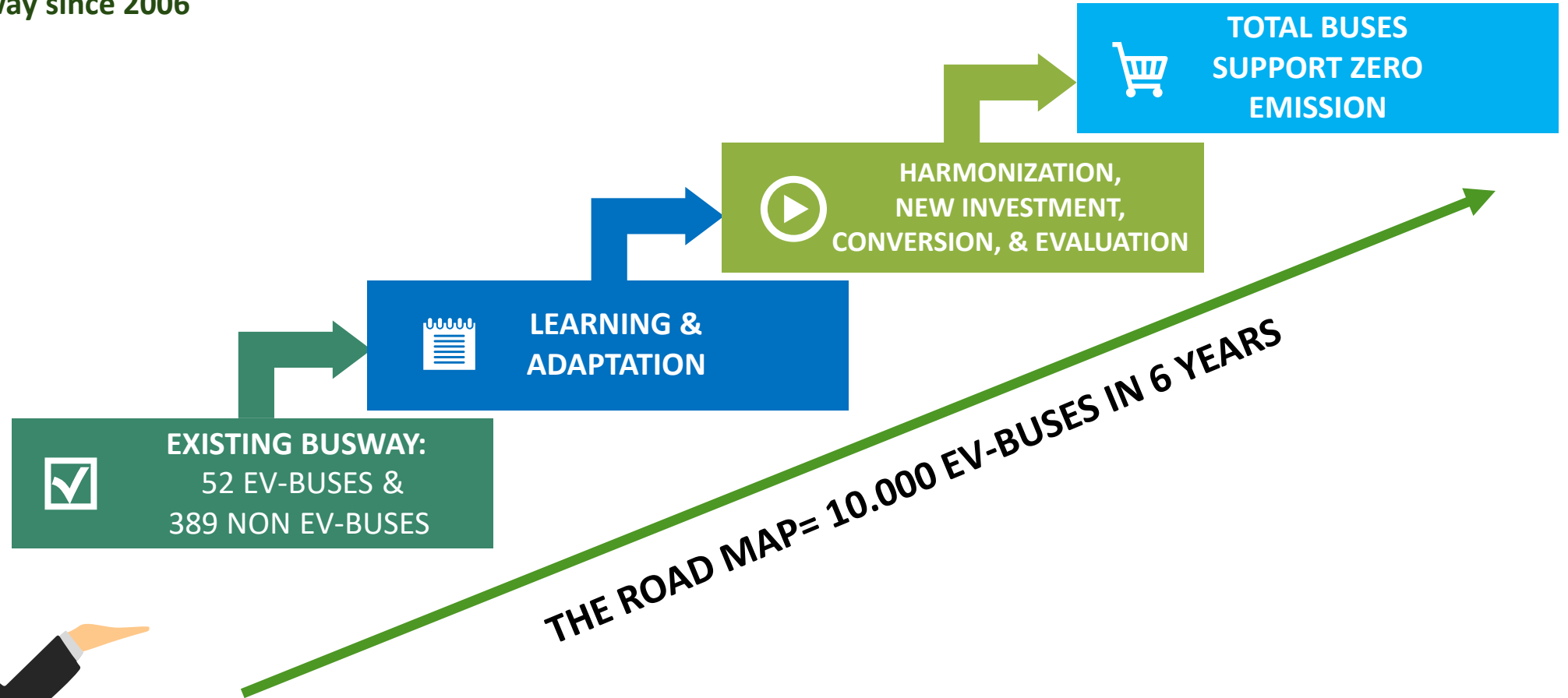
Indonesia EV-Bus: Implementation & Challenges

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OUR PROGRAMS

Mayasari Bakti was established in 1964 & already operates busway since 2006



**TECHNOLOGY DEVELOPMENT &
THE ROAD MAP OF ENERGY FOR PUBLIC TRANSPORT**



Data 2023:

52 units BYD EV-Bus= 30 (4/3/22) + 22 (21/6/23)

KM operation per year= 71.540 Km

KM operation per day= 196 Km/ bus

Avg. KM operation per day= 194 Km/ bus

Energy Cons.= 0,91 Km/ KWh (1,099 KWh/Km)

