Financing for e-mobility in Southeast Asia

Shuji Kimura
Senior Transport Specialist
Asian Development Bank (ADB)
Zero-emission vehicles (ZEVs) in Southeast Asia (SEA)

- ASEAN\(^1\) accounted for 3% of the global new ZEV market in 2020. Demonstrates the untapped future growth potential
- Asia Pacific Electric Bus Market size was over USD 26 billion in 2020.

Key factors driving the growth of the market:
- Rising exhaust emissions
- Enactment of stringent emissions and fuel economy norms
- Falling battery prices
- Government led initiatives- subsidies and benefits for EVs- Local governments supportive policies to make EVs more affordable, and increase EV adoption
- Conventional ICE vehicles OEMs are significantly scaling up EV investment

Key impediments remain:
- High costs associated with electric buses and installation of charging stations is hindering the growth of electric buses
- Battery safety standards
- Fragmented policies and lack of clarity on policies

Action:
- Governments in SEA to play a more crucial role in adopting standards, aligning taxation norms, facilitating the set-up of charging infrastructure.
- Set the stage for attracting large scale private sector participation

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\(^1\)Association of Southeast Asian Nations- Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.
EVs and E-buses market opportunity in ADB countries

Countries have announced EV targets- growing market for e-buses

- **Indonesia**: 30 electric buses deployed by TransJakarta in March 2022. Plans procuring 10,000 e-buses by 2025.
- **Malaysia**: 40% of all public transport (across all modes), to be electrified (or fueled by CNG/LPG/biofuel), by 2030.
- **Thailand**: cumulative production by 2025 of 250,000 EVs, **3,000 electric buses**
- **Viet Nam**: Ho Chi Minh City- 77 electric buses to be deployed in 5 pilot routes
- **Singapore**: 60 electric buses deployed by LTA between 2020 and 2021 with a target of 1 in 2 public buses to be electric by 2030

EV and battery manufacturing ecosystem in ASEAN

- Some ASEAN countries are major auto manufacturers- providing them with the ecosystem for EV and battery manufacturing
- **Indonesia** has two lithium-ion battery manufacturing industries
- **Thailand** – reduced import tax of raw materials for batteries; corporate tax exemptions and corporate tax holidays to incentivize EV production and R&D.
- **Philippines**- six-year income tax holiday for EV project investors

Charging infrastructure

- **Thailand**, a public-private partnership to install more than 1000 new fast chargers and to make a fast-charging facility available every 50 km along the planned charging network
- Thai government has also contracted with a private company to install more than 120 fast chargers every 100 km on the main transportation routes across the country
Philippines Davao Public Transport Modernization Project

Current public transport in the City

- Many private operators (mostly individuals) own and operate light duty vehicles. No buses for intracity transport.
- No time table. No designated stops.
- Not accessible for all
- High emissions of GHG and air pollutants.

New modern bus system

- Transport system manager and performance-based contract
- Rationalized bus routes
- Modern bus fleet: 1,100 e-buses and diesel buses in 3 sizes
- Infrastructure: bus depots and terminals, lanes, bus stops
- Intelligent Transport System

![Image of a yellow bus in the city](image-url)
### Indonesia: Battery Electric Bus (BEB) Project

- **Total Project Cost:** $18.38 million
- **Executing Agency:** DAMRI

#### The Project Reduces Air Pollution, GHG Emission and Noise

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### Output 1: Electric buses deployment

**50 BEBs** with a maintenance contract for 2 years

Routes: (i) Gambir (18 BEBs); (ii) Rawamangun (10 BEBs); and (iii) Bekasi (22 BEBs)

### Output 2: Fast chargers installed

**27 fast chargers** at DAMRI overnight bus depot in Kemayoran, Jakarta

- 12 units fast chargers at end station of the three airport routes (3 units each station)
- Fast chargers will be connected to PLN grid

### Output 3: DAMRI capacity enhanced

- Gender Action Plan & Policy
- Finance and Procurement Training
- Electric Bus Operation
E-buses **Initial** adoption and roll out - Public sector led

Capital light e-bus operators: Private sector “**Opex**” model

**ADB sovereign loan & concessional capital providers**

- **ADB Sovereign financing**
- **Conc. Capital providers**

**Government client**

- Bus operations fee paid by the Govt or fare box risk with operator

**E-bus manufacturer**

- Fully integrated chassis & battery model

**Pvt sector bus operator**

**Grid company**

- Charging fee paid by Govt to the Grid company

**Govt funded infrastructure**

- Depot based “slow”/ overnight charging
- Charging infrastructure at other set locations

*Energy supply*
Pathways for private sector participation in e-buses adoption and roll out in SEA

- **Private sector led model** (vertically separated model)

- **BusLeaseCO model**
  - Independent special purpose company as a BusLeaseCO, with a capacity to borrow commercially to buy buses

- **Initial adoption and roll out**
  - Publicly funded e-buses, with asset light bus operators. *Government creates the e-buses ecosystem and pays* for the installation and operations of the charging infrastructure to the Grid company.