



THAILAND'S AUTOMOTIVE INDUSTRY

THE NEXT-GENERATION



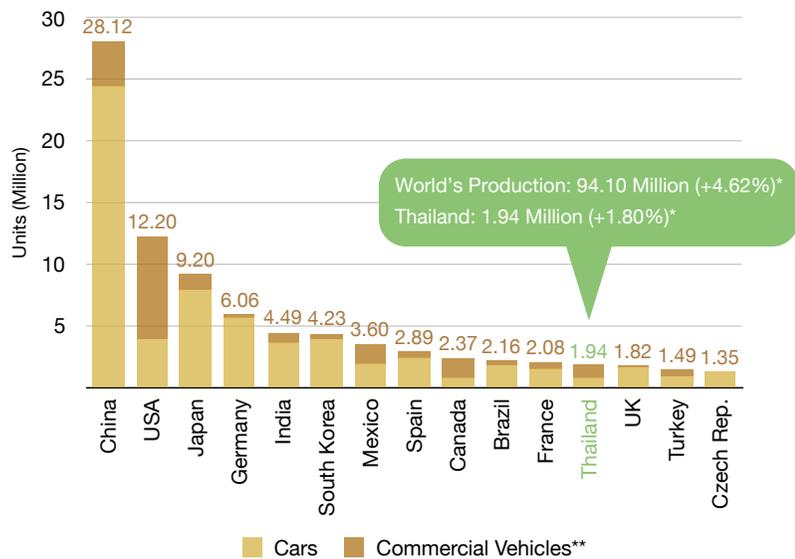
Thailand Board of Investment
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INDUSTRY OVERVIEW

The world is embracing to cleaner and smarter society while people's mean of transportation like automobile also takes a step further to the next generation with more fuel-efficient and environmentally friendly. In 2016, 94 million automobiles were produced worldwide, the highest

number in the history. Yet, those vehicles are embracing the new breakthrough technology. Ranging from hybrid to battery electric vehicle, the world aims to have EV at 40% market share of all automobile in 2040¹.

World's Automobile Production 2016²



Source:

¹ Bloomberg and International Energy Agency (IEA)

² Organization of Motor Vehicle Manufacturers (OICA)

Note:

* Year-to-year growth rate (2015-2016)

** Commercial vehicles' definition by OICA include light commercial vehicles, heavy trucks, coaches and buses.

THAILAND AUTOMOTIVE INDUSTRY

Thailand automotive industry has been significantly developed for over 50 years. The industry contributed 12% of the GDP¹ with more than 1.94 million vehicles produced and worth USD 27 billion in 2016. These successes ranked the country as the largest automotive producer in Southeast Asia and 12th in the world. As an "Automotive Hub of Asia",

Thailand continuously accelerates its next-generation automotive industry to follow the S-Curve promotion with higher value-added production and also strives for alignment of automotive industrial policy to align with environmental protection policy.

Thailand Automotive Industry Ranking²



Source:

¹ Ministry of Commerce

² OICA as of March 2017



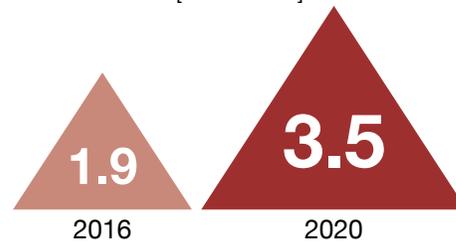
AUTOMOTIVE ASSEMBLERS

Motor Vehicle

Thailand expects to increase its production to **3,500,000 motor vehicle units in 2020** or 80% increase from 2016¹.

