Energy Regulatory Commission
and Office of the Energy Regulatory Commission

ANNUAL REPORT
2022

ISBN: 978-616-92702-6-3

Annual Report 2022

Energy Regulatory Commission

and Office of the Energy Regulatory Commission

Produced by:
Office of the Energy Regulatory Commission
319, 19th–20th Floor, Chamchuri Square Bld., Phayathai Rd.,
Pathumwan, Bangkok 10330, Thailand

ISBN: 978-616-92702-6-3
Published: 2023
Edition: 1

Call Center: 1204
Tel: 0 2207 3599
Fax: 0 2207 3506, 0 2207 3502
E-mail: support@erc.or.th
www.erc.or.th
YouTube: OERCTHAI
OERC_Thailand
Facebook: สำนักงาน กกพ.

Contents

Message from Chairman of the Energy Regulatory Commission

Mr. Samerjai Suksumek

The Energy Regulatory Commission (ERC), together with the Office of the Energy Regulatory Commission (OERC), in our capacity as the Regulator of electricity and natural gas industry to ensure compliance with the objectives of the Energy Industry Act B.E. 2550 (2007) under the policy framework of the government, has set the Action Plan for Energy Industry Regulation, Phase 5 (2023-2027), so as to achieve our Vision, **"Regulate Energy Industry to Attain Sustainable Development and Promote Proper and Fair Competition,"** which is in line with Thailand's National Strategy, the 13th National Economic and Social Development Plan (2023-2027), Sustainable Development Goals of the United Nations and energy policies of the government.

In the past couple of years (2020-2022), Thailand's energy sector had to face challenges of changing dimensions of development—both in the social dimension and the recessed global economic dimension, resulting from the Coronavirus Disease 2019 pandemic and impacts of the Russia-Ukraine conflict and in the environmental dimension due to the global climate change, which has urged the world community to devise policies to protect and manage natural resources and environment, to promote the use of renewable energy and alternative energy in order to create energy security balance and to enact more intensive and stringent regulations and agreements pertaining to the environment, including the rapid change in energy innovations and increased application of digital technologies. All of these are challenges for the OERC to adapt itself to changes and to reinforce its potential.

The ERC is still determined to give importance to the energy industry regulation with social responsibility, the reinforcement of good relationship and creation of confidence of all stakeholders, pursuant to the following established operational goals:

1. improve and develop rules and regulations to enhance the regulation and promotion of fair competition in the energy industry as well as to accommodate the energy transition so that energy industry development would be sustainable and environmentally friendly;

2. create mechanisms to promote participation in driving a low-carbon economy and society; and

3. develop the organization by applying a quality management system in accordance with good governance principles and drive the organization via digital technologies so that it would move forward and keep abreast with changing energy businesses at present and would be able to provide services with convenience and rapidity and to disclose information in a manner that can be easily accessible by the public for transparency in the energy industry regulation and sustainable growth of the OERC.

In conclusion, the success achieved in Fiscal Year 2022 is owed to great collaboration from both internal and external agencies. Therefore, on behalf of the ERC, I wish to thank all concerned agencies, the management and staff members of the OERC for concerted efforts to support the execution of our mission to develop energy business and to mobilize the national economy and society to be secured and sustainable.

Mr. Samerjai Suksumek
Chairman of the Energy Regulatory Commission

Message from Secretary General of the Office of the Energy Regulatory Commission

Mr. Khomgrich Tantravanich

The Office of the Energy Regulatory Commission (OERC) is a juristic person, providing support to the Energy Regulatory Commission (ERC)'s work execution so as to achieve the objectives under the Action Plan for Energy Industry Regulation, which involve the energy industry regulation, licensing, protection of energy consumers and stakeholders against adverse impacts resulting from energy industry operation and other activities pursuant to the government policy and the missions prescribed under the Energy Industry Act B.E. 2550 (2007).

The OERC's past operations under the Action Plan for Energy Industry Regulation, Phase 4 (2020-2022), mainly focused on improving regulations and standards in the energy industry regulation to promote competition in the energy industry along with maintaining energy security and managing the cost of energy procurement to be reasonable and efficient. Particularly, in 2022, the ERC had to manage the rising cost of electricity as Thailand has depended heavily on electricity generation using natural gas as fuel, of which the supply is mainly from natural gas resources in the Gulf of Thailand and in Myanmar; hence, the discontinuity of supply caused by the transfer of natural gas concession in the Gulf of Thailand coupled with the declining Myanmar natural gas production from its original capacity had made it necessary for Thailand to increase imports of liquefied natural gas (LNG). Moreover, the global energy price crisis due to the conflict between Russia and Ukraine had rendered market conditions unfavorable for LNG contract negotiations, resulting in soaring electricity generation cost. As a result, the ERC had to manage the fuel crisis according to the guidelines given by the National Energy Policy Council so as to keep the fuel cost as low as possible. In the short term, importance was given to the use of alternative fuels, such as oil, hydropower and renewable energy, to replace the use of expensive LNG imports. Various measures were also implemented, for example, the reduction of natural gas transportation tariffs, the reduction of monthly service charges for the power meter reading and billing, and the reduction of contribution remittance to the Power Development Fund to zero Baht. The mentioned management was aimed to alleviate impacts

on the cost of living of the public, taking into consideration the energy service potential of service providers while maintaining energy security and stability of the country.

Important lessons learned from the energy price crisis in 2022 will be taken note of so as to improve the policy and regulatory guidelines on natural gas production in the Gulf of Thailand and promotion of competitive LNG supply markets to prevent monopolies in the event that large amounts of LNG still have to be imported to strengthen the country's energy security. As for the next step of energy industry regulation, there are challenges to achieve the goal of carbon neutrality by 2050. The ERC is prepared to support the use of green energy at affordable prices with a view to responding to the needs of entrepreneurs in the commercial and industrial sectors, including domestic and overseas private-sector investment, that wish to purchase and obtain verification of the use of electricity from clean energy in order to reduce trade and investment obstacles resulting from the Carbon Border Adjustment Mechanism (CBAM) as well as other trade and investment barriers. One of the important mechanisms is Green Tariff, which is designed for the sale of electricity together with the issuance of a Renewable Energy Certificate (REC) that can identify the source of electricity generation to facilitate the commercial and industrial sectors that want to use electricity generated from renewable energy. During the energy transition, Thailand needs to increase renewable generation supply to the grid; at the same time, promotion has been made of renewable generation for own use. Therefore, in developing the Thailand Power Development Plan, particularly in the part of new capacity in the power system, the policymaker must consider the proportion of the base generation capacity from conventional fuels and that of renewable generation to be in balanced and appropriate ratios so as not to create excessive impacts on the power system security and energy prices, i.e. to keep the impacts at an acceptable level.

In addition, the ERC has given importance to the improvement of the energy industry licensing process and audits to ensure compliance with the environmental standards via the use of online platforms, the decentralization to the local level the authority to approve the use of Power Development Fund money and the flexibility in considering the Fund money spending pursuant to the objectives of the Fund establishment, including mobilizing energy industry regulation via the use of energy information and developing a basic service platform to further develop new applications or services so as to facilitate the provision of modern services to meet the needs of the public or service users.

Lastly, in my capacity as Secretary General of the OERC, I would like to thank all the OERC management, staff members and employees for the determination to carry out their duties with utmost effort to support the regulation of the electricity and natural gas industry to be efficient and sustainable for optimum benefits of the people who are energy users and of the country as a whole. Although in the past year we had to face changes both in the social and economic dimensions, resulting from the spread of Coronavirus Disease 2019 as well as impacts of the Russia-Ukraine conflict and in the environmental dimension due to the global climate change, which constitute challenges for the organization to adapt ourselves during the energy transition, the undertakings of OERC missions could still meet the targets and could respond to the government policies in a timely manner.

Mr. Khomgrich Tantravanich
Secretary General
Office of the Energy Regulatory Commission

Overview Information

Energy Regulatory Commission and Authority & Duties

Energy Industry Act (2007)

Under the Energy Industry Act of 2007 (the Act), it is stipulated that there shall be the Energy Regulatory Commission (ERC), comprising seven members, to regulate the electricity and natural gas industry operation to ensure compliance with the objectives of the Act under the policy framework of the government, with the support of the Office of the Energy Regulatory Commission (OERC), which is a state agency, functioning as the secretariat to the ERC in their duty execution.

