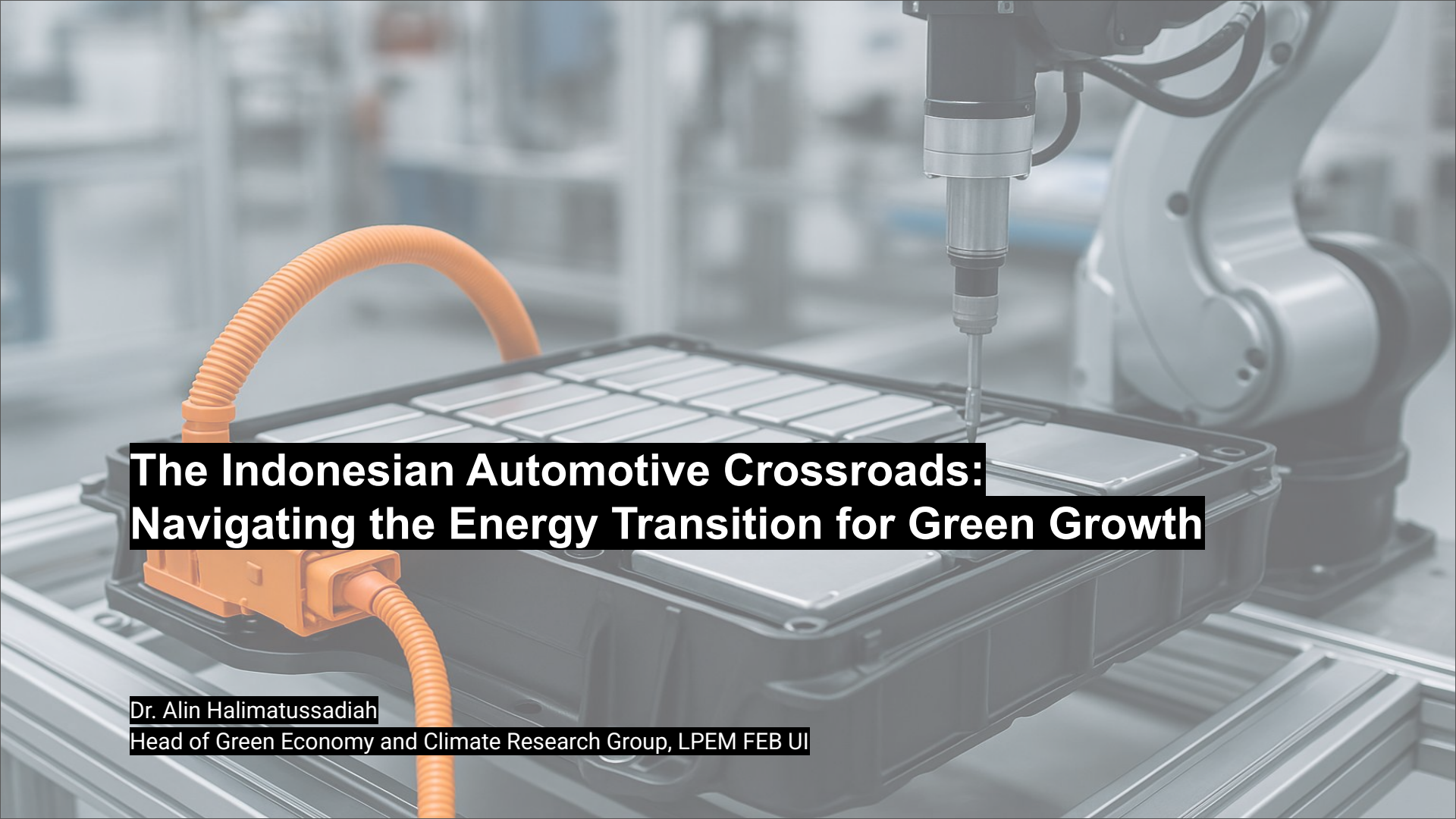

The Indonesian Automotive Crossroads: Navigating the Energy Transition for Green Growth

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Automotive Sector Electrification: A Strategy to achieve NZE

Indonesia has committed to this by setting a target of reaching NZE by 2060 or sooner.

