

# EV Current Status in Thailand

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At AAI#2 EV Session

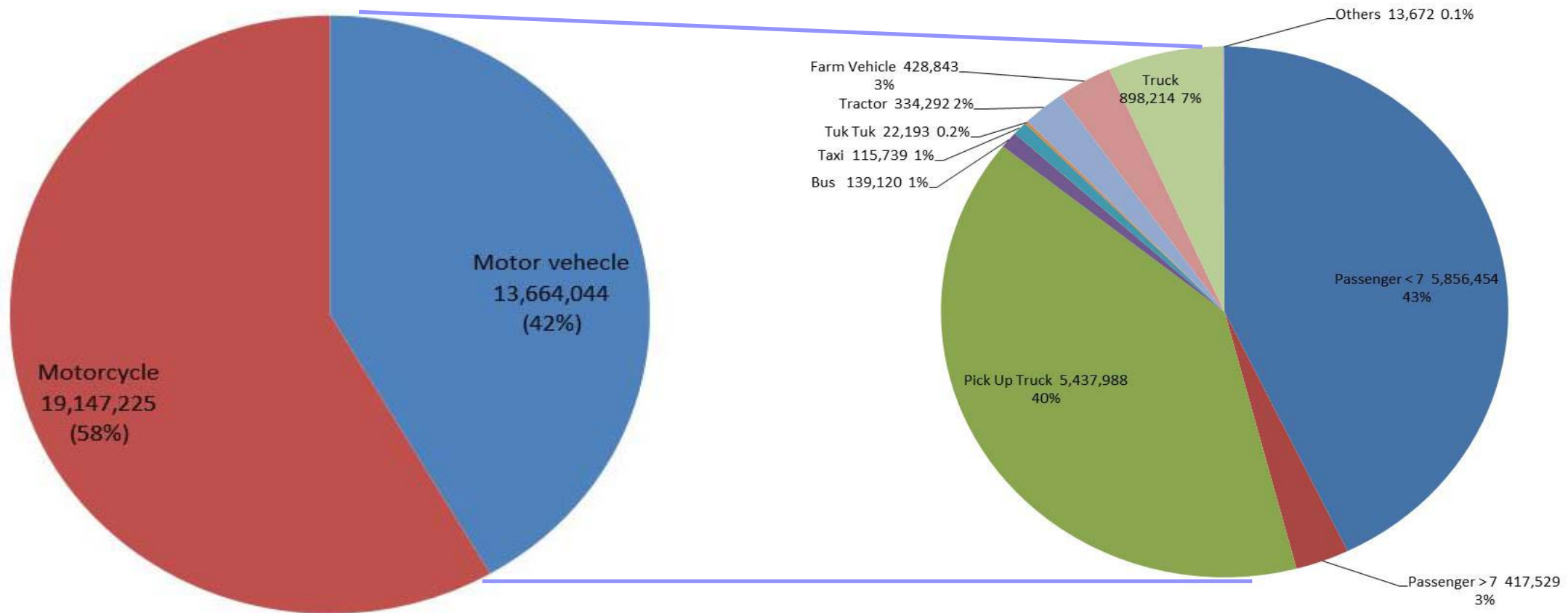
on November 26 , 2013 at 9.00 –11.00 time

# Contents

- **Automotive industry in Thailand**
- **EV situation in Thailand**
- **Thailand's national policy related to EV**
- **Summary**