On 1 October 2018, the ERC Commissioners were graciously appointed, pursuant to Section 15 of the Act, having the composition as follows:

1.	Mr. Samerjai Suksumek	Chairman of the Energy Regulatory Commission
2.	Mr. Sudharma Yoonaidharma	Commissioner
3.	Mr. Chanvit Amatamatucharti	Commissioner
4.	Mr. Peerapong Achariyacheevin	Commissioner
5.	Mr. Buntoon Srethasirote	Commissioner
6.	Mr. Sahust Pratuknukul	Commissioner
7.	Mrs. Atchaka Sibunruang	Commissioner

On 30 November 2021, the Commissioners No. 3, 4 and 7 completed their office term and three new Commissioners were graciously appointed. Presently, the Energy Regulatory Commission has the composition as follows:

1.	Mr. Samerjai Suksumek	Chairman of the Energy Regulatory Commission
2.	Mr. Sudharma Yoonaidharma	Commissioner
3.	Mr. Buntoon Srethasirote	Commissioner
4.	Mr. Sahust Pratuknukul	Commissioner
5.	Mr. Narin Opamuratawongse	Commissioner
6.	Mr. Pitak Janyapong	Commissioner
7.	Mr. Worawit Srianunraksa	Commissioner

Under Section 11 of the Act, the ERC has the following authority and duties:

1. regulate energy industry operation to ensure compliance with the objectives of this Act under the policy framework of the government;
2. issue a notification determining types of licenses for energy industry operation, and propose the issuance of a Royal Decree to determine the categories, capacities and characteristics of energy industry which are exempt from license requirement;
3. impose measures to ensure security and reliability of electricity system;
4. impose the regulations and criteria of the electricity procurement and the issuance of Requests for Proposals for the purchase of electricity as well as monitor the selection procedures to ensure fairness to all parties;
5. provide opinions on the power development plan, the investment plan of the electricity industry, the natural gas procurement plan and the energy network system expansion plan, for submission to the Minister under Section 9(3);
6. inspect the energy industry operation of the licensees to ensure efficiency and transparency;
7. issue regulations or notifications and regulate the customer service standards and quality, including measures to protect energy consumers against adverse impacts resulting from energy industry operation;
8. propose the rules and Codes of Conduct of the Commissioners and the competent officials to the Minister *[of Energy]* under Section 9(10);
9. issue regulations or notifications on policy and guidelines with regard to the holding of interests or conflict of interests of the Commissioners and the competent officials;
10. issue regulations or notifications on criteria, method and conditions of the contribution sending to the Fund and the Fund utilization to be in line with the policy of the National Energy Policy Council pursuant to Section 9(8);
11. issue orders and prescribe the administrative fines pursuant to Division 8: Administrative Enforcement;
12. provide opinions or recommendations on energy industry operation to the Minister and the cabinet;
13. promote and support study and research on energy industry operation;
14. promote and encourage the general public to have energy knowledge and awareness;
15. promote and support human resource development in order to increase efficiency in energy industry operation;
16. promote economical and efficient use of energy, renewable energy and energy that has minimal impact on the environment, with due consideration of efficiency of electricity industry operation and balance of natural resources;
17. coordinate with other agencies in relation to the execution of the duties stipulated in this Act;
18. perform any other task as stipulated in this Act or in other laws as part of the ERC's authority and duties.

Vision, Mission and Corporate Values

Vision

"Regulate Energy Industry to Attain Sustainable Development and Promote Proper and Fair Competition"

Mission

- To regulate energy industry operation to be in compliance with the objectives of the Energy Industry Act of 2007 and the state policy framework.
- To promote and support study and research pertaining to development of energy industry regulation and energy industry operation.
- To increase knowledge and awareness of the public about management and inspection of energy-related operations.
- To develop institutional capability with good governance and enhance human resource potential in energy industry regulation.

Corporate Values

T R U S T

Trust

Stakeholders can be confident in the ERC's decisions and action.

Reliability and Consistency

The ERC will execute its duty without prejudice and the ERC's decisions will be consistent overtime.

Unity

The duty execution will be in harmony, with unity, happiness and common goals.

Social Accountability

The operation and decisions will be accountable and open to public.

Transparency and Independence

The operation, decisions, appeal process and complaint-handling will be transparent and in compliance with the law, with high relevance to stakeholders and financial independence.

Action Plan for Energy Industry Regulation, Phase 4 (2020–2022)

The Action Plan for Energy Industry Regulation, Phase 4 (2020-2022), was formulated by the Energy Regulatory Commission (ERC) in order to set the direction and framework for duty execution of the Office of the Energy Regulatory Commission (OERC) in mobilizing the energy industry regulation in accordance with the tasks stipulated under the Energy Industry Act of 2007, taking into consideration the interrelation with the 20-year National Strategy, the Master Plan under the National Strategy, the National Energy Reform Plan, the 12th National Economic and Social Development Plan (2017-2021) as well as energy policy of the government and the Digital Thailand (or the digital development plan for the economy and society).

20-year National Strategy	**Vision:** **"Thailand to become a developed country with security, prosperity and sustainability in accordance with the Sufficiency Economy Philosophy"** • National Strategy on Competitiveness Enhancement • National Strategy on Eco-Friendly Development and Growth • National Strategy on Public Sector Rebalancing & Development			
23 Master Plans under the National Strategy	**Issue 7: Infrastructure, Logistics and Digital Systems**			
	Energy Management	**Electricity & Petroleum**	**Renewable Energy Promotion**	**Technology, Innovation & Infrastructure**
National Energy Reform Plan (Revised Version) and Big Rock	• One Stop Service (OSS) licensing • Standards and audit system for power plants • Standards and evaluation of Power Utilities' services related to electricity network connection	• Promote competition in electricity & natural gas industry • 5-Year Plan for Integrated Energy Infrastructure Investment and Development	• Deregulated Solar-PV Rooftops • Deregulated electricity industry using renewable energy in communities & households	• Promotion of electric vehicle utilization • Promotion of ESS Technology Application to energy generated from Solar-PV Rooftops
12th National Economic & Social Development Plan	**Strengthen the Economy and Competitiveness on a Sustainable Basis**	**Eco-friendly Growth for Sustainable Development**	**Infrastructure and Logistics System Development**	**Development of Science, Technologies, Research and Innovations**
Energy Policy of the Government	**SDG 7**	**Digital Thailand**	**Thailand Integrated Energy Blueprint**	**Energy Policy**

Action Plan for Energy Industry Regulation, Phase 4 (2020-2022)

Objective 1:

To promote adequate and secure energy service provision, while ensuring fairness to both energy consumers and licensees

Objective 3:

To promote competition in the energy industry and prevent abusive use of dominance in energy industry operation

1

3

2

4

Objective 2:

To protect energy consumers' benefits in terms of both tariffs and service quality

Objective 4:

To promote fair and transparent energy network system service provision, without unjust discrimination

Objective 7:

To promote economical and efficient use of energy and resources in the energy industry operation and to raise public awareness of energy saving as well as renewable energy utilization, with due consideration of environmental impact and balance of natural resources

Objective 5:

To promote efficient energy industry operation and ensure fairness to both licensees and energy consumers

Objective 9:

To administer a modern and efficient organization and build up human resource capacity to be professional in energy industry regulation

5 6 7 8 9

Objective 6:

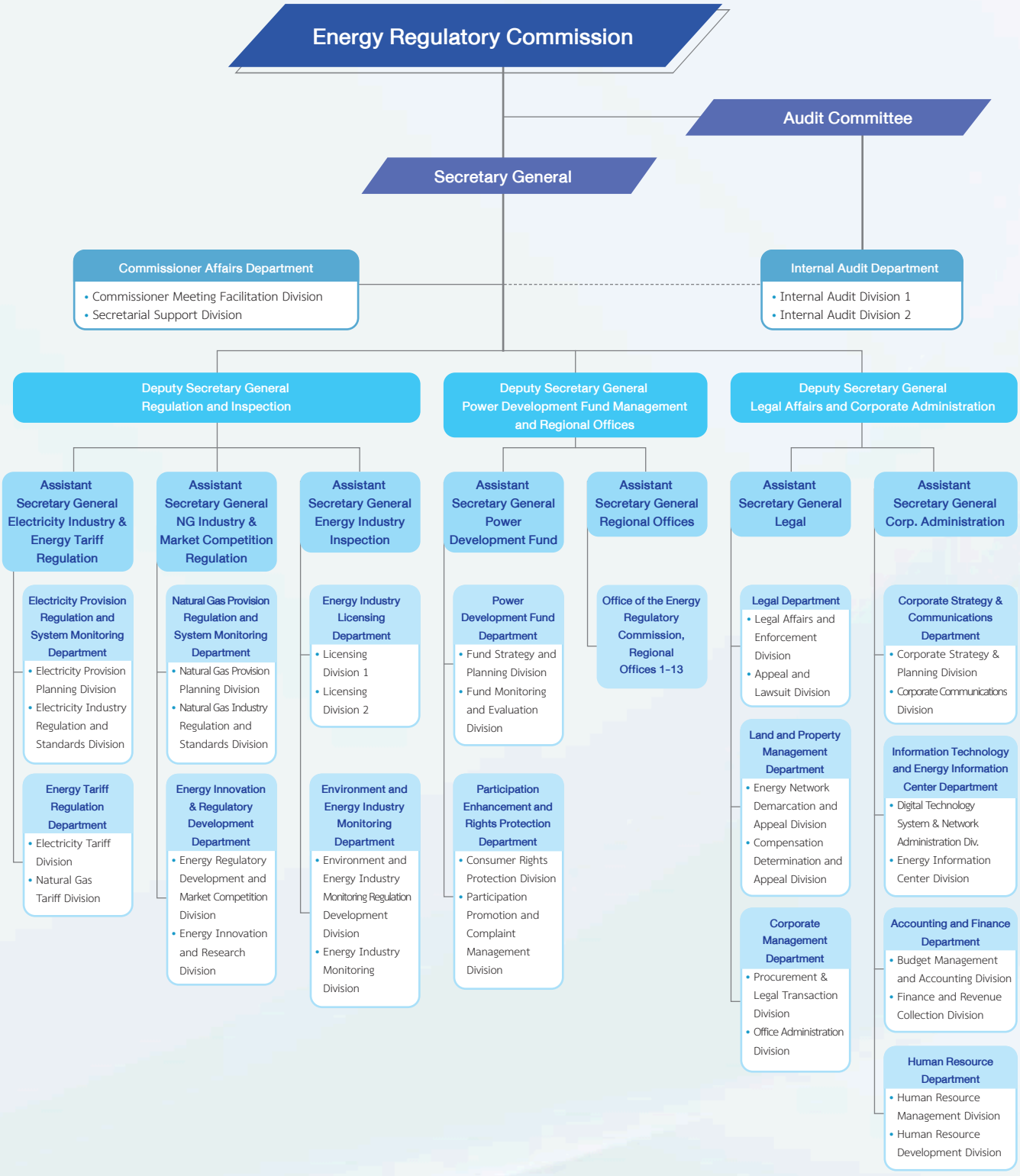
To protect rights and liberty of energy consumers, local communities, the general public and licensees in terms of participation, accessibility, utilization and management of energy under the criteria which are fair to all parties

Objective 8:

To promote the use of renewable energy for electricity industry operation that renders minimal impact on the environment

Organizational Structure of the Office of the Energy Regulatory Commission

The internal organizational structure of the Office of the Energy Regulatory Commission is in compliance with the Regulation on the Organization of the Office of the Energy Regulatory Commission (No. 2) B.E. 2565 (2022), with the work administration divided into three functions, comprising 30 Departments, of which 17 Departments are at the OERC Head Office and 13 Departments are the OERC Regional Offices.



Map Showing Locations of the 13 OERC Regional Offices

"To enhance extensive energy industry regulation and energy consumer protection, the ERC has directed to have OERC Regional Offices established in all 13 energy consumer regions nationwide to be a supportive mechanism in carrying out the work pertaining to energy industry operation licensing, audits of energy industry operation facilities, energy consumer protection and the implementation pertaining to the Power Development Fund."

1 OERC Regional Office 1 (Chiang Mai)

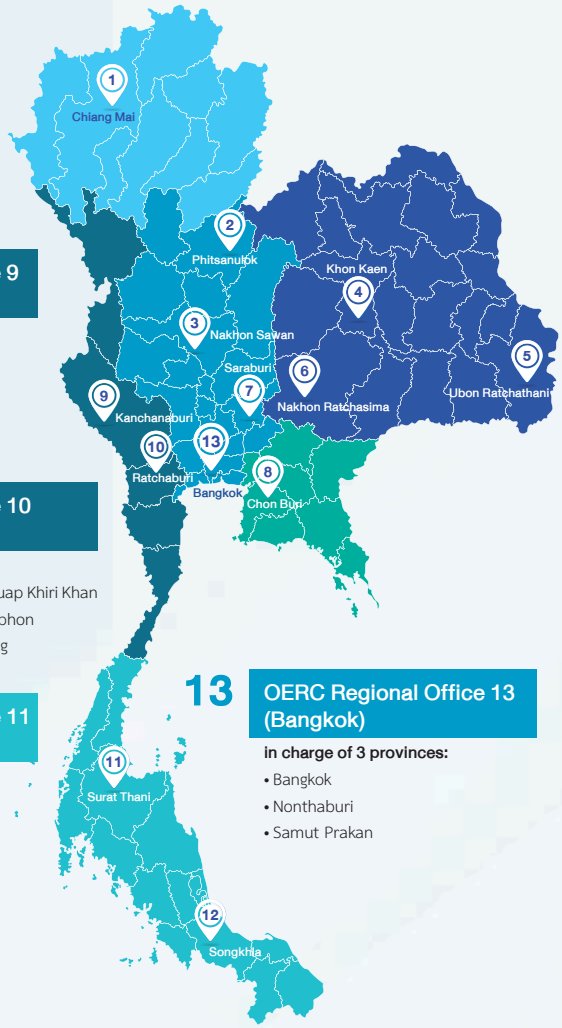
in charge of 6 provinces:

- Chiang Rai
- Phayao
- Lampang
- Lamphun
- Chiang Mai
- Mae Hong Son

2 OERC Regional Office 2 (Phitsanulok)

in charge of 8 provinces:

- Nan
- Phrae
- Uttaradit
- Sukhothai
- Tak
- Kamphaeng Phet
- Phitsanulok
- Phichit



3 OERC Regional Office 3 (Nakhon Sawan)

in charge of 6 provinces:

- Phetchabun
- Nakhon Sawan
- Uthai Thani
- Chai Nat
- Sing Buri
- Lop Buri

4 OERC Regional Office 4 (Khon Kaen)

in charge of 8 provinces:

- Nong Khai
- Nakhon Phanom
- Sakon Nakhon
- Udon Thani
- Nong Bua Lam Phu
- Loei
- Khon Kaen
- Bueng Kan

5 OERC Regional Office 5 (Ubon Ratchathani)

in charge of 8 provinces:

- Mukdahan
- Kalasin
- Maha Sarakham
- Roi Et
- Yasothon
- Amnat Charoen
- Ubon Ratchathani
- Si Sa Ket

6 OERC Regional Office 6 (Nakhon Ratchasima)

in charge of 4 provinces:

- Chaiyaphum
- Nakhon Ratchasima
- Buriram
- Surin

7 OERC Regional Office 7 (Saraburi)

in charge of 7 provinces:

- Ang Thong
- Phra Nakhon Si Ayutthaya
- Saraburi
- Pathum Thani
- Nakhon Nayok
- Prachin Buri
- Sa Kaeo

8 OERC Regional Office 8 (Chon Buri)

in charge of 5 provinces:

- Chachoengsao
- Chon Buri
- Rayong
- Chanthaburi
- Trad

9 OERC Regional Office 9 (Kanchanaburi)

in charge of 4 provinces:

- Kanchanaburi
- Nakhon Pathom
- Suphan Buri
- Samut Sakhon

10 OERC Regional Office 10 (Ratchaburi)

in charge of 6 provinces:

- Ratchaburi
- Samut Songkhram
- Phetchaburi
- Prachuap Khiri Khan
- Chumphon
- Ranong

11 OERC Regional Office 11 (Surat Thani)

in charge of 6 provinces:

- Surat Thani
- Krabi
- Phang-nga
- Nakorn Si Thammarat
- Phuket
- Trang

13 OERC Regional Office 13 (Bangkok)

in charge of 3 provinces:

- Bangkok
- Nonthaburi
- Samut Prakan

12 OERC Regional Office 12 (Songkhla)

in charge of 6 provinces:

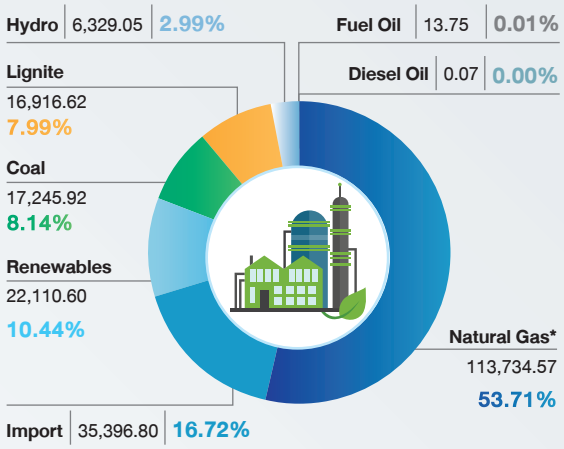
- Phatthalung
- Satun
- Songkhla
- Pattani
- Yala
- Narathiwat

Addresses of
OERC Regional Offices

Production and Distribution
of Electricity and Natural Gas by Licensees in 2022

Data as at 31 December 2022

Electricity Generation in the Utilities' System (EGAT, PEA and MEA) Classified by Fuel Type



Total: 211,747.38 GWh

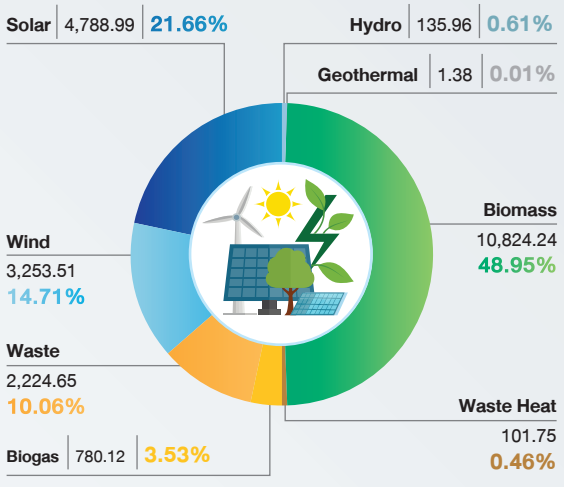
*Inclusive of that used as secondary fuel during the gas crisis.

Gas Supply (BBTU)

Gulf of Thailand

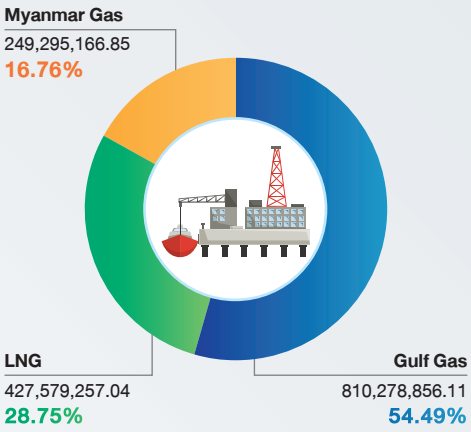
Benjamas Tantawan	18,460.47
G1/61 CTEP1-3	100,900.26
G2/61	48,624.88
GBN	125,248.86
GBS	164,902.08
Arthit	104,996.79
Pailin	145,432.03
JDA A18	137,230.07
JDA B17	13,108.29

Renewable Energy Generation in the Utilities' System (EGAT, PEA and MEA) Classified by Renewable Fuel



Total: 22,110.60 GWh

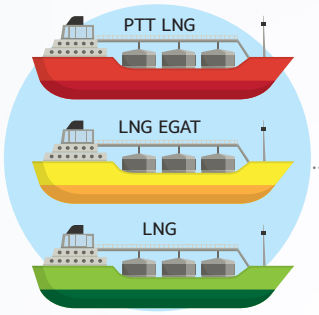
Natural Gas Supply

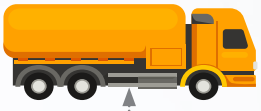


Total: 1,487,153,550.00 GWh

*Remark: excluding LNG EGAT

Data as at 31 December 2022





Direct Customer	1,195.82
Direct Customer	2,105.44
Nam Phong/Phuhom	34,394.11
LNG LT+SPOT	420,737.42
	6,842.10
Yadana	156,003.49
Yetagun	9,920.38
Zawtika	83,371.30

SPP/RE	9,942.71
SPP (Non Gas)	1,820.75
EGAT RE	6,616.79
EGAT/IPP (Non Gas)	32,335.20
Import-Non Hydro	14,091.38
Import-Hydro	20,705.41

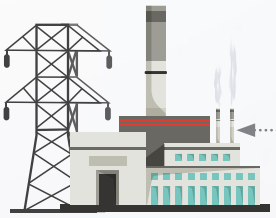
Bypass

GULF GAS

POOL GAS

Offshore Pipeline

Sale Gas

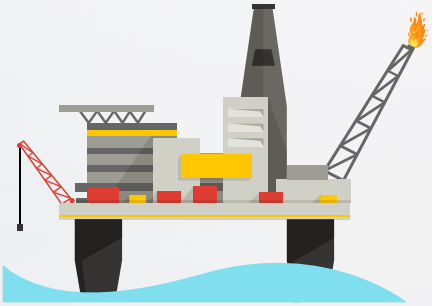


Industry

Gas Separation Plant

PTT Operation

LPG & Petrochemical



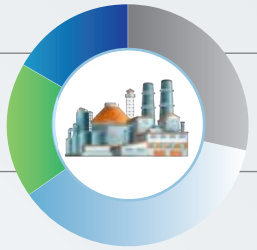
Fuel Oil	81,308.16

Onshore Pipeline

34,394.11	EGAT Nam Phong	3,964.62
40,585.98	EGAT Chana	5,876.43
41,173.27	IPP Khanom	6,065.39
170,009.99	EGAT Central	28,071.10
6,842.10		
158,339.87	IPP	30,258.42
441,572.12	SPP	39,472.34

NGV	
337,955.14	Retail
Direct Customer	13,966.76

Natural Gas Demand in the Electricity and Industrial Sectors (excluding GSP Consumption)



IPP	199,513,141.00	16.69%	
Industries	337,955,137.00	28.27%	
EGAT	216,595,972.00	18.12%	
SPP	441,572,120.00	36.93%	

Total: 1,195,636,370.00 MMBTU

Data as at 31 December 2022

Electricity Supply (GWh)

Export	577.74
EGAT Direct Customer	1,237.49
VSPP non RE	22.48
VSPP/RE	11,605.11

PEA Gen.
DEDE Gen.

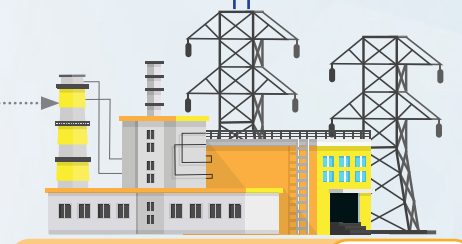
TRANSMISSION

TRANSMISSION

DISTRIBUTION

PEA	
Residential	38,203.31
Small General Service	14,511.42
Medium General Service	22,454.50
Large General Service	58,387.97
Specific Business Service	3,507.54
Non-profit Org.	77.39
Agricultural Water Pumping	334.87
Temporary Power User	923.24
Standby	679.23
Interruptible Power User	1,857.88
EV Charging Station	0.50
Public Service	3,597.28
On-site Use	0.00
Export	0.00

144,595.13



3,835.51	IPS/RE
1,171.76	
6,565.34	IPS/Non RE
2.63	

Behind-the-Meter Connection

SYSTEM OPERATION (EGAT) 199,820.54

TRANSMISSION

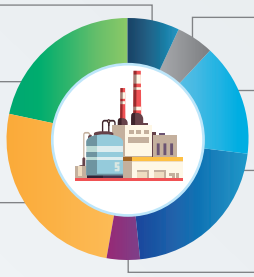
DISTRIBUTION

MEA	
Residential	15,487.03
Small General Service	7,096.53
Medium General Service	8,446.21
Large General Service	17,373.05
Specific Business Service	1,788.56
Non-profit Org.	138.41
Agricultural Water Pumping	0.00
Temporary Power User	372.59
Standby	32.65
Interruptible Power User	222.13
EV Charging Station	14.36
Public Service	512.80
On-site Use	43.07
Export	0.00

