THAILAND ENERGY INDUSTRY REPORT

Bangkok



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THAILAND - Energy industry report

Overview

The energy market in Thailand is poised for growth due to rising global energy demand driven by population growth and economic development. The shift towards cleaner, sustainable energy sources such as solar, wind, and hydropower is expected to accelerate, leading to a gradual decline in the reliance on fossil fuels despite their continued significance, particularly in fossil-dependent countries.

In 2023, natural gas was the leading source for power generation in Thailand, producing around 129 thousand gigawatt hours, followed by coal and lignite. The total power generated in the country was approximately 223 thousand gigawatt hours during that period. Thailand has abundant energy resources, including multiple natural gas production sites. However, natural gas production volumes have been fluctuating, reaching nearly 26 billion cubic meters in 2023.

Besides natural gas, crude oil and coal are also essential for energy production in Thailand. Crude oil sources are located in various regions of the country, while coal production has been declining annually despite available resources. The Thai government is currently promoting the expansion of renewable energy production like hydropower and solar energy.

Thailand Energy Statistic 2023								
Final energy consumption	81,124 KTOE (+4.00% CAGR)							
Refined oil consumption	40,386 KTOE (+0.63% CAGR)							
Electricity consumption	203,875 GWh (+3.38% CAGR)							
Petroleum import value per total import	14% (decrease from 15% in 2022)							
Energy import value per total import	19% (decrease from 20% in 2022)							
Final energy consumption per person	1.2 toe / person							
Electricity consumption per person	3,087 kWh / person (+3.45% CAGR)							

Table 1: Thailand Energy Statistic 2023

Sources: Energy Policy and Planning Office (EPPO)

Since 2023, Thailand has been working on the Power Development Plan (PDP) 2023-2037 for a shift to clean energy. At COP27 in 2022, Thailand pledged carbon neutrality by 2050 and net zero emissions by 2065. In 2024, reliance on natural gas for power is likely to continue. Despite renewable energy growth in the coming decade, major solar and wind power generation is not expected until 2025 at the earliest.

Thailand Power Development Plan (PDP)

PDP is developed to be the major power sourcing plan for Thailand by specify the demand for electricity in the next 20 years, as well as specify the roadmap for electricity supply side in terms of capacity, locations, fuel types. Currently, Thailand still in use of PDP 2018-2037 which in 2037, Thailand plans to have a generating capacity at 77,211 MW of which 56,431 MW are coming from new power generation capacity from 2018. Thailand power generation is planning to rely more on renewable energy sources.



Sources: Energy Policy and Planning Office (EPPO)

Top 3 regions with highest generation capacity in 2037 are northeast region (16,700MW), east region (14,707MW) and Bangkok & Vicinity (11,478MW) represent 55% of total generation capacity.

During the 2022 United Nations Climate Change Conference or Conference of the Parties of the UNFCCC (COP27), Minister of Natural Resources and Environment made a statement demonstrating Thailand's position in contributing to the global community in dealing with climate change. This includes the improvement of a long-term strategy to develop Thailand's low-emission model that corresponds to Agenda 2030 of Sustainable Development Goals (SDGs) by targeting on carbon neutrality by 2050 and net-zero greenhouse gas emissions by 2065.

In this case, the country set a goal to increase the production of zero-emission cars to 30% of total vehicle production by 2030, increasing the share of renewable energy in electricity generation by at least 50% by 2050, and support the commercialization of CO2 removal technologies before 2040.

In addition, Thailand also emphasizes the promotion of the BCG Economy Model, a new theoretical economy that combines 3 main areas of development including Bio Economy, Circular Economy, and Green Economy, which is expected to be an important outcome of the APEC Economic Leaders' Meeting to integrate cooperation and lead to sustainable growth. In this case, Thailand has also reiterated its agendas that the country needs assistance and support, especially advanced technology transfer and climate change adaptation and mitigation.

Therefore, the Ministry of Energy is currently developing the new Power Development Plan (PDP) 2023-2037 to formalize its commitment. The essence of the plan will be focusing on energy transition to net-zero carbons emission goal by 2065. The adoption of this plan is originally set at the beginning of 2022; however, has been postponed to 2023 due to a greatly energy prices fluctuation from the Russia-Ukraine War that unsteadied the planning process.