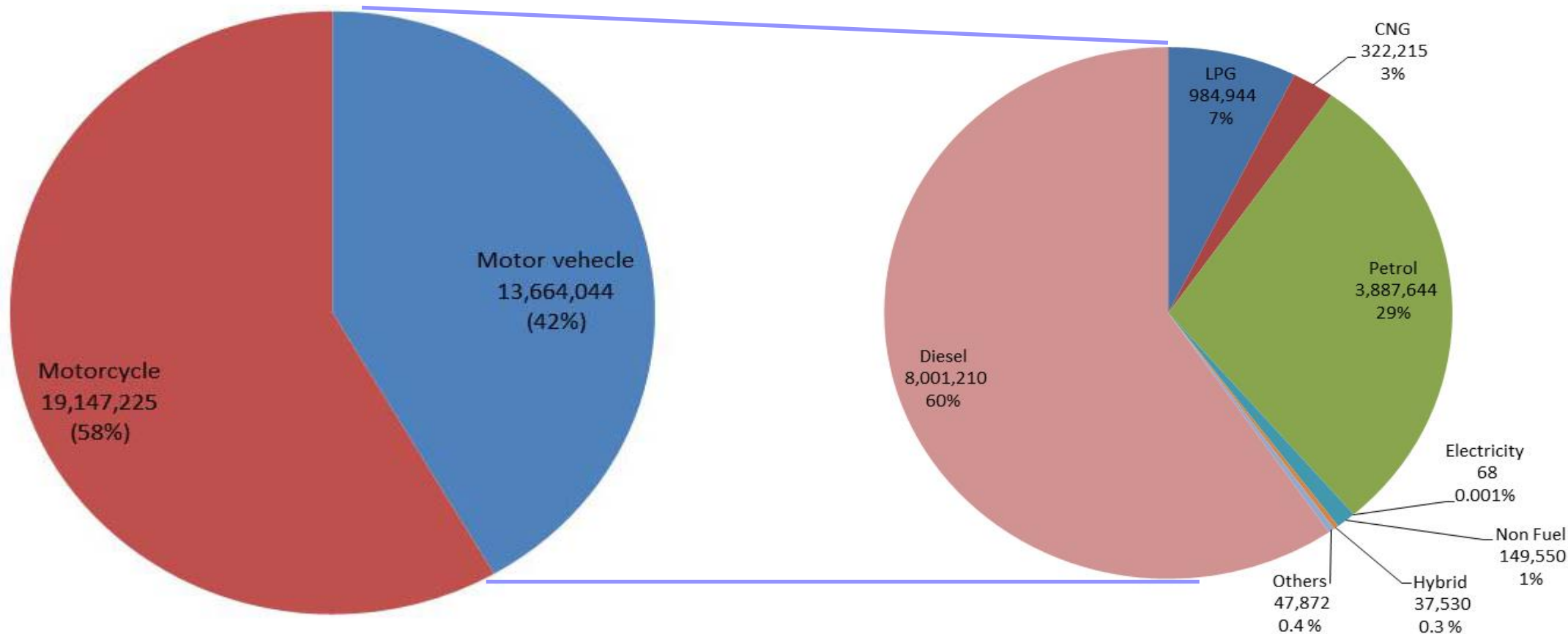
# Automotive industry in Thailand

## Number of vehicle registration by vehicle type



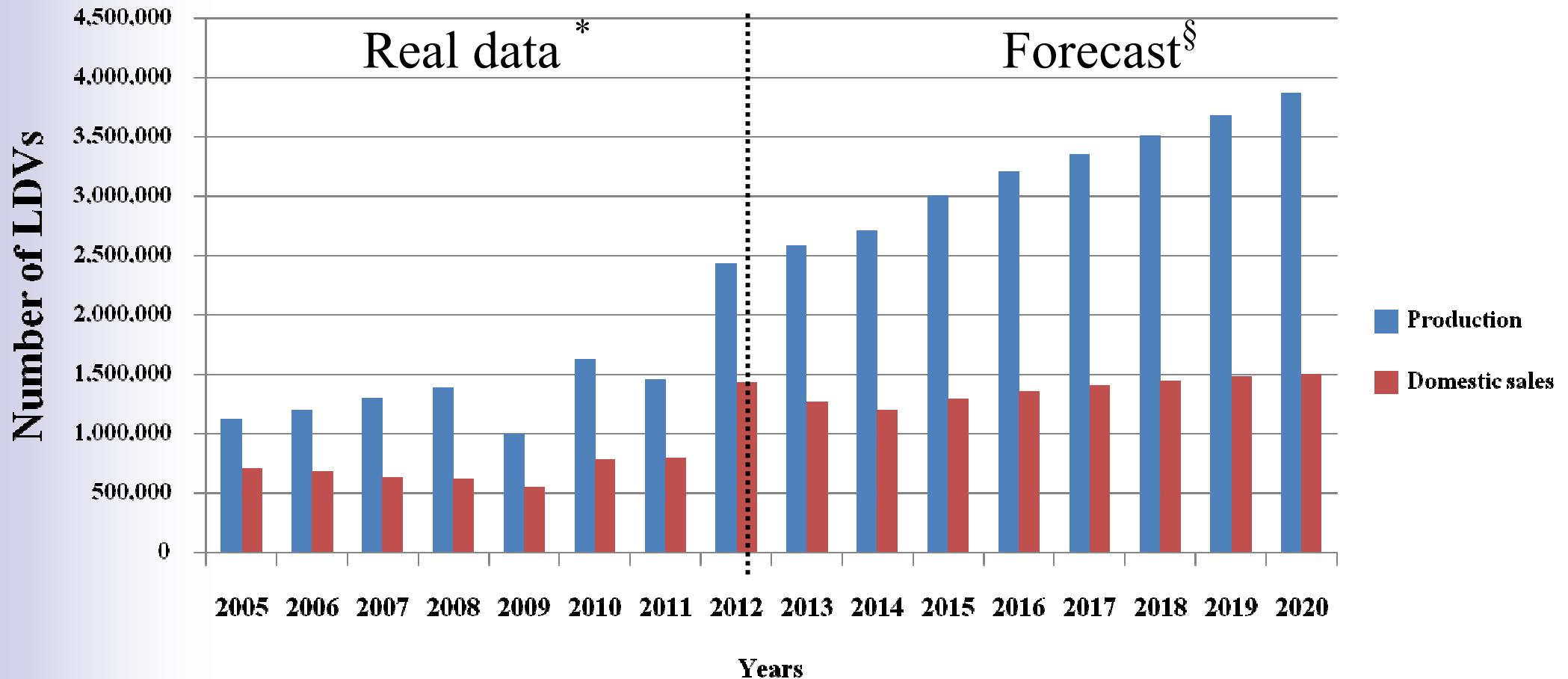
# Automotive industry in Thailand

## Number of vehicle registration by fuel type



# Automotive industry in Thailand

## Light Duty Vehicle Production and Sales in Thailand

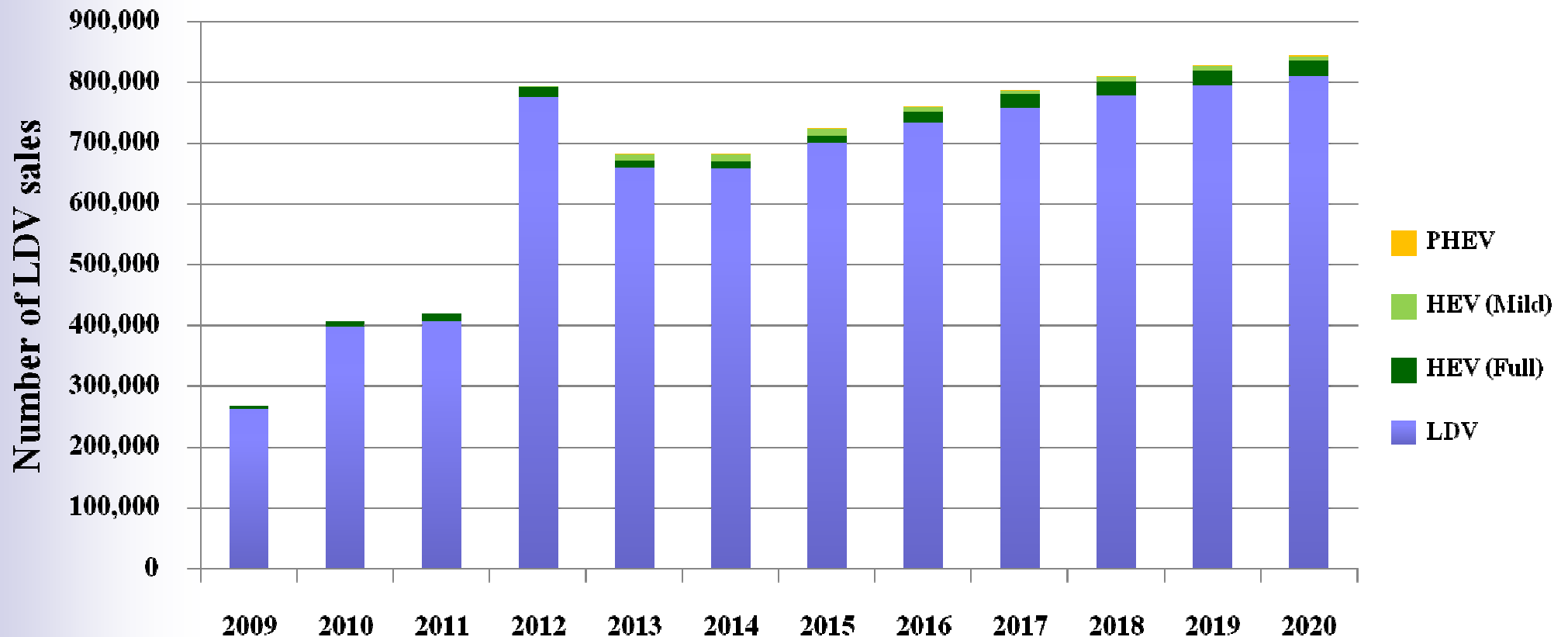


Source: \* Automotive Intelligent Unit, Thailand Automotive Institute (TAI)