51,527.39

VSPP/RE	275.05
VSPP non RE	24.21

Electricity Generation Classified by Producer Category (including IPS)

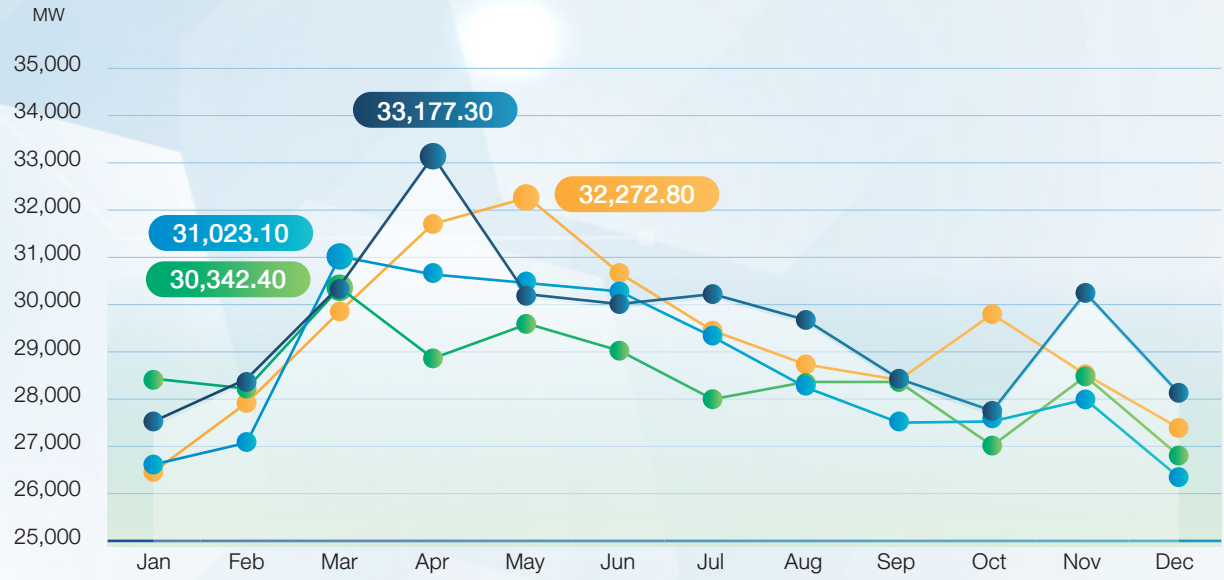


SPP Direct	17,268.02	7.21%
SPP	51,235.79	21.40%
EGAT	61,459.37	25.67%
VSPP	11,926.85	4.98%
IMPORT	35,396.79	14.78%
IPP	51,728.58	21.61%
IPS	10,400.85	4.34%

Total: 239,416.25 GWh

Data as at 31 December 2022

Peak Capacity Demand in the Power System (System Peak) in 2019-2022

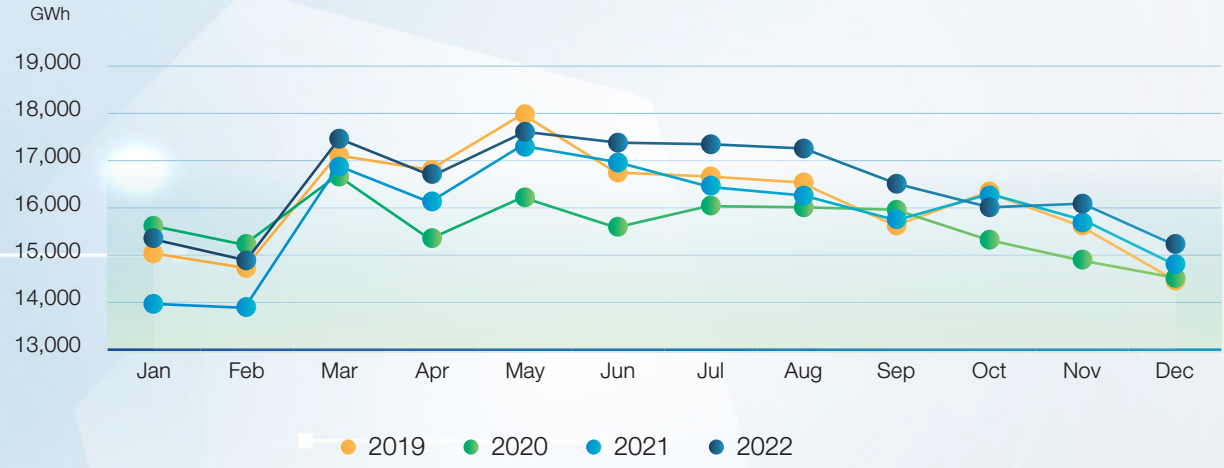


Unit: MW

System Peak

2019	2020	2021	2022
32,272.80	30,342.40	31,023.10	33,177.30
3 May 2019 at 14.27 hrs.	13 March 2020 at 14.14 hrs.	31 March 2021 at 14.49 hrs.	28 April 2022 at 14.30 hrs.

Electricity Consumption in the System in 2019-2022



Data as at 31 December 2022

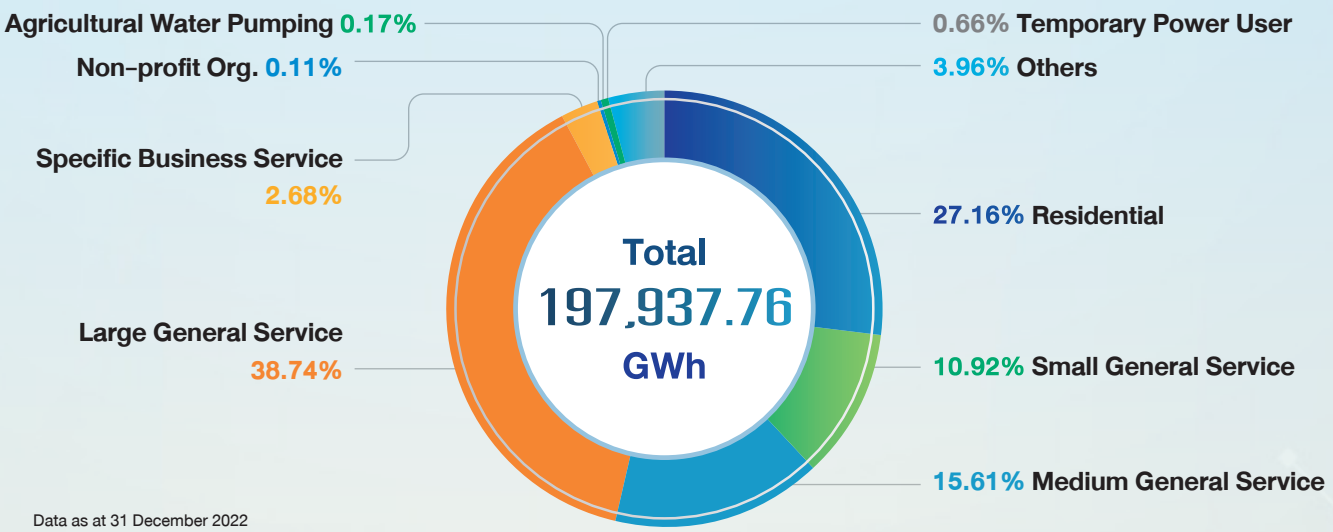
Electricity Consumption Classified by Consumer Category in 2019-2022