Currently, the Energy Policy and Planning Office (EPPO) disclosed the progress of the National Energy Plan 2024 for the years 2024-2037, stating that it will be ready for implementation in September 2024. As of April 2024, the Preliminary Design Parameters (PDP) must include renewable energy sources accounting for more than 50% in the year 2024.

Opportunities for Global Investors

Clean Energy

Thailand currently generates 20% of its total electricity from clean energy, establishing itself as a regional leader, ranking first in ASEAN and 45th globally in clean energy advancement according to the 2024 SDG Index.

Clean energy is becoming a primary energy source for the future, with many countries aiming for carbon-neutral economies. This shift is driving global industries to adopt cleaner energy solutions.



Thailand is committed to increasing its renewable energy share to at least 50% by 2030. This initiative not only aims to reduce carbon emissions but also to attract foreign investments. Major global companies in various sectors, such as data centers, electric vehicle manufacturers, electronics producers, and renewable energy firms, are choosing Thailand as a sustainable production base due to its robust clean energy infrastructure.

BOI's Role in Promoting Clean Energy

The BOI is facilitating the growth of clean energy sources in Thailand, offering both tax and non-tax incentives.

Types of Activities and BOI Benefits in 2024								
Electricity Production from Refuse-Derived	8-year corporate income tax exemption							
Fleatricity Draduction from Denometric Courses								
(excluding waste)	8-year corporate income tax exemption							
Electricity Production from Hydrogen	8-year corporate income tax exemption							
Electricity Production from Other Sources	3-year corporate income tax exemption							

For more information on investment incentives for clean energy in Thailand, please see this link: https://www.boi.go.th/upload/content/BOI_A_Guide_Web_Th.pdf

Thailand Power Generation industry

Electricity

Thailand's power generation industry is structured in line with the enhanced single-buyer model with state bodies being the sole buyers and distributors of power through the national grid. State owned enterprises play important roles in Thailand electricity market. They purchase, generate, transmit, and distribute electricity. Private sector can generate electricity and sell it to SOEs.

Table 3: Thailand Power Generation Industry Supply Chain

Thailand Power Generation industry supply chain



Source: Krungsri research



The Electricity Generating Authority of Thailand (EGAT) is a key generator and buyer of electricity generated from Independent Power Producers (IPP), Small Power Producers (SPP), as well as imported from neighboring countries.

EGAT owns national transmission network which mainly comprise of transmission lines and substations and sells electricity to EGAT direct customers as well as the two SOEs which are the distributor in the metropolitan area (Metropolitan Electricity Authority – MEA) and provincial areas (Provincial Electricity Authority – PEA). The two SOEs distributors can also buy electricity from Very Small Power Producers (VSPP) and distribute electricity to end users.

Thailand's share of installed generating capacity is shifted from EGAT to private producers. The share of electricity generating capacity has been changed over the past 20 years. Increase in generating capacity comes from private producer.

IPP plays important role in capacity generation with slightly capacity growth in the past 6 years while SPP's capacity is almost doubled from 2016-2022.

By producer, the share of installed generating capacity in 2022 is led by EGAT (31%) and IPP (31%) follow by SPP (19%) and import (11%) and VSPP (8%). Private sector plays more important role in electricity generation with 58% share of generating capacity in 2022.

Meanwhile, the share of electricity by fuel sources is led by natural gas (53%), coal and lignite (16.5%), imported hydropower and lignite (16.4%), renewable energy (10.2%), hydropower (3.06%), and oil (0.8%).

