Scaling EVs in ASEAN: OEM Partnerships, Battery Swapping, and Private Investment Case Studies

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How EV Markets Scale

🏛 **Government**

Policy + incentives + regulations

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🤝 **Public–Private Ecosystem**

Infrastructure + partnerships

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🏭 **Private Sector**

OEMs + business models + investment +
Servicing + innovation

The EV Value Chain

⛏ **UPSTREAM**
Raw Materials
Lithium • Nickel • Graphite • Copper • Rare Earths

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🔧 **COMPONENTS & TECHNOLOGY**
Battery Materials • Cells • Battery Packs
Motors • Power Electronics • Controllers

↓

🏭 **MANUFACTURING**
OEMs & Vehicle Assembly
Cars • Buses • Two-wheelers • Three-wheelers

🚚 **MARKET & DISTRIBUTION**
Dealers • Service • Spare Parts

↓

⚡ **USE & ENERGY SERVICES**
EV Users & Fleets
Charging • Battery Swapping

↓

♻ **END OF LIFE**
Second Life • Recycling • Material Recovery

Key Enablers

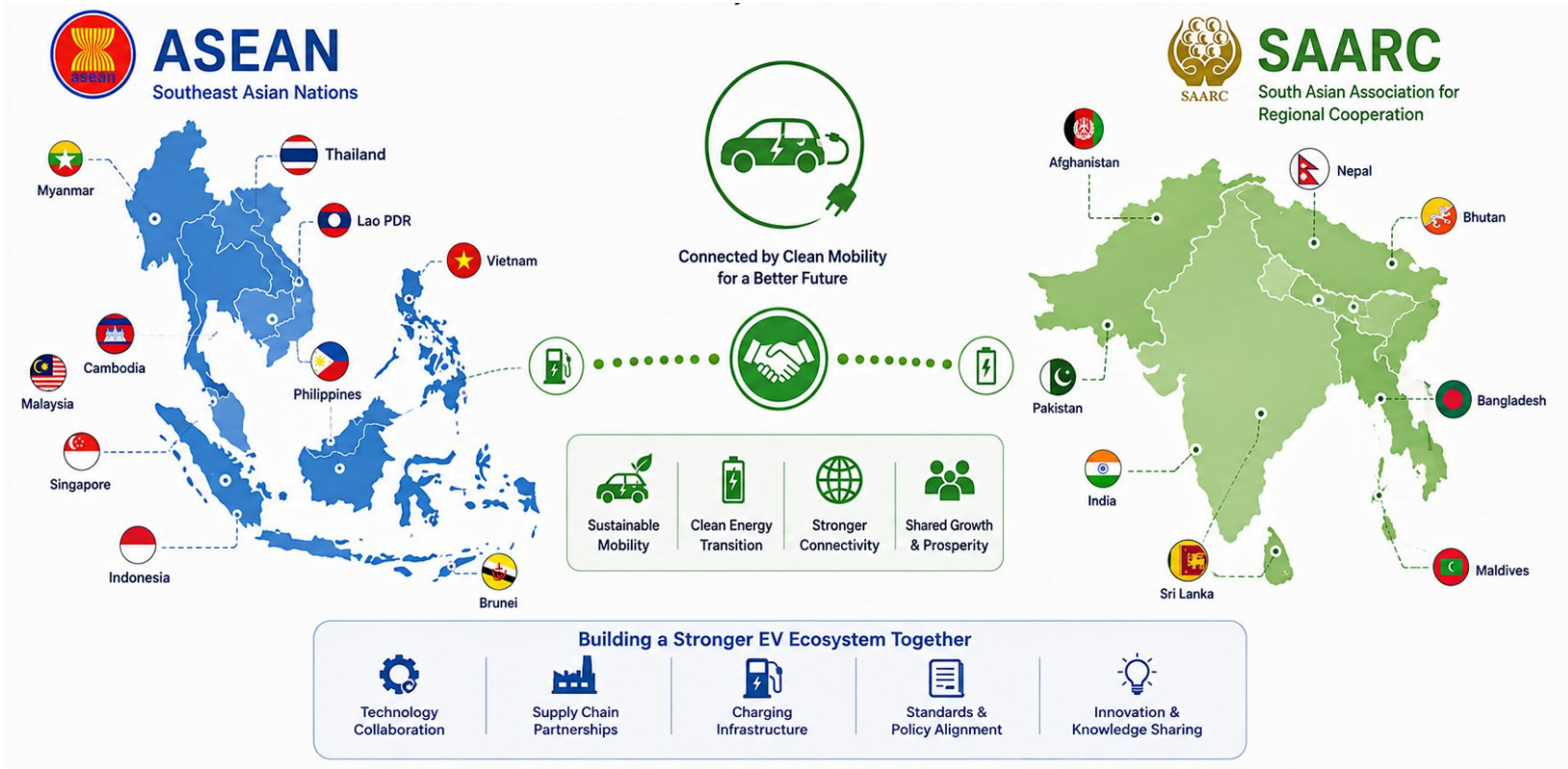
🏛 **Policy & Regulation** | 📏 **Standards & Testing** | ⚡ **Energy & Grid**

💰 **Finance & Investment** | 🎓 **Skills & R&D** | 🏭 **Industry &**

Why ASEAN Matters to SAARC

Different Region. Similar EV Challenge

- Large two- and three-wheeler markets
- Dense and rapidly growing cities
- Price-sensitive consumers
- Infrastructure constraints
- Growing interest in local EV industries



What Is an 'OEM Partnership' — In Plain Terms?

