Energy Policy
and Planning Office
MINISTRY OF ENERGY

EV Program in Thailand

Narumon FROMHOLD
Energy Policy and Planning Office

21st APEC Workshop on Energy Statistics: Data Collection on New Energy Products and Technologies

12-14 September 2023

Tokyo, Japan

Thailand's EV policy direction

The National Electric Vehicle Policy Committee

- Promotion of the manufacturing industry electric vehicles and parts
- Infrastructure and battery development to support electric vehicle
- Assessing the impact of fuel and GHGs from the promotion of electric vehicles
- Promoting the electric vehicles adoption




Thailand's Vision

Thailand is the global major production base for electric vehicles and parts.

EV Domestic Sale & Production Target

Target	Vehicle Type	ZEV unit/year (% market share)	
		2025	2030
Domestic Sale 	PC/PU	225,000 (30%)	440,000 (50%)
	MC	360,000 (20%)	650,000 (40%)
	Bus & Truck	18,000 (20%)	33,000 (35%)
	3-Wheeler	500 (85%)	2,200 (100%)
	E-Boat	130 (12%)	480 (35%)
	Rail	620 (70%)	850 (85%)
Production 	PC/PU	225,000 (10%)	725,000 (30%)
	MC	360,000 (20%)	675,000 (30%)
	Bus & Truck	18,000 (35%)	34,000 (50%)
	3-Wheeler	500 (85%)	2,200 (100%)
	E-Boat	130 (12%)	480 (35%)
	Rail	620 (100%)	850 (100%)

The National EV Committee has only approved targets for 2025 and 2030.

Targets of EVs production, Charging stations and the promotion of EVs Battery production

Year	Passenger Car/Pickup			Motorcycle	Motorcycle taxi 2%		Battery	
Target	annual Production (Million cars)	Cumulative usage (Million cars)	Target of DC Charge	Cumulative usage (Million cars)	Cumulative usage (Thousand cars)	Total target station	EV Production (Million cars)	Target of GWh
2025	0.225	0.4	2,200** - 4,400*	0.6	12	260	1.0	20
2030	0.725	2.0	12,000**	3.2	65	1,450	5.4	40

Policy framework to promote electric vehicles

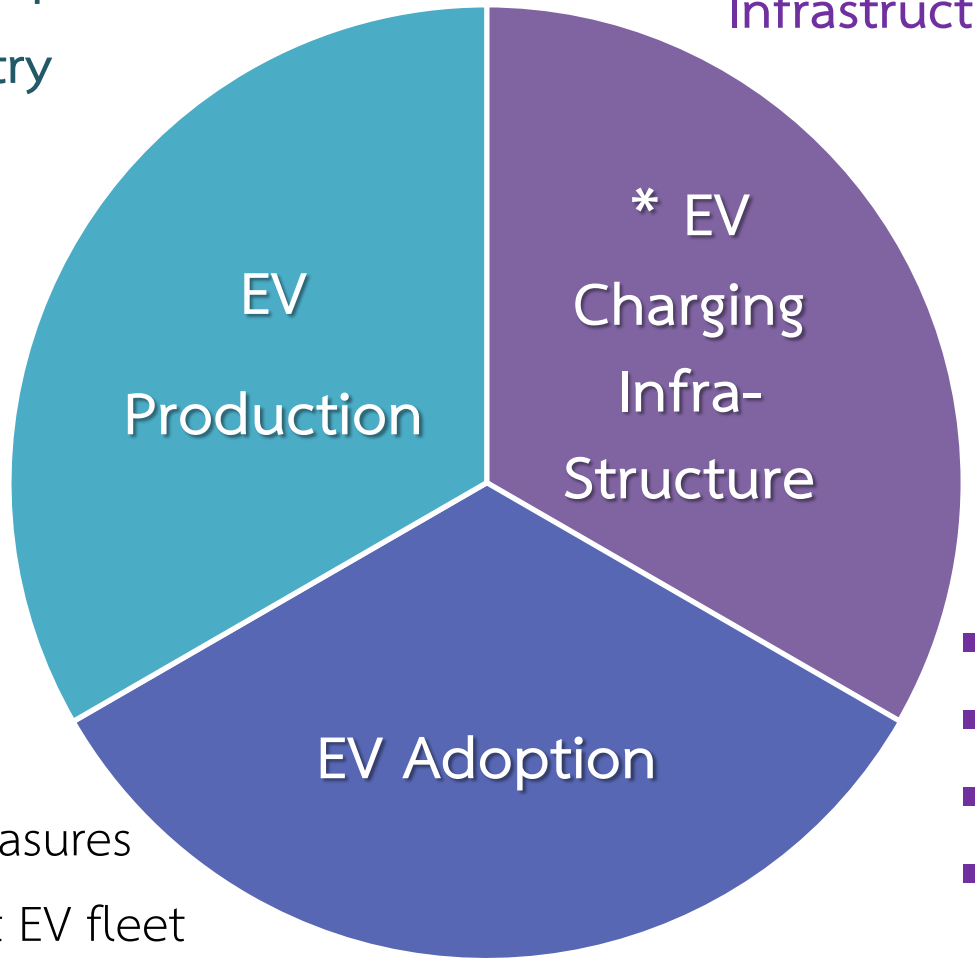
Promotion of EVs and parts manufacturing industry

