CAPACITY AND MARKET POTENTIAL FOR LOCAL PRODUCTION AND DISTRIBUTION OF ELECTRIC TWO-WHEELERS IN SOUTHEAST ASIA

FOCUSED ON THAILAND, INDONESIA, AND VIETNAM

SOLUTIONPLUS POLICY PAPER

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TITLE

Capacity and market potential for local production and distribution of electric two-wheelers in Southeast Asia, focused on Thailand, Indonesia, and Vietnam

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Purpose	Capacity and market potential for local production and distribution of electric two-wheelers in Southeast Asia, focused on Thailand, Indonesia, and Vietnam
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ABSTRACT

While current attention is predominantly focused on four-wheeled vehicles for international cooperation on vehicle electrification in Southeast Asia, there is a need for increased attention on the two-wheeler (2W) vehicles. Southeast Asia has the highest penetration rate of 2W vehicles in the world, particularly in Thailand, Vietnam, and Indonesia. These vehicles are popular in this region due to the lack of adequate public transportation, suitability for navigating in narrow roads, and its ability to maneuver through severe traffic congestion. In addition, 2Ws are flexible and low-cost transportation options with increased accessibility and last-mile connectivity. However, internal combustion engines (ICE) 2Ws are widely used and are one of the main reasons for urban air pollution and greenhouse gas emissions. Considering the significant potential of 2Ws to contribute to the transportation of people and goods in the region, electrifying these types of vehicles has a greater potential to mitigate climate impact. This paper highlights the importance of harmonious collaboration between digital platforms, finance, and government policies that support the electrification and innovative business model of electric 2Ws (E2Ws). Above all, to expand the region's extensive E2Ws ecosystem, local EV and charging equipment manufacturers must strengthen the collaboration between companies that constitute the global supply chain. Locally produced environmentally friendly competitive products with improved technology must be distributed to the market. In addition, EV producers need to develop and apply various innovative business models, such as battery reuse and recycling, with stakeholders in the market that have strong growth potential, including digital platform companies. The financial sector needs to contribute to lowering the financial burden of accessing EVs through cutting-edge programs. Governments must provide financial and non-financial policy support measures for rapid and widespread distribution of technical standards, preferential treatment for EVs, and charging equipment.

The Southeast Asian region is experiencing economic growth, accompanied by an expansion of the middle class and rising demand for transportation. This presents an opportunity to transition to electric vehicles (EVs) in order to reduce emissions and create new economic opportunities. Nevertheless, there are obstacles to be overcome, including global supply chain limitations and competition from established automotive manufacturers.

Despite these challenges, several Southeast Asian countries, including Thailand, Indonesia, and Vietnam, are striving to establish themselves as EV manufacturing hubs. They are engaged in collaborative efforts with international companies, with a particular focus on electric two-wheelers, which are more affordable for the population. This transition has the potential to address climate change and create economic growth in the region.

Two-wheelers (2Ws) are particularly prevalent in Southeast Asia, with Thailand, Vietnam, and Indonesia exhibiting the highest rates of motorcycle ownership and production in the region [1] [2]. These countries have the highest rates of motorcycle ownership and production in Asia. This popularity is attributable to a confluence of factors, including the limited availability of public transportation, the affordability of motorcycles, and their maneuverability in congested areas.

Despite the potential shift towards cars as incomes rise [3], 2Ws are expected to remain the dominant mode of transport in Southeast Asia due to their lower cost. The electrification of this sector is crucial in order to address concerns regarding air pollution. With projections indicating that over 100 million electric two-wheelers will be in use by 2027 [4]., Southeast Asia is well positioned to play a significant role in this transition.

Current challenges that hinder the development of local E2W production and distribution in Southeast Asia include:

- Competition with ICE 2W and (cheaper) foreign electric 2W brands
- Limited availability of incentives for local producers and distributors
- Lack of battery, charging, and swapping standardization
- Battery technology is still developing
- Lack of agility to adapt with emerging digital mobility and commercial services
- Nascent market for battery recycling and vehicle retrofitting
- Scarcity of raw materials
- High production cost and limited availability of components

In tackling the issues, this paper provides recommendations on three different scopes: technology, industry, and policy. The recommendation includes:

1. Technology Level

- Transition from lead-acid to advanced batteries to enhance vehicle range and performance
- Improvement of battery charging and swapping infrastructure
- Supply chain stability and additional revenue streams

2. Industry Level

- Advancement of business models for E2Ws linked to e-commerce and

sharing economy
- Development of E2W financing programs
- Support for the vehicle retrofit industry linked to the used car business
- Support for local battery reuse, remanufacturing, and recycling businesses

3. Policy Level

- Introduction of mandatory E2W production/sales programs
- Development of technical standards for E2W ecosystem
- Provision of financial incentives to promote supply chain development
- Establishment of a national committee and promotion agency to support the EV industry
- Creation of a global division of labor between advanced EV/battery countries and Southeast Asian countries

The emerging electric E2W market in Southeast Asia presents an opportunity for sustainable transportation, but necessitates a multi-pronged approach to overcome existing limitations. Technological advancements are crucial to enhance driving range and overall performance of E2Ws. In order to further propel E2W adoption, policymakers can enact production and sales mandates, alongside regulations focused on improving fuel efficiency and CO2 emissions standards for traditional internal combustion engine vehicles. It is also important to establish technical standards that encompass the entire EV ecosystem. Financial incentives and the establishment of dedicated government entities to promote and oversee the development of the EV industry would provide a significant boost.

In conclusion, a collaborative effort from stakeholders across technological, industrial, and policy sectors is crucial in establishing a conducive ecosystem for E2Ws in Southeast Asia. This collaborative approach will unlock the region's potential for sustainable economic growth and contribute meaningfully to climate change mitigation efforts.

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