Share of electricity by fuel sources 2023											
		Volume (Gwh)				Market Share					
	2021	2022	2023	2022/21	2023/22	2023					
Natural Gas	113,113	114,637	129,402	1.35	12.88	57.97					
Imported (Hydropower + Lignite)	33,230	35,383	32,740	6.48	-7.47	14.67					
Coal & Lignite	36,065	35,522	30,433	-1.51	-14.33	13.63					
Renewable	21,927	21,876	23,179	-0.23	5.96	10.38					
Hydropower	4,540	6,599	6,588	45.35	-0.17	2.95					
Oil	716	1,732	888	141.90	-48.73	0.40					
Total	209,591	215,749	223,230	2.94	3.47	100					

Table 4: Share of electricity by fuel sources 2023

Sources: Energy Policy and Planning Office (EPPO)

(Gwh, %)





Sources: Energy Policy and Planning Office (EPPO)

Oil and LPG

(thousand bbl / day, %)

Table 7: Crude oil and Condensate Statistic 2021-2023											
Crude oil and Condensate Statistic 2021-2023											
	Volun	ne (thousand bbl	/ Day)	Growth Rate (%)							
	2021	2022	2023	2022/21	2023/22						
Procurement	961	992	1,032	3.23	4.03						
- Import	863	913	962	5.79	5.37						
- Domestic production	98	79	70	-19.39	-11.39						
Condensate production	80	64	67	-20.00	4.69						
Refining capacity	1,245	1,245	1,244	0.00	-0.08						
Sourcest Energy Delies and Planning Office (EPDO)											

Sources: Energy Policy and Planning Office (EPPO)

Table 8: Refined Oil Statistic 2021-2023

(million litres / day, %)

Refined Oil Statistic 2021-2023											
	Volur	Growth Rate (%)									
	2021	2022	2023	2022/21	2023/22						
Production	162	168	174	3.70	3.57						
Consumption	120	137	138	14.17	0.73						
Export	32	25	29	-21.88	16.00						
Import	6	12	11	100	-8.33						

Sources: Energy Policy and Planning Office (EPPO)



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(thousand tons / month, %)

Table 9: LPG Procurement and Consumption Statistic 2021-2023												
LPG Procurement and Consumption Statistic 2021-2023												
	Volume	(thousand tons /	month)	Growth	Market							
	2021	2022	2023	2022/21	2023/22	Share 2023						
Procurement	518	556	559	7.34	0.54	100						
- Gas Separation Plants	192	244	246	27.08	0.82	44.01						
- Oil refinery plant	280	183	173	-34.64	-5.46	30.95						
- Import	47	128	134	172.34	4.69	23.97						
Consumption	509	537	545	5.50	1.49	-						

Sources: Energy Policy and Planning Office (EPPO)

Natural Gas

Table 10: NGV Procurement and Consumption Statistic 2021-2023

(million standard cubic feet / day, %)

NGV Procurement and Consumption Statistic 2021-2023											
	Va	lume (MMSCFD	/ day)	Growth	Growth Rate (%)						
	2021	2022	2023	2022/21	2023/22	Share 2023					
Procurement	4,726	4,274	4,664	-9.56	9.12	100					
- Domestic production	3,204	2,648	2,653	-17.35	0.19	56.88					
- LNG	829	942	1,455	13.63	54.46	31.20					
- Import (Myanmar)	693	684	556	-1.30	-18.71	11.92					
Consumption	4,394	4,143	4,410	-5.71	6.44	100					
- Electricity generation	2,603	2,437	2,731	-6.38	12.06	61.93					
- natural gas separation plant	909	780	783	-14.19	0.38	17.76					
- Industrial purpose	770	804	777	4.42	-3.36	17.62					
- NGV	112	122	119	8.93	-2.46	2.70					

Sources: Energy Policy and Planning Office (EPPO)

Coal and Lignite

(thousand tons / KTOE, %)

Table 11: Coal and Lignite Procurement and Consumption Statistic 2021-2023												
Coal and Lignite Procurement and Consumption Statistic 2021-2023												
	Volume	e (thousand tons	/ KTOE)	Growth	Rate (%)	Market						
	2021	2022	2023	2022/21	2023/22	Share 2023						
Procurement (thousand tons)	38,153	34,986	30,772	-8.30	-12.04	100						
- Import	23,931	21,345	17,961	-10.81	-15.85	58.37						
 Domestic production (Mae Moh Power Plant) 	14,222	13,641	12,811	-4.09	-6.08	41.63						
Consumption (KTOE)	13,873	16,987	14,449	22.45	-14.94	100						
- Electricity generation	10,223	8,585	7,431	-16.02	-13.44	51.43						
- Industrial purpose	3,650	8,402	7,018	130.19	-16.47	48.57						

