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Electric Vehicle Opportunity & Challenges In Indonesia

Kukuh Kumara – Secretary General GAIKINDO

FGD : Centre for Strategic and International Studies (CSIS)
24 April 2025

INDONESIAN AUTOMOTIVE GLOBAL POSITION -2024-

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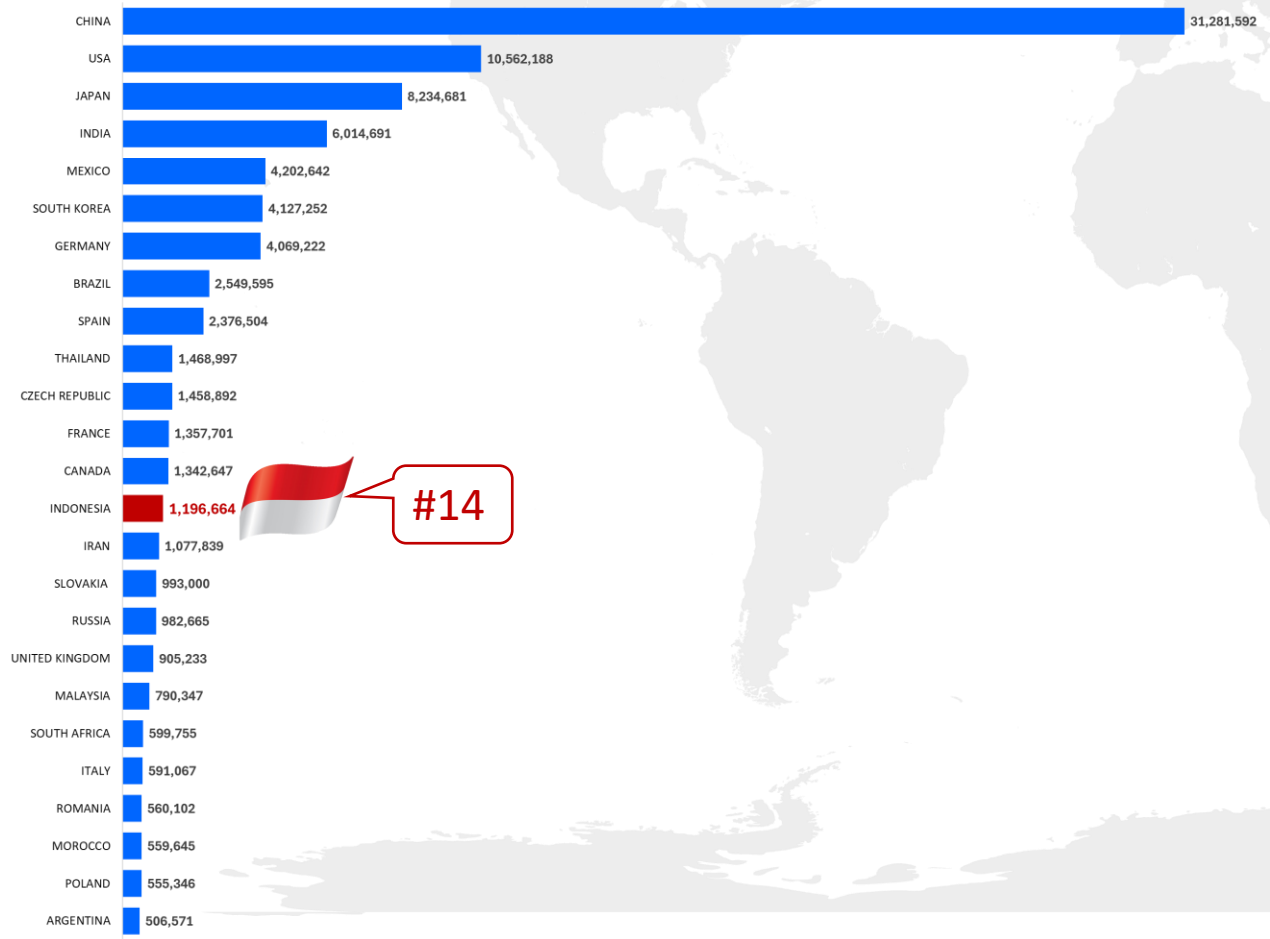
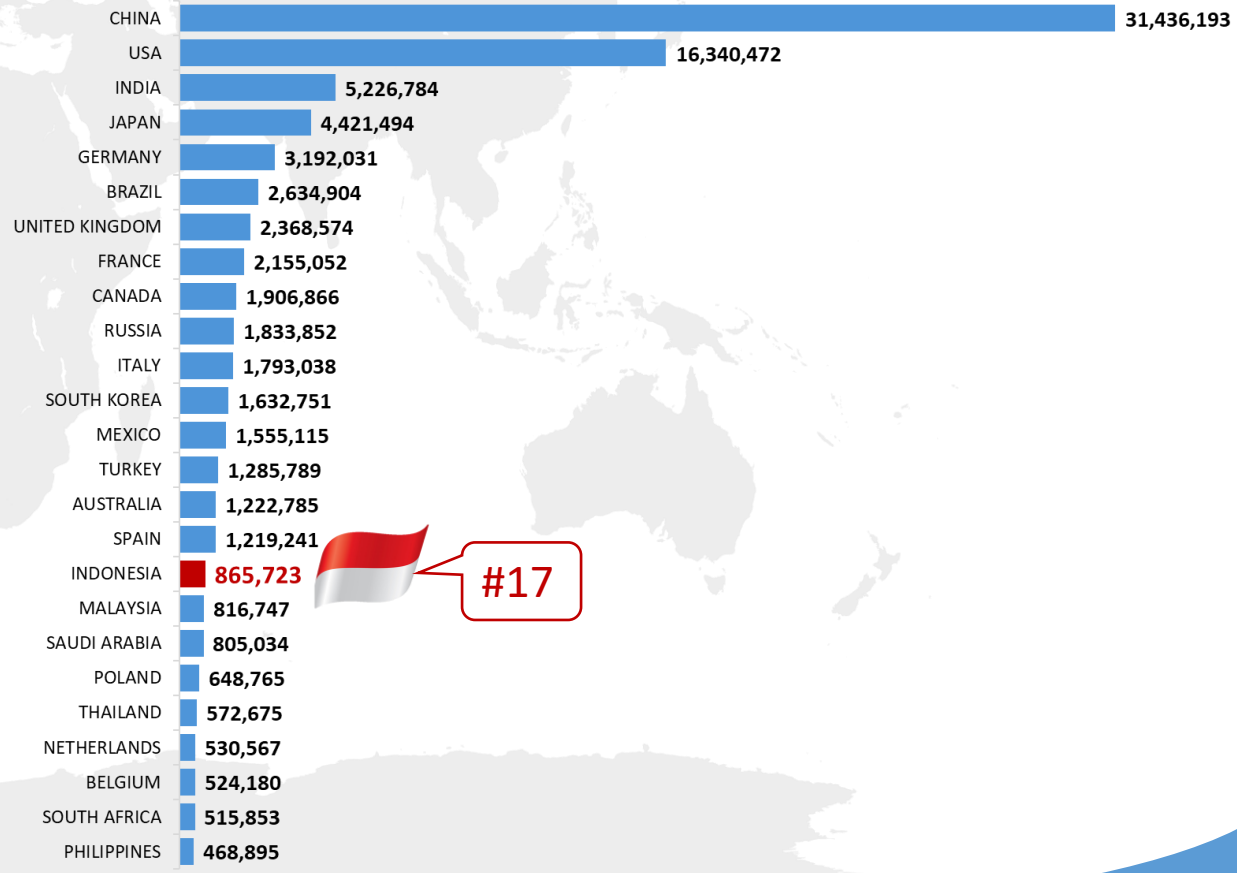
Global Production & Market Top 25:

- **Production**: 2024 Indonesia Rank **#14** **In 2023 :** Indonesia Rank #15
- **Market** : 2024 Indonesia Rank **#17** **In 2023 :** Indonesia Rank #17

TOP 25 VEHICLE GLOBAL PRODUCTION 2024



TOP 25 VEHICLE GLOBAL MARKET 2024

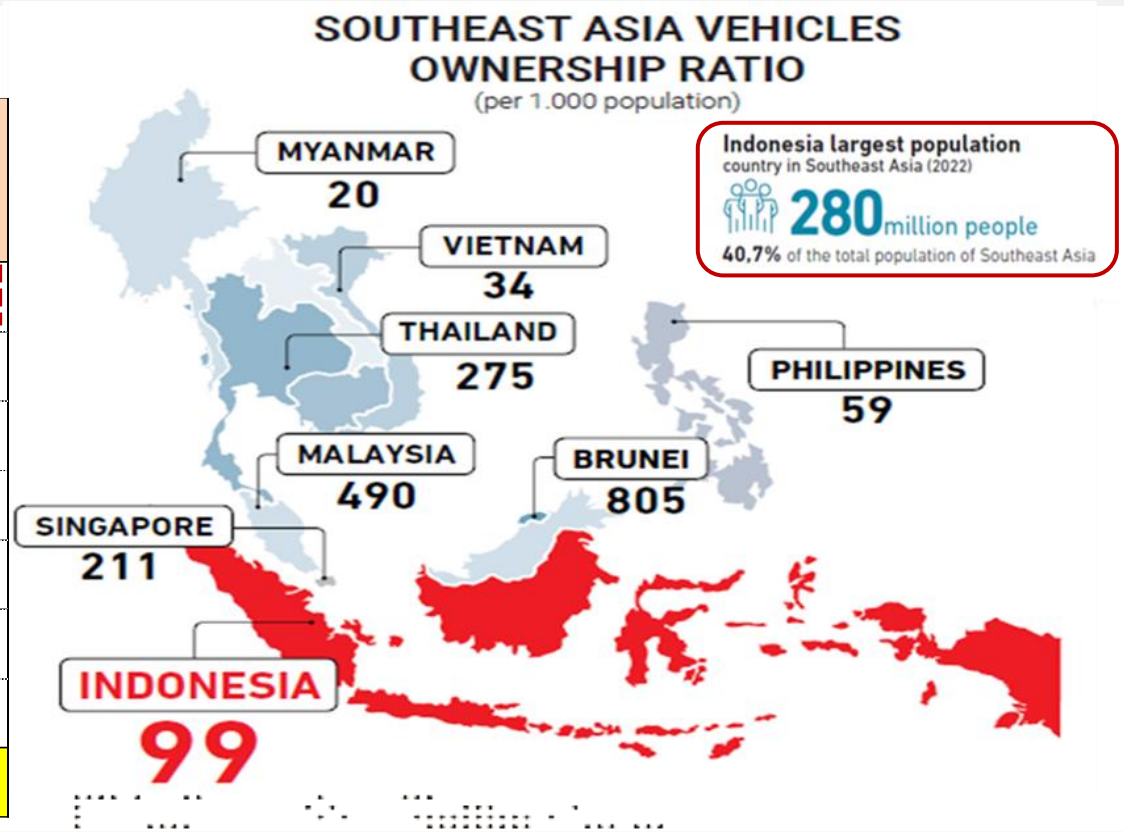


Source : OICA,GAIKINDO

INDONESIAN AUTOMOTIVE ASEAN POSITION -2024-

❖ ASEAN Market 2024

	COUNTRY	Full Year 2024				FORECAST 2025
		Passenger car	Commercial vehicle	TOTAL	SHARE (%)	
#1	INDONESIA	672,986	192,737	865,723	28%	850,000
#2	MALAYSIA	747,180	69,567	816,747	26%	765,000
#3	THAILAND	330,460	232,494	562,954	18%	750,000
	PHILIPPINES	120,770	346,483	467,253	15%	-
	VIETNAM	257,900	82,242	340,142	11%	-
	SINGAPORE	45,625	7,203	52,828	2%	45,600
	OTHER	3,697	614	4,311	0%	-
	TOTAL SALES	2,178,618	931,340	3,109,958	100%	2,410,600