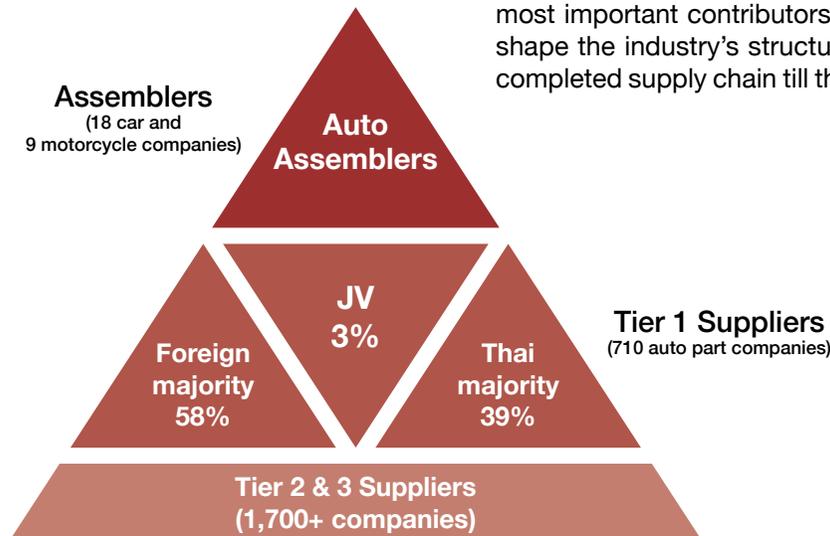
Since Toyota and Nissan established their first production plant in 1962, Thailand automotive industry has been continuously developed and become well established over decades. **Nearly every Japanese car makers and many leading US, Europe, and China automotive companies have their production plants in Thailand**

Vehicles Produced [Million Units]



and many of which set their regional headquarters in the country. These auto assemblers also attracted more than 710 auto part makers and 1,700 supporting companies to the country². These auto part suppliers are all the most important contributors who help shape the industry's structure with its completed supply chain till these days.

Assemblers (18 car and 9 motorcycle companies)

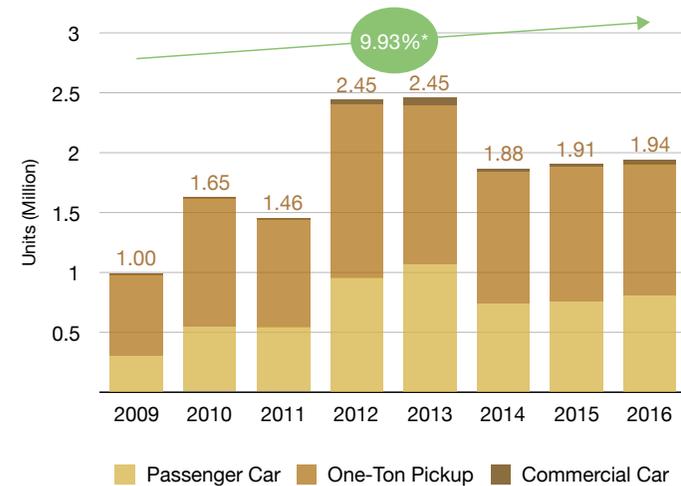


Source:
^{1,2} Thai Automotive Industry Association and Thailand Automotive Institute

Thailand produced 1,944,417 motor vehicle units in 2016. More than half of the total production is **one-ton pickup which shared 57%** along with 41% for passenger car and 2% for commercial car.

The production numbers keep growing remarkably since 2009 which **9.93% increase annually**. In 2016, Thailand had **doubled its car production compared to 2009**.

Thailand Car Production 2009-2016¹



Thailand exported 1,188,515 automobiles in 2016 which made more than USD 18 billion to the country **while export value increased at the faster pace than export volume since 2009, 14.08% and 11.95% respectively**. With 18 auto assemblers,

Thailand's automotive industry will help accelerate the economy of Thailand to the even larger and stronger.