The transport sector contributes to around 15% of the country's GHG emissions (Ge et al., 2022).

Indonesia's motor vehicle sales grew by an average of 7.1% per month from January 1990 to February 2025 (CEIC, 2025)

Presidential regulation No.55/2019

- Presidential Regulation on Acceleration of Battery Electric Vehicle (BEV) Program for Road Transportation"
- Roadmap to produce 600,000 EVs by 2030

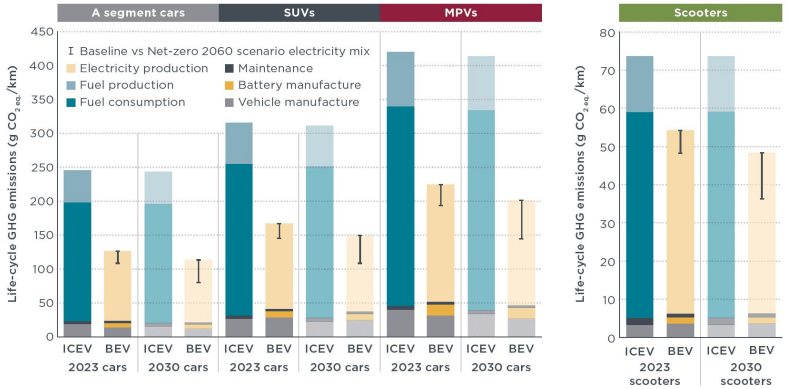


Figure 1: Life-cycle GHG emissions of SUV ICEV, HEV, and BEV (ICCT, 2023)

Why BEV?

- The GHG emissions are half than diesel vehicles. (ICCT, 2023)
- Hybrids (HEV) and plug-in hybrids (PHEV) have higher life-cycle GHG emissions than BEVs. (ICCT, 2023)
- Proyek Strategis Nasional (PSN): developing nickel downstreaming and battery industry.

Is Indonesia betting big in BEV deployment?

Fiscal support for BEV

- Through Minister of Industry Regulation No. 6 of 2023, GoI provides a subsidy of IDR 7 million per electric motorcycle unit with a minimum local content requirement (LCR) of 40%.
  Total budget allocation: IDR 7 trillion (~USD 455 million)

- Through PMK No. 38 of 2023 and PMK No. 8 of 2024, the GoI provides a VAT subsidy of up to IDR 80 million per battery electric vehicle (BEV) unit that meets a minimum local content requirement (LCR) of 40%.
  Est total budget allocation: IDR 5 trillion (~USD 320 million)

Regulatory and Fiscal Incentives for Nickel Downstreaming

- Tax holidays ranging from 15 to 20 years for companies investing in nickel processing and battery-grade facilities.
- Law No. 3/2020 ban raw ore exports and require completion of smelter infrastructure
- DPO regulation for domestic smelting and battery processing firms.

Tracing the Path of EV Incentives in Indonesia: Favouritism over BEV

Phase	Incentives	
Phase 1 *Design*	• **Introduced** a luxury tax (**PPnBM**) based on **CO_2 emissions** and **fuel consumption** if meeting efficiency thresholds ○ BEV/PHEV/FCV : 15% PPnBM with **0%** DPP ○ HEV : 15% PPnBM with **13 ⅓%** DPP	**PP 73/2019** Applied in Oct '21
Phase 2 *Recalibration*	• Kept **PPnBM DPP** of **BEV** at **0%**, but: ○ DPP of **PHEV increased to 33⅓%** ○ DPP of **HEV increased to 66⅔% & 73⅓%**	**PP 74/2021** Applied in Oct '21
Phase 3 *Acceleration*	• **VAT DTP** for **BEV** cars & buses ○ **10%** if TKDN ≥40% ○ **5%** for buses with TKDN 20–<40% • **PPnBM DTP** for **BEV** (CBU & CKD) • **0% import duty** for **BEV** CBU/CKD • **Extended VAT DTP** for **BEV** and **adds PPnBM DTP** by **3%** for LCEV/HEV that qualify	**PMK 8/2024;** Applied in Feb '24 **PMK 9/2024;** Applied in Feb '24 **PMK 10/2024;** Applied in Feb '24 **PMK 12/2025;** Applied in Feb '25

