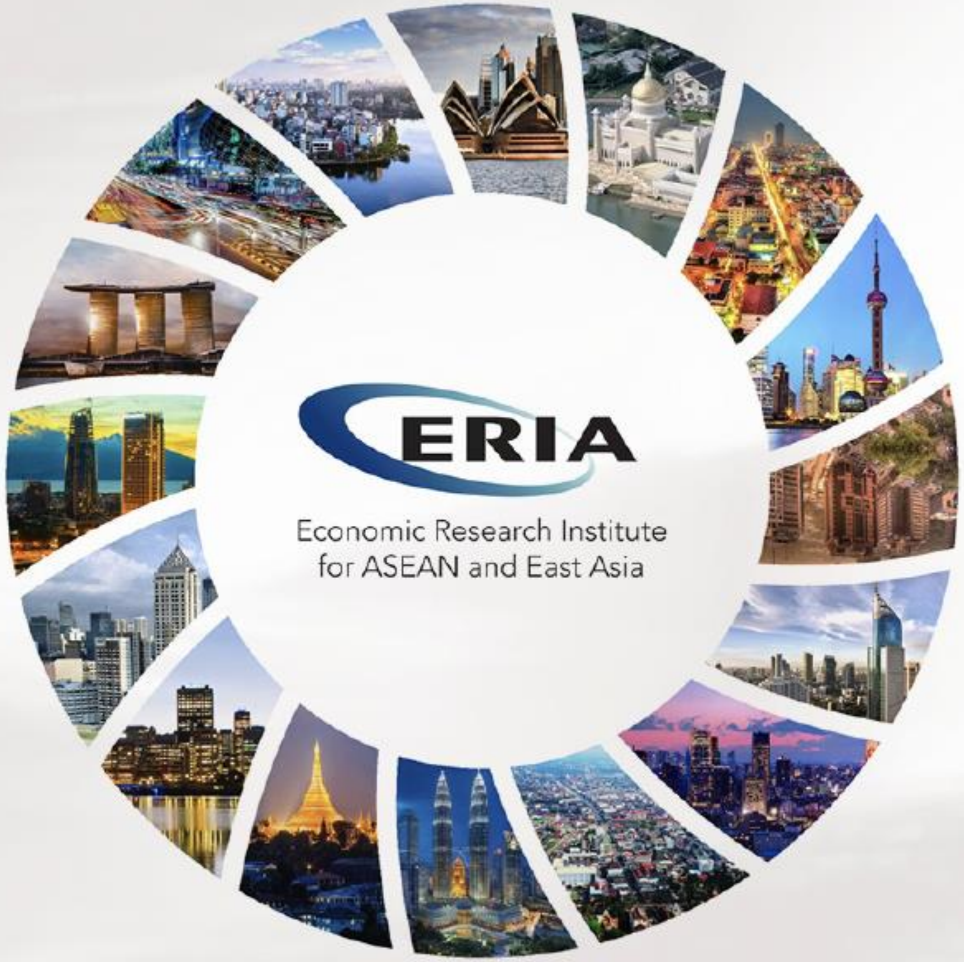

ERIA's Masterplan for ASEAN-Japan Next-Generation Automotive Industry

(Preliminary Report)

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ASEAN-Japan Economic Co-Creation Forum 2024
Meeting for Session1 -Next Generation Vehicle
Tokyo, 20 December 2024

Concept and Vision of the Masterplan for ASEAN-Japan Next Generation Automotive Industry