- Production base for EVs and parts
- Establish automotive and parts standards
- The transition to EVs

Promotion of EVs Adoption

- Tax and Non-Tax Measures
- Support government EV fleet

- Assessing the impact of fuel and GHGs from the promotion of electric vehicles



Infrastructure development for EVs

- Promote the development of an adequate charging station network
- Create rules, standards and guidelines
- Promote smart grid technology to connect and manage electricity

Promoting EVs batteries

- Promote usability
- Promote the manufacturing industry
- Used battery policies and measures
- Manpower development and development of technology research and development capabilities

Measures for BEV in Thailand

Measures to support BEV in Thailand (2022-2025)

- Import duties reduction (2022-2023)
- Excise tax reduction & cash subsidy
- Must produce 1-1.5 times of import compensation cars

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- Must produce 1-1.5 times of import compensation cars

- Batteries must be manufactured or used locally manufactured or assembled & Only key parts manufactured locally are required

Lower price for ownership

** Under the conditions of the Excise Department, Ministry of Finance*

Guidelines for support battery production

Pack Assembly | **Module production** | **Cell production**

BOI CIT exemption, Battery excise tax restructuring

Machinery import tax exemption, import duty reduction for raw and essential materials not available within the country

Demand-linked incentives

** Under revision the National EV Committee*

Guidelines for support electric chargers

- **Electricity tariff** : Extend low priority tariff until 2025 for public charger provider, Separate electricity meter at home (TOU Off-Peak rate) ** Under revision the NEPC*
- **BOI Investment Promotion**
- Cooperate with state enterprises to invest charger
- **Reducing the time for permission** : EV charger installation & inspection

Charging Station Infrastructure Development Framework

1

Promoting the development of an adequate charging station network through agencies and partners

- Investment and development plan for public charging station network
- Supporting the installation of public charging stations
- Promoting through financial and tax measures

2

Establishing the regulations, standards and guidelines to develop charging station

- Regulations and standards for communication and safety
- Regulations and standards for installation and area development

3

Promoting the smart grid technology to connect and manage integrated electric charging

- Smart meter infrastructure policy
- Development of an integrated and interconnection platform
- Connecting charging stations and electric vehicles to manage electrical systems

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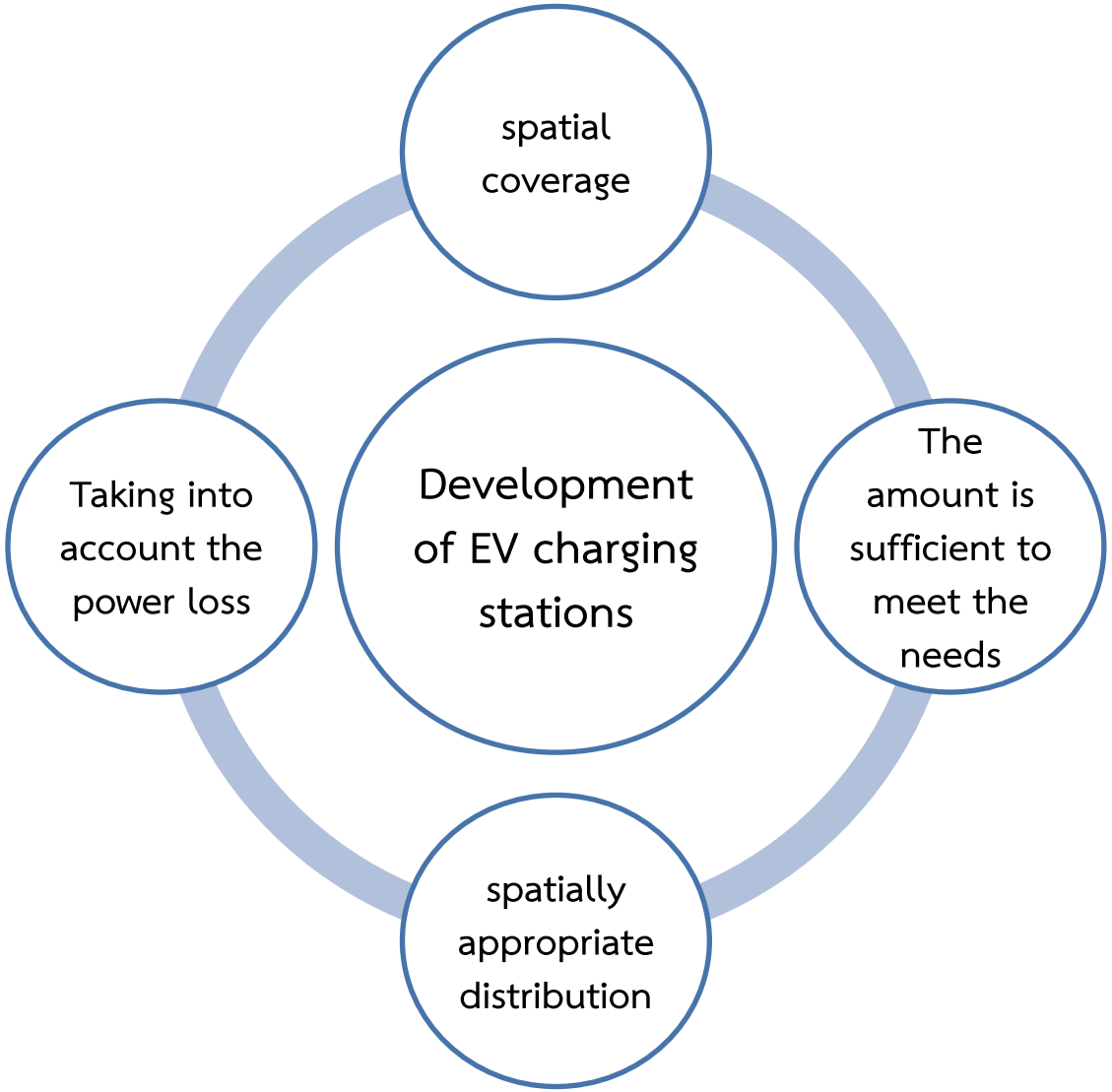
Approach to the analysis of EV charging station development