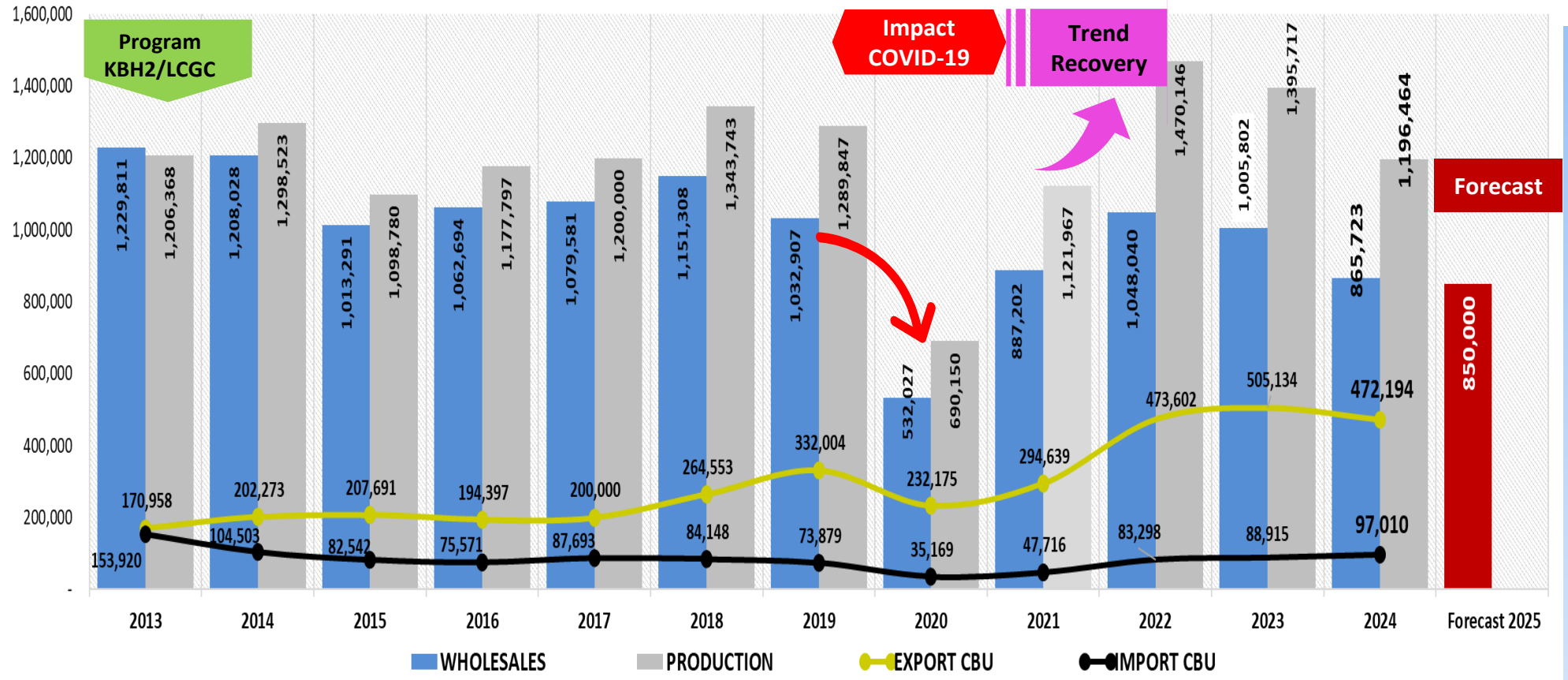


- With a total population of 280 million, Indonesia is the 4th largest population country in the world.
- Indonesia is also Southeast Asia's largest automotive market (31%). However, the vehicle ownership ratio is relatively low (**99 vehicles per 1.000 population**).

Source : AAF, OICA, BANK INDONESIA, BPS

INDONESIA PRODUCTION, WHOLESALES, EXPORT & IMPOR CBU

GROWTH (2013 – 2024)



YEAR 2022

Production Capacity

2.108.465

Total workforce

1.5 Million

Year 2023

- Whole Sales :
  1.005.802 Units
- Export CBU :
  505.134 Units

Forecast 2025 :

Whole Sales :

850.000 Units

(750.000-900.000 units)

Total Wholesales tahun 2024 Sebesar 865,723 units, pencapaian ini sedikit di atas target GAIKINDO

Source : GAIKINDO

Low Carbon Emission Vehicle Program

❑ Past, Current, and Future

1975 — US CAFÉ* implementation (FE concern)
FE: 7,6 km/L
(Market: 72 K)
CV based

1990 — EU start CO2 discussion
(Market: 534 K)

2005 — Stringent environment Policy (Euro 4)
Euro2 w/ CV based Platform

2011 — US CAFE
FE: 12,8 km/L
(Market: 1.230 K)
Fuel subsidy taken out

2013 — LCGC
Trigger factor
• Fuel consumption
• Low buying power
FE: 12,8 km/L
CO2: 180 g/km

2015 — (Market: 1.062 K)

2016 — FE: 16,5 km/L
CO2: 140 g/km
Narrowing GAP w/ Global Trend

2019 — LCEV
Trigger factor
• Energy security
• Environment

2050 — HYBRID

2060 — EV
Initiated by 2-wheels vehicles & Transportation Public

Global Trend

Indonesia Trend

GREEN MOBILITY

Current IDN

NET-ZERO

Industri kendaraan bermotor Indonesia **berawal dengan mengembangkan kendaraan berbasis CV** yang memiliki emisi tinggi dan FE rendah.