Power Consumer Category	2019	2020		2021		2022	
	GWh	GWh	Growth Rate (%)	GWh	Growth Rate (%)	GWh	Growth Rate (%)
Residential	49,199.09	52,860.38	7.44%	54,290.95	2.71%	53,750.33	-1.00%
Small General Service	22,340.78	21,125.77	-5.44%	20,707.78	-1.98%	21,607.98	4.35%
Medium General Service	31,382.18	29,795.53	-5.06%	29,593.06	-0.68%	30,900.71	4.42%
Large General Service	77,330.19	71,794.85	-7.16%	73,976.33	3.04%	76,688.90	3.67%
Specific Business Service	6,794.06	4,748.30	-30.11%	4,019.33	-15.35%	5,296.10	31.77%
Non-profit Organization	213.11	206.07	-3.30%	203.04	-1.47%	218.36	7.55%
Agricultural Water Pumping	467.82	416.85	-10.90%	397.76	-4.58%	334.87	-15.81%
Temporary Power User	1,416.45	1,364.76	-3.65%	1,252.31	-8.24%	1,305.04	4.21%
Standby	304.30	290.97	-4.38%	381.73	31.19%	1,009.71	164.51%
Export	911.55	623.81	-31.57%	83.73	-86.58%	577.74	590.00%
Electric Vehicle	0.05	0.09	80.00%	1.03	1,044.44%	14.86	1,342.72%
Interruptible Power User	0.00	795.99	0.00%	1,869.64	134.88%	2,080.01	11.25%
Public Lighting	3,368.68	3,545.39	5.25%	3,797.09	7.10%	4,110.08	8.24%
On-site Use[1/]	41.16	40.55	-1.48%	38.27	-5.62%	43.07	12.54%
Total	**193,769.43**	**187,609.32**	**-3.18%**	**190,612.05**	**1.60%**	**197,937.76**	**3.84%**

Remarks: Data as at 31 December 2022

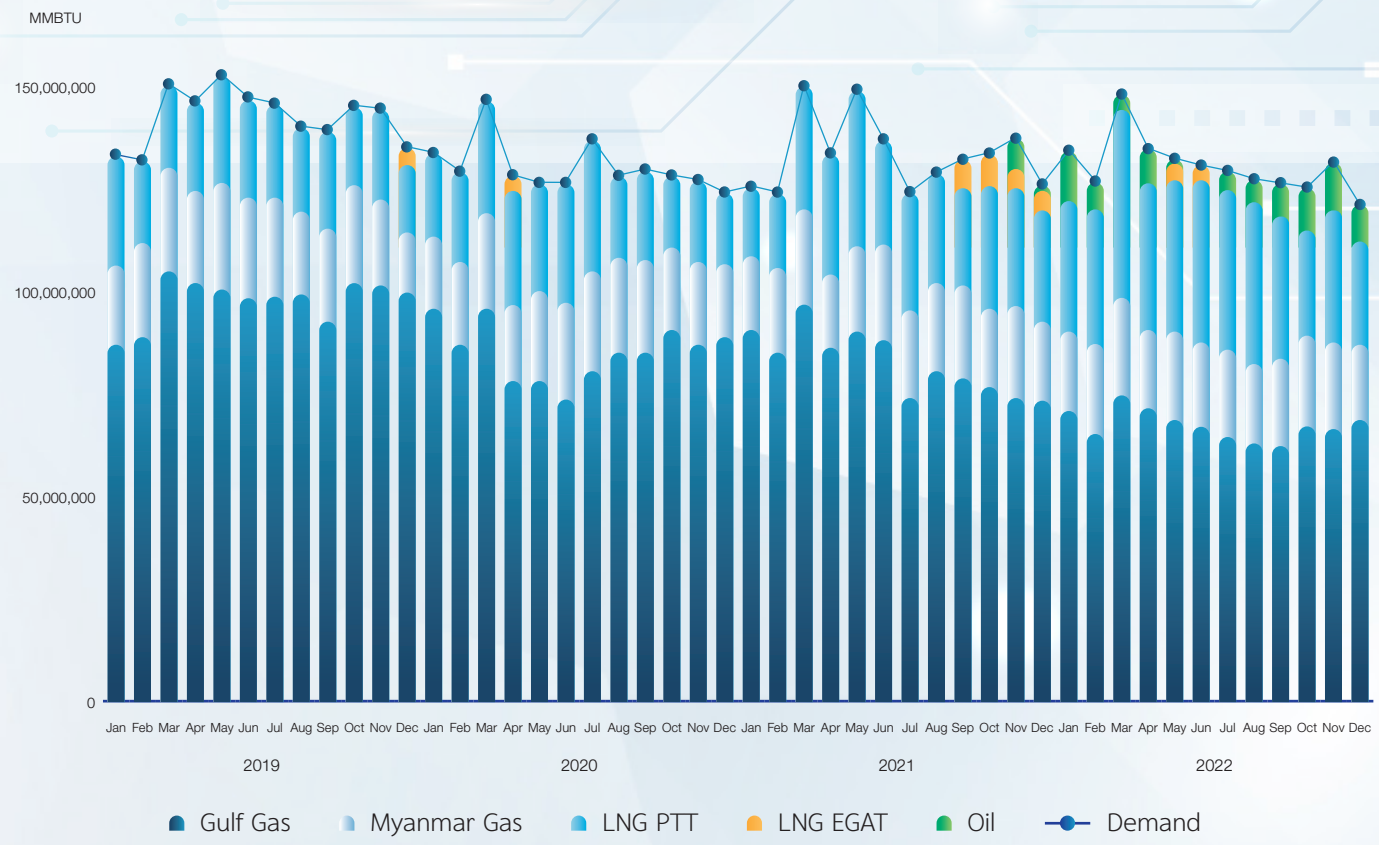
[1/] On-site use means consumption by office buildings of the Power Utilities.

Electricity Consumption Share by Consumer Category in 2022



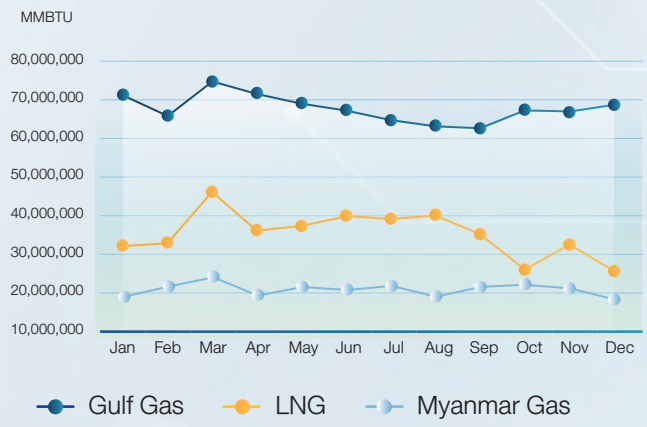
Data as at 31 December 2022

Volume of Natural Gas Supply during 2019-2022

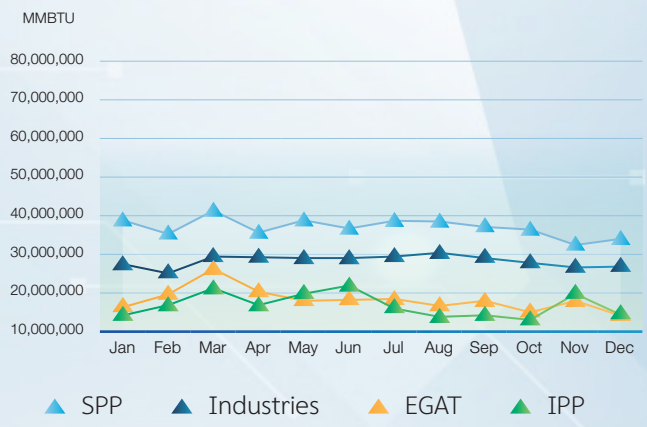


Remark: Oil was used as a natural gas substitute for electricity generation.