Power Demand Analysis

To analyze the charging needs that will occur by using an algorithm based on driving behavior

Analysis of the appropriate number of chargers

Calculate the number of chargers that support demand by using the equation to calculate the energy to charge

Comprehensive and proper distribution of the charger

Distribute the chargers spatially and appropriately and take into account the power loss by using algorithms.

Promoting the development of an adequate charging station network

Charging station usage varies by location

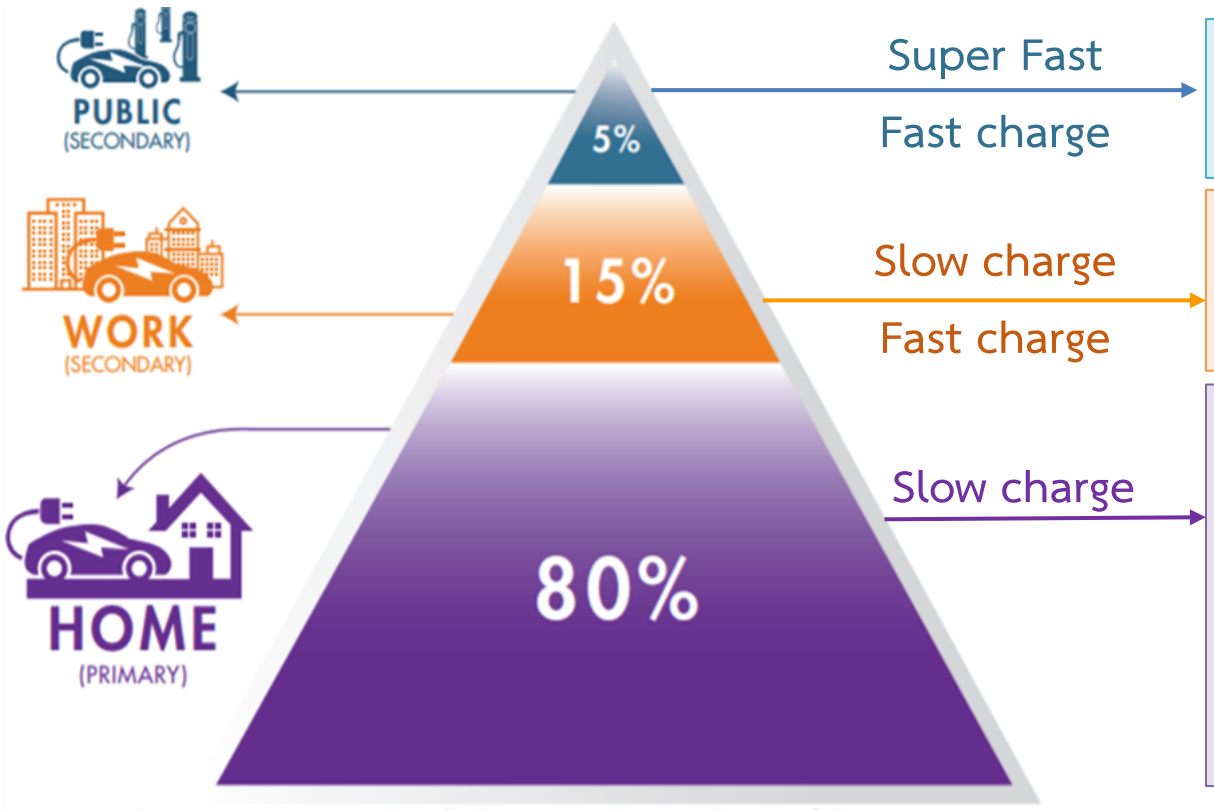


Figure 1 – Charging station usage varies by location. Approximately 80% of charging occurs at home, 15% at work, and 5% at public locations.