Master Plan

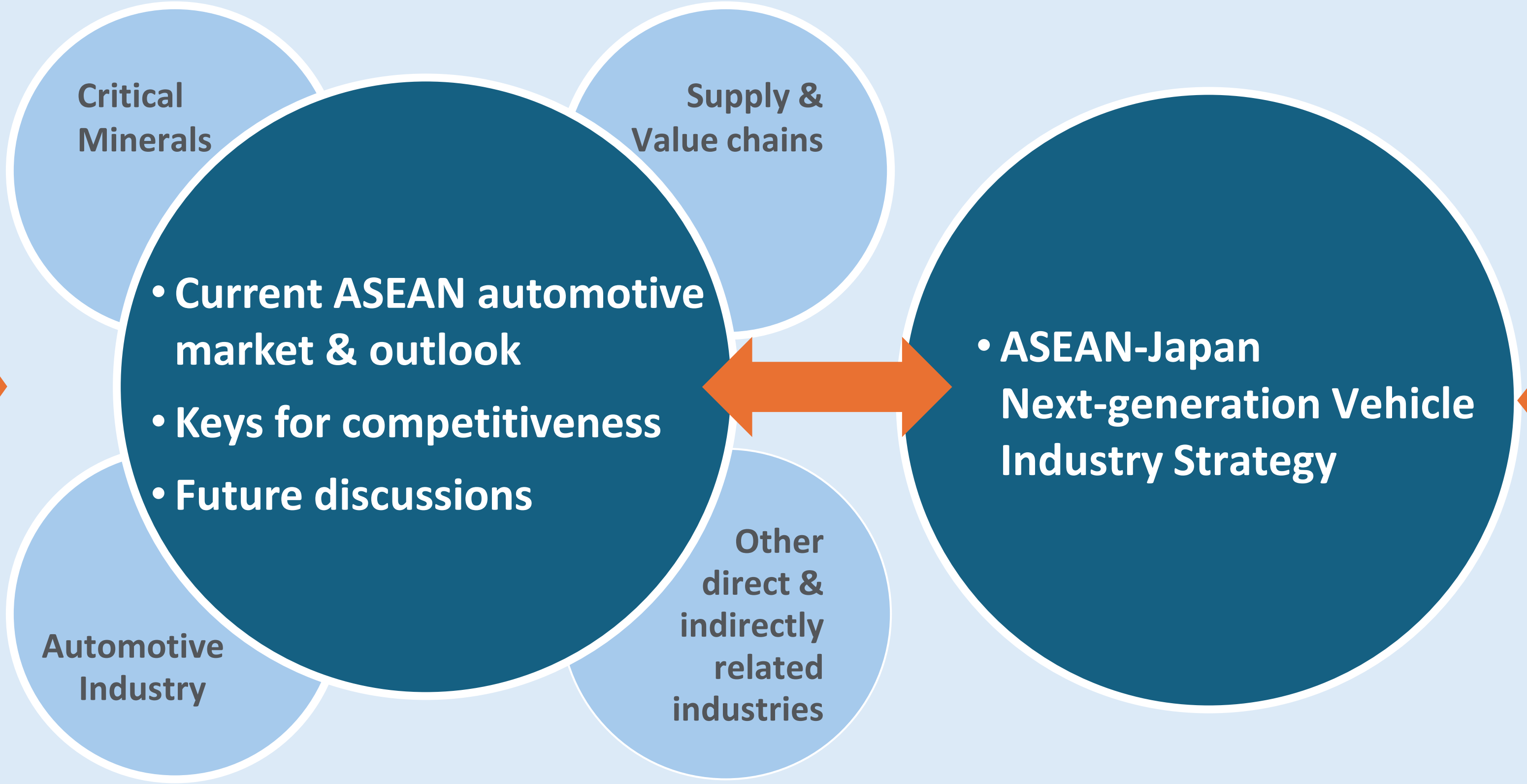
***A guide** for policy makers, industry players and other stakeholders to strengthen **ASEAN's automotive industry**'s **competitiveness** while **decarbonising**.*

Most important drivers

✓**Climate Issues**
- Decarbonisation
- Electrification

✓**Sustainability**
- Circularity
- Fossil fuel scarcity

✓**New technologies**
- Digitalisation
- Artificial intelligence
- Connected, autonomous, shared, and electric vehicles



Trends

✓**Transport**
(Transport demand, Car fleet size)

✓**Energy**
(Energy prices, Share of renewables)

✓**Environment**

✓**Economic & demographic**

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ASEAN's Automotive Industry Strength

ASEAN's automotive industry has grown by producing **vehicles tailored to local demand, mainly internal combustion engine (ICE)** and by **supplying them within and outside ASEAN**

ASEAN's unique demand (mainly ICEs)

Sales have almost doubled in 10 years[*1] driven **by local models** such as...