Notes:

DPP = Dasar Pengenaan Pajak
DTP = Ditanggung Pemerintah
LCEV: Low Carbon Emission Vehicle

Reciprocal Commitment

- Producers must be ready for commercial production by 1 Jan 2026 and start production by 31 Dec 2027;
- Bank Guarantee with value ≥ total incentives enjoyed, valid until 30 Jun 2028;

BKPM 6/2023

Key Takeaways

The government is offering **major incentives to boost BEV demand** (distorted lower prices compare to PHEV/HEV) and attract global automotive players with minimal risk. **Once reciprocal commitments are met, this approach is expected to develop domestic BEV industry** and to some extent could also boost government vision on **nickel downstreaming**. However, it potentially **disrupt the existing ICEV-focused automotive sector.**

What About Our “Mature” ICE Industry?

Shares by Vehicle Types

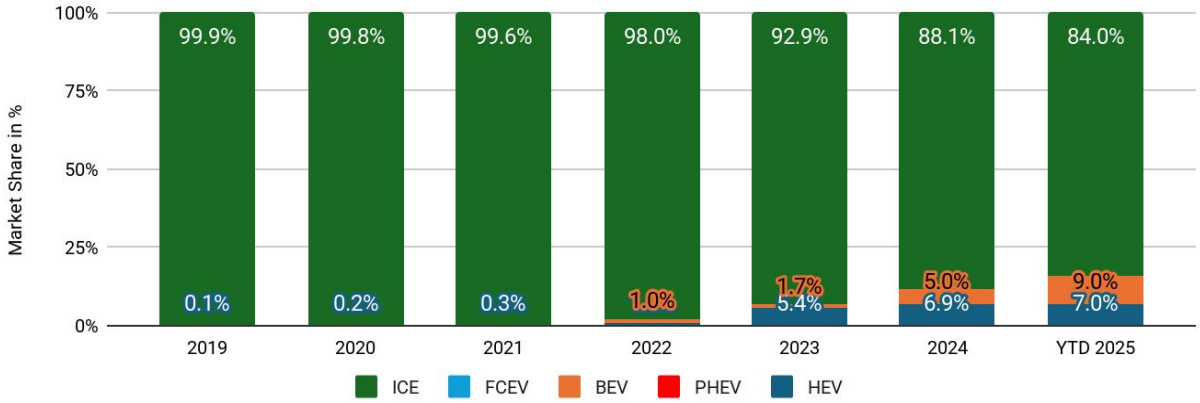


Figure 2: Indonesia’s Automotive Wholesale Data, 2019-2024 (Gaikindo, 2025)

ICEV

88%

of domestic wholesales in 2024

X-EV

12%

of domestic wholesales in 2024

Annual growth (BEV vs HEV)