Source:

¹ Thailand Automotive Institute as of February 2017

Note:

* Compound Annual Growth Rate (2009-2016)



Thailand Car Export Unit and Value 2009-2016¹



Motorcycle

Motorcycle is another remarkable product of Thailand as we are one of the largest production hubs of the world with **1,820,358 productions in 2016¹**. All 9 motorcycle assemblers help contribute the accelerated growth of the motorcycle production which

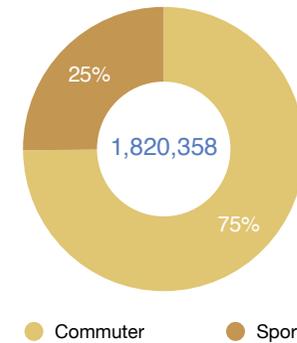
bring the country to be the world's **7th largest motorcycle exporter** accounted for more than 5% of all motorcycle that were exported around the world in 2015². The **domestic demand reached to 1,738,231 units sale in 2016**, 6.05% increased from 2015³.

Thailand's Largest Automotive Export Destinations

Thailand ranked **2nd biggest automobile exporter in Asia in 2015²**. The largest export destination includes **Australia, the Philippines, Indonesia, Japan and Malaysia³**.



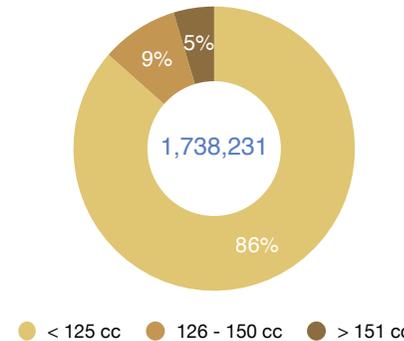
Motorcycle Production, 2016*



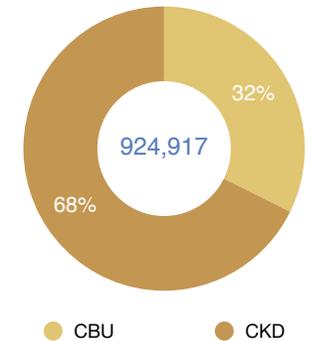
18 Auto Assemblers in Thailand



Motorcycle Domestic Sale, 2016**



Motorcycle Export, 2016



Source:
¹ Thailand Automotive Institute as of February 2017
² World's Top Export
³ Ministry of Commerce
 Note:
 * Compound Annual Growth Rate (2009-2016)
 Exchange rate (BOT, March 1, 2017):
 USD 1 = THB 34.99

Source:
^{1,3} Thailand Automotive Institute and The Federation of Thai Industries
² World's Top Exports
 Note:
 Commuter has less than 250 cc, Sport has more than 250 cc,
 CBU: Complete Built Unit, CKD: Completely Knocked Down,
 * CKD is not included
 ** CKD is not included but import is included



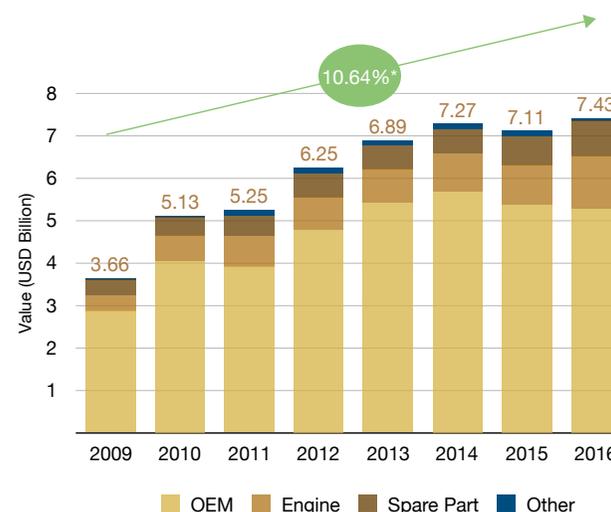
In 2016, Thailand's auto parts export value increased 4.54% from 2015 and reached USD 7.43 billion. Nearly 71% of the export value is from Original

Equipment Manufacturers (OEMs) while engine has the highest growth at 34.59% increase from 2015¹.

Export of motorcycle in Thailand also shows the favorable trend of increase in value. In 2016, export value rose to USD 1.51 billion while export volume was 924,917 units¹. The number strongly demonstrates the more value-

added production of Thailand which is the major development goal of the country. More R&D and technologies are expected to increase competitiveness and approaching to the next-generation automotive industry.