Source: Electric Power Research Institute, October 2019

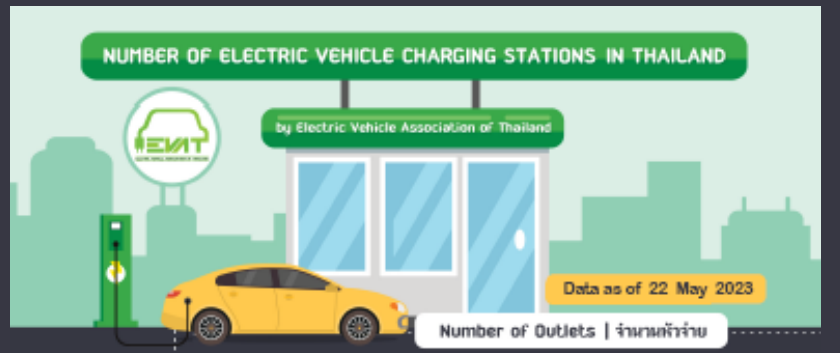
Measures

- Investment and development of public charging station
- Promote charging station in various network
- Connect to Smart grid

Investment and development of public charging station network

City

Tourist destination ▶▶ Rest area ▶▶ Community

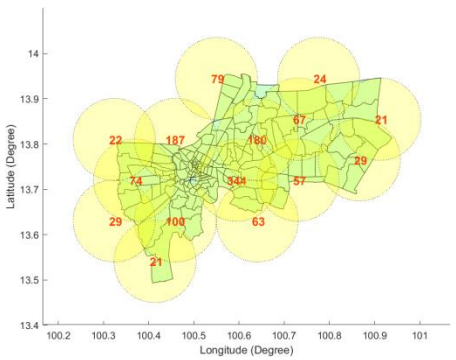


Service Providers ผู้ให้บริการ	Number of Locations จำนวนแห่ง	Number of Outlets | จำนวนหัวจ่าย			
		DC (DC CSS 2)	DC (DC CHAdeMO)	AC (AC TYPE 2)	ALL (TOTAL)
	406	576	-	579	1,155
	252	390	78	320	788
evolt	189	45	13	421	479
SHARGE	184	56	1	489	546
PEA	164	272	215	112	599
ElecX	84	98	5	165	268
noodoe	59	-	-	132	132
onion	57	3	1	415	419
HAUP	38	2	2	51	55
mea	33	13	9	124	146
GWM	6	16	-	-	16
PUMP CHARGE	6	-	-	18	18
CHOSEN	4	-	-	7	7
TOTAL	1,482	1,471	324	2,833	4,628

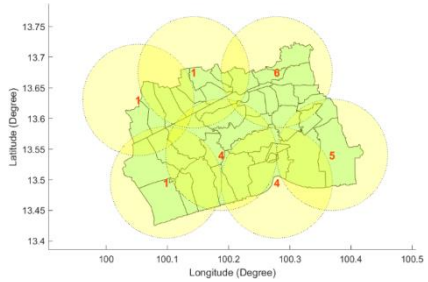
Notes: Not including public charging stations that serve only specific EV owners e.g., Tesla Supercharger, MG Super Charge, etc.
(ไม่รวมสถานีชาร์จสาธารณะที่ให้บริการเฉพาะลูกค้าเฉพาะกลุ่มเท่านั้น เช่น เทสล่า ซุปเปอร์ชาร์จเจอร์ เอ็มจี ซุปเปอร์ชาร์จ เป็นต้น)