Saat ini Pemerintah sudah mulai mengikuti trend global yang fokus pada ZEV, Indonesia dimulai dengan mengembangkan **KBH2/LCGC pada tahun 2013** dan **kendaraan rendah emisi karbon di masa depan (Low Carbon Emission Vehicle/LCEV) di 2019**

*Corporate Average Fuel Efficiency

Hybrid Electric Vehicle (HEV)

❖ HEV, PHEV, BEV Market Ratio

Category	United States (FY2023) Source : eia.gov,marklines.com	Europe (FY2023) Source : acea.auto	China (FY2023) Source : Reuters	Thailand (FY2023) Source : JJC Report	Indonesia (FY2023) Source : GAIKINDO
Battery Electric Vehicle **(BEV)**	**7%** 1,094,109	**16,3%** 1,771,713	**25%** 6,296,000	**10,1%** 78,480	**1,7%** 17,051
Plug-in Hybrid Electric Vehicle **(PHEV)**	1,8% 281,419	8,1% 854,218	12% 3,022,080	1,5% 12,198	0,0% 128
Hybrid Electric Vehicle **(HEV)**	**7,5%** 1,172,581	**27%** 2,889,579	**3%** 755,520	**12,1%** 94,027	**5,4%** 54,179
Total xEV	**16,3%** 2,548,410	**52,3%** 5,515,511	**40%** 10,073,600	**23,8%** 184,705	**7,1%** 71,358
Internal Combustion Engine (ICE)	**83,7%** 13,086,009	**47,7%** 5,030,400	**60%** 15,110,400	**76,2%** 591,295	**92,9%** 934,444
Total Market	**15,634,420**	**10,545,912**	**25,184,000**	**776,000**	**1,005,802**

World Trends Increasing Hybrid

x-EV ASEAN COUNTRY

In ASEAN, Thailand dominates x-EV vehicles, then Indonesia is at number 2

❖ ASEAN x-EV Market :

COUNTRY	YEAR 2024			YEAR 2023			VARIANCE
	HYBRID VEHICLES	ELECTRIC VEHICLES	TOTAL (xEV)	HYBRID VEHICLES	ELECTRIC VEHICLES	TOTAL (xEV)	%
Indonesia	59,903	43,188	103,091	54,179	17,051	71,230	45
Malaysia	31,011	14,569	45,580	28,055	10,149	38,204	19
Myanmar	-	1,361	1,361	-	942	942	44
Philippines	15,979	1,989	17,968	10,140	462	10,602	69
Thailand	118,777	47,691	166,468	81,665	40,830	122,495	36
Vietnam	9,866	-	9,866	-	-	-	100
TOTAL VEHICLES	**235,536**	**108,798**	**344,334**	**174,039**	**69,434**	**243,473**	41

❖ ASEAN x-EV Production :

COUNTRY	YEAR 2024			YEAR 2023			VARIANCE
	HYBRID VEHICLES	ELECTRIC VEHICLES	TOTAL (xEV)	HYBRID VEHICLES	ELECTRIC VEHICLES	TOTAL (xEV)	%
Indonesia	70,621	25,861	96,482	66,835	15,318	82,153	17
Malaysia	32,268	133	32,401	33,849	1,175	35,024	-7
Thailand	192,457	1,198	193,655	155,140	157	155,297	25
TOTAL VEHICLES	**295,346**	**27,192**	**322,538**	**255,824**	**16,650**	**272,474**	**18**

Source :

- *ASEAN Automotive Federation (AAF)*
- *GAIKINDO*

Indonesia Market ICE & Non ICE
2019 –Ytd. Mar 2025

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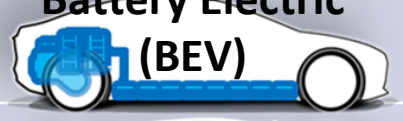
❖ Indonesia Ice & x-EV Market

Indonesia Currently the maximum incentive is given to BEV vehicles with a total vehicle tax of 1%

FORECAST 2025	
Model	Units
Hybrid (HEV)	75.000
BEV	60.000

MODEL	YEAR (Units)				
	2021	2022	2023	2024	Ytd. Mar 2025
 Internal Combustion Engine (ICE)	883,997	1,027,359	934,444	762,495	174,618
 Hybrid (HEV)	2,472	10,344	54,179	59,903	13,957
 Plug-In Hybrid (PHEV)	46	10	128	136	50
 Battery Electric (BEV)	687	10,327	17,051	43,188	16,535
 Fuel Cell Electric Vehicle (FCEV)	0	0	0	1	0

Sales of Electrified Vehicles are still dominated by HEVs, the development of BEVs from year to year is also increasing but not as big as HEV