Monthly Natural Gas Supply in 2022



Monthly Natural Gas Demand in 2022
in the Electricity and Industrial Sectors (excluding GSP Consumption)



Data as at 31 December 2022

Energy Industry Regulation Performances

in Fiscal Year 2022

Highlights of the Energy Industry Regulation Performances in Fiscal Year 2022

Regulation of Electricity Tariffs and Natural Gas Service Charges

Management of the electricity generation cost to reduce impact on electricity tariffs

Natural gas has been the major fuel source for electricity generation in Thailand and hence greater imports of liquefied natural gas (LNG) were necessary to substitute diminishing natural gas production from the Gulf of Thailand towards the end of the concession period as well as declining gas production from Myanmar, which could not maintain the production capacity as before and is likely to keep declining from late 2022 to early 2023. Moreover, LNG prices in the world market had been spiraling due to the Russia-Ukraine war coupled with the market conditions that were not conducive to LNG contract negotiations resulted in increasing electricity generation costs. In this regard, the ERC had to manage the fuel crisis in accordance with the guidelines prescribed by the National Energy Policy Council (NEPC) so as to keep the fuel cost as low as possible, while maintaining national energy security and stability. In addition, consideration was given by the ERC to gradually adjust the variable electricity tariff (F_t) to reflect the increase in fuel costs, only as deemed necessary, with a view to mitigating impact on the people's cost of living while taking into account the energy service potential of the service providers. In the course of 2022, the ERC had managed the following:

1. postponement of the decommissioning of Mae Moh Power Plant, Unit 8, until 31 December 2022;

2. additional power purchase from renewable energy generation from Small Power Producers (SPPs) and Very Small Power Producers (VSPPs), both from those with existing contracts and those without contracts with the Power Utilities, that use biomass, biogas, waste, solar and wind energy as fuel;

3. increase in the proportion of electricity generation from fuel oil and diesel to reduce LNG

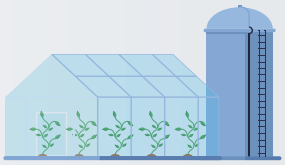
imports of which the prices were highly volatile and expensive, concurrently with the implementation of the "Energy Pool Price" measure, by including the incremental cost of electricity generation from other fuels used as substitutes during the natural gas shortage in the Pool Gas price calculation to ensure fairness by averaging the production cost in the power sector and that in the industrial sector to be the same. Moreover, the ERC had continuously regulated electricity tariffs to keep the tariffs low for the general public, by:

- Adjusting the tariffs for natural gas transportation via the natural gas transmission pipeline system in the part of fixed costs, which could reduce the natural gas transportation cost by approximately 6,231 million Baht/year, or equal to the F_t reduction by about 3 Satangs/unit.
- Regulating the use of the remittance of income from LNG exports (Reloading), after deducting PTT's expenses, accounting for an amount of 580 million Baht to reduce natural gas prices for all gas users according to the NEPC resolution.
- Temporarily set the rate of contribution remittance to the Power Development Fund, exclusively under Section 97(4) & 97(5), at zero Baht, which will help reduce the electricity price for the public in 2023 by 0.0063 Baht/unit, accounting for an expected budget of 1,534.92 million Baht, to be effective as from January 2023 onwards.

Given the current energy crisis situation, people are encouraged to use electricity economically by changing energy consumption behavior, which can help reduce imports of expensive fuel and thus will reduce people's cost of living and will also be a concerted effort to reduce the national burden as a whole.

Determination of the Electricity Tariff Structure for the Period 2023–2025

Pursuant to the policy on electricity tariff restructuring for the period 2021-2025, approved by the NEPC, the ERC has considered and given consent to the reduction of monthly service charges to be in line with the Power Utilities' costs of meter reading and billing to be reasonable and fair to power consumers. Three categories of power consumers are eligible for the mentioned service charge reduction:

Residential		Small General Service		Agricultural Water Pumping	
Normal Rate: >150 units TOU Rate, Low Voltage: <22 kV/ <12 kV		Normal Rate, Low Voltage: <22 kV/ <12 kV TOU Rate, Low Voltage: <22 kV/ <12 kV		TOU Rate (all voltage levels)	
					
Former	New	Former	New	Former	New
38.22	24.62	46.16	33.29	228.17	204.07

Unit: Baht/month

The reduction of monthly service charges to the new rates will take effect as from the billing of January 2023 onwards. Currently, the ERC is considering other electricity tariff categories to reduce impacts of the global energy price crisis.

Tariff Adjustment in the Natural Gas Industry

The ERC has adjusted the tariffs for natural gas transportation through the natural gas transmission pipeline system, the tariffs for natural gas storage and transformation of liquid to gas and the tariffs for natural gas procurement and wholesale to be in line with the current situation and to accommodate the promotion of competition in the natural gas industry in Phase 2.

Promotion of renewable energy generation for sustainable development and in support of achieving the Carbon Neutrality Goal

Solar PV Rooftop Program for the People Sector

Continued regulating power purchase from the Solar-PV Rooftop Program for the People Sector, under the residential group with a target of 10 MW/year and the group covering schools, academic institutions, hospitals and water pumping for agricultural purposes, with a purchase target of 10 MW, pursuant to the NEPC resolution of 9 March 2022, emphasizing primarily the generation for own use before selling excess electricity to the Distribution Utilities. To date, there are 5,042 sale applications with complete documents under the residential group, with a combined installed capacity of 27,595 kWp, of which 3,220 applicants have already signed power purchase agreements, accounting for a combined installed capacity of 17,642 kWp. As for the group covering schools, academic institutions, hospitals and agricultural water pumping, 19 sale applications with complete documents have been submitted, with a combined installed capacity

of 1,969.2 kWp, of which 7 applicants have already signed power purchase agreements, accounting for a combined installed capacity of 750.4 kWp (data as at 31 December 2022).

To support the installation of solar-PV rooftop systems, together with comprehensive supervision and advice, the ERC has reduced the procedures concerning registration of energy operations exempt from license requirement, by allowing online registration via the website www.erc.or.th and via mobile phone by downloading the OERC's Application, "ERC Thailand." Moreover, the OERC has cooperated with the Distribution Utilities to reduce the connection processing time to enable power dispatch and utilization of equipment within 30 days as from the date of receipt of a request for connection, compared with the former duration of about 90-135 days for going through all procedures. In addition, all the 13 OERC Regional Offices have been assigned to give advice on the system installation, maintenance and disposal of used equipment and solar panels as well as receive back used equipment and solar panels from those in the residential sector who have the system installed with an installed capacity not exceeding 10 kVA so as to facilitate and create confidence in sustainable use of renewable energy.

การไฟฟ้านครหลวง
Metropolitan Electricity Authority

การไฟฟ้าส่วนภูมิภาค
PROVINCIAL ELECTRICITY AUTHORITY

Waste-to-Energy Projects

The government has set as a national agenda the policy to solve the country's municipal solid waste (MSW) problem, especially in areas with a large amount of solid waste piled up or where there are constraints in finding landfill areas according to the National Solid Waste Management Master Plan (2016-2021) and the National Action Plan on Waste Management (2022-2027). One of the management methods is to incinerate waste to generate electricity. Therefore, under the Thailand Power Development Plan 2018-2037, Revision 1 (PDP2018 Rev.1), the NEPC has stipulated power purchase from MSW power projects. Hence, in 2022 the ERC issued the regulation and a notification on power purchase from 34 MSW power projects, already approved by the NEPC, with a total purchase capacity not exceeding 282.98 MW and the scheduled commercial operation date (SCOD) during 2025-2026. To date, 16 project developers have requested the checking of grid connection points and 6 project developers have submitted applications to sell electricity (data as at 8 December 2022).

In response to Thailand's target of greenhouse gas emission reduction according to the policy on promotion of renewable energy generation to

accommodate the increasing demand for electricity generated from renewable energy in the industrial sector, the ERC has prescribed the right to the Renewable Energy Certificate (REC) units arising from electricity generation from renewable energy in the regulations and notifications on the procurement of electricity generated from renewable energy under Thailand Power Development Plan and the government's policy on promotion of renewable energy generation, such as the Program on Community-based Power Plants for Grassroots Economy (Pilot Project) and the Program on Renewable Energy Generation under the Feed-in Tariff (FiT) Scheme for the period 2022-2030 for Projects without Fuel Cost. Additionally, the ERC has already proposed to the NEPC, for approval, the policy on determination of Green Power Tariff, or an alternative electricity tariff for consumers wishing to use electricity generated from renewable energy, and will issue the framework for determining the Green Power Tariff structure in early 2023.