□ LMC Automotive (2013) ASEAN Automotive Monthly: March 2013

# Automotive industry in Thailand

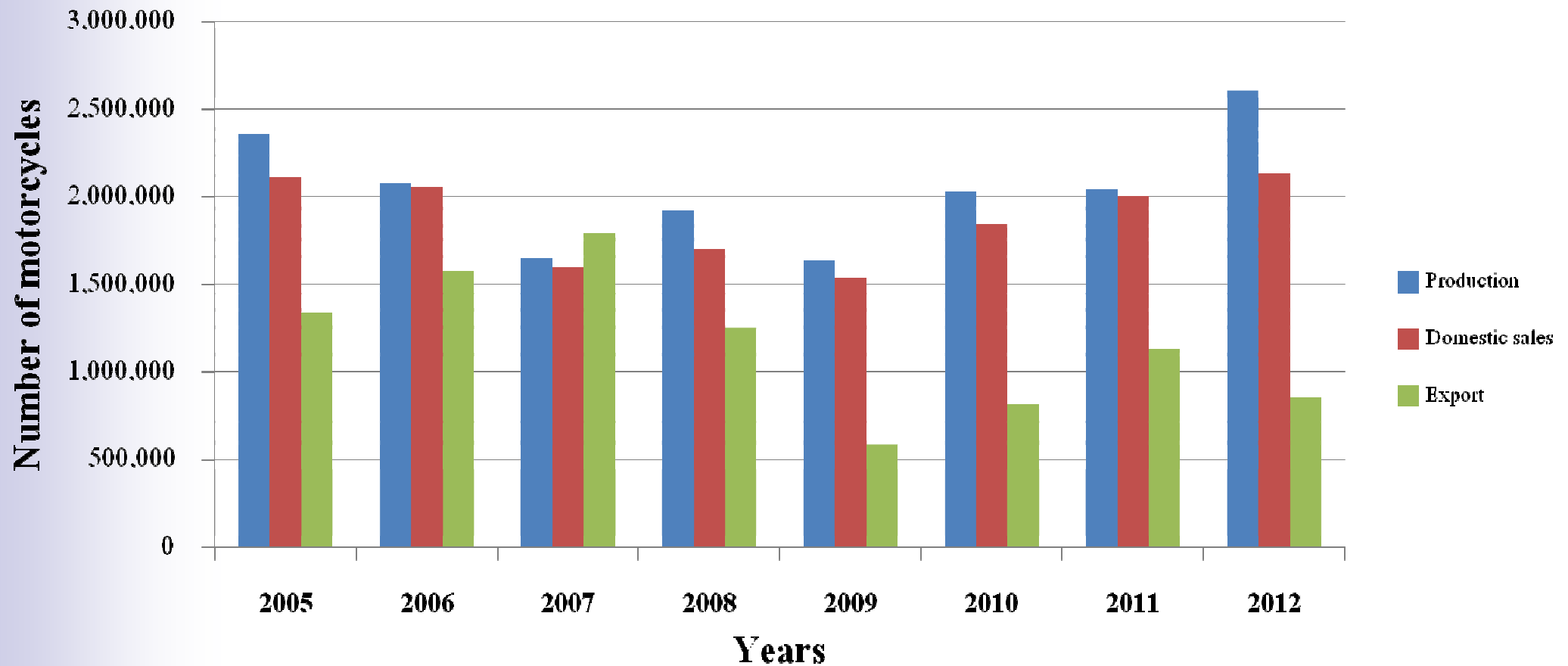
## Thailand Sales Forecast by Fuel Technology



Source: LMC Automotive (2013) Global Hybrid and Electric Vehicle Forecast: Q4

2012 (YEAR 2009 – 2019)