2022: BEV grew by 14x — HEV grew by 3x

2023: BEV grew by 0.7x — HEV grew by 4x

2024: BEV grew by 1.5x — HEV grew by 0.1x

Employment

1.5mn

of employees in 2022

Assembling

75,000 workers

Industry

430,000 workers

Outlet, Workshop, Sales Service & Parts

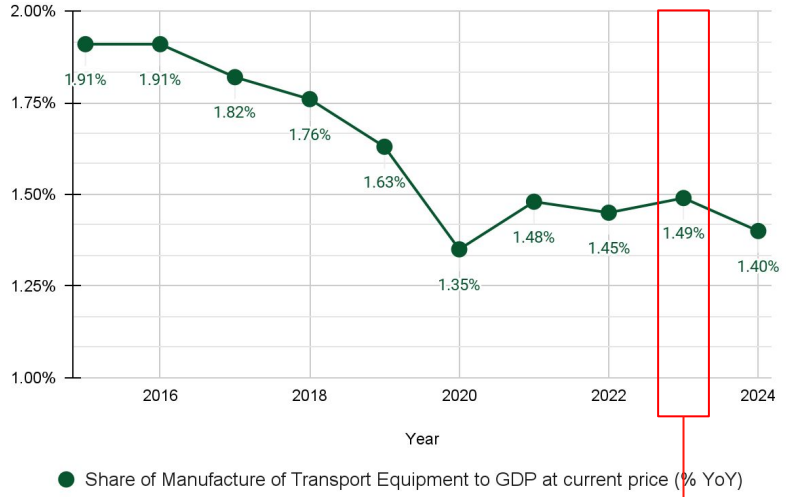
995,000 workers

Highest value added in GVC cycle

(Gaikindo, 2022)

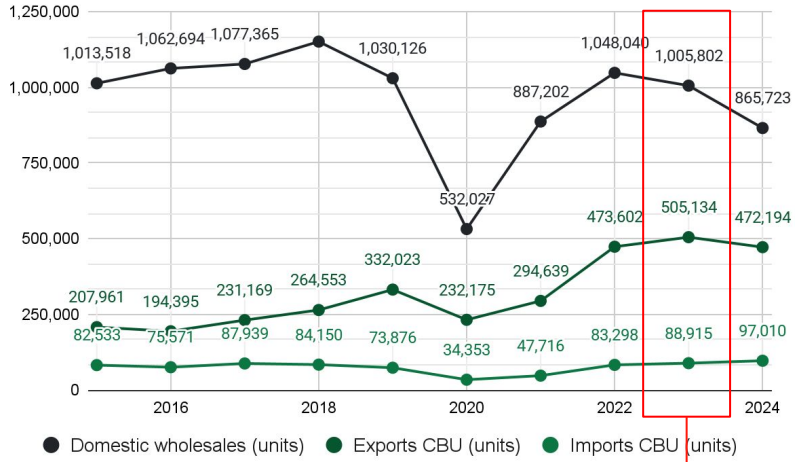
What About Our “Mature” ICE Industry?

Indonesia’s Share of Manufacture of Transport Equipment to GDP (%)



(BPS, 2024)

Indonesia’s Domestic Wholesale, Exports, and Imports



(Gaikindo, 2025)

Long-run slide. The “Manufacture of Transport Equipment” share of GDP fell from **1.91% (2015–2016)** to **1.40% (2024)**

- In 2023, while domestic sales dropped (**-4% YoY**) CBU exports hit a record **505,134 units (+7% YoY).**
- On the other hand, CBU imports remain **subtle** throughout 2015-2025.

In 2023, **while** **domestic sales** **declined**, **share of GDP from the manufacture of transport equipment** **increased**. This aligns with the rise in CBU exports, indicating that exports play a crucial role in both the automotive industry and the overall economy.