EV Public Charging Station mapping

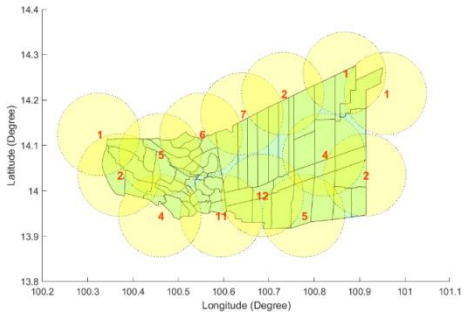
Bangkok Metropolis and Vicinity



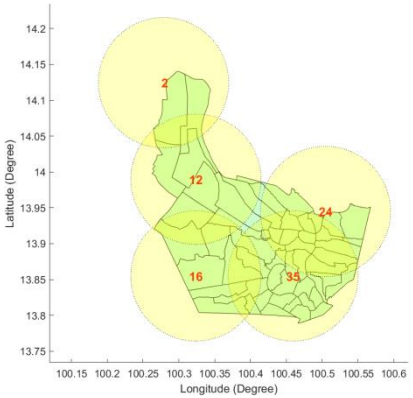
Bangkok 1,297 Charger



Samutsakorn 22 Charger

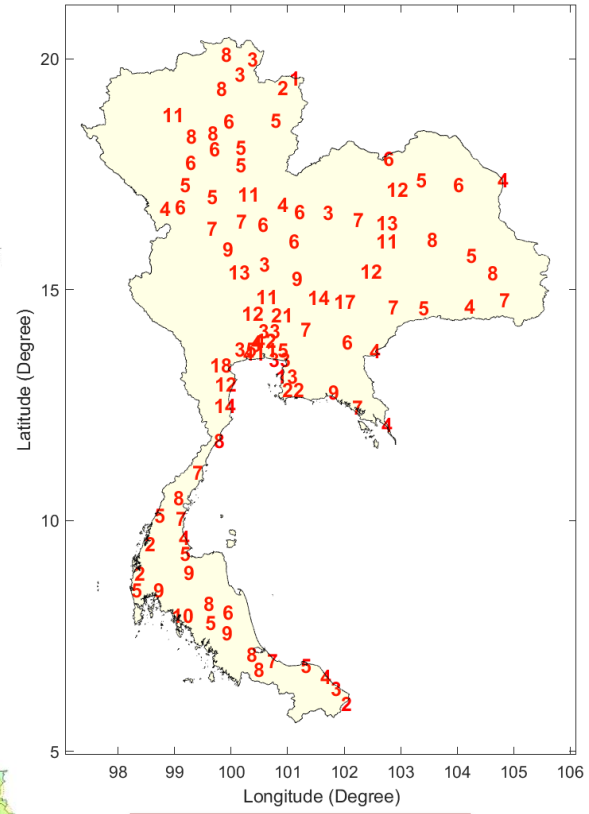


Phatumthani 63 Charger



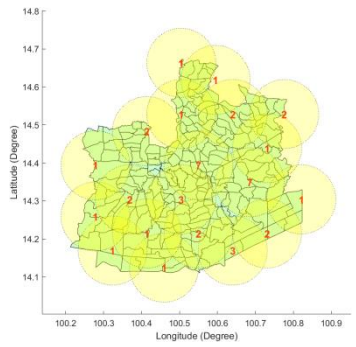
Nonthaburi 89 Charger

ตัวอย่างสำหรับผู้ที่ขับขี่นอกเมือง Highway

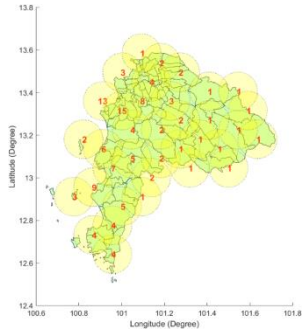


849 Charger

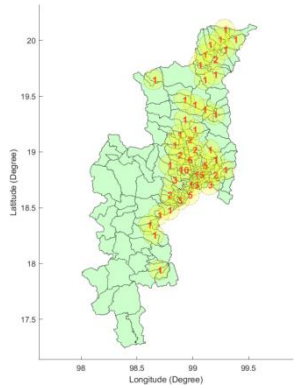
Other Province



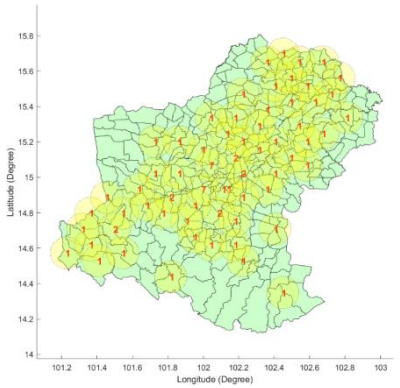