Sources: Energy Policy and Planning Office (EPPO)



Power development policies: Renewable energy

Renewable energy is expected to account for roughly around 90% of new energy generation capacity. As it stands, the most popular source of renewable energy in Thailand is solar power. Solar power is growing increasingly cost-effective into a mature technology, offering solutions for sizable corporations an independent power grid system of its own.

Thailand is moving towards sustainability, and energy efficiency. Technology related to smart grid as well as renewable energy will benefit from power development policies that consists of 5 key policies.

5 Key policies for power development in Thailand									
Smart Grid Development	,Smart Grid Development plan aims to ensure sufficient power generation, improve the quality of voltage and current, improve efficiency of power generation and consumption, increase effectiveness of utility operation and service, support accessibility of renewable energy, as well as develop human resources capability.								
Sourcing from neighboring countries	Sourcing from neighboring countries is alternative to reduce constraints from domestic source. It also reduces investment for domestic power plant.								
Renewable energy power plant (According to AEDP)	One part was designed to solve social problems such as municipal wastes and agricultural wastes. It supports waste, and biomass power generation. Another part is to plan for generating capacity based on renewable energy available in the country.								
Energy conservation according to Energy Efficient Plan (EEP)	Transmission and distribution system will also benefit from PDP as there are various plans and projects for transmission system development.								
GHG Emission reduction	Renewable energy power plant and increasing of energy efficient can support reduction of GHG emission								

Table 12: 5 Key policies for power development in Thailand

Source: PDP2018

Key growth areas of renewable energy in Thailand

The renewable energy market is set for continued growth due to various factors like decreasing technology costs, rising demand for clean energy, supportive policies, and advancements in storage and grid integration. The COVID-19 pandemic and the Russia-Ukraine conflict underscore the need for energy source diversification, reinforcing renewables' crucial role in sustainable energy systems and emission reduction worldwide.

According to the information from Energy Policy and Planning Office, Ministry of Energy of the Kingdom of Thailand, Solar energy, solar floating, and wind energy have promising growth to be energy source for power production in until 2037. Electricity generation in renewable energy market is projected to amount to 24,830.00m KWh in 2024 with an annual growth rate of 3.71%.

1) Solar energy

Solar energy is targeted to be the major source for alternative energy consumption in Thailand until 2037. Huge gap between 2021 and 2037 is 9,145MW, to achieve the target, consumption growth from solar energy must be 9.1% CAGR (2021-2037). It is implied that there will be more demand to develop solar energy power sources.



Solar power buoys have the second largest gap for consumption target at 2,725MW. It is planned to be installed at 16 EGAT Hydro power plants to create "Hydro Floating Solar Hybrid". This model will

generate the demand for Energy Management System (EMS) to control power transmission, reduce instability of renewable energy and optimize resources of hydro power plants. Currently, solar power remains dominant as the top source of renewable energy in Thailand. However, there are still some hurdles, especially in the commercial use of solar power, excluding the household level.

According to the information from Bangkok Post, they have been several significant past and ongoing solar power megaprojects for big corporations. However, the most popular use of solar power in Thailand has been in the household usage, especially for rooftop solar power. There are few policies from the government that push the installations of renewable energy, including a series of projects that promote the decentralization of energy generation. Thailand is currently a regional leader in solar energy, second only to Vietnam

To increase the attractiveness of implementing a solar power solution for commercial usage, Thailand needs to allow these commercial players to sell excess power generated by their system back into the grid and at a price that could increase financial returns for investing in solar energy in the first place. However, in order to do so, the current state-owned grid operators must improve their system to cope with an introduction of a more complex environment of two-way power flows, without incurring technical threats to the bigger grid.

2) Wind energy

Wind energy has the third largest gap for consumption target at 2,513MW. The number of players participate in wind energy power plants could be limited due to the more complexity compared to solar energy.