Import Only

Finished vehicles shipped in fully built. Fastest to market, but no local jobs, tax base, or technology transfer.

Local Assembly (CKD/SKD)

Vehicles arrive as kits and are assembled domestically, some jobs and investment, limited technology transfer.

Joint-Venture Manufacturing

OEM partners with a local or state-owned firm to build a full factory, real technology transfer and supply-chain jobs.

Full Local Ecosystem

OEM manufacturing plus local battery, charging and service investment, the deepest, highest-commitment model.

Thailand

- BOI "EV 3.0 / EV 3.5" packages offer excise-tax cuts, subsidies and duty relief, conditional on manufacturers building locally.
- Companies importing EVs early had to commit to local assembly within 2–3 years, otherwise repay the benefit.
- A national "30@30" target, 30% of vehicle production electric by 2030, gave investors a clear, long-term demand signal.
- 2025 rules now reward EV exports, turning Thailand into a regional re-export base, not just a domestic-sales market.

A set of incentive from both supply and demand side were given like:
reduction in excise, import duty of upto 40%.

$900M

BYD's Rayong plant — its first EV factory outside China, opened July 2024, 150,000 units/year capacity

137B฿

(~US$4B) invested across Thailand's EV supply chain by mid-2025 — 18+ manufacturers now on board

3,700+

public charging stations live by March 2025, including 6,000+ DC fast chargers

Indonesia

- Indonesia mines over half the world's nickel, a core battery input and banned raw nickel-ore exports in 2020.
- That forced foreign refiners and battery makers to build processing plants onshore instead of just buying the ore.
- Hyundai + LG built Southeast Asia's first EV battery cell plant (2024), directly feeding Hyundai's adjacent car factory.
- CATL's 2025 "Dragon" project goes further: mining, processing, cells and recycling in one integrated site.

$1.1B

Hyundai–LG Karawang battery plant, 10 GWh/yr, opened 2024, enough for ~150,000 EVs

$5.9B

CATL-led "Dragon" project, nickel mine to battery cell, one JV with state-owned Antam & IBC

Vietnam: Building a National Champion, Then Exporting It

- VinFast is Vietnam's own EV brand, not a foreign JV, but a homegrown vertically-integrated company.
- It doesn't just build cars: it also runs an all-electric taxi fleet, and its own charging network, creating guaranteed early demand.
- Having proven the model at home, VinFast is now exporting the service, opening plants in India and Indonesia in 2025 using the same integrated approach.
- This is a path smaller economies can copy: build local demand and infrastructure first, then use that base to scale regionally.

$2B

VinFast's committed investment in India — including a Tamil Nadu plant (150,000 units/yr) opened August 2025

17 mo.

from groundbreaking to opening at VinFast's new Indonesia plant — a strikingly fast build timeline

2 plants

now operating inside Vietnam itself (Hai Phong and Ha Tinh), plus new sites in India and Indonesia

BATTERY SWAPPING

High Utilisation

- Vehicles operate many hours every day

Predictable Operations

- Known routes or concentrated operating areas

Low Tolerance for Downtime

- Drivers cannot afford long charging breaks

Manageable Battery Size

- Batteries can practically be exchanged

Best-Fit Applications


spiro


gogoro


ezbike


ZYP
TECHNOLOGIES


SUN
MOBILITY

Common Threads: What Makes Investment Stick

Multi-Year Policy Roadmaps	Thailand's incentive packages span 2022–2027, investors can plan a factory's payback period around it.
Incentives Tied to Local Commitment	Tax benefits are conditional on local assembly, local content, or local jobs, not given away unconditionally.
Government as Co-Investor, Not Just Regulator	Indonesia's state firms hold equity stakes in battery JVs, aligning government incentives with investor risk.
Infrastructure-First, Not Vehicle-Sales-First	Gogoro's swapping model treats mobility as a subscription service, opening it to a different class of investor.
Diversified, Not Single-Investor, Bets	Where one investor pulls back (LG, Gogoro Philippines) other partners keep national momentum going.

Policy Levers Worth Testing in South Asia

- Publish multi-year (not annual) EV incentive roadmaps so investors can plan factory-scale payback periods
- Tie tax and duty relief to local assembly, local content, or export commitments, as Thailand and Indonesia do
- Consider government equity stakes in strategic battery or swapping ventures to share risk and align incentives
- Prioritise battery-swapping infrastructure for 2/3-wheelers, SAARC's own vehicle fleets look much like ASEAN's
- What are we good in – explore it ? Battery, motor, power electronics, software ?
- Start regional standards conversations early, on connectors, batteries and swap formats, before, not after, scale