

Executive Summary
Policy recommendations on
Thailand development of Next-Generation Automotive Industry

Result from COP21 meeting in Paris, every country has the commitment to reduce its greenhouse gas emissions. Therefore, in 2015, Thailand by the Ministry of Energy has measures to reduce energy use intensity, one of which is the measure to reduce energy consumption in the transportation sector. By targeting the use of electric vehicles (PHEV and BEV) for 1.2 million units by 2036. And at the same time, the Thai government promotes 10 industries, which have been identified as high potential future new-growth engines for Thailand. These include next-generation automotive industry.

In the initial stage of promoting the Next-Generation automotive industry, the government focused on promoting Electric vehicles: EV. In 2017, the cabinet approved the measures to support the production of Any Electric Vehicle (xEV). They set the target for the production of xEV in the amount of 25 percent of total domestic production by 2036. Furthermore, there are measures to promote EV from other government agencies. If they are integrated with concrete, it will make the promotion of Next-Generation automotive in Thailand more efficient and effective. However, Next Generation automotive is not only an Electric vehicle but also included connected and automated vehicle (CAV), as well as shared mobility services. At the present time, Thailand has no policies covering all the Next-Generation automotive. If Thailand utilizes all of those technologies, we will be able to reduce environmental problems, traffic congestion, road accidents, and also help people to mobilize efficiently.

Thailand Automotive Institute (TAI), had initiated research on Thailand's future mobility industry in order to be the policy recommendations. TAI collaborated with three partners which consists of Office of National Higher Education Science Research and Innovation Policy Council (NXPO), National Science and Technology Development Agency (NSTDA), and Faculty of Engineering Chulalongkorn University.

The research consists of 3 main parts which are **(1) Literature review** to obtain related information regarding Next-Generation automotive development, including target, policy and trend. The information was used as a framework for Thailand policy development. Finally, due to the fact that half of Thailand's production is for export. It is essential to realize the global market trend. **(2) In-depth interviews from stakeholders in the industry** which are government agencies, car-makers, motorcycle-makers, part-makers, specialists from the educational sector, and media. **(3) Foresight Workshop** to foresee Thailand's vision on future

mobility in 2030 from more than 100 organizations. In addition, we also purposed measures to achieve the target.

According to all process of research which took a year to complete, TAI has Thailand's vision on future mobility reflects people's want to commute smartly or 'Smart Mobility', which means people can access to mobility in various form of traveling with more convenient, safety, environmentally friendly, and also reasonable and affordable price. **TAI has announced targets in 2030 as 'To Be a Regional Next-Generation Automotive Production Base by producing 2.5 million units, 1.5 million units are for domestic sales, 15% of the production are BEV and 60% have Autonomous driving level 3. The vehicles used in public transport such as buses, three-wheeled vehicles, and motorcycles are all BEV. As a result, TAI has set Ultimate Goal to be a Next-Generation Automotive Production Based with High Value-Added Supply Chain by researching and developing along with being a high value-added components production base, for instance, battery motor, electronics and software, tyre, and lightweight body.**

In order to achieve that goal, the government has to drive measures for rapid change by establishing the '**National Automotive Industry Development Committee**' contains prime minister or deputy prime minister and related agencies from government, private sector, research agencies, and educational sector. To responsible for coordinating and authorizing to drive and monitor the plan including evaluating the performance according to the plan.

Afterward, the government should push promoting measures both using and producing Next-Generation automotive. In other words, **the demand side measure**, since the number of users is the main factor to create commercial production, the government may consider new measures for widespread using Next-Generation automotive. Firstly, by making awareness and understanding for consumers in terms of safety, usability, and maintenance. Secondly, supporting Next-Generation automotive to be served in the pilot area. Thirdly, giving incentives to customers. Lastly, providing related infrastructure such as charging stations, electrical grid, telecom network, roads, and traffic signs. **The supply-side measure**, in the first stage, the government should select and elevate the potential entrepreneurs to be ready for the changes in the industry because of the government resources are limited. Meanwhile, new product and production standards must be defined. Then, research and development

activities are needed for enhancing sustainable competitiveness of the supply chain in the commercialize stage. Additionally, in order to achieve the goals, priority and action plans are required as the following table.