However, wind energy market is expected to have strong growth. The driver is mainly from government initiative to increase electricity capacity from renewable resources. According to the information from Energy Policy and Planning Office (EPPO), the onshore energy is the main driver for wind energy due to its declining cost and improved technology. The current capacity generation of wind energy is 1,560MW in 2020, this account for 13% of electricity generation from renewable sources.

It is expected that there will be higher demand for Wind Power as government aim to increase the use of renewable energy with capacity target of 2,989MW in 2037. Small-sized wind energy project for small-scale village is highly feasible as 73% of population live in area with good resources. There are several major wind farms for electricity generation in Thailand: Theppanna project with capacity of 6900 KW, First Korant Wind with capacity of 103,500 KW and supplier to EGAT, K.R. Two farms with capacity of 103,500 KW and supplier to EGAT.





Sources: Energy Policy and Planning Office (EPPO)

3) Hydropower energy

In 2022, hydropower comprised 16.3% of global power plant installations, totaling 1,387GW. By 2030, it is projected to make up 11.7% with 1,557GW capacity. Thailand holds 0.30% of global hydro capacity. Last year, the total capacity of hydropower in Thailand reached to approximately 3.7 thousand megawatts. This was a slight increase compared to 2012, which the total capacity of hydropower reached nearly 3.6 thousand megawatts. Since 2018, the total capacity of such energy in Thailand had continuously remained the same.

The following lists the top five hydro power plants in Thailand by capacity.

1) The Lam TA Khong Dam: a 1,000MW hydro power project located in Nakhon Ratchasima, Thailand. Post completion of construction, the project was commissioned in 2002. The project was developed by Electricity Generating Authority of Thailand. Electricity Generating Authority of Thailand own the project.

2) Bhumibol Dam: the 608.20MW Bhumibol Dam hydro power project is located in Tak, Thailand. It was commissioned in 1964. The project is owned by Electricity Generating Authority of Thailand.

3) Sirikit: a 450MW hydro project. Electricity Generating Authority of Thailand owns the project. It was commissioned in 1974. It is located in Uttaradit, Thailand.

4) Srinagarind Dam: with a capacity of 360MW came online in 1980, Electricity Generating Authority of Thailand have the equity stakes in the project. It is located in Kanchanaburi, Thailand.

5) Srinagarind Pumped Storage: operating since 1991, the 360MW hydro project is located in Kanchanaburi, Thailand. Electricity Generating Authority of Thailand have the equity stakes in this project.



Energy technology products import value to Thailand by country (USD)

According to the information from Electrical and Electronics Institute (EEI) Thailand, Energy technology market in Thailand is dominated by Chinese and Japanese imports. However, Italian products sustained slow but steady growth in import values over the past years.

Power solutions for infrastructure, industry, and transport are the products with large import value and high growth. The leading import values are switchboards and control panel, follow by electric wire and cables, solar cell panel, and inverter

Remarks: inverter, solar cell panel, inductor, conductor, generator, electric accumulator, inverter, switchboards and control panel, circuit breaker, transformer, keys / panels / cabinets for electrical control devices and components, power capacitor, bushing and tap changer, electrical insulator, microwave tube, lightning protector, welding wire, fiber optic cable, electrical cable wiring harness, heat exchanger

Energy technology products import value to Thailand by country 2021-2023											
		Val	ue (Million U	SD)	Market Share (%)			Growth Rate (%)			
No.	Country	2021	2022	2023	2021	2022	2023	2022/21	2023/22		
1	China	2,957	4,114	3,910	2,957	4,114	3,910	42.95	50.35		
2	Japan	1,046	986	882	1,046	986	882	15.19	12.07		
3	Hong Kong	17	21	661	17	21	661	0.25	0.26		
4	Malaysia	387	495	320	387	495	320	5.62	6.06		
5	U.S.A.	324	396	481	324	396	481	4.71	4.85		
6	Singapore	90	101	368	90	101	368	1.31	1.24		
7	Germany	292	295	347	292	295	347	4.24	3.61		
					r			1			
80	Italy	75	72	70	1.09	0.88	0.72	-4.00	-2.78		
	Others	1,697	1,691	2,731	24.65	20.70	27.95	-0.35	61.50		
	World	6,885	8,171	9,770	100	100	100	18.68	19.57		