Thailand Auto Parts Export Value 2009-2016²



Motorcycle Assemblers in Thailand



Examples of Auto Parts Makers in Thailand



Auto Parts

Thailand's auto parts industry has always been a strong supporting factor contributing to the fast growing of Thailand's automotive industry. More than 60% of 100 largest auto

part suppliers in the world have their production hub in Thailand. Local manufacturers also supply for 80-90% of the parts used in auto vehicle production in the country².

Source:

¹ Thailand Automotive Institute

² Thai Auto Parts Industry Association

Note:

* Compound Annual Growth Rate (2009-2016)

Exchange rate (BOT, March 1, 2017):

USD 1 = THB 34.99

Source:

^{1,2} Thailand Automotive Institute





SUPPORTING INDUSTRIES

Thailand is internationally recognized for its high quality vehicles and parts which resulted from the strong supporting industries ranging from plastics, tires, oil & gas, lubrication oil, electronics, machinery and many more. Automotive electronics is one of the country's focus and supported

as 'Smart Electronics' hub. With more than 1,700 suppliers in all supporting industries which help complete the country's supply chain, Thailand is the best place for the automotive production of the world.

Examples of Supportive Suppliers in Thailand



OPPORTUNITIES

Thailand is ramping up our competitiveness in the next-generation of automobile by providing more incentives as well as the development of infrastructures to further enhance the investment-friendly environment.

Eco Car

Eco car* is Thailand's product champion¹ since the country embarked to the eco car promotion policy in 2007. In 2015, all eco car reached 15% market share of all domestic sales with Nissan, Mitsubishi and Toyota being the three biggest

producers². Thailand has successfully drawn domestic demand and this year, 2017, second-phase production is starting with the excise tax cut down to 12-14% from 17%.

Excise Tax for Eco Car

Eco Car	Eco Car E85
14% (<100 g/km CO ₂ Emission)	12% (<100 g/km CO ₂ Emission)
17% (>100 g/km CO ₂ Emission)	

Plug-in Hybrid Electric Vehicle

The world is transitioning to the next-generation automobile of which Thailand also ramps up its competitiveness on this trend especially PHEV. Mercedes-Benz and BMW just established their PHEV production plants as well as the

plan of PHEV and EV plant of FOMM Corporation.** The future of PHEV in Thailand is getting brighter with strong support from both public and private sector.

Source:
¹ Thailand Automotive Institute
² Bangkok Post

Note:
* Eco car: Ecology car which CO₂ Emission less than 100 g/km
** FOMM Corporation is a Japanese company which develop and produce compact electric vehicles.





Electric Vehicle

25 Million	1.2 Million
EV cars in the world in 2035 30% Market Share	EV Cars in Thailand in 2036 7% Market Share

In 2035, EV car in the world will reach 30% market share¹. Thailand also expected to have 1.2 million EV cars² with more than 690 charging stations nation-wide³. Toyota and Panasonic are planning to establish the EV battery

production plant in Thailand as well⁴. Fuel cell vehicle (FCV) is another upcoming trends of which Toyota is planning to expand its FCV to Thailand in this near future.



All 690 charging stations is expected to finish in 2036 by the collaboration of EGAT, MEA, PEA and PTT.*

Source:
¹ Bloomberg and International Energy Agency (IEA)
² Electric Vehicle Association of Thailand
³ SCB Economic Intelligence Center
⁴ Toyota Motor Thailand
 Note:
 * Electricity Generating Authority of Thailand, Metropolitan Electricity Authority, Provincial Electricity Authority, PTT Public Company Limited

Big Bike

Big bike* is making an incredible profit in Thailand since the country declared its big bike production promotion in 2012¹. Thailand produced more than 400,000 big bikes in 2016 which increase 27.68% annually since 2010. Domestic demand also increases dramatically which Triumph, BMW and Ducati ranked top 3 for the biggest sales in 2016². These global leading companies all have their production plants in Thailand.