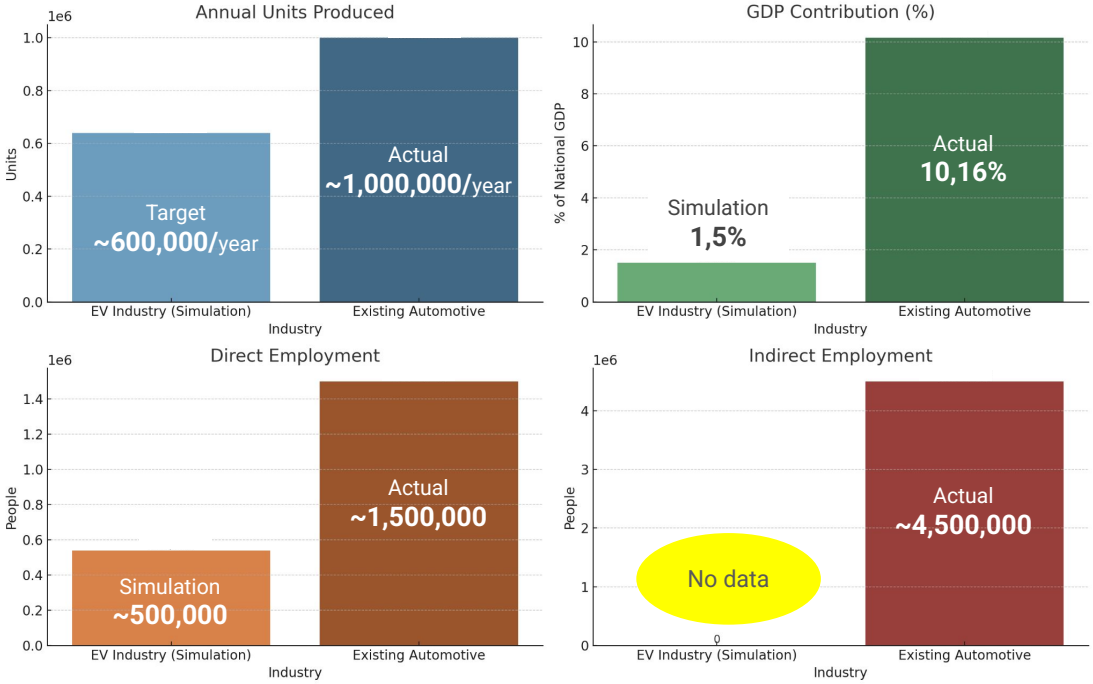


Figure 2. Economic Performance Comparison Between the Simulated EV Industry and the Existing Automotive Industry

Sources: Permana et al. (2022); Kemenperin (2018); Kadin (2022)

Mature ICE industry has significant impact on economic compare EV Industry

The ICE industry supports broad sectors including oil & gas, mechanical parts, and chemical industries.

Meanwhile, ***EV production, currently limited to final assembly, generates fewer economic ripple effects to the economy.***

Most EVs meet LCR threshold through assembling imported components, particularly batteries, not through domestically-sourced components.

- Indonesia imported approximately 80,000 tons of lithium annually from 2023-2024.
- SAIC-GM-Wuling's local subsidiary **has launched** battery pack assembly operations in Indonesia.
- LG Energy Solution's gigafactory (10 GWh capacity) and CATL's USD 6 billion complex—focus on establishing a locally integrated supply chain, including cells, modules, and packs. **However, this initiative still in planning phase.**

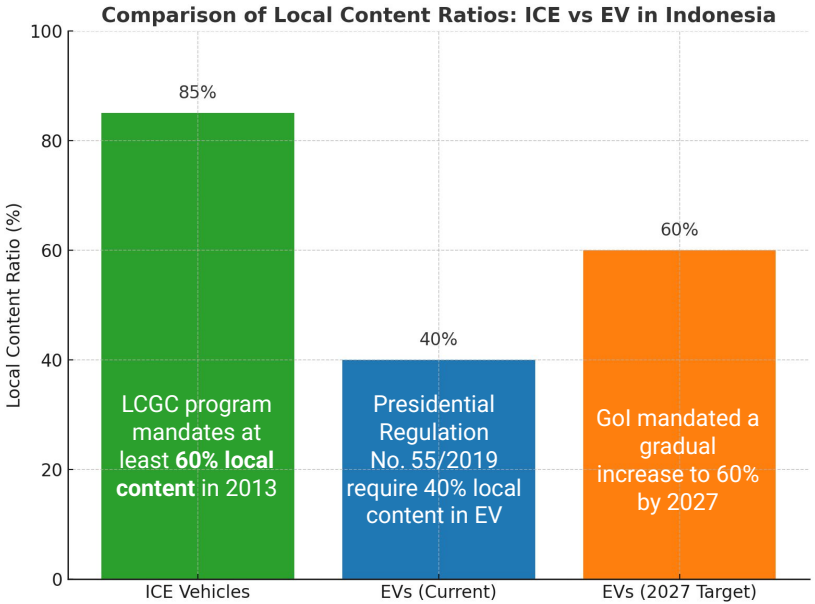


Figure 3: Comparison of Local Content Ratio: ICE vs EV in Indonesia
(Author's illustration)