Table 14: Energy technology products import value to Thailand by country 2021-2023

Sources: The Electrical and Electronics Institute (EEI)

million USD, %





Sources: The Electrical and Electronics Institute (EEI)

Table 16: Top 10 imported energy technology in Thailand by value 2021-2023

million USD, %

	Top 10 imported energy technology in Thailand by value 2021-2023										
		Va	lue (Million U	JSD)	Ma	arket Share (%)	Growth Rate (%)			
No.	Products	2021	2022	2023	2021	2022	2023	2022/21	2023/22		
1	Switchboards and control panel	1,870	2,126	3,546	27.16	26.02	36.29	13.69	66.79		
2	Solar cell panel	134	1,079	1,230	1.95	13.21	12.59	705.22	13.99		
3	Electrical cable wiring harness	1,250	1,240	1,147	18.16	15.18	11.74	-0.80	-7.50		
4	Electric accumulator	529	651	687	7.68	7.97	7.03	23.06	5.53		
5	Conductor	519	509	585	7.54	6.23	5.99	-1.93	14.93		
6	Inductor	508	572	581	7.38	7.00	5.95	12.60	1.57		
7	Power generator	435	433	366	6.32	5.30	3.75	-0.46	-15.47		
8	Welding wire	280	294	268	4.07	3.60	2.74	5.00	-8.84		
9	Components of Keys, Panels, Cabinets for Electrical Control Devices	271	257	241	3.94	3.15	2.47	-5.17	-6.23		
10	Inverter	159	179	216	2.31	2.19	2.21	12.58	20.67		
	Others	930	831	903	13.51	10.17	9.24	-10.65	8.66		
	Total	6,885	8,171	9,770	100	100	100	18.68	19.57		

Sources: The Electrical and Electronics Institute (EEI)





Table 17: Top 10 imported energy technology in Thailand by value 2021-2023

Sources: The Electrical and Electronics Institute (EEI)

Key growth areas of energy technology in Thailand

Table 18: Key growth areas of energy technology in Thailand

Key growth areas of energy technology in Thailand												
Product categories	Products	Market potential	Key applications	Attracti veness								
Power Production	Photovoltaic Cell	There had been huge installation of PV in the past. The installed solar PV capacity in Thailand had increase from 1,420 MW in 2015 to 2,993 MW in 2021, recording CAGR of around 13% during 2015-2021	 The PV is more cost efficient for renewable energy as the price is cheaper. Price of Module PV falls from 110THB to 15THB (2011-2018) Government encourages renewable energy installation through various incentives and regulatory. This will increase the demand for PV. 	Photovoltai Cells are used in application such as • Solar Farms • Building • Residential House	High							



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Power Transmissi on and Distribution	Smart Grid	 According to the Smart Grid plan, the framework budget of development projects is set between 44 – 173 Tn THB for EGAT, 5.9 – 16.6 Tn THB for MEA, and 45-109 Tn THB for PEA. (Worse – Best case) 	 Smart Grid development plan will ensure the growth for Smart Grid development projects. Government 4.0 initiative is to change major cities into Tech hub within 2037. 	 Smart Grid is component for Government 4.0 Initiative 	High		
Power Solutions for Infrastructu re, Industry and Transport	Switch Board and Distribution Board	• The market size was 17 billion THB in 2020	 The market growth is on positive trend as the construction investment is forecasted to grow 2.6% until 2026. Real estate sector is expected to grow at 10% CAGR (2022-2027). 	 Residential buildings Commercial buildings Industrial buildings 	Medium		
Power Solutions for Infrastructu re, Industry and Transport	Electric Motor	Production grew while domestic sale and import decrease: • Production grew by 4.6% unit in 2018-2020 • Domestic Sale decrease by 7.8%YOY in 2020 to 1.2 million units • Import Decrease by 5.5% CAGR 2018-2020 with 2020 market size of 1,049m USD	 The market is expected to growth with CAGR 6% 2020-2026 due to government initiative to strengthen manufacturing sector, particularly in Automobile. However, as there is existing player in the market, the competition is highly concentrated. 	 Aerospace Equipment Heating Equipment Textile Machinery Pump Part of durable product for consumer appliances. Automobile 	Medium		