Pickup truck

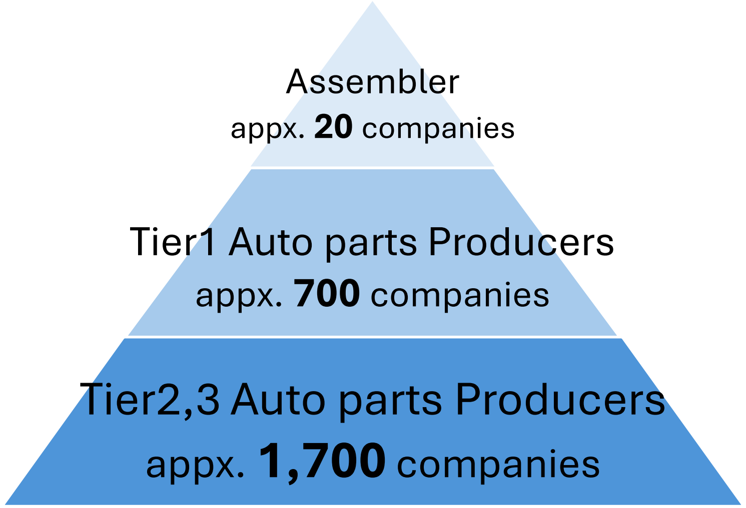
Multi-purpose vehicles (MPVs)

Subcompact & Mini car

Appx. **60%** of light vehicle sales

Broad concentration of ICE supply chains

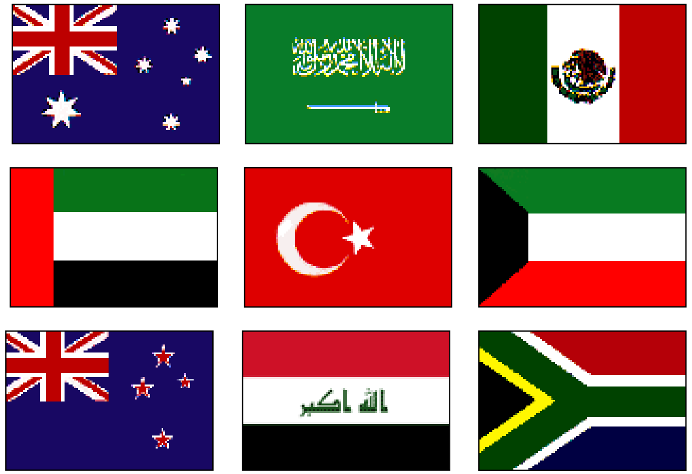
ASEAN has successfully established **a wide supply chain**, for example...



Structure of Automotive Industry[*2]
(Thailand)

Export to outside ASEAN with similar demand

Exporting to more than **120** countries[*3] such as...



Note: 1) Yearly sales volume in ASEAN6. Data compared with 2009 and 2019. 2019 data is used to avoid the impact of COVID19. Light vehicles include light vehicle cars and light commercial vehicles with gross weight of <6t. 2) Includes both 2&4 wheelers 3) Countries outside ASEAN with over $100K in annual imports from ASEAN in the past 5 years. Source: ASEAN Automotive Federation, Global Data, ERIA(2020) "Assessing the Readiness of Industry 4.0 and the Circular Economy", Trade Map.

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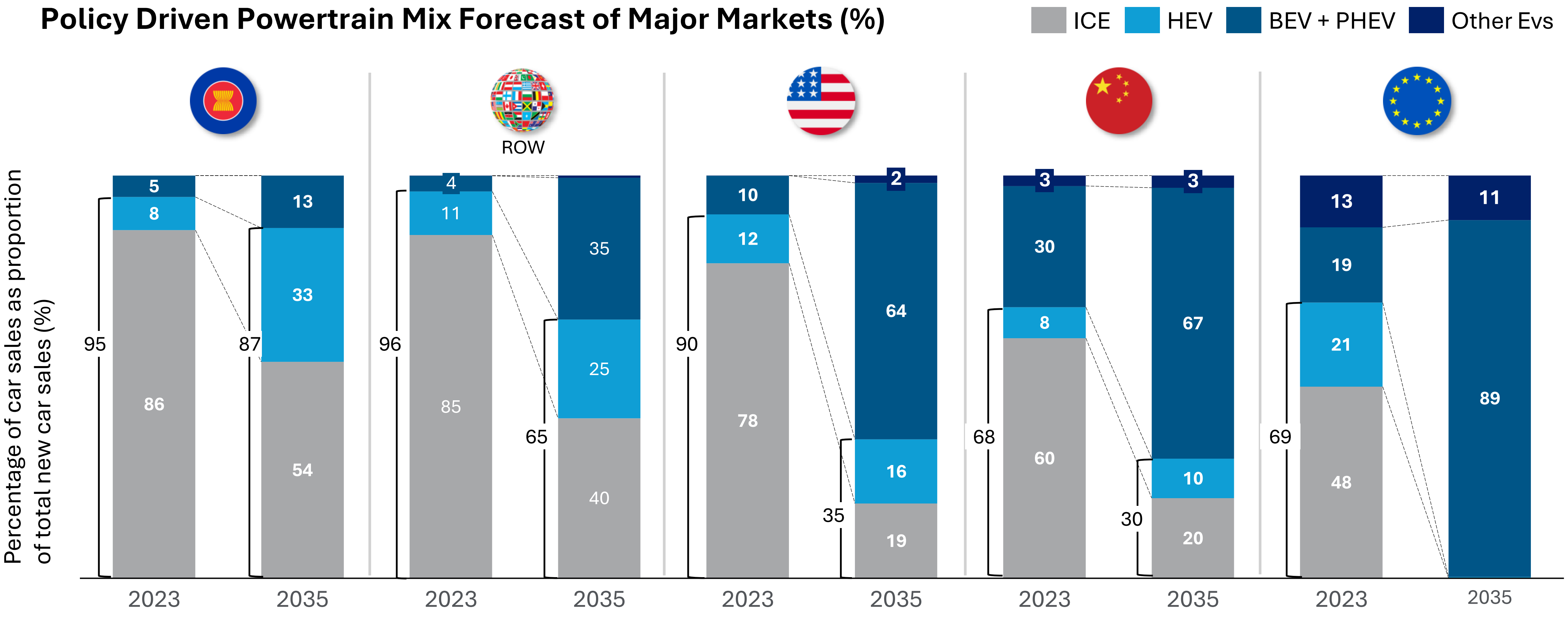
Various Powertrain Mix Trends in Global Market