Linking Nickel to Batteries: Progress and Challenges in Indonesia's Downstream Strategy

Indonesia's nickel production surged 367% YoY in 2022, driven by the 2020 export ban. *Around 85% was exported to China for stainless steel production.*
(Indonesian Miner, 2023)

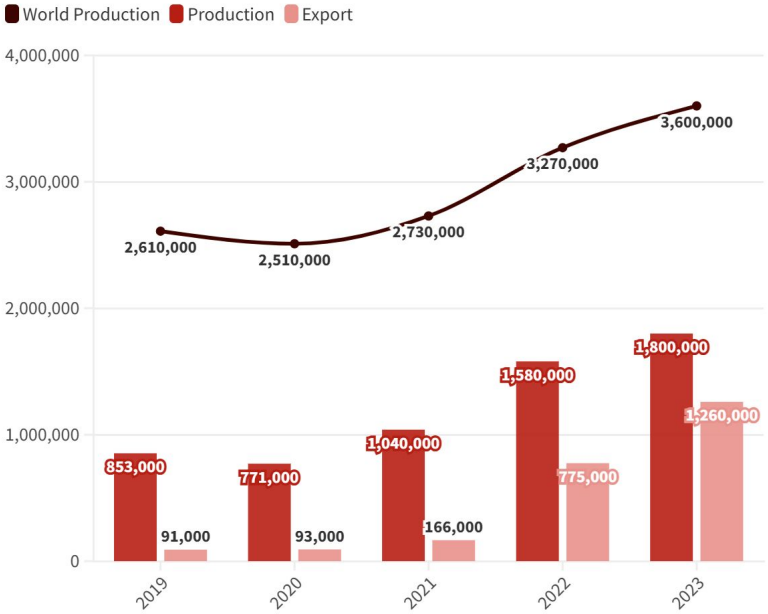


Figure 4. Indonesia's nickel production and export (in tons)
Sources: theconversation.com(2024), BPS, United States Geological Survey

Only 5% of the total nickel production goes into batteries. *Meanwhile, 70% of total production for stainless steel production, a primary material for items from kitchen utensils to skyscrapers and wind turbines*
(Litbang Kompas, 2023)