Thailand Big Bike Production 2010-2016³



Moreover, Harley Davidson, a well-known motorcycle brand, also recently established its Regional Training Center in Thailand.

Biggest Domestic Sale Big Bike Brands 2016



With strong support from the government on tax incentives as well as the strengths of automotive industry make Thailand a high-potential hub of big bike production. The increasing

number of Free Trade Agreement helps big bike export grows impressively, especially in ASEAN and ASEAN+3 (China, Japan and South Korea)⁴.

Source:
^{1,3,4} Thailand Automotive Industry
² Department of Land Transport
 Note:
 * Big Bike or sport motorcycle is categorized by size of engine exceeding 250 cc.
 ** Compound Annual Growth Rate (2010-2016)
 Exchange rate (BOT, March 1, 2017):
 USD 1 = THB 34.99



WHY THAILAND?

By 2021, Thailand is expecting to be a **global green automotive production base** with advanced technology implementation. A half century of profession makes Thailand the best investment destination for the next generation automobile of the world.

Geographical Advantage

Situated at the center of Indochina peninsula, Thailand has the perfect location connected to 2 billion people in Southeast Asia and China by land and by sea with world-class infrastructure

provided. The **third phase expansion of Laem Chabang deep-sea port** is also expected to provide export capacity up to 3 million cars, one of the busiest sea port in the world¹.

Eastern Economic Corridor: EEC

As **one of the promoted industries in 13,285 km² of EEC***, automotive production is reinforced and developed by supporting facilities and special investment policies. The EEC will also provide **National Automotive Tire and Testing Center**, the first and only

automotive testing center in Southeast Asia which will be ready for car and tire makers in 2018, offering international standard automotive and tire tests. This will help strengthens the position of Thailand as world automotive manufacturing hub.

Source:

¹ Port Authority of Thailand

Note:

* EEC: Eastern Economic Corridor Development Project

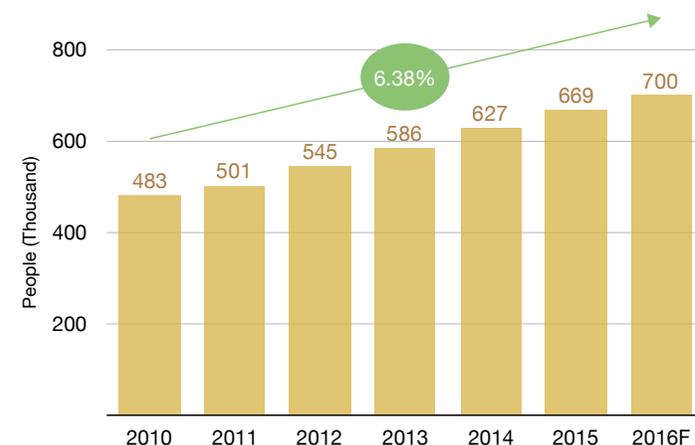
Abundant Skilled Labor

Thailand has abundant of skilled labors. There are more than **700,000 labors in the automotive industries** in 2016¹ covering in every process of the production in Thailand's automotive industry.

With 29 universities and other institutes which provide automotive and mechanical engineering programs, it is forecasted that, in 2021,

61% of all workforces in Thai automotive industry are high-skilled labor with high vocational diploma or above, 27% with bachelor's in engineering degree and 5% with master's degree or above². Many auto assemblers in Thailand, i.e., Isuzu, Toyota and Honda, have their own **employee training programs** which help improve their competitiveness and efficiency.