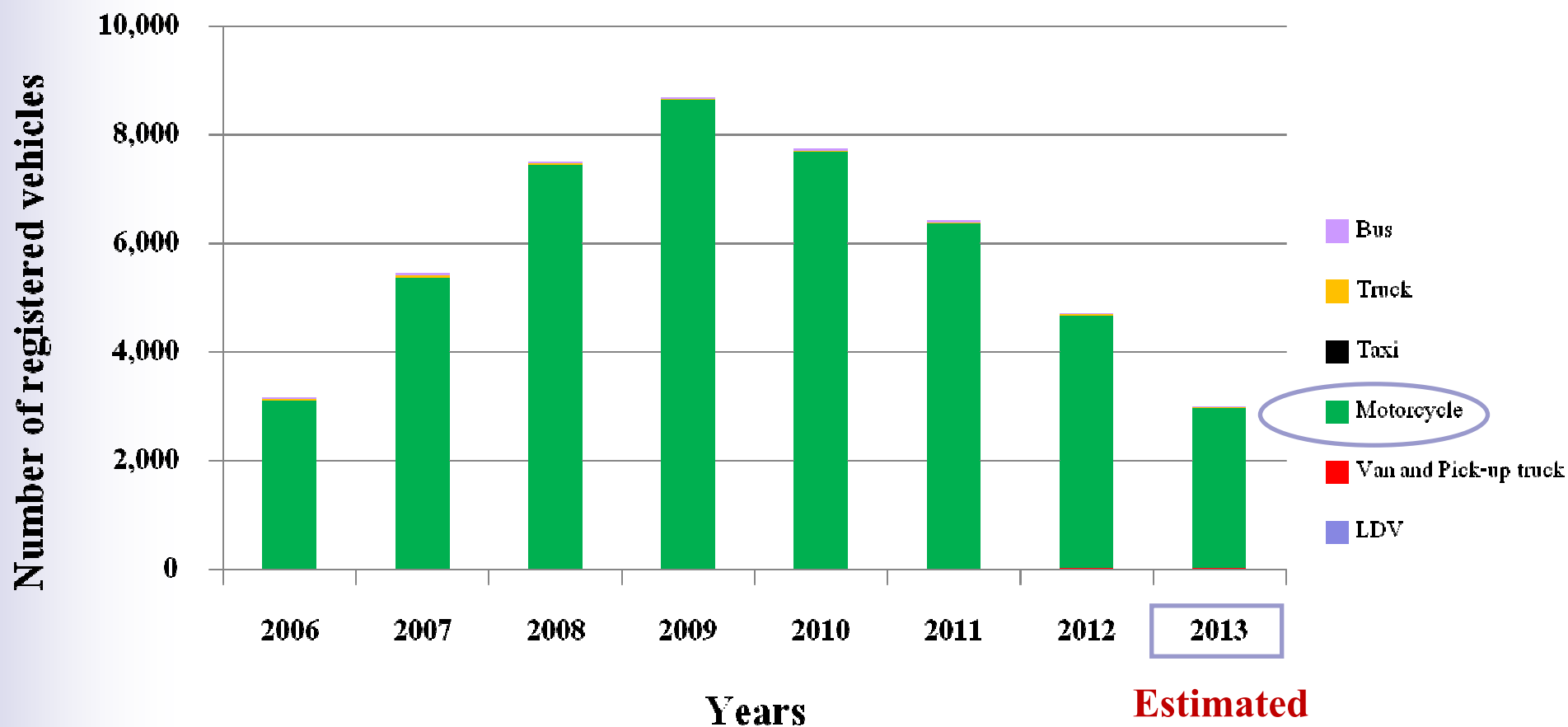
## Domestic motorcycle statistic



Production, sales and export figures of motorcycles in Thailand between 2006 and 2010

# EV situation in Thailand

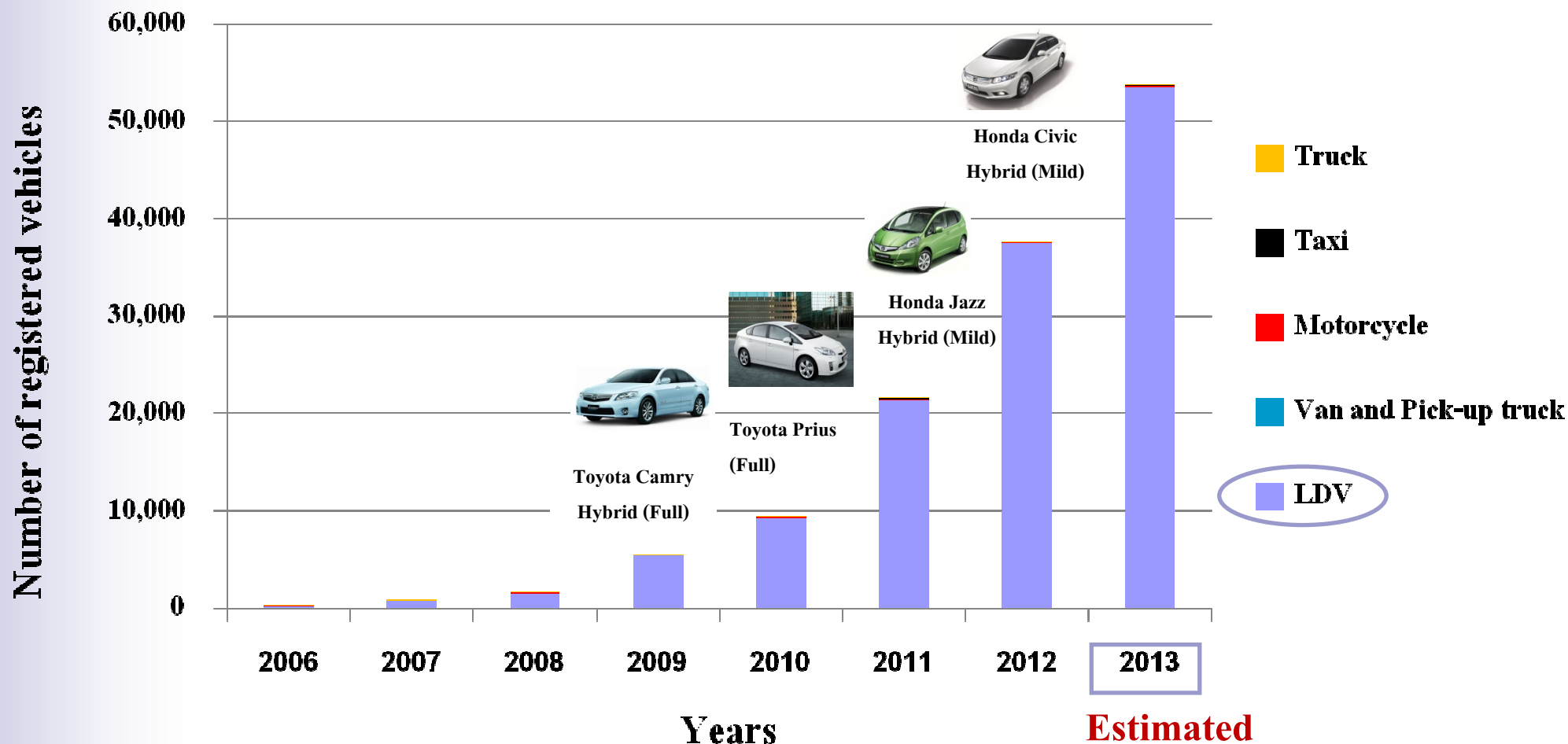
## Current situation of battery electric vehicles (BEV) in Thailand






# EV situation in Thailand

## Current situation of hybrid electric vehicles (HEV) in Thailand



# EV situation in Thailand

## Local Electric bus's Company in Thailand



**EVT**  
Electric Vehicles (Thailand)

### Chalet MTP 14s

EVT Chalet MTP 14s	
Passenger Capacity	14
External Dimensions	4.95 x 1.49 x 1.95 M.
Reference Range	70 km
Max. Speed	30 km/h
Min. Turning Radius	6 M
Climbing Capability	15%
Motor	5 kW DC 72 V
Battery Voltage	6 V x 12 UNITS

สอบถามข้อมูลเพิ่มเติม : โทร. 02 236 2020



**E4E's electric bus**

ELECTRIC BUS 8.5 m.	
Dimension [LxWxH]	8200x2350x2850 mm.
Wheelbase	3800 mm.
Curb weight	7000 kg.
GVW	9500 kg.
Seat	22 Seat
Top speed	80 km/h
Range/charge	50 km.
Charge time	6-8 hrs.
Tire	7.50-20-14
Air condition	50000 BTU