Ayuttaya 42 Charger



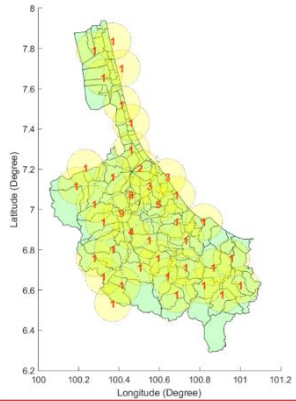
Chonburi 124 Charger



Chaingmai 102 Charger

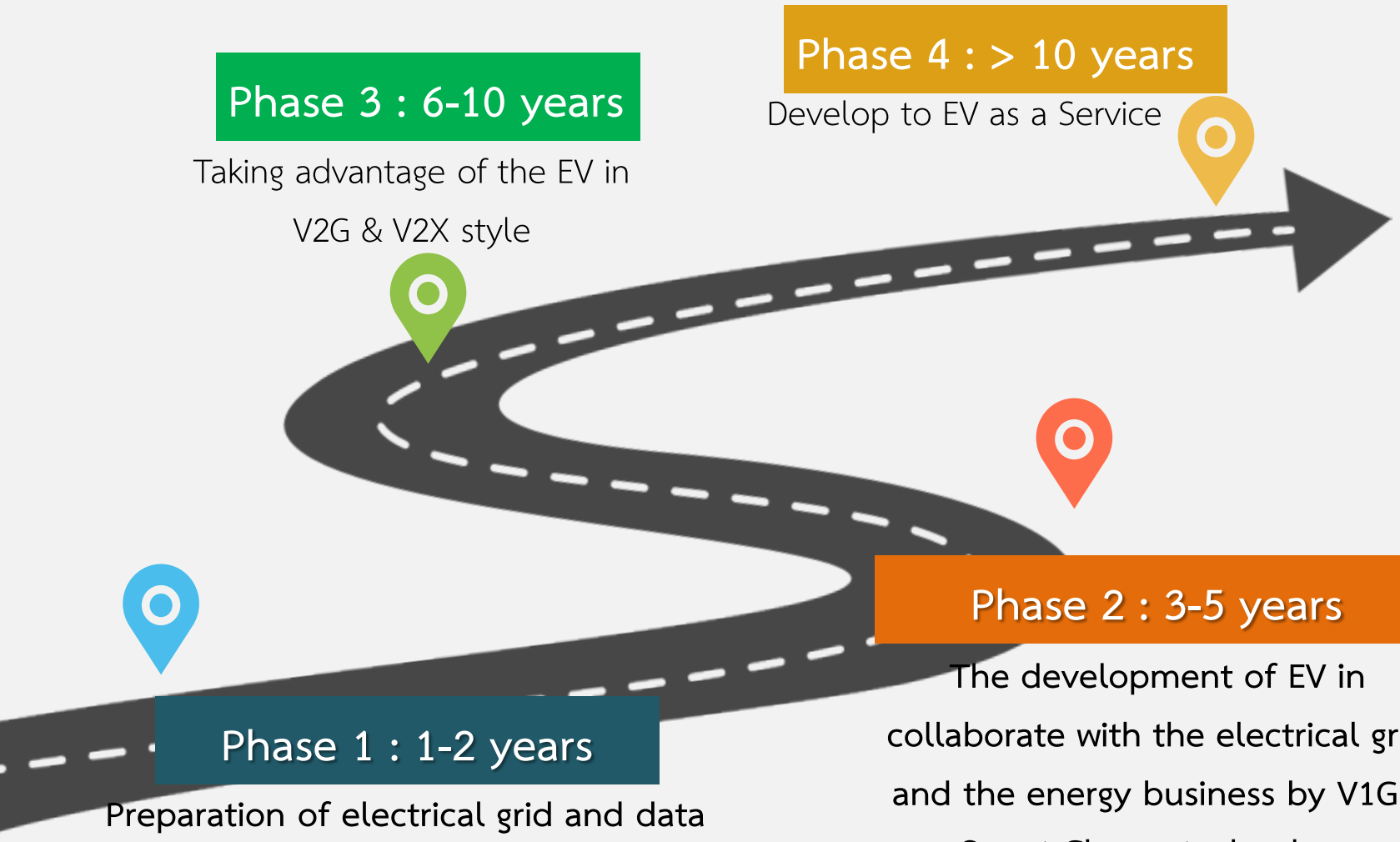


Nakornratchasima 90 Charger



Songkhla 66 Charger

Promoting the smart grid technology to connect and manage integrated electric charging



Phase 1 : 1-2 years

Preparation of electrical grid and data connection trough EV's platform

Phase 2 : 3-5 years

The development of EV in collaborate with the electrical grid and the energy business by V1G / Smart Charge technology