Amidst uncertainty, there are and will be **various powertrain mix trends following a variety of market demands**

Policy Driven Powertrain Mix Forecast of Major Markets (%)



*Number with bracket '[' shows the aggregated proportion of ICE+HEV

Note: ROW includes all countries where data is available except ASEAN,the US,China,and the EU. BEV: battery electric vehicle, HEV: hybrid electric vehicle, PHEV: plug-in hybrid electric vehicle. Other Evs: EREV (extended range EV), FCEV (hydrogen fuel cell EV), PFCEV (hydrogen plug-in fuel cell EV). Source: GlobalData

Main Factors Influencing BEV & PHEV Adoption Expansion

The adoption of BEVs and PHEVs is influenced not only by polices, but demand and market factors also play a significant role in shaping the future prediction

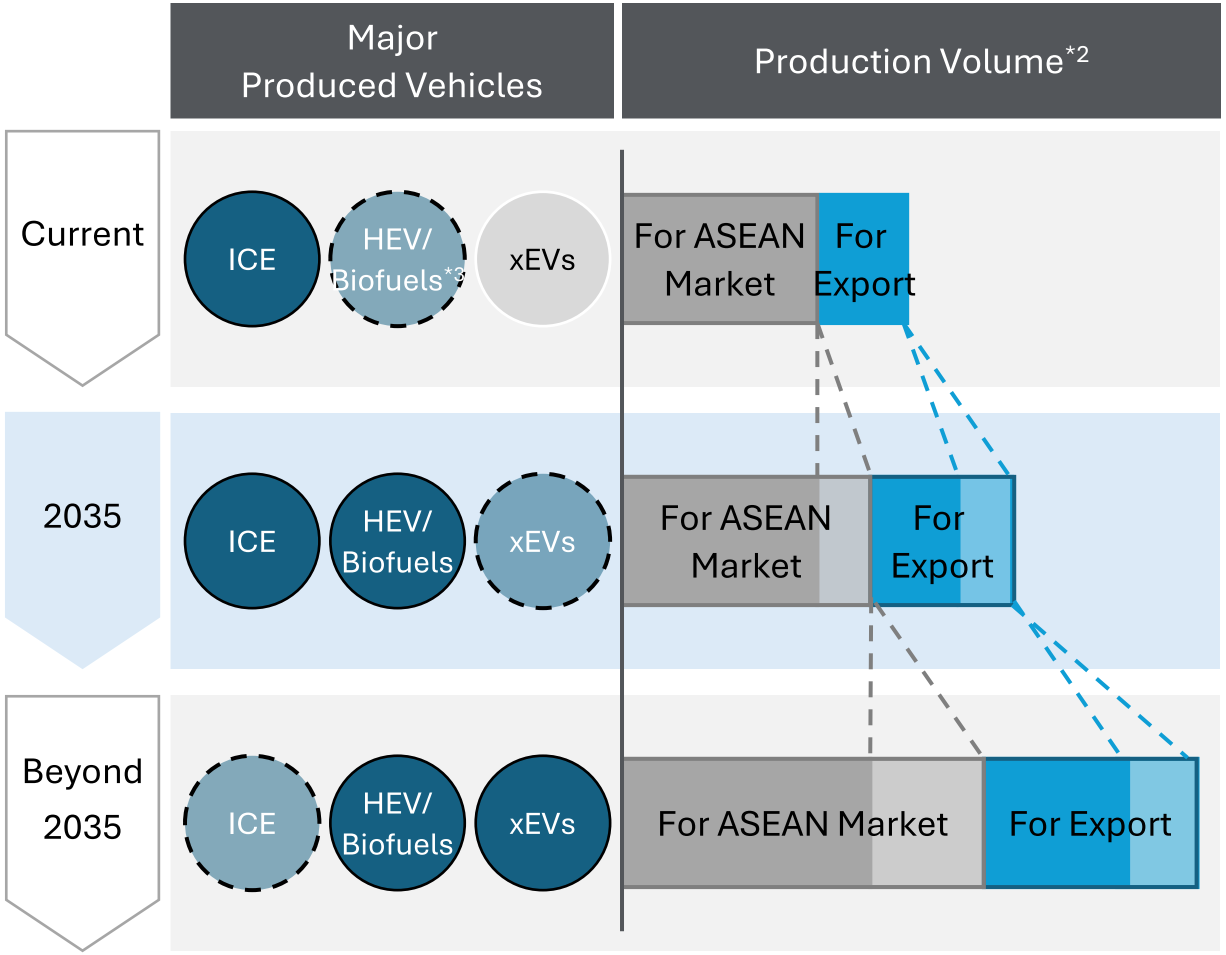
Major Policy Targets	
Thailand	30% of annual local production by 2030 (by NEVPC*1)
Indonesia	20% of all car sales by 2025 (by President Joko Widodo)
Malaysia	20% of annual new car sales by 2030*2 (by MITI)
Philippines	Stop sales of new ICE cars and to make them 100% EVs by 2040 (by DOE)

Main Factors Influencing BEV & PHEV Adoption Expansion	
Infrastructure / ecosystems	• **Extensive charging station** covering suburban and island areas • **Supporting ecosystem** of BEV and PHEV, such as maintenance and disposal
Product Varieties	• **Available models** in the market that meet the regional vehicle demand*3 • **Consumer preferences** on vehicles*4
Total cost of ownership against purchasing power	• **Price competitiveness** through private investment in BEV-PHEV production • **Fuel prices** for ICE and HEV • **Subsidy on BEVs** production for OEMs/ purchase for consumers • **Regulation on ICE** production and consumption