Avg. Cost of electricity = Rp 180.000/Bus/Day



The Depot @Cibubur

Charging Station (CS)= 15 units

Charging Capacity= 2x100 KW / Unit

Electricity Capacity= 4.330 KVa

Battery capacity/ bus= 324 KWh

Charging Operation= 22.00 – 04.00 (3 Stages)

Charging Speed= 1%/ minute, Avg.= 75 mnt/bus

Bus operation= 04.00 – 24.00

IMPLEMENTATION: OUR EXPERIENCES



	DIESEL BUSES	CNG BUSES	EV-BUSES
Total Units	333	56	52
Average Km/ Day (Km)	220	222	194
Average Energy Cost (Rp/ Day)	750.000	1.248.000	180.000

EV-BUS:

- Accident
- AC
- Engine
- Telematics
- Contract Services & Spare parts supply
- SoH= 100% & SoC= 25,6%
- Efficient in daily operation
- % achievement travel miles (Km)= 99,07%
- Km empty

DIESEL & CNG:

- The achievement of travel miles (Km) based on Contract (commitment)
- Km empty
- Returning again from EV-Bus to Diesel ??




**HIGH
INVESTMENT**

**10.000 BUSES
IN 6 YEARS**

**CHALLENGE
Of EV-BUSES**

**FINANCIAL
SUPPORT**

**PUSH
FACTORS**



**10.000
EV-BUSES
IN 6 YEARS**

CHALLENGE #1

- a) **EV-Bus in operations @Jakarta:**
- Mayasari Bakti: 52 Units (*BYD*)
 - Damri: 26 Units (*Skywell*)
 - BMP: 22 Units (*Golden Dragon*)
 - **Total: 100 Units**
- b) **TransJakarta will plan to operate 200 units EV-Bus in 2024**
- c) **EV-Buses in 2024 = 100 + 200 + 30 (Other Cities) + 40 (Plantation & Private) = 370 Units,**
Assumption 2024 = 400 - 450 units
- d) **400-450 units to 10.000 units EV-Bus (public transport) in 6 years are challenging**
- e) **Bus (small, medium, & big) or included other electric vehicle?**

CHALLENGE #2

a) Who makes the investment?

- Central Government
- Municipal Government
- State owned company / Municipal company
- Private/ Bus Operator

b) Investment & Capital:

- EV-Bus → (Hybrid Bus ?)
- Infrastructure (Depot, Charging Station, Increase electricity capacity, others): Government or Private?
- Working Capital (Operation & Maintenance Cost)
- Repayment to the bank
- Re-investment Cost