# EV situation in Thailand

## Public EV charging stations in Thailand

### PTT Public Company Limited



DC quick charger, CHAdeMO

(220V, 50 kW)

AC charger (220 V, 22 kW)

AC charger (220V, 3.3 kW)

**Launched in September 2012**

**6 stations in Bangkok and  
its vicinity in 2013**

### Metropolitan Electricity Authority (MEA)



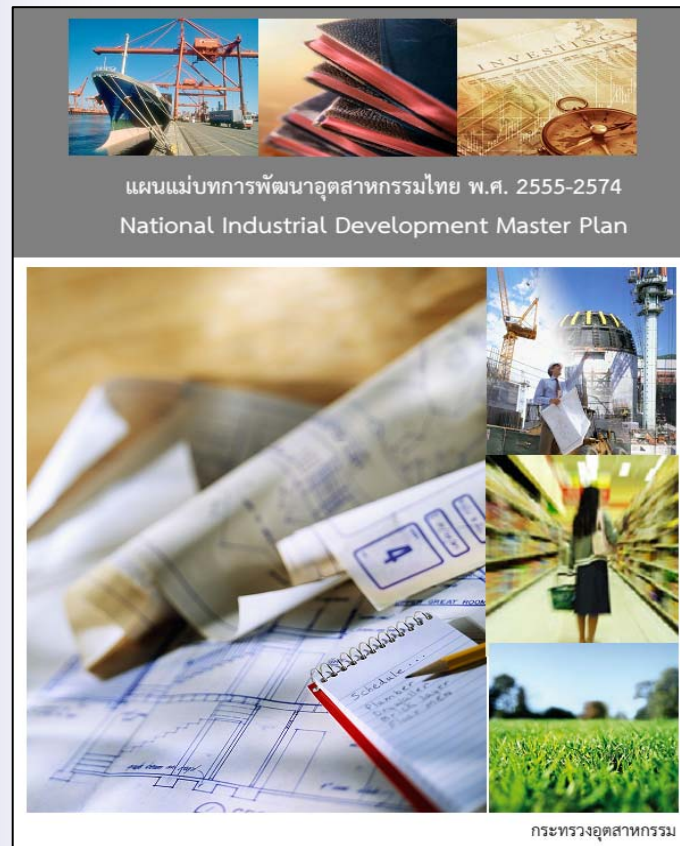
DC quick charger, CHAdeMO

(220 V, 50 kW) **launched in**

**August 2012**

**10 stations at MEA offices  
in 2013**

## National Industrial Development Master Plan by Ministry of Industry

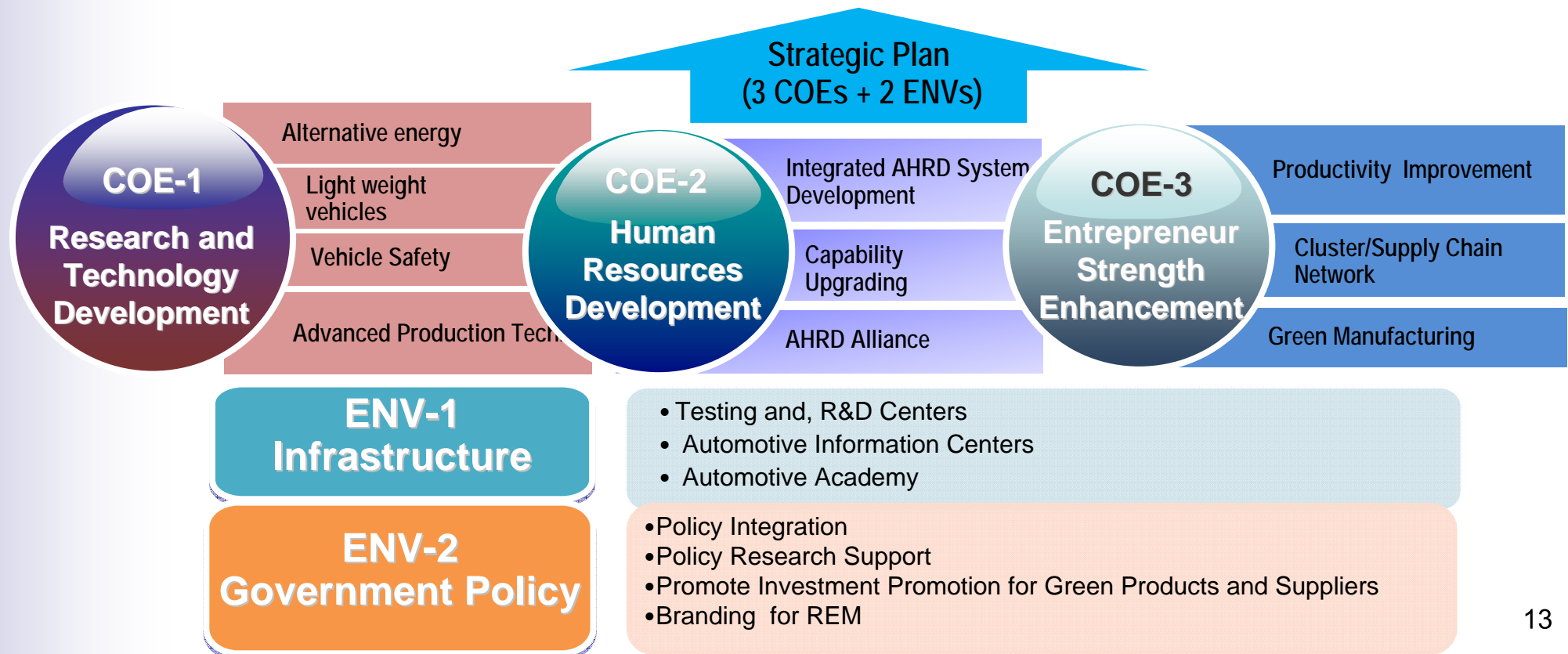


### Automotive sector

1. Thailand will be a quality production base in Asia-Pacific.
2. Focus on 1-tonne pick-up truck, **high efficiency light duty vehicle**, motorcycles and auto parts.