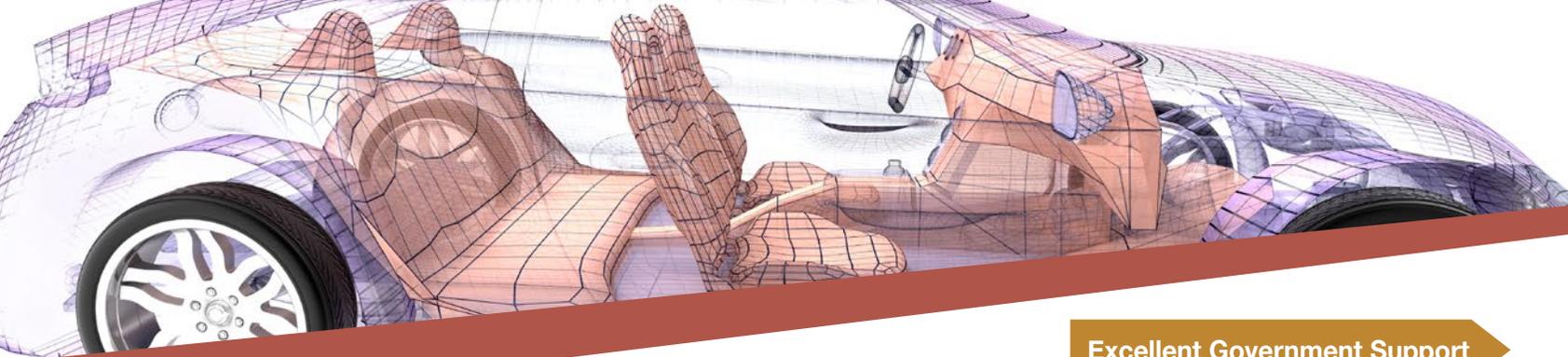
Thailand's Human Resource in Automotive Industry 2010-2016³



Source:

^{1,3} Thailand Automotive Institute (TAI)

² Electric Vehicle Association of Thailand (EVAT)



Research and Development

Most of the auto assemblers in the world established their R&D and training centers in Thailand serving Southeast Asia and Asia Pacific. This emphasizes

that Thailand is moving up the value chain to more value added automotive production.

THAILAND Automobile R&D Centers



Toyota Motor Asia Pacific Engineering and Manufacturing

Support for car development and technology in 11 countries in Asia Pacific, Africa, and South Africa in 4 research fields including product planning, engineering design, evaluation, and localization.



Nissan Technical Center South East Asia

Support for car development in 6 Nissan's production site across ASEAN countries. Responsibility for all R&D processes following the vehicle physical design stage for models marketed in the ASEAN region.



Isuzu Technical Center Of Asia

Covers each single scope of LCV* and PPV** vehicle research and development for the whole world including product planning, industrial design, engineering design, CAE analysis, prototype work, and validation and experiment work.



Honda R&D Asia Pacific

Elevated to be the automobile design and R&D center in 12 countries across Asia and Oceania. Focused on advanced product planning, styling design, engineering, and automotive test.



Mitsubishi Motors Proving Ground

First outside Japan research and development proving ground. A Multi-purpose test track, a noise, vibration, and harshness test site which serving Mitsubishi Motors Thailand's in conduction pre-production trials.

Note:

* LCV: Low Consumption Vehicle

** PPV: Pick-Up Passenger Vehicle

Excellent Government Support

The Government sees automotive industry as a cornerstone of the Thai economy with strong support from many organizations including TAI, TAIA, EVAT and TAPMA*. The Government's Master Plan for Automotive Industry

sets the goals for Thailand to be a global green automotive production base with strong domestic supply chains which will create higher value for the country by 2021.

Strong Supporting Organizations



Ministry of Industry

Administer and manage the country's policies and promote and support industry and investment as well as entrepreneur.



Thailand Automotive Institute

Support and coordinate with private and government sectors as well as provide necessary services for the automotive industry.



The Thai Automotive Industry Association

Promote the automotive industry including increases competitiveness of automotive manufacturer and assembler.



Electric Vehicle Association of Thailand

Support knowledge exchange and technology on EV as well as consult on related regulation, standardization and research.