Indonesia Market ICE & Non ICE
2019 –Ytd. Mar 2025

WHOLESALES 2019 -YTD. MAR 2025

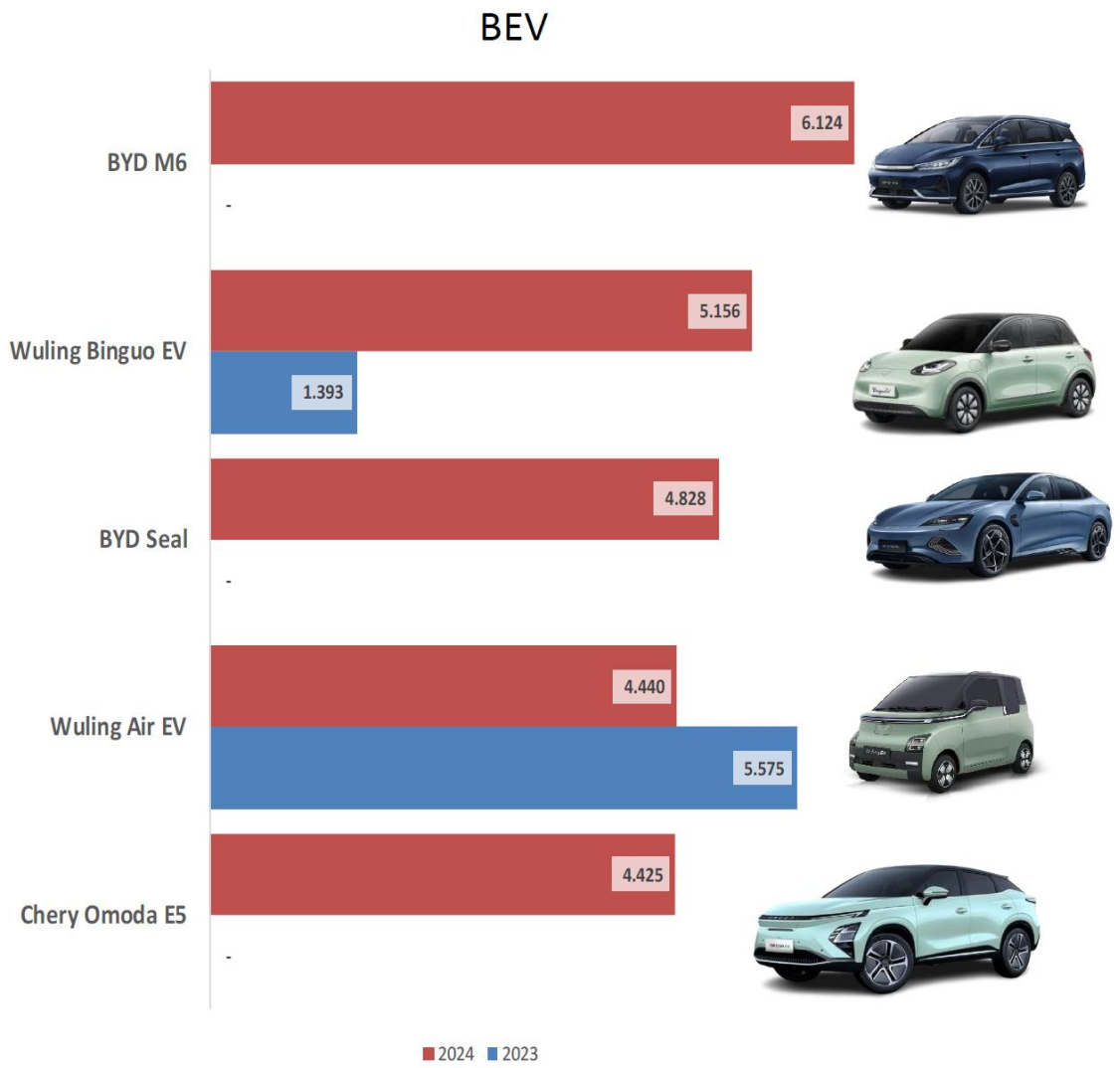
CATEGORY	2019		2020		2021		2022		2023		2024		YTD. MAR 2025	
	UNITS	SHARE	UNITS	SHARE	UNITS	SHARE	UNITS	SHARE	UNITS	SHARE	UNITS	SHARE	UNITS	SHARE
HEV (Hybrid Vehicle)	787	0.1%	1,191	0.2%	2,472	0.3%	10,344	1.0%	54,179	5.4%	59,903	6.9%	13,957	6.8%
PHEV (Plug In Hybrid Vehicle)	25	0.0%	8	0.0%	46	0.0%	10	0.0%	128	0.0%	136	0.0%	50	0.0%
BEV (Battery Electric Vehicle)	-	0.0%	125	0.0%	687	0.1%	10,327	1.0%	17,051	1.7%	43,188	5.0%	16,535	8.1%
Fuel Cell Electric Vehicle (FCEV)	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	1	0.0%	-	0.0%
TOTAL X-EV	**812**	**0.1%**	**1,324**	**0.2%**	**3,205**	**0.4%**	**20,681**	**2.0%**	**71,358**	**7.1%**	**103,228**	**11.9%**	**30,542**	**14.9%**
ICE KBH2/LCGC	217,454	21.1%	104,650	19.7%	146,520	16.5%	158,206	15.1%	204,705	20.4%	176,766	20.4%	38,668	18.8%
ICE NON KBH2 (PC & CV)	814,641	78.9%	426,053	80.1%	737,477	83.1%	869,153	82.9%	729,739	72.6%	585,729	67.7%	135,950	66.3%
TOTAL ICE	**1,032,095**	**99.9%**	**530,703**	**99.8%**	**883,997**	**99.6%**	**1,027,359**	**98.0%**	**934,444**	**92.9%**	**762,495**	**88.1%**	**174,618**	**85.1%**
TOTAL MARKET	**1,032,907**	**100%**	**532,027**	**100%**	**887,202**	**100%**	**1,048,040**	**100%**	**1,005,802**	**100%**	**865,723**	**100%**	**205,160**	**100%**

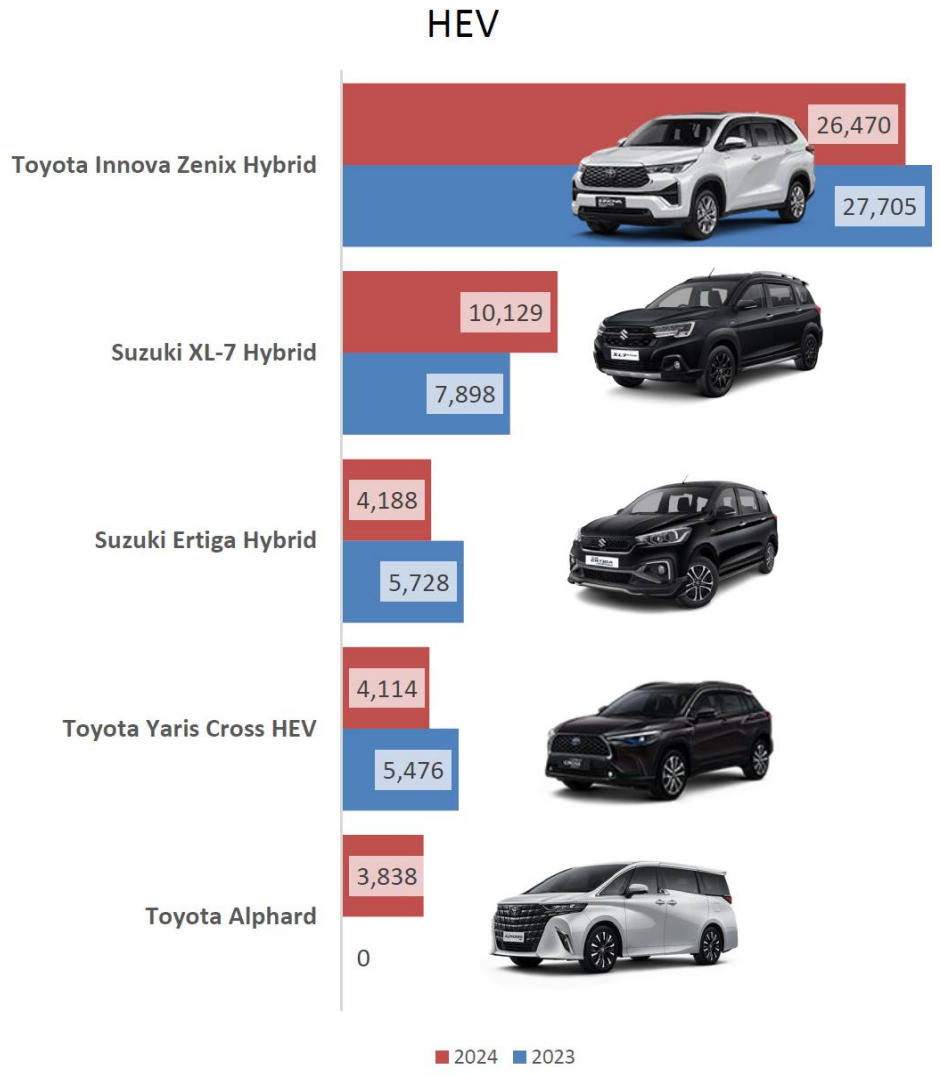
Note : Data member GAIKINDO
ICE: Internal Combution Engine