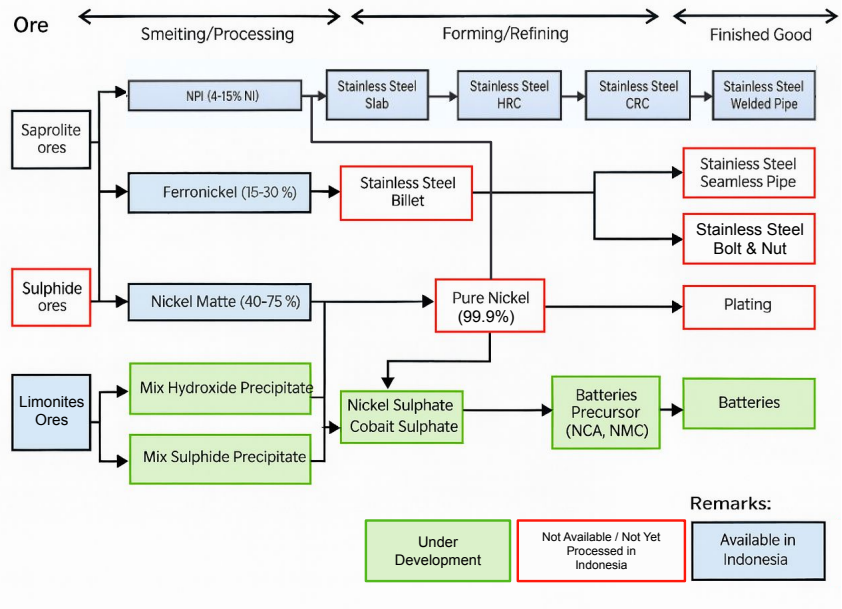
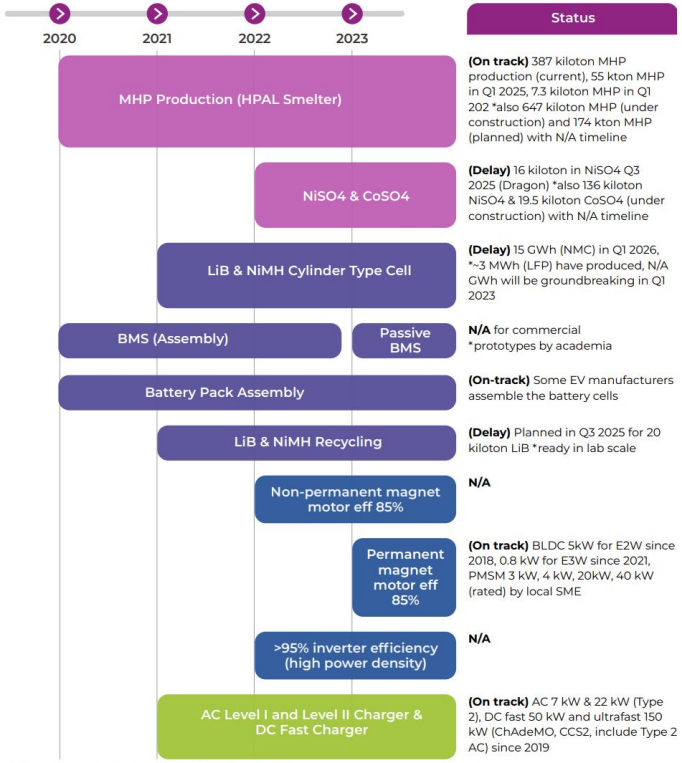


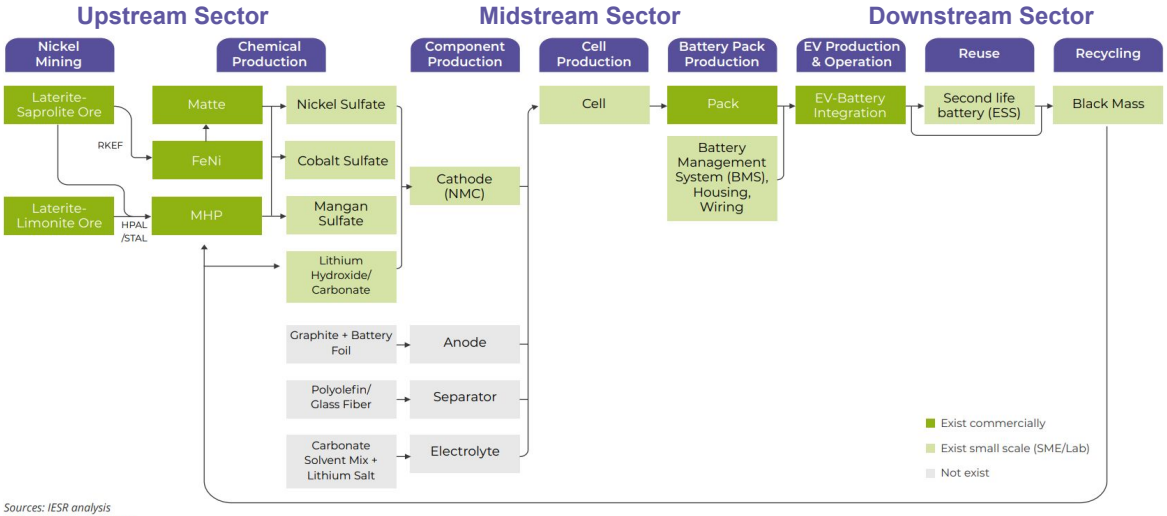
Figure 5. Indonesia's Nickel Tree
Sources: BRIN (2022)

