

Examples of successful programs from that delivered tangible energy efficiency and economic benefits: Transport

APEC Energy Efficiency Policy Workshop [EWG 07 2019A]:
18 Nov 2020 [online]

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New R&D Center focusing on Energy Technology after 1st October 2020



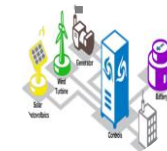
Renewable Energy



Energy Storage



Conventional Energy



System Integration & Energy Management



Energy Efficiency

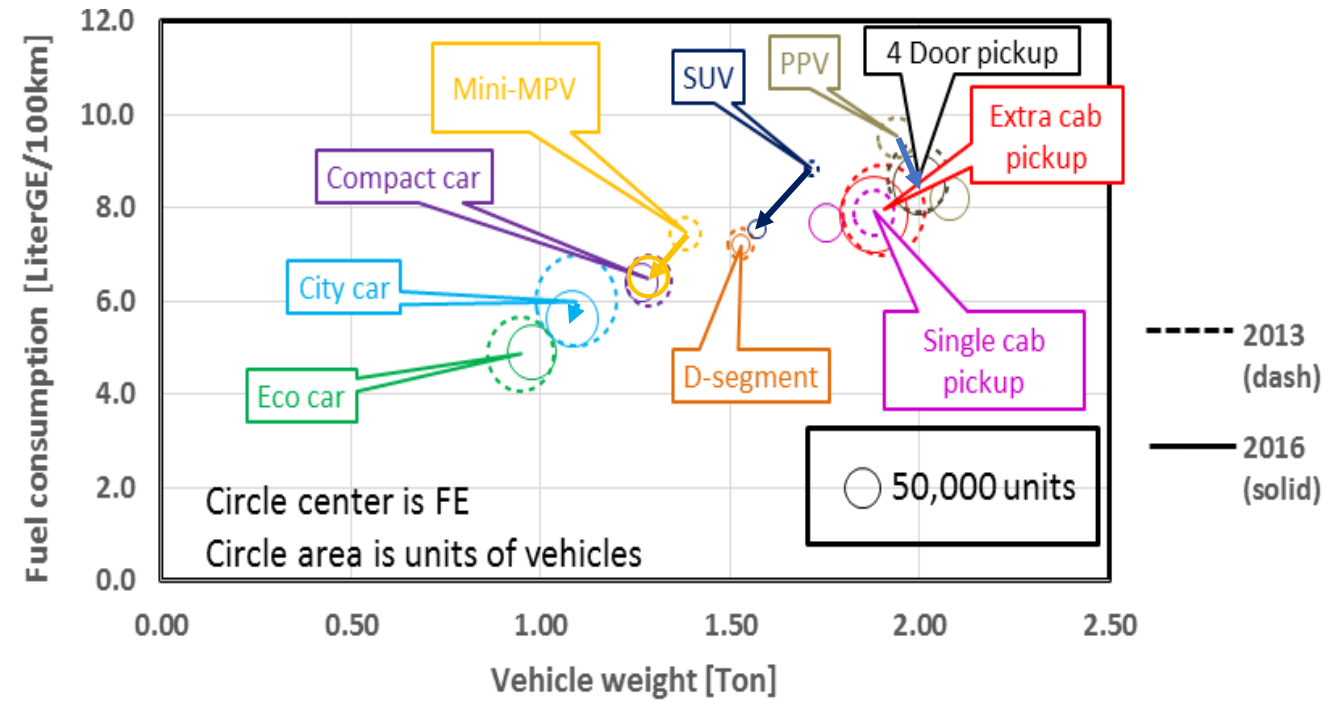
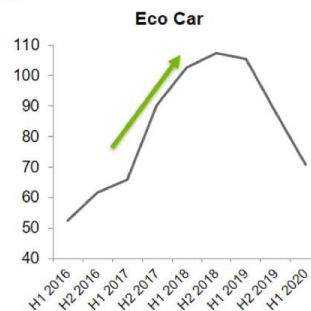


Past economic boost through EE in transport

- Eco-car phase I & II [5 & 4.2 Lge/100km fuel economy criteria]
 - ✓ First car scheme [reduced excise tax for first-time car buyer including eco-car]
- CO₂-based excise tax through eco-sticker program boost more EE car

Thailand: LV sales foreseen to fall to a decade-low volume

▪ Slowing economy, weak exports, high household debt and COVID-19 impact



Dec 2012: Cabinet announced CO₂-based excise tax to be implemented on 1 Jan 2016

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Source: LMC Automotive, GIZ

Current economic boost through EE in transport

- Electrified vehicle [BEV/PHEV/HEV, e2&3w]

Automotive manufacturers applying for BOI package to produce EV cars

HEV	TOYOTA	HONDA	NISSAN	MAZDA
PHEV	Mercedes-Benz	BMW	SAIC MOTOR	mitsubishi (tentative)
BEV	FOMM	mitsubishi (tentative)	NISSAN	TOYOTA (under study)