## Automotive master plan 2012 – 2016 proposed by TAI

“Thailand is a global green automotive production base with strong domestic supply chains which create high value added for the country”



COE: Center of Excellence

ENV: Good Business Environment

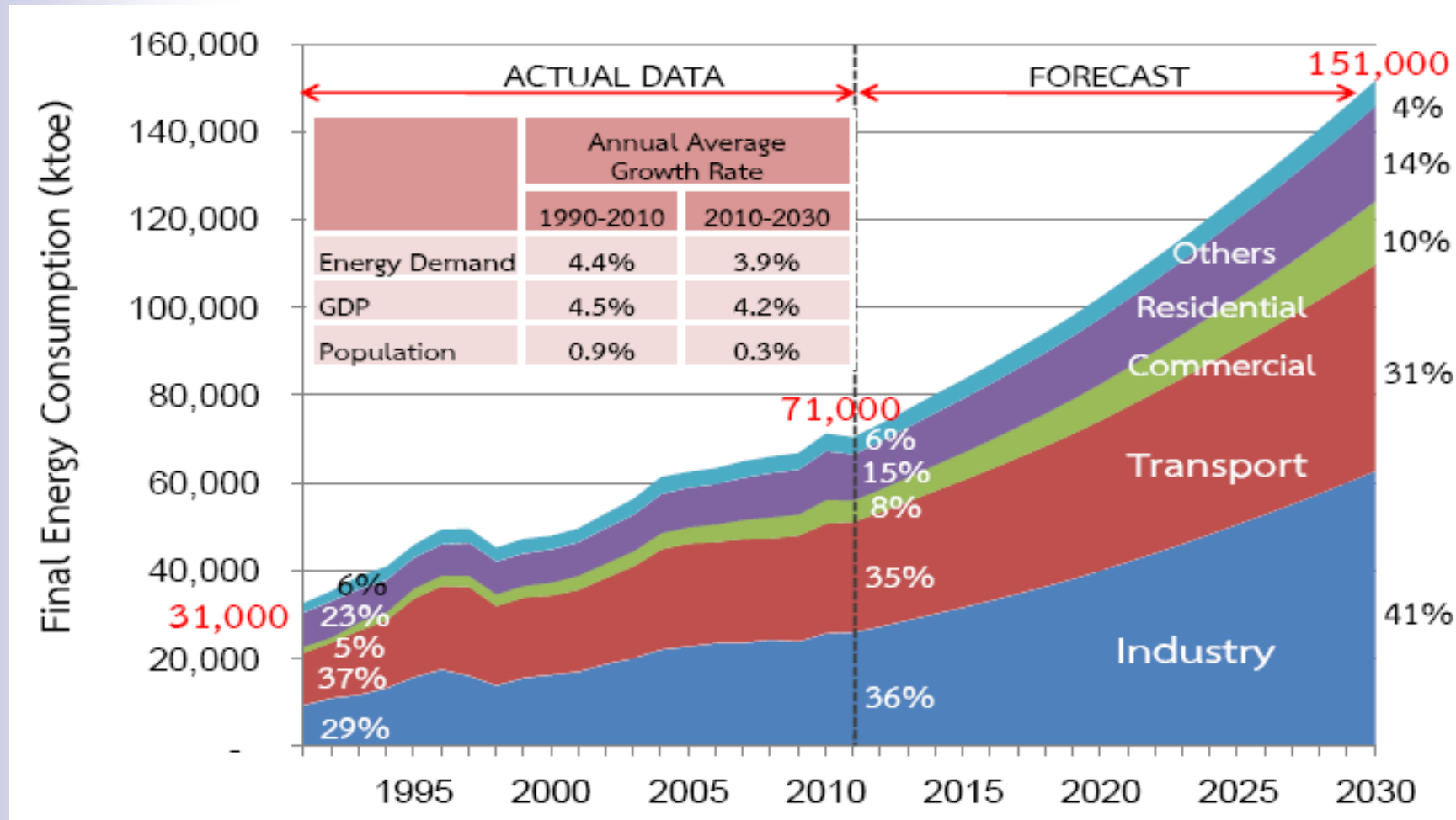
# Thailand's national plans related to EV

## New Excise Tax Scheme based CO<sub>2</sub> emission

Type	Current scheme						New scheme (To be effective on 1 <sup>st</sup> January 2016)						
	Engine size (<220HP)	Gasoline Gasohol (E10)	E20	E85	NGV	HEV, PHEV, BEV, FCEV	Engine size	CO <sub>2</sub>	E0 – E20	E85, NGV	HEV	PHEV, BEV, FCEV	
Passenger cars	< 2,000 cc.	30%	25%	22%	20%	10%	< 3,000 cc.	< 100 g/km			10%	10%	
	2,001 – 2,500 cc.	35%	30%	27%	20%			101-150 g/km	30%	25%	20%		
	2,501 – 3000 cc.	40%	35%	32%	20%			151 – 200 g/km	35%	30%	25%		
								> 200 g/km	40%	35%	30%		
	> 3,000 cc. or 220 HP	50%	50%	50%	50%			> 3,000 cc.		50%	50%		50%
Eco-car	Gasoline < 1,300 cc.	17%					Gasoline < 1,300 cc.	< 100 g/km	14% (12% for E85)				
	Diesel <1,400 cc.						Diesel <1,400 cc.	101 - 120 g/km	17%				