c) Replacement Cost (existing bus, battery, etc.) and Opportunity Cost



**HIGH
INVESTMENT**



FINANCIAL SUPPORT

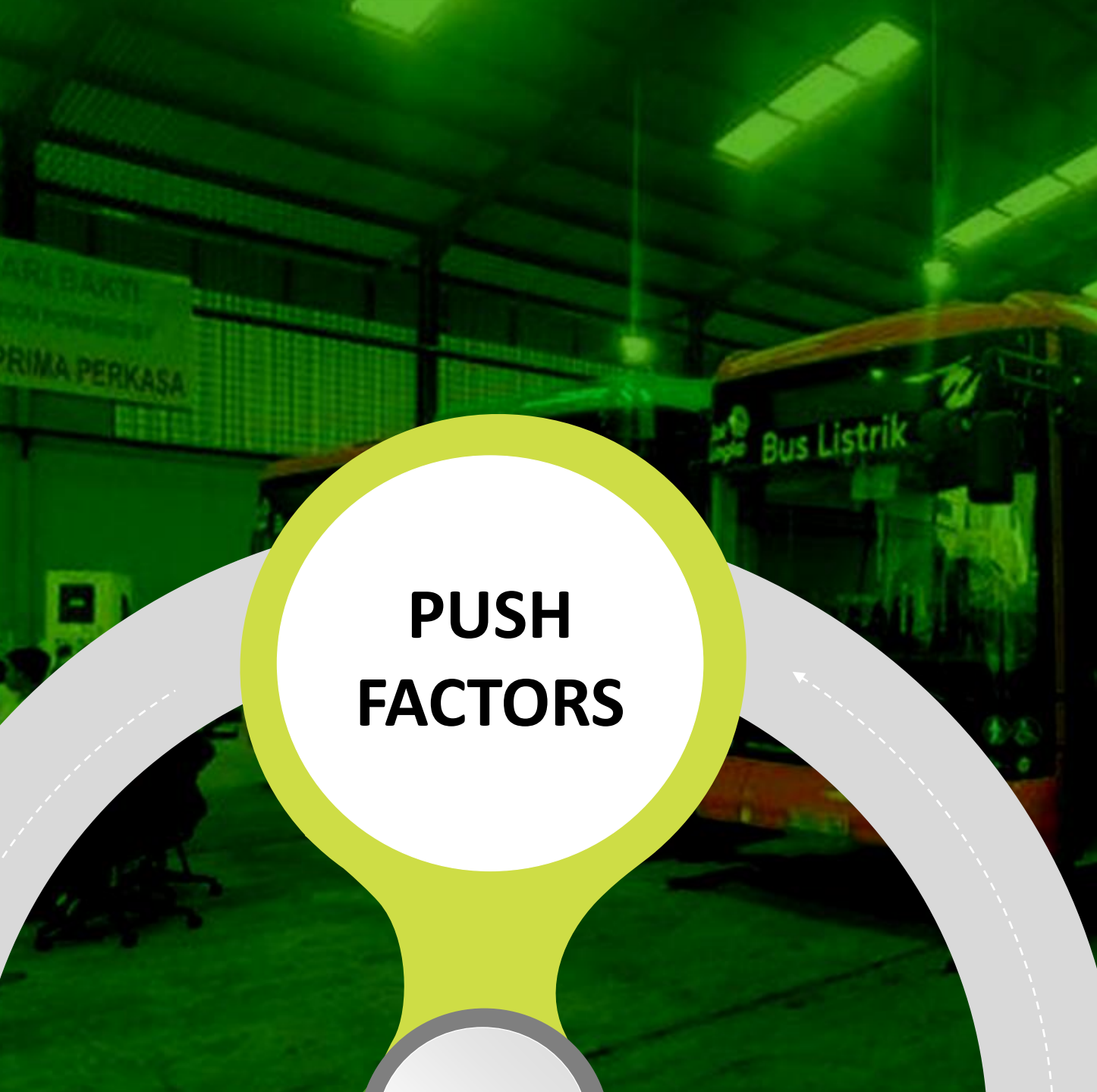
CHALLENGE #3

- a) **Capability of Bus Operators/ Dealers/ Other Parties**
 - **Bankability = 5C (character, capacity, capital, collateral, and condition)**

- b) **Bank/ Leasing Company:**
 - DER (minimum equity?)
 - Interest (subsidy?)
 - Tenor
 - Collateral (only the EV-Bus?)
 - Feasibility (based on the contract)
 - Operation income can fulfill bank obligation, operation cost, and maintenance cost

- c) **Dealer/ Factory support or Joint-Operation**

- d) **Mobility as a Service:**
 - Risk Sharing (proportion of Rp/ Km)
 - Mirroring to the contract
 - Not just as a rental company



PUSH FACTORS

CHALLENGE #4

a) Government Role:

- Alternative: to procure huge number of EV-Bus from Government Spending
- Build massive infrastructure
- EV Bus Investment, Interest rate, & Electricity subsidy
- Road Map, Regulation, & Fair Contract

b) Bus Operator Selection / All Participants

c) Bus Factory / Dealer / Body Builder: Lead Time, Supply Capabilities, & Spare parts Availability

d) Cost effective and convenience of public transport

e) Challenge: point to point transportation (motor cycle & car)

CONCLUSION

01

- The financial capacities are the key:
- Government – Private
 - Bus Operator – Dealer

02

- Push Factor
- Regulation
- Road Map

03

- Investment Cost
- Infrastructure Cost
- Replacement Cost
- Opportunity Cost

04

- Technology development
- Selection of Bus vs Testing
 - Battery Management
- Back on the diesel bus ?

05

Government, Bus operators, and related stakeholders have to be ready to implement EV-bus for our better future

06

Collaboration and consistency are the key of success



MAYASARI BAKTI

Thank You

*Hope it will be useful for all
participants*

