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Vehicle Electrification as the Future of Smart Mobility

Session 4 – Environment

Presented for The Japan Association for Smart Cities in ASEAN (JASCA) Seminar & Business Matching in Jakarta

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The Growth Pipeline Company™

Future of Smart Cities

THE FUTURE IS ALL ABOUT SMART CITY SOLUTIONS THAT ARE SUSTAINABLE, GREEN, AND RESOURCEFUL

Data is a key enabler for the deployment of smart city solutions. City data will be useful for local governments and can be used to deliver smart city solutions. Converging city-wide mobility data from multiple sources toward a single source for real-time monitoring and operations will be key for smart cities.

Transportation is a key pillar for building a smart city. Cities are focusing on developing their public transportation network, developing autonomous and electric vehicles, focusing on greener transportation, and providing enhanced security to their citizens while travelling.

Technology is becoming a key enabler for the deployment of smart city solutions. The future is moving toward providing integrated solutions that connect all verticals under a single platform. IoT is paving the way for the deployment of sensors for city-wide data acquisition across the city to continuously measure various city parameters in real time.

5G can support smart city goals such as the creation of long-term economic sustainability, provision of a high quality of life for citizens, better traffic management, assurance of safety, resource security, and environmental sustainability. The Asia-Pacific is expected to become the largest adopter of 5G by 2025.

Source: Frost & Sullivan

Key Parameters that Define a Smart Cities

SMART CITIES ARE THOSE WITH ACTIVE AND VERIFIABLE PURSUITS OR SMART CITY PARAMETERS

Smart Energy – Digital Energy Management

- Smart grids
- Smart meters
- Intelligent energy storage

Smart Buildings – Automated Intelligent Buildings

- Building automation
- Intelligent buildings: Advanced heating, ventilation
- Renewable Energy Integration

Smart Mobility – Intelligent Mobility

- Advanced traffic management system
- Parking management
- Intelligent transport system
- Multimodal transport
- Low emission mobility