Sales of Electrified Vehicles are still dominated by HEVs, the development of BEVs from year to year is also increasing but not as big as HEV

Indonesia EV Market Movement

❖ Top 5 EV & Hybrid Sales Performance YTD Jan-Dec 2024





Source : GAIKINDO,Degre

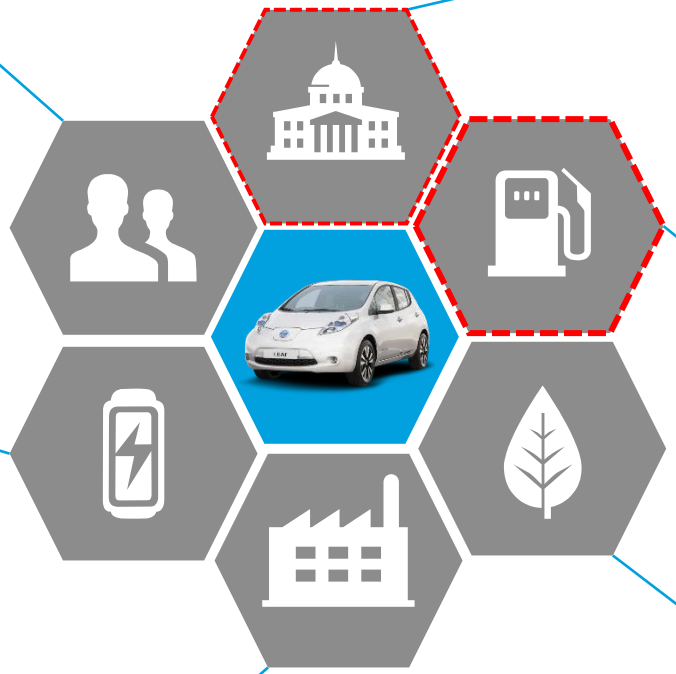
BEV (Battery Electric Vehicle)

Points to be Developed in Order to Promote BEV

Customer Convenience

Customer Anxiety

- Income vs BEV & x-EV price. Most Customer prefer car Price below 300 mil IDR.
- Resales Value.



Government Policy

To promote EV, it is necessary for government to provide large incentive & push Industry Moving Forward

- Automotive Industry Should be Developed to Enhanced BEV Market Growth.
- Incentive to Customer (central and regional taxation) ,
- Standardization (eg. Battery)
- Consistent Regulation

Infrastructure of Charging Station

To realize the smooth energy supply, we need to develop

- Number and covered of the Charging Station
- Cost for Station Establishment
- Charging Station Standard
- Uninterruptable Electric Supply

Battery

Battery is the "Engine of EV"

- Affordable Cost of Battery.
- Long Life Battery Experience.
- Long Charging time.
- Short Driving Range.

(Impact to Existed) Industry

- Existing Parts Industry to Realign their business product.
- Industry shift to Module production in order to easier fulfil customer demand.

Environment

CO2 Emission Reduction

- Invention of Battery Green Disposal Technology and Economically achieved .
- To Expedite Green electric power plants development in replacing current fossil fuel based plants.

Infrastructure – Charging Station

To be successfully running EV program, one of the most important part is establishment of Charging Station.

The charging **station can be divided into normal charging station and high speed charging station**

of Necessary Station

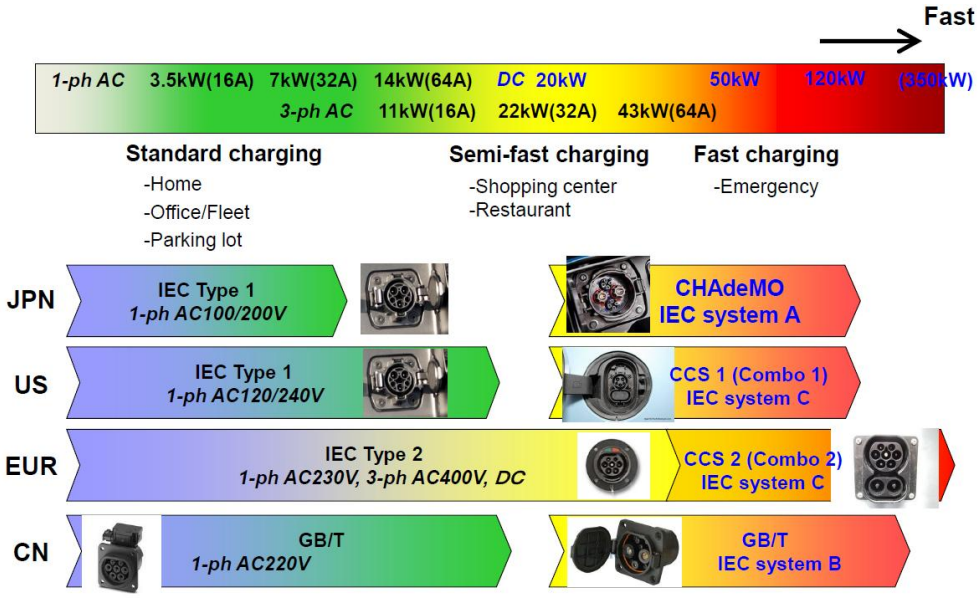
✓ The charging station can be divided **in normal charging station and high speed charging station** and there is price gap existing.