EXCISE TAX FOR ECO-CAR AND ELECTRIC VEHICLES

Vehicle type	CO2 emission (g/km)	Tax rate (effective from Sept 16, 2017)	Tax rate for BOI incentives (effective until 2025)
Eco-car One (2007)	Below 120	14%	N/A
Eco-car Two (2013)	Below 100	12%	N/A
	Below 100 with E85	10%	N/A
Hybrid and Plug-in Hybrid EV	Below 100	8%	4%
	101-150	16%	8%
	151-200	21%	10.5%
	Above 200	26%	13%
Battery EV	None	8%	2%*

Sources: Excise Department, Toyota Motor Thailand

*Battery EV tax during 2020-22 at 0%

ECO-CARS IN THAI MARKET IN 2017-18

Brand	2017	2018	% change	% share
Toyota	44,200	68,804	55.67%	32.84%
Mazda	31,760	45,972	44.75%	21.94%
Nissan	33,673	42,205	25.34%	20.14%
Mitsubishi	22,833	25,784	12.92%	12.31%
Suzuki	21,300	24,625	15.61%	11.75%
Honda	2,473	2,132	-13.79%	1.02%
Total	156,239	209,522	34.10%	100.00%

BANGKOK POST GRAPHICS

LIST OF MANUFACTURERS GRANTED BOI'S EV INCENTIVES

Hybrid EV	Plug-in hybrid EV	Battery EV	Lithium-ion battery
<ul style="list-style-type: none"> • Toyota (19.02 billion baht) • Nissan (10.96 billion baht) • Honda (5.82 billion baht) 	<ul style="list-style-type: none"> • Mercedes-Benz (607 million baht) • BMW Group (705 million baht) • SAIC Motor-CP (1.36 billion baht) 	<ul style="list-style-type: none"> • FOMM (716 million baht) 	<ul style="list-style-type: none"> • Beta Energy Solution (1.1 billion baht) • Thonburi Energy Storage Manufacturing (600 million baht) • Energy Absolute (2 billion baht) • Global Power Synergy (1.48 billion baht)

Tentative plans from manufacturers

Hybrid EV	Plug-in hybrid EV	Battery EV
<ul style="list-style-type: none"> • Mazda • Suzuki 	<ul style="list-style-type: none"> • Mitsubishi 	<ul style="list-style-type: none"> • Mine Mobility Research



Currently [August 2020]

20 companies participating in the labeling program

19 models / 11,750 cars of Electric Motorcycle Label no.5



Source: Bangkok Post, EGAT

Source: Board of Investment, compiled by Bangkok Post

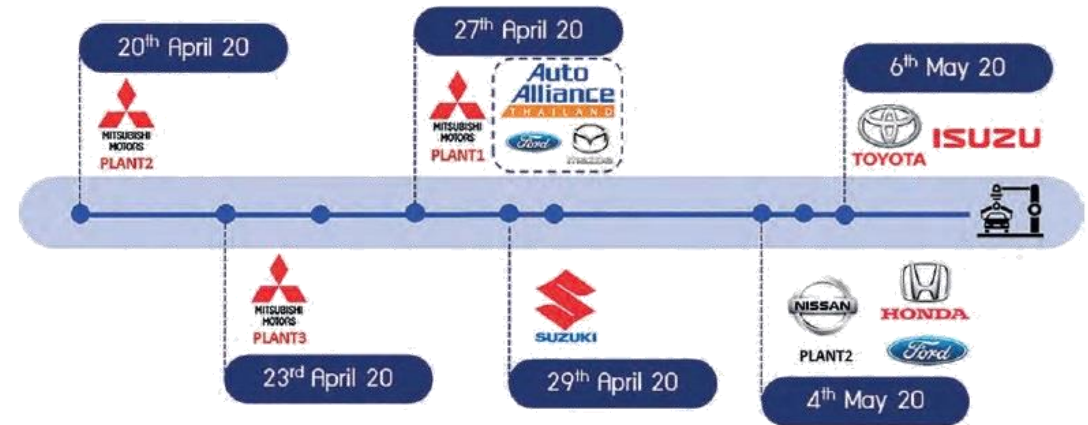
Impact of COVID-19 on auto industry

- Recovery in progress through new business
 - ✓ Government procurement is the key

Figure 1 temporary shutdown during COVID-19 pandemic of global car manufacturers



Figure 2 Re-operation schedule of Thai car manufacturers.



Collected by Next Generation Automotive Research Center, Thailand Automotive Institute

Table 2 COVID-19 effect mitigation measures.

	Private sector	Government
Urgent Market Recovery Measures	<ul style="list-style-type: none"> - Online sale and marketing - New leasing service - Replacement parts manufacturing substitution plan 	<ul style="list-style-type: none"> - Market stimulate by old for new subsidy scheme - Low/Zero interest loan and a moratorium for SME - Establish a standard of replacement parts, R&D infrastructure and online marketing platform
Manufacturing Processes Improvement Measures	<ul style="list-style-type: none"> - Implement IoT together with robotic and automation - Risk management of parts purchasing - Operators' upskill and reskill for automation and next-generation manufacturing. 	<ul style="list-style-type: none"> - Provide economy and infrastructure for the ease of implementing IoT - Low/Zero interest loan and CIT exemption from IoT adopting cost.
Sustainable Businesses And Products Development Measures	<ul style="list-style-type: none"> - Hygienic Vehicle 	<ul style="list-style-type: none"> - Promoting shared mobility business

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