Smart Technology – Seamless Connectivity

- 5G connectivity
- Super broadband
- Free Wi-Fi
- 1 Gbps download
- speed

Smart Infrastructure – Digital Infrastructure Management

- Sensor networks
- Digital water and waste management

Smart Governance and Smart Education – Government-on-the-go

- e-Government
- e-Education
- Disaster management solutions

Smart Healthcare – Intelligent Healthcare technology

- e-Health and m-Health systems
- Intelligent and connected medical devices

Smart Citizens – Civic Digital Natives

- Green mobility options
- Smart lifestyle choices
- Energy consciousness

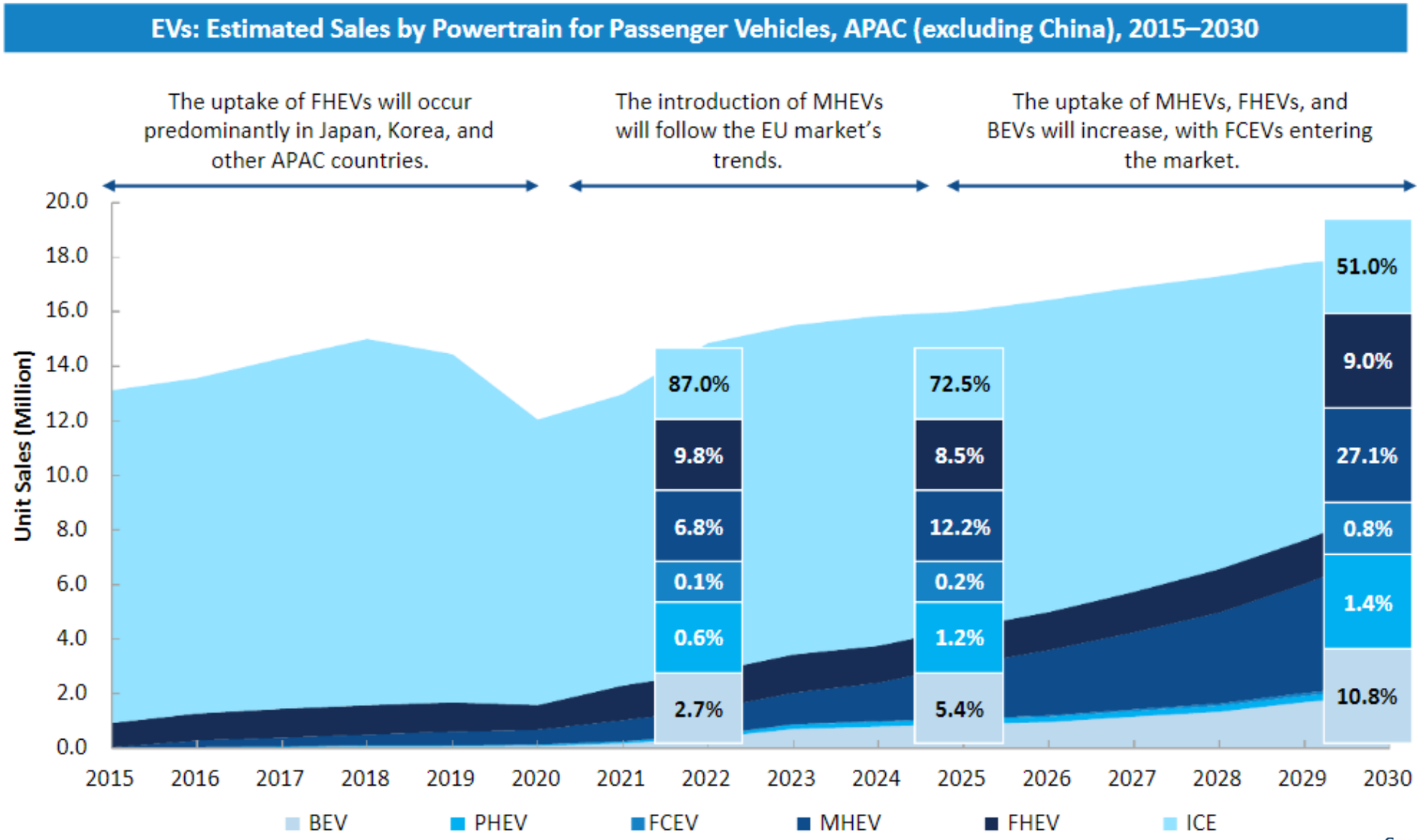
Smart Security – Next Generation 911

- Surveillance
- Biometrics
- Simulation modelling and crime protection

Source: Frost & Sullivan

APAC (Excluding China) Powertrain Mix in the Next Decade

THE EV MARKET IN APAC IS BOOMING, WITH A TOTAL XEV SHARE OF 13% WITH 87% ICE VEHICLES IN 2023 WHICH IS LIKELY TO CHANGE TO 51% ICE AND 49% OF XEV



Source: Frost & Sullivan

EV Growth and Penetration

INDONESIA EV MARKET IS LIKELY TO REACH 80% GROWTH IN 2023 AND REACH 2.1% EV PENETRATION

The EV Market: EV Growth and Penetration – Top 10 Countries, APAC, 2022 and 2023e

Country	Sales	Est. Growth (2022-2023e)	EV Penetration	
			2022	2023e
South Korea	278,523 / 182,041	53.0%	12.1%	18.8%
Japan	193,946 / 94,608	105.0%	2.3%	4.6%
India	111,672 / 49,632	125.0%	1.2%	2.7%
Australia	79,435 / 40,736	95.0%	3.9%	6.4%
New Zealand	60,895 / 23,421	160.0%	20.1%	42.1%
Thailand	37,436 / 20,798	80.0%	2.5%	4.1%
Taiwan	45,323 / 18,499	145.0%	8.5%	19.7%
Hong Kong	31,418 / 18,481	70.0%	50.6%	68.8%
Indonesia	19,170 / 10,650	80.0%	1.2%	2.1%
Singapore	6,894 / 3,830	80.0%	10.0%	16.6%

2023e 2022

Source: Frost & Sullivan

EV Growth Drivers

Why is EV growing in Indonesia?

Favorable government policies attracted more EV stakeholders to Indonesia. The country is implementing tax holidays and production incentives to encourage foreign stakeholders to invest in local production capacity.

Implications for 2023

Investment policies in Indonesia is attractive and preferable for foreign investors. Through the government's tax holiday and subsidies, more stakeholders, including LG (batteries), Hyundai (EVs), and BASF (nickel process), have begun to build plants and sign agreements in the region. This trend is continuing in 2023.

Best Practices: Local Production Advantage, Indonesia

Abundant Minerals Facilitating EV Ecosystem

Indonesia has rich minerals, such as nickel and cobalt, that are crucial for EV battery production. Many investors are foreign mineral refinery chemical production companies

Boosted EV Market

In 2022, Indonesia sold 10,210 EVs, an increase of 1,373.3% of which 99.9% were BEVs. Chinese and South Korean OEMs, especially Wuling with its dominant 78.9% share from its leading Wuling Air EV model, are driving the EV market

Government Support

The FTA offers benefits such as 100% foreign ownership, significant tax exemption on raw material import duties and corporate taxes, land ownership, and visa facilitation

Innovation hub

Hyundai is the most significant investor in Indonesia, spending $1.5 billion to set up new plants for EVs and ICE vehicles. Hyundai collaborated with LG to build ASEAN's largest EV battery plant in Indonesia.

Automotive Parts

Indonesia has a skilled labor force for the automotive parts industry. The government has set a goal of producing 1.6 million cars in 2023 and will launch more targeted incentives in vital sectors, such as sophisticated electronic systems, and provide new investment opportunities.

Source: Frost & Sullivan

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