	CHARGING LEVEL	POWER SETTING	ELECTRIC SUPPLY	CHARGING CAPACITY	INVESTMENT BUDGET/STATION
Normal	**AC LEVEL 1** (Residential Used)	1,7 Kw	120V AC/20A 240V AC/10A)	1 hour charging for 8-10 km	**$300 - $600**
Normal	**AC LEVEL 2** - Minimum - Typical - Maximum (Residential Used)	 3,4 kW 6.7 kW 19,2 kW	 240V AC/20A 240V AC/40A 240V AC/100A	 1 hour charging for 16-20 km 1 hour charging for 40-44 km 1 hour charging for 96-112 km	 **$600 - $700** **(To be confirm latter)** **(To be confirm latter)**
High Speed	**DC LEVEL 1** (Commercial Used)	40 kW	Up to 500V DC/80 A	1 hour charging for 200-240 km	**$50,000**
High Speed	**DC LEVEL 2** (Commercial Used)	100 kW	Up to 500V DC/200A	1 hour charging for up to 480 km	**$100,000**
High Speed	**TESLA** (Proprietary) (Commercial Used)	120 kW	480 V DC/250A	30 min charging for 240 km	**$100,000 - $270,000**

Standard Difference

✓ There are **several different standard existed for high speed charging station**

✓ EV advanced countries are competing for EV charging standard

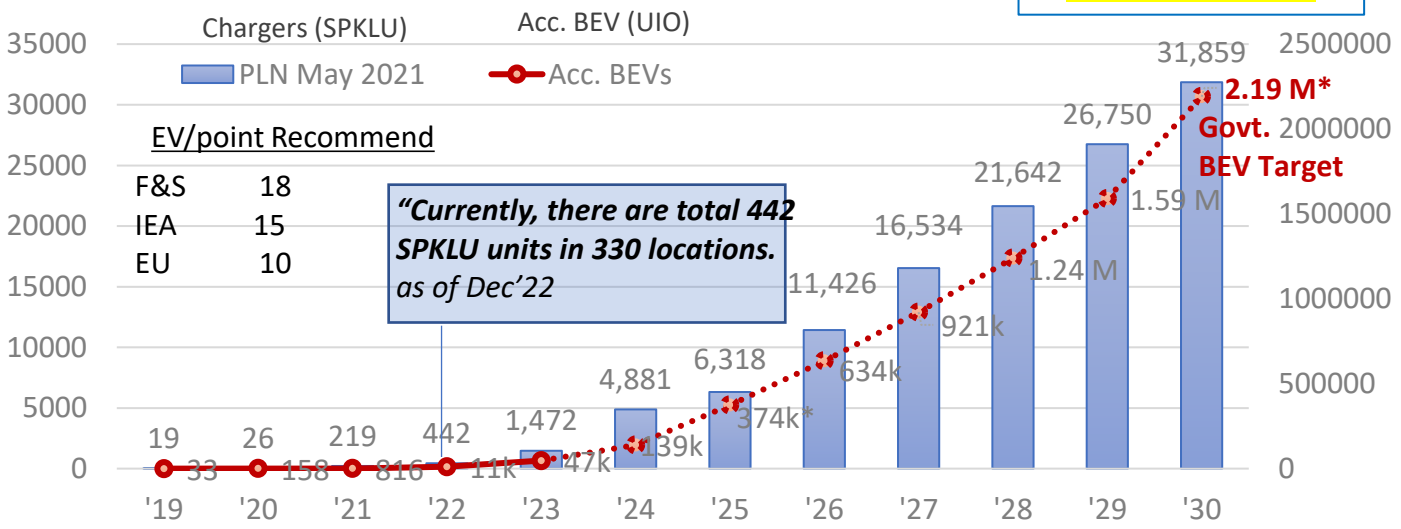


Infrastructure – Charging Station

Peningkatan penjualan BEV juga harus diimbangi dengan peningkatan Charging Station untuk mengurangi kekhawatiran Konsumen pada saat menggunakan BEV

ID Govt on Charging Infrastructure

69 BEVs/Point



*'@2025: Acc. BEV 374k units (Deloitte Indonesia Perspectives 2022), @2030: Acc. BEV 2.19 M units (Govt.'s Target)

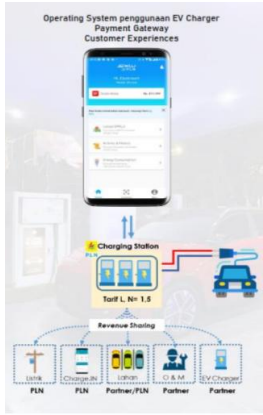
Note : GSEN : Grand Strategy Energy National (Ministry of Energy and Mineral Resources (ESDM)

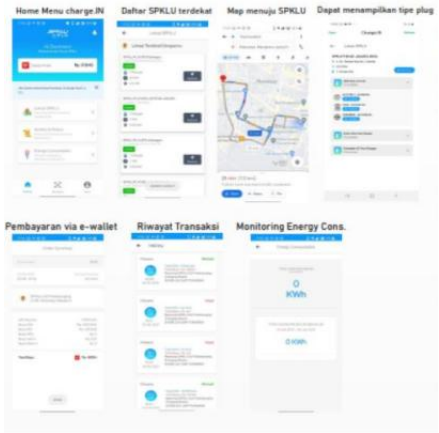
SPKLUs	2022	2023	2024	2025	2026	2027	2028	2029	2030
GSEN	2,008	3,445	4,881	6,318	11,426	16,534	21,642	26,750	31,859

Incentives for SPKLU Operators

Incentive for SPKLU operators	
Partnership Scheme	Partnership Investor Own Investor Operate (IO2) cooperation scheme from PLN (Co-invest & Profit Sharing)
Electricity Fee	Lower electricity tariff for charging station operators (Rp 714/kWh for SPKLU operator who re-sell the power at Rp 2,475/kWh) *<ESDM under Drafting>*