Phase 3 : 6-10 years

Taking advantage of the EV in V2G & V2X style

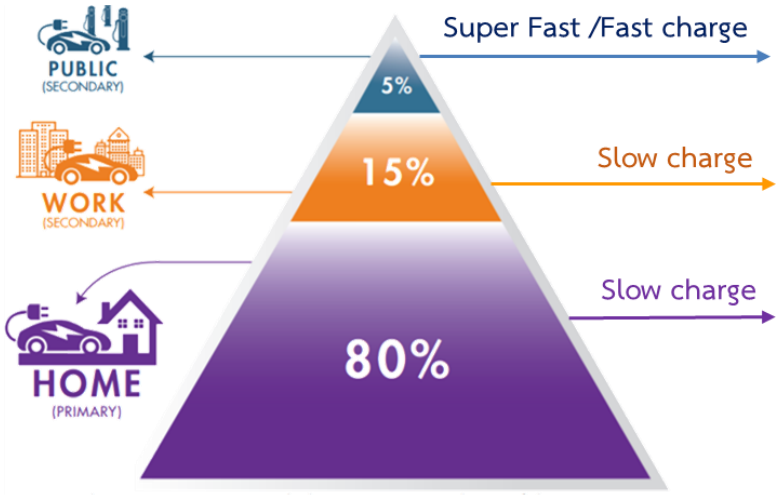
Phase 4 : > 10 years

Develop to EV as a Service

EV Integration Roadmap

to support power system management in the Smart Grid Action plan

EV Data Connection & Management



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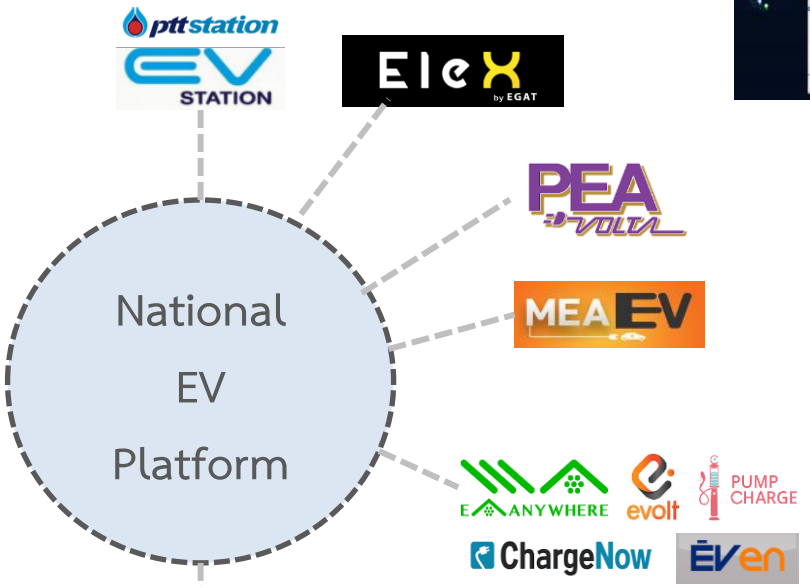
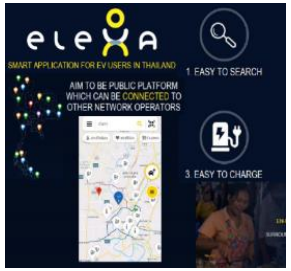
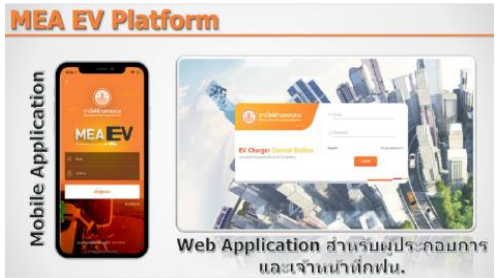




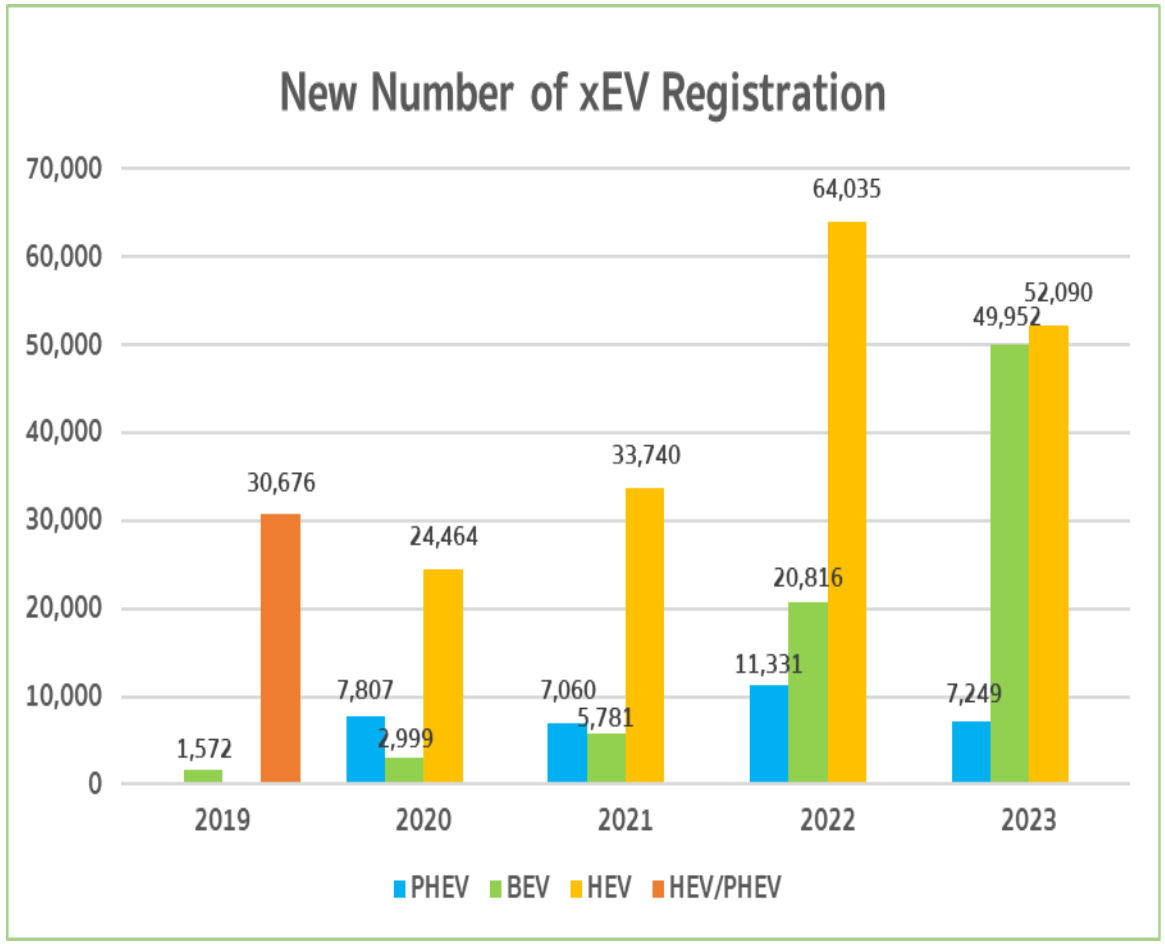
[EV Data Platform]