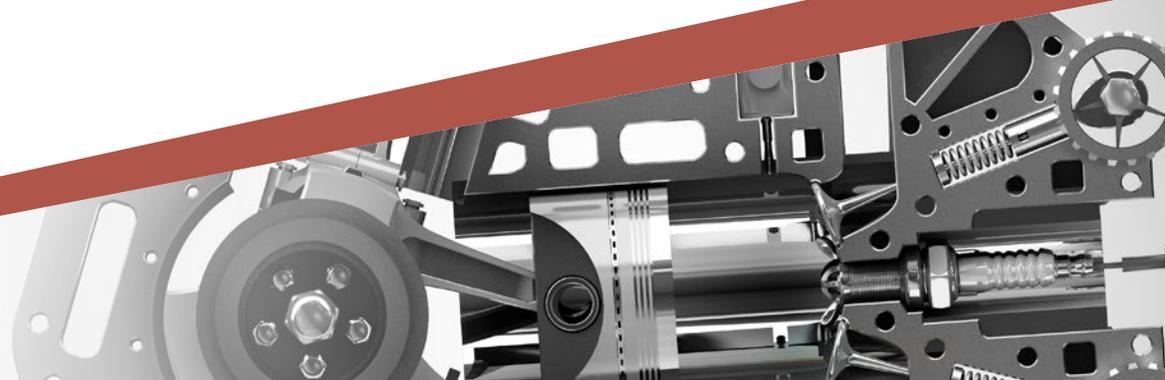
Note:

* TAI - Thailand Automotive Institute,

TAIA - The Thai Automotive Industry Association,

EVAT - Electric Vehicle Association of Thailand,

TAPMA - Thai Autoparts Manufacturers Association



INVESTMENT INCENTIVES

BOI Incentives

BOI recognizes the importance and value of the automotive industry, and offers a wide range of tax and non-tax incentives for projects that meet national development objectives.

Tax Incentives

GROUP	ELIGIBLE ACTIVITIES	INCENTIVES	
		Corporate income tax exemption	Exemption of import duty*
A1	Research and development in automotive industry and automotive training centers	8 years (no cap)	✓
A2	<ul style="list-style-type: none"> • Manufacture of Vehicle Parts Using High Technology • Manufacture of Automobile Parts for Safety Parts and Energy-saving Parts • Manufacture of Parts for Hybrid, Electric Vehicle (EV) and Plug-in Hybrid Electric Vehicles (PHEV) Automobile • Manufacture of Rubber Tires for Vehicles • Manufacture of Fuel Cells 	8 years	✓
A3	<ul style="list-style-type: none"> • Manufacture of Automobile Engines - Project must have pressing of parts, not less than 4 out of 5 parts, as follows: Cylinder Head, Cylinder Block, Crankshaft, Camshaft and Connecting Rod • Manufacture of Fuel System Parts • Manufacture of Transmission System Parts • Manufacture of Turbocharger • Manufacture of Motorcycles (except less than 248 cc engine displacement) 	5 years	✓

Note:

* Exemption of import duty on machinery and raw or essential materials used in manufacturing export products

GROUP	ELIGIBLE ACTIVITIES	INCENTIVES	
		Corporate income tax exemption	Exemption of import duty*
A4	<ul style="list-style-type: none"> • Assembling of Engine • Manufacturing of Fuel Pipe/ Tube • Manufacture of Engine System Parts (Except Turbocharger) • Manufacture of Steering System Parts • Manufacture of Cooling System Parts • Manufacture of Exhaust System Parts • Manufacture of Air Conditioning System Parts • Manufacture of Ultimate Tensile Strength Steel • Manufacture of Ball Bearing for Vehicles 	3 years	✓
B1	<ul style="list-style-type: none"> • Manufacture of General Automobile • Manufacture of Other Vehicle Parts • Manufacture of Motorcycles (except less than 248 cc engine displacement)** 	-	✓

Non-Tax Incentives

These activities also receive the following non-tax incentives:

Permit to bring in expatriates

Permit to own land

No restriction on foreign currency

Note:

* Exemption of import duty on machinery and raw or essential materials used in manufacturing export products

** Project must have structural welding and spray painting process. Plans must be approved by BOI

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