Effort to encourage customers by developing PLN Charge.IN App

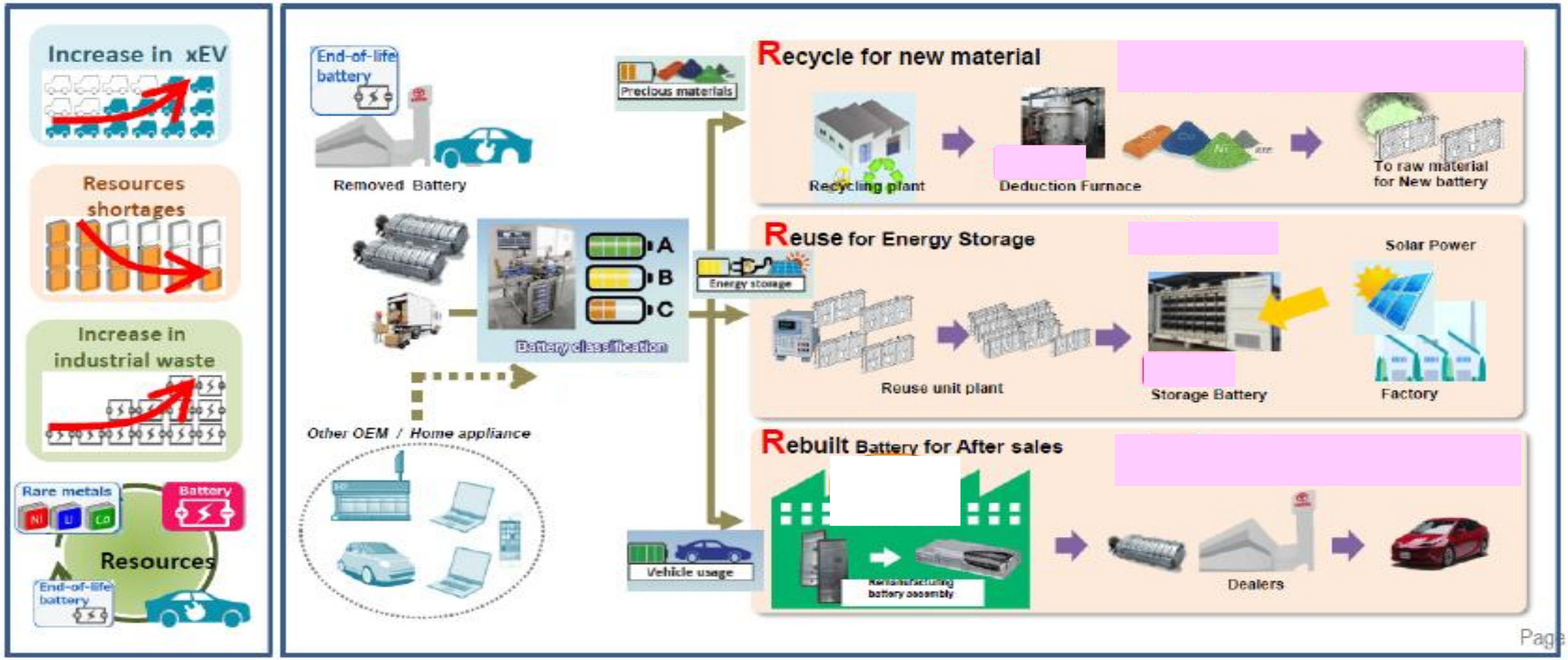




- Real-time Mapping & status SPKLU
- Payment method options

Battery Life Cycle Management

Pertumbuhan xEV akan meningkatkan *battery waste*, diperlukan *Life cycle of battery with 3R scheme* agar dapat meningkatkan *circular* economy dan perlu dukungan *stake holders* terkait



Summary

1. Car sales in Indonesia are stagnant at the level of 1 million units in the 2015-2023 period. Optimizing vehicle production capacity will become a locomotive for domestic supporting industry (industrial ecosystem) & for increasing exports.
2. The automotive sector is a barometer of the national economy & is one of the favorites for non-oil and gas exports. The growth of the automotive industry will have an impact on national economic growth and Indonesia can become part of the Global Supply Chain.
3. BEV are still not the choice of most car users because their prices are relatively expensive compared to ICE and HEV.
4. The development of the x-EV market still requires more fiscal incentives than those currently provided.
5. All x-EV technologies (HEV, PHEV and BEV) are given the opportunity to be part of the x-EV development program, because all can play a role in reducing emissions, providing choices for consumers, and considering the Economic Value of Carbon.
6. Reduce the price difference between x-EV and ICE & reducing the price difference between x-EV and ICE and providing a wide choice of x-EV car models on the market, including BEV.
7. Increase the availability of supporting infrastructure (such as electric car charging stations) to increase consumer confidence and desire to switch to electric vehicles.
8. Reducing the cost of doing business and simplifying the process for setting up companies that are included in the BEV value chain and ecosystem in Indonesia.
9. Electric vehicles are expected to continue to grow, with more and more motor vehicle brands entering Indonesia, giving consumers more choices.

GAIKINDO

Thank You

PROYEKSI INDUSTRI KENDARAAN LISTRIK DI INDONESIA

Kondisi Saat Ini

JUMLAH PERUSAHAAN

7 Perusahaan

KAPASITAS PRODUKSI

59.660 Unit/Tahun

Peserta Program Insentif CBU dan CKD

BYD
Kapasitas Produksi : 150.000 Unit/Tahun
Rencana Investasi Rp 11,7 Triliun

VINFAST
Kapasitas Produksi : 50.000 Unit/Tahun
Rencana Investasi USD 1.2 Miliar

AION
Kapasitas Produksi : 19.000 Unit/Tahun

VW
Kapasitas Produksi : 6.000 Unit/Tahun
Rencana Investasi Rp 462 Miliar

MAXUS
Kapasitas Produksi : 6.000 Unit/Tahun
Rencana Investasi Rp 468 Miliar

Potensi Penambahan Kapasitas Produksi

HYUNDAI
80.000 Unit/Tahun

PT. HANDAL INDONESIA MOTOR
CHERY, JETOUR — Drive Your Future —, NETA, GEELY

PT. GAYA MOTOR
mazda

PT. SGMW MOTOR INDONESIA
MG