# Thailand's national plans related to EV

## Energy Demand in the Past and Future Trends

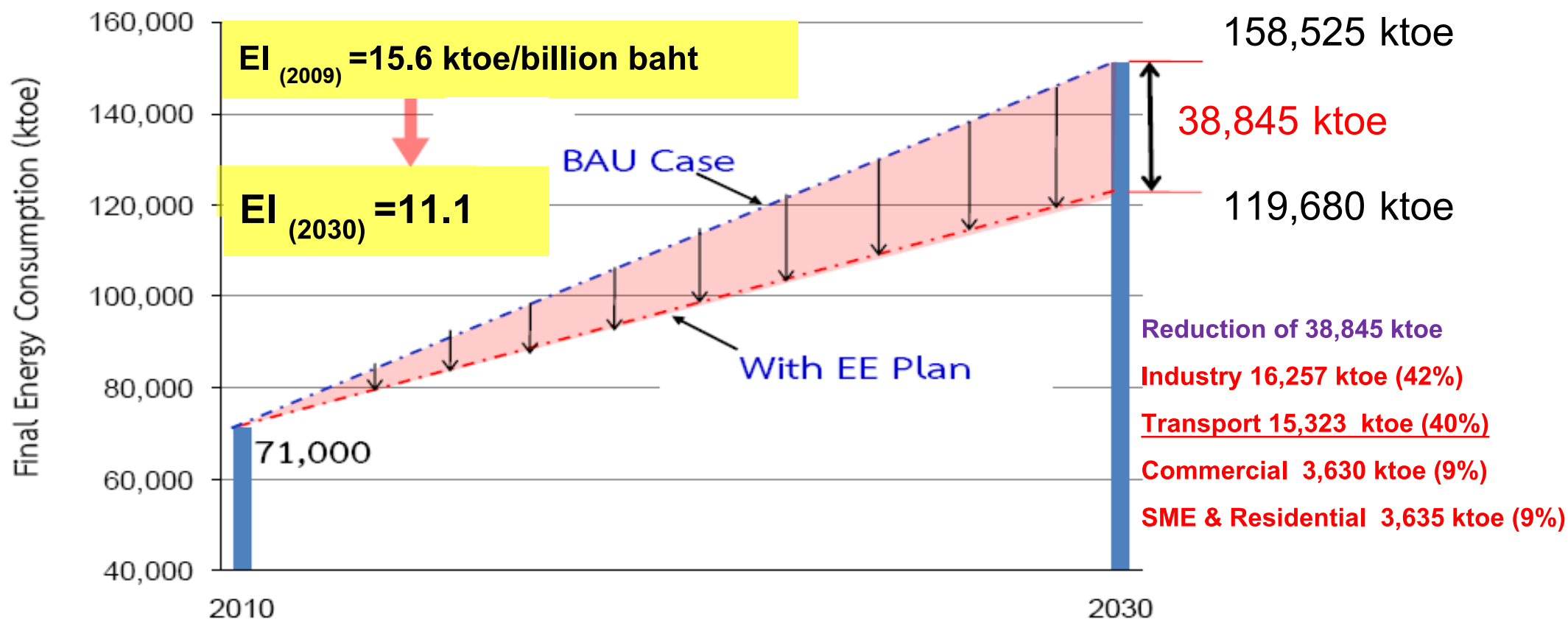


Source: 20-Year Energy Efficiency Development Plan (2011) Energy Policy and Planning Office (EPPO)

# Thailand's national plans related to EV

## Thailand Energy Conservation Target

### 20-Year Energy Efficiency Development Plan **Updated 2013**





## Potential evaluation of transportation sector 16,250 ktoe

### ■ Use high energy efficiency vehicles and use vehicles efficiently

#### Use high energy efficiency vehicles => For new vehicles

- Regulation to use automobile efficiency label
- Enforce minimum efficiency standard
- Support production and sales of high energy efficiency vehicles