Delayed Roadmap and “Hollow Middle” in Indonesia EV Industry

EV Industry Development Roadmap Progress in Indonesia



Sources: MoI Regulation 6/2022, APNI (2022), IESR analysis



Sources: IESR analysis
(Notes: based on interview)

Contributing Factors:

1. **Uncertainty in Regulation, Coordination and Planning**
2. **Funding and investment:**
   - Seven EV producers (BYD, Citroen, AION, Maxus, Geely, VinFast, and Volkswagen) investing an **estimated Rp 15.4 trillion or approximately $911 million.**
   - Globally, investments into EV production and related supply chains can reach **up to hundreds of billions of dollars**. (Yang, et.al, 2024)
3. **Technology advancement**: EV industry is rapidly evolving, and infrastructure development needs to keep pace with changes in battery technology and charging speeds.

Labor Market Gap

Labor upskilling and adaptability

- EV needs specific technical skills such as high-voltage battery systems, electrical diagnostics, software integration (for smart EVs)
- Rapid technology advancement also requires adaptability of Indonesia's education to prepare labor readiness.

Challenge to Indonesia's Labor Market:
Vocational education (SMK) and polytechnics are still oriented to ICE technology

Job Displacement in Transition from ICE to EV

- ICE manufacture is labor intensive industry, providing around **1 million direct employment** and **4.5 million indirect employment.**
- Meanwhile, EVs have **simpler components**
- Thus, fewer mechanical components means reducing demands for:
  - Engine and transmission technicians
  - Component suppliers
  - Aftermarket service provider
  - Supporting study (IMF, 2023)

Challenge to Indonesia's Labor Market:
Potential job loss in ICE industry.

Transition Frictions and Policy Gaps

- Labor protection to occupational health and safety Risks
  - EV battery manufacturing and nickel mining pose health risk (i.e. exposure to heavy metal)
- Unclear social protection mechanisms for displaced workers
- No large-scale retraining or compensation scheme for ICE job loss
- Lack of a Just Transition strategy (no coordinated plan between MoM, MoI, MoE)

The Future of Indonesia's EV Industry?

Goal	Pathways		Short Term Impacts	Long Term Impacts
Target Net Zero Emission (NZE) by 2060	EV as a path to achieve NZE target	Policy incentives, particularly on BEV	BEV demand increased, attracting global BEV players to invest	Nickel downstreaming strengthened through battery production for EVs (A)
			Distortionary cheaper price of BEV compared to ICEV/HEV/PHEV	Existing ICEV industry disrupted (B)

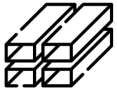
Positive impact
Negative impact

Growing EV demand shows a positive impact, though challenges remain

A

Nickel downstreaming potentially boost **Stainless Steel** and **Battery** production.

Study by Schroder & Iwasaki (2025)



Stainless Steel: **Already** robust forward linkages

Battery: **Requiring** midstream linkages

Challenge:
This **asymmetry in industrial development** risks **constraining Indonesia's ability to maximize value-added** and **employment multipliers** in the **EV battery segment**.

B

ICEV producers may **struggle to shift** to BEVs, and without involving existing players and deepening local ecosystems, BEV growth could disrupt jobs and supply chains. Moreover, in 2023, ICEV exports sustained the transport equipment sector's GDP share amid declining domestic sales.

BEVs emit less GHG than gasoline ICEVs across all segments but still surpass HEVs due to **Indonesia's coal-reliant power grid** (LPEM, 2024).

Challenges:
1) As **ICEV producers lean toward HEV/PHEV/FCEV**, the government **should consider fair incentives** for these segments **to support the transition** while **preserving their current** economic impact and value chain.
2) A rapid shift to BEVs **risks** economic and job losses without maximizing emission cuts **unless the grid is decarbonized** and **local BEV ecosystems are strengthened.**