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Power Transmissi on and Distribution	Transformer	 The market size was 6.2 billion THB in 2021 Government support Tax and Non-Tax incentive for manufacturer and importer with exemption of corporate income tax for 3 years 	CAGR of 5.8% during 2021-2026. The main drivers are from: • Smart Grid Roadmap requires transformer as component in construction. • PDP require transformer to increase capacity of power plants.	 Used as component for major government plan including Smart Grid Roadmap and PDP plan. 	Medium		
	Substation	• The market value is high as there is yearly auction of substation contractor's auction which had value of 10 billion baht/year.	 The CAGR of Smart Grid value is at 6.7% for 2021-2037 and substation will grow as it is part of Smart Grid plan. Another driver is from increasing demand for electricity as number of urban populations increase. 	 Substation is used to supply electricity to residential use and commercial use 	High		

Sources: Speeda, Research Market

Regarding the table, Solar Cell market is rising due to cheaper module and government initiative. Smart Grid is driven by Smart Grid Development plan. SOEs has budget of USD 5.67 billion for Smart Grid implementation until 2036.

Coil transformer and Substation market are rising. The key drivers are from Smart Grid Roadmap, PDP, exemption of tax and increasing demand for electricity use.

Rise in construction sector spurs the growth for Switch Board and Distribution market. Even though the Electric Motor market value is high, the competition is highly contracted.

Monocrystalline and Polycrystalline solar cell are the most popular PV cell in Thai Market. Monocrystalline are mostly used in area where areas are constrained or need higher efficiency rate. Thin Film is used mostly for aesthetic purpose.

Energy Regulatory Commission Sandbox: ERC Sandbox

According to the information from Energy Regulatory Commission, the ERC Sandbox provides a series of projects as a catalyst for the decentralization of the energy market in Thailand. As it stands, it is an early stage, but it gives a positive outlook for the renewable energy market.



Table 19: Regulatory Commission Sandbox: ERC Sandbox				
Peer to Peer (P2P) Energy Trading	 Peer to peer (P2P) energy trading will allow energy generators to sell their electricity at the market price of electricity. This process will require a platform that allows bidding and selling of electricity without going through the pricing scheme from the public sector. The objective of this project is to study a relatively new method of decentralization of the energy market for Thailand. Even though this is even a pre-pilot project, the implementation of P2P energy trading will help boost attractiveness for the private sector, from sizable corporations to the household level, to invest in renewable energy and self-energy generation. 			
Net Metering and Net Billing Energy Pricing Schemes	 Net metering and net billing pricing scheme refer to an electric billing system that allows self-generators to store their excess energy in the electric grid. Therefore, under the net metering system, any energy produced that are not used will be credited back to the producer at an agreed price. The producer only pays when there is shortage of energy in them self-production. This project is given approval for a pilot stage by the Energy Regulatory Commission in September of 2021, which in case of a success in the future, will drive the further decentralization of the energy market. 			
Supply and Load Aggregator	 Supply and load aggregator is potentially a new player in the energy distribution value chain which is responsible for banding together energy users in an alliance to secure a more competitive energy price and vice versa. This project has been given the green light for a pilot stage by the Energy Regulatory Commission in September of 2021. 			
Microgrid	In September of 2021, the Energy Regulatory Commission had given the green light for a Microgrid system project. The approval and the success of the project is significant for the future renewable energy market in Thailand.			

Source: Energy Regulatory Commission

References

- Energy Policy and Planning Office (EPPO)Energy Regulatory Commision
- Krungsri Research
- Speeda, Research Market
- Thailand Board of Investment (BOI)
- The Electrical and Electronics Institute (EEI)



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