*Note: *1: National Electric Vehicle Policy Committee. *2: Malaysia also has targets for 2040 and 2050, which are 50% and 80% respectively *3: Current BEV and PHEV models are primarily designed for urban use, with smaller passenger capacity, less durability, lower payload capacities, etc. *4: ASEAN consumers still largely question the reliability and sustainability of BEVs) Source: Government Websites, EMIS, Deloitte SEA Automotive Survey.*

ASEAN’s Varied-Pathway Transitions

ASEAN can pursue varied-pathway transitions by taking advantage of its strength: promoting ICEs and HEVs while investing in xEVs*1 for the future



Policy Directions for the future growth

- Continue to invest in a **low-emission ICE/HEV ecosystem** to strengthen current ASEAN’s supply chain.
- **Offer a diverse lineup** of ICE, HEV, sustainable biofuels, and e-fuels to meet various market demands while **investing in xEVs** and upgrading automotive supply chain.

- Invest in **emerging mobility technologies** like connected, autonomous, and shared vehicles

Horizon 2035 Potential “Co-creation” Areas

- **Support transitions** in technology, suppliers, and human resources
- **Reduce life-cycle CO2 emissions** and decarbonise the power sector
- **Develop stable xEV supply chains** with resource circularity
- **Develop sustainable biofuels and e-fuels** for the local economy

*Note: *1: xEVs include BEVs, PHEVs and hydrogen FCEVs, *2:The illustrative growth of "For ASEAN Market" and "For Export" is intended to demonstrate the anticipated increase without providing specific numerical projections, *3:Biofuels include also biofuel related technologies such as flex-fuel vehicles (FFVs).*

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