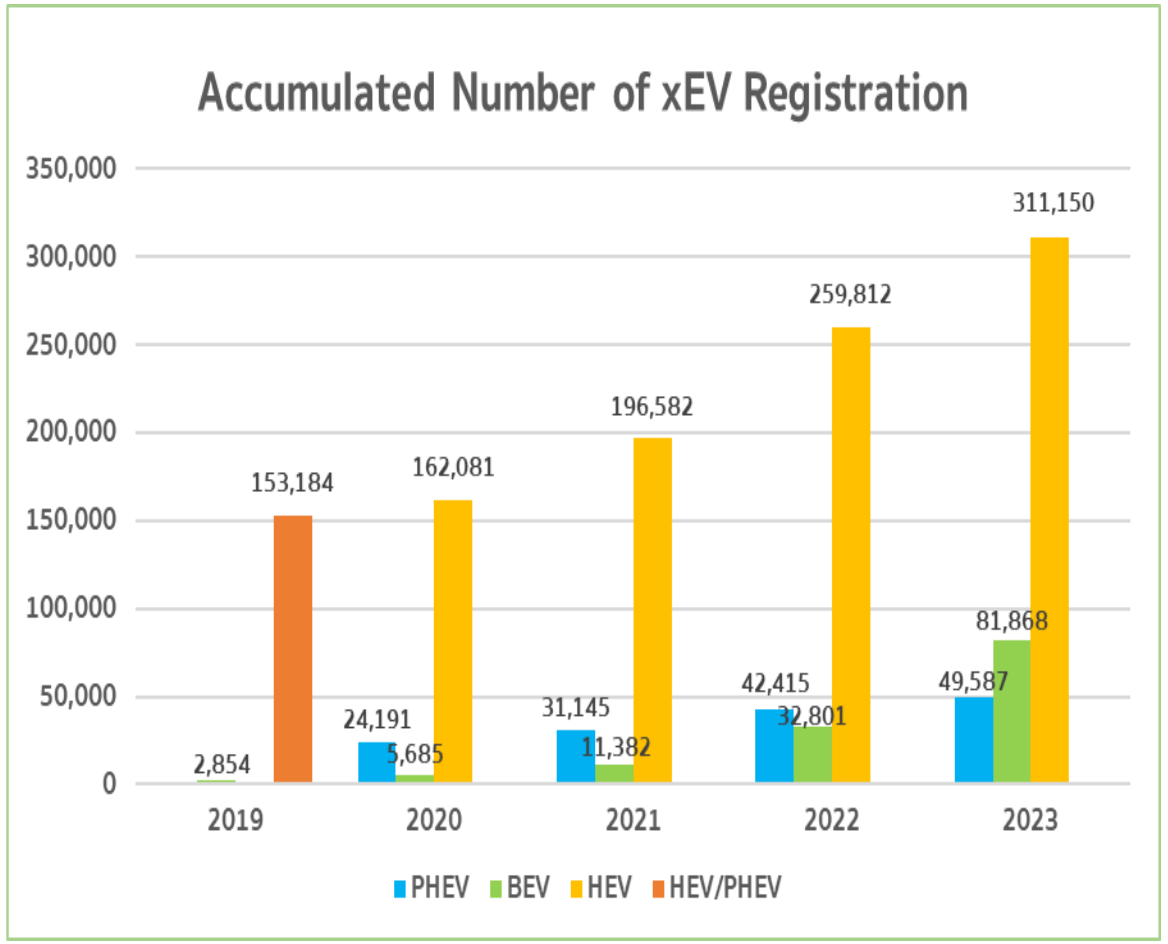


Wallbox interoperabillity

Current status of xEV

As of July 2023





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