#### Use vehicles efficiently => For current vehicles

- Support eco-driving
- Idling stop

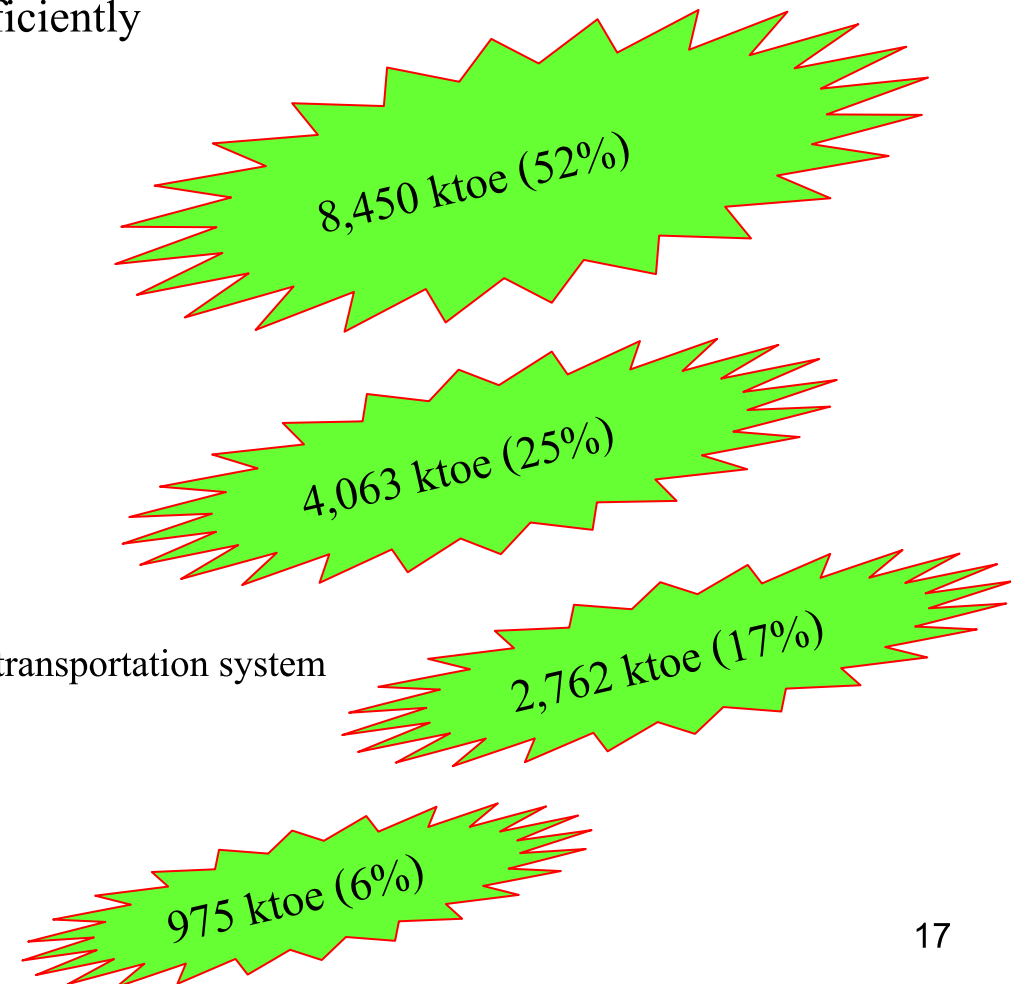
### ■ Mode shift

#### Travelling pattern mode shift from private vehicles to mass transportation system

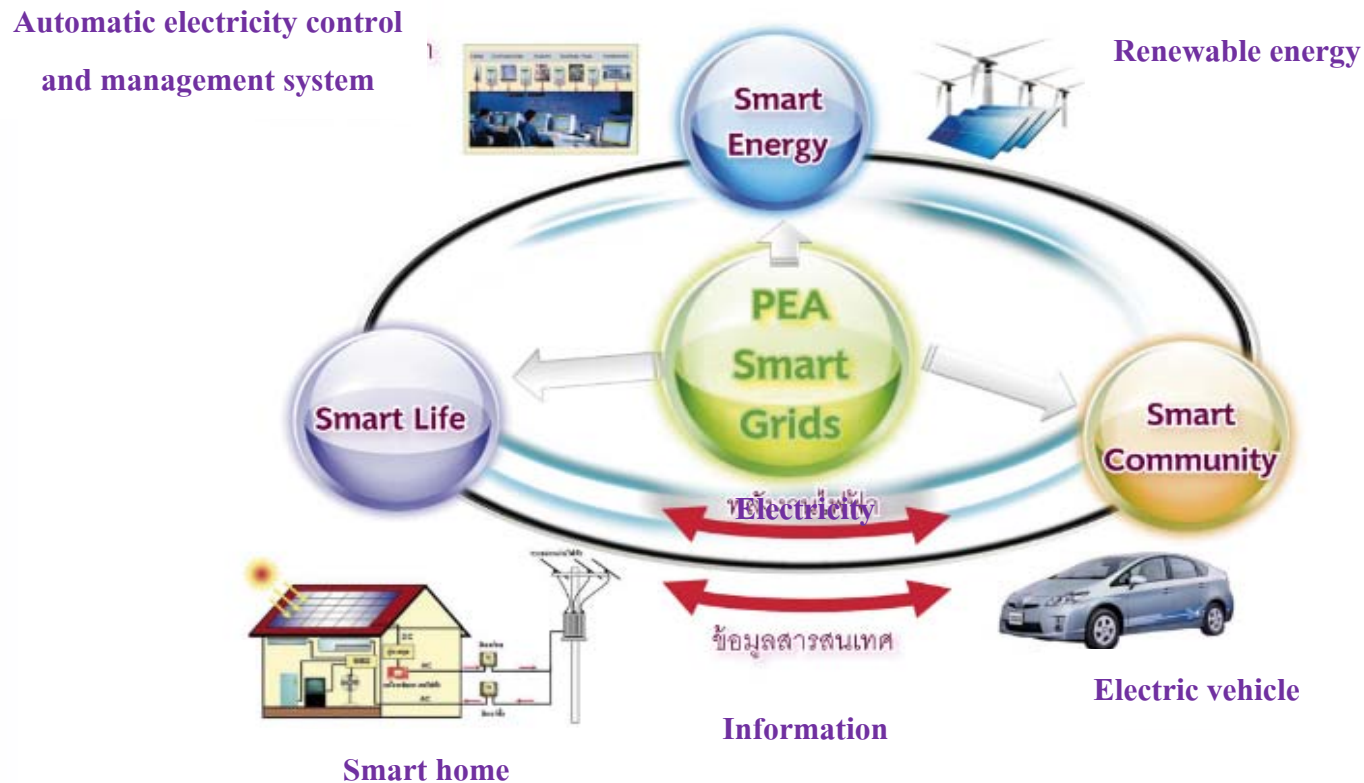
#### Logistics mode shift from road to rail or water way

### ■ Travel demand management

- Reduce number of journeys
- Road-pricing or Congestion charging



## Smart grid in Thailand



Provincial Electricity Authority (PEA) smart grid scheme

**Source:** Provincial Electricity Authority (PEA, Thailand). "Smart Grid [in Thai]".

<http://161.200.85.41/pea-smartgrid/>. Last accessed, June 2012.

# Thailand's national plans related to EV

Development of low-carbon society in Thailand

Budget to support  
Research &  
Development

Alternative Energy Development Plan  
(AEDP : 2012-2021)

Support  
the investment  
of Private sector  
and community

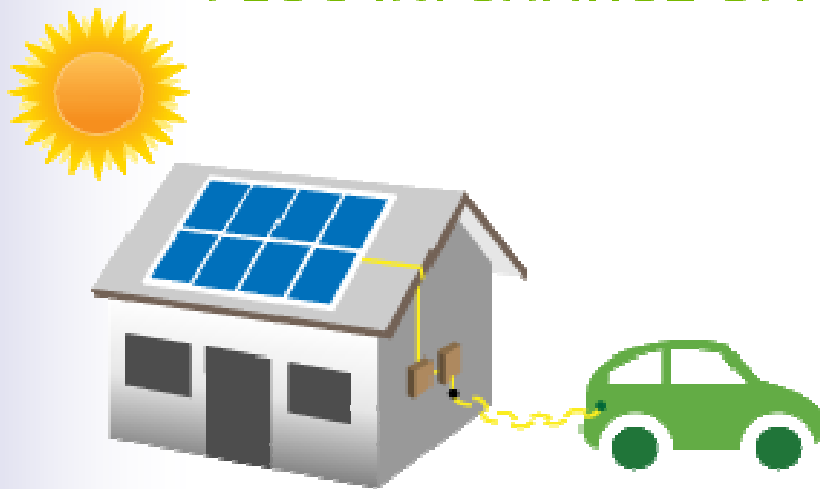
Target on using Renewable Energy at **25 %**  
of Total Energy Consumption By 2021

New energy resources		Solar & Wind		Hydro power		Bio-energy				Biofuels for Transport			
Tidal wave	Geothermal	Solar	Wind	Mini	Micro	Biomass	Bio-gas	Napier grass	MSW	Ethanol	Bio-diesel	CBG	new. Biofuels (BHD)
2 MW	1 MW	3,000 MW	1,800 MW	324 MW		4,800 MW	600 MW	3,000 MW	400 MW	9 ML/day	7.20 ML/day	1,200 ML/day	3 ML/day
3 MW		100 ktoe				8,500 ktoe	1,000 ktoe		200 ktoe	Replacing Oil 9,463 ktoe			
		4,800 MW, 100 ktoe		324 MW		8,800 MW, 9,700 ktoe							

## Solar rooftop project by Ministry of Energy

Generate electricity  
(200 MW)

PLUG IN. CHARGE UP.



“EV” and “Solar rooftop”  
seems to be a perfect match.

# Summary

- The domestic production of HEVs commenced in 2009. However, PHEVs and BEVs are not yet widely known and only few demonstration project at related organisation. It is forecasted that HEV and PHEVs will probably be more popular than BEVs.
- At present, almost 99% of motorcycles in Thailand are internal combustion engine. The electric bikes and motorcycles currently on sale in Thailand are equipped with lead-acid battery, which is are not widely popular among Thai customers due to lower performance compared to ICE motorcycles.
- Currently the Thai government does not have any policy to support nationwide electric motorcycle or vehicle production and sale.

# Thank You

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