In the transitioning period, there is a possibility that some of the part-makers could not situate themselves to the new supply chain. Therefore, the government may assist them to produce other segments, i.e. aftermarket parts, and also support them regarding research capability, marketing, and branding. However, this incident could not be avoided so the action plan could help the part-makers transform into other related businesses.

The Next-Generation automotive does not only benefit consumers in terms of convenience, safety, efficiency, and environmental friendly but also creates a high value-added industry. The report found that the value in Next-Generation automotive businesses and services is more than USD 1 trillion. Consequently, Thailand should accelerate our own capability to grab that enormous revenue. Nevertheless, the achievement depends on the policy implemented and collaborated in every sector.

Thailand Automotive Institute has purposed this report to the Office of Industrial Economics, Ministry of Industry and other government agencies to encourage the Next-Generation automotive as a 'Smart Mobility' era. As well as step up to be a regional Next-Generation automotive production base with the high value-added supply chain.

Summary table of plans that must be completed within 5 years in order to achieve the goals of the Automotive Industry by 2030

Plans	Ministry of												NAIDC	entrepreneur
	Finance	Tourism and Sports	Transport	Natural Resources	Digital	Energy	Commerce	Interior	Labour	MHESI	Industry	Others		
Urgent actions														
(1) Establish 'National Automotive Industry Development Committee'	/		/		/	/	/		/	/	/	Prime Minister ★	/	/
(2) Reform tax structure related to automotive products	★		/								/		/	
(3) Define incentive for consumers	★		/			★		/			/		/	
(4) Revise rules and regulations for EV charging business						★	/	/			/	EGAT	/	
(5) Elevate Thai entrepreneur capabilities									/	/	★	BOI	/	/
(6) Human resources development (Reskill and Upskill) and prepare new skill labor to be ready for the Next-Generation Industry									★	★	/	BOI EEC OHEC TAI	/	/
(7) Prepare infrastructure, law, and regulations for the new form of mobility business	/		★		★		/	/		/	/	BOI	/	/
1-2 years plans														
(8) Use Next-Generation vehicles in the pilot area	/	/	/		/			★			/	Bangkok Pattaya and other Smart Cities	/	/
(9) Define new Next-Generation vehicles standards and regulations and provide testing facilities			/							/	★	TAI	/	
(10) Encourage R&D activities										★	★	EEC TAI TSRI	/	/
(11) Establish R&D Consortiums to develop Next-Generation vehicle prototype			/		/					★	★	EEC TAI TSRI	/	/
(12) Define an AV road map			★		/					/	/	NAIDC TAI	/	/
2-5 years plans														
(13) Preparation for Autonomous vehicles													/	
(13.1) Define standards and compatibility			★		/						★	Ministry Of Justice NAIDC	/	

Plans	Ministry of													NAIDC	entrepreneur
	Finance	Tourism and Sports	Transport	Natural Resources	Digital	Energy	Commerce	Interior	Labour	MHESI	Industry	Others			
(13.2) Create HD Map			★		/					/	/		/	/	
(13.3) Define standards related to Connected vehicles with everything (V2X) and provide infrastructure for 'Intelligence Traffic System'			/		/	/					/	NBTC	/	/	
(13.4) Develop support infrastructure, i.e. satellite navigation system, and related regulations					/							NBTC	/	/	
(13.5) Cybersecurity and data privacy					★							NBTC	/		
(13.6) Set up AV standard, law, and regulations for public use			★									Ministry Of Justice NAVSC RTP	/		
(14) AV adoption													/		
(14.1) Demonstration of AV in real case			/		/			★			/	EEC Smart city NAVSC RTP	/		
(14.2) AV testing in verified roads			/		/						★	NAVSC	/		
(14.3) Start AV level 3 usage in verified roads			★									NAVSC RTP	/		
(14.4) Zero emission and accident zoning		/	/					★				NAVSC Bangkok Pattaya EEC Smart City RTP	/		

Remark: ★ main responsible institute

MHESI: Ministry of Higher Education, Science, Research and Innovation

NBTC: National Broadcasting and Telecommunication Commission

RTP: Royal Thai Police

TSRI: Thailand Science Research and Innovation

NAIDC: National Automotive Industry Development Committee

OHEC: Office of the Higher Education Commission

TAI: Thailand Automotive Institute

NAVSC: National Autonomous Vehicles Sub-committee