Promotion of Proper and Fair Competition

Adjust the regulation of the use of infrastructure in the electricity and natural gas industry, by allowing the private sector to have access to jointly use the infrastructure, both the natural gas network system and the electricity network system, including the natural gas storage and transformation of liquid to gas. In 2022, the following notifications and regulations were revised by the ERC:

- Notification on the Transmission System Operator Regulatory Framework (TSO Regulatory Framework), including the Third Party Access Code for the use of LNG Terminal (TPA Code for LNG Terminal) on the issues of capacity booking, fines and the setting of conditions; and the establishment of the framework for regulating and inspecting the operations of the Transmission System Operator and LNG Terminals to ensure fairness to all natural gas procurement and wholesale operators (Shippers); including the establishment of the criteria for setting the price of LNG (LNG Benchmark), and approval was given to natural gas tariffs of licensees engaged in natural gas transmission through the transmission pipeline system of PTT under the natural gas price structure for promotion of competition in the natural gas industry, Phase 2, as prescribed by the NEPC.
- Notification on Framework Guidelines for Developing Third Party Access Code for the Use of an Electricity Network System (Third Party Access Framework Guidelines) and for determining the Wheeling Charges for the use of an electricity network system by a third party under the ERC Sandbox Program, Phase 2, so that the provision of electricity network system services would be transparent and fair to support the government policy on promotion of competition in the electricity industry in the future, which is in line with the National Energy Reform Plan.
- Issuance of five secondary laws concerning prevention of monopoly and reduction or restriction of competition in the energy industry, comprising: (1) Notification on Criteria, Procedures and Conditions for the Transfer of Rights under Energy Industry Licenses; (2) Regulation on Criteria and Procedures for Merger and Cross-shareholding in the Energy Industry; (3) Regulation of Definitions of Market and Scope of Related Energy Services Market; (4) Regulation on Criteria for Being a Business Operator Having Market Dominance; and (5) Regulation on Criteria and Procedures for Determining Measures against Practices that Monopolize, Reduce or Limit Competition in the Energy Industry.

Strengthen Energy Consumer Protection

Refunds of customer guarantee deposit (CGD) to power consumers

Regulated the Metropolitan Electricity Authority (MEA), the Provincial Electricity Authority (PEA) and the Sattahip Electricity Authority–the Royal Thai Navy Welfare Concession–(SEA) to pay the CGD back to power consumers under the Residential and Small General Service categories, involving a total of 23.99 million cases nationwide that are eligible to claim for the CGD refunds, with a total budget of over 33,689 million Baht. To date, 8.57 million cases have been registered for CGD refunds, accounting for a budget of 16,479 million Baht and CGD refunds have already been made to 8.34 million cases, accounting for a budget of 16,103 million Baht (data as at December 2022).

Recruitment of the RECCs–a key mechanism in driving the process of public participation in energy consumer protection

The OERC has recruited the 4th set of Regional Energy Consumer Committees (RECCs), totaling 143 persons nationwide. The components of each RECC comprise 1 Chairperson and other members of no more than 10 persons–9 shall be energy consumer representatives in proportion of each province in each region and 2 energy consumers nominated by private organizations in each region. The RECCs are tasked with the following duties: to consider complaints of power consumers who have suffered damage or injustice caused by the service provision of Power Utilities, such as a power dip or outage causing damage to electrical appliances and the collection of incorrect or unfair service charges; and to provide opinions or propose measures to improve energy service provision to the ERC in order to consider the issuance of policy guidelines relating to energy consumer protection.

Power Development Fund Management for Sustainable Development

Allocation of money from the Power Development Fund for activities under Section 97(3) to develop good quality of life of local communities on a sustainable basis

The ERC relaxed the criteria of Power Development Fund operation under Section 97(3) for Fiscal Year 2022 to enable timely use of the Fund money for necessary activities to cope with the spread of the Coronavirus Disease 2019 and to remediate the areas and stimulate the economy in areas surrounding a power plant. Emphasis was still placed on community participation and the promotion of sustainable development in all dimensions. The contest, "Power Development Fund Awards 2022," was organized to select outstanding large- and medium-scale local Funds, outstanding community projects in each aspect and model villages in order to publicize and expand the practices to upgrade the quality of life of people in areas around power plants across the country.

The OERC and the Office of Public Sector Anti-Corruption Commission jointly signed a Memorandum of Understanding on academic cooperation and the prevention and suppression of corruption in the public sector to enhance the efficiency of Power Development Fund operations in designated areas to be transparent and to reduce the risk of corruption in the Power Development Fund management.

Allocation of money from the Power Development Fund for activities under Section 97(4) to promote the use of renewable energy and technologies for electricity industry operation that render minimal impact on the environment

To promote electricity generation from renewable energy, in Fiscal Year 2022 the ERC allocated money from the Power Development Fund for activities under Section 97(4) to support the installation of solar PV systems that are connected to an electricity network system (On-grid) for hospitals under various agencies under the Project on Promotion of Electricity Generation from Renewable Energy–Strategic Grant, with a total budget of 427.23 million Baht, consisting of 68 hospitals under the Ministry of Public Health, with a total budget of 204 million Baht; 12 hospitals under 9 projects of the Faculties of Medicine under the Ministry of Higher Education, Science, Research and Innovation, and the Bangkok Metropolitan Administration (BMA), with a total budget of 223.230 million baht. All of these can reduce greenhouse gas emissions by 10,623 kgCO_2e/year. The objective is to enable electricity generation for own use to reduce electricity bill burden, reduce greenhouse gas emissions and respond to the national policy that aims to achieve the Carbon Neutrality in 2050.

In order to promote research and study on energy industry regulation during the energy transition so as to reduce the amount of greenhouse gas emissions and achieve the Carbon Neutrality goal, the OERC and Thailand Science Research and Innovation (TSRI) have signed a Memorandum of Understanding on Cooperation in Energy Innovation Research and Development so as to allocate money from the Power Development Fund under Section 97(4) to create quality research and innovation on energy and to apply research results to the economic and social development to support the energy transition.

Provision of a platform for trials and development of energy service innovations under the ERC Sandbox Program, Phase 2

The ERC launched a program on trials and development of technological innovations to support energy service provision, Phase 2, aiming to trial the trading of electricity generated from renewable energy and to test innovations that enhance flexibility of the electricity network system so as to accommodate renewable energy generation. Emphasis is placed on the study in four aspects, i.e. technology, commerce, regulations and systems involved. 36 projects have been selected to participate in the Program, with the project implementation duration of one year.

Energy Industry Regulation Performances in Fiscal Year 2022

The Energy Regulatory Commission (ERC) emphasizes the execution of its mission as mandated under the Act, by conducting operations pursuant to the Annual Work Plan for Fiscal Year 2022 under the Action Plan for Energy Industry Regulation, Phase 4 (2020-2022). Major performances of the Office of the Energy Regulatory Commission (OERC) in Fiscal Year 2022 in pursuance of the nine main objectives of energy industry regulation can be summarized in the following.

Objective 1

To promote adequate and secure energy service provision, while ensuring fairness to both energy consumers and licensees

1.1 Regulated electricity procurement to ensure adequate energy service provision. The development of Thailand's energy sector has placed emphasis on reinforcement of the electricity system security along with sustainable development. In order to diversify fuel sources for electricity generation, promotion has been made on electricity generation from renewable energy, via incentive measures in terms of power purchasing prices, as well as promotion of electricity generation for own use. The status of power purchase from renewable energy generation, according to the government policy on renewable energy generation promotion, as at 30 September 2022, can be summarized as follows. A total of 11,882 projects have been committed to supply electricity to the grid, with a combined installed capacity of 10,075 MW, classified by status into: (1) projects that are commercially supplying power to the grid, i.e. commercial operation date (COD) started: 9,532 projects, with a combined installed capacity of 9,303 MW; (2) projects with Power Purchase Agreements (PPAs) signed, pending COD: 2,215 projects, with a combined installed capacity of 385 MW; and (3) projects having been notified of power purchase acceptance: 135 projects, with a combined installed capacity of 387 MW. In addition, there are 14,948 renewable energy generation projects for one's own use and sale to direct customers (Independent Power Supply: IPS), with a combined installed capacity of 3,290 MW.

Status of Renewable Energy Generation

Fuel	Committed to supply electricity to the grid [1/]		Power Producers, using renewable energy as fuel, for one's own use and sale to direct customers	
	No. of Projects	Installed Capacity (MW)	No. of Projects	Installed Capacity (MW)
1 Waste	52	461	-	-
Municipal Solid Waste	45	423	-	-
Industrial Waste	7	37	-	-
2 Biomass	264	4,208	44	1,028
3 Biogas	207	504	52	148
4 Hydro	75	168	1	0
5 Wind	39	1,542	-	-
6 Solar	11,240	3,098	14,835	1,854
Solar Farm	489	2,511	65	105
Solar Rooftop	6,152	131	14,749	1,673
Floating Solar	1	48	21	76
Solar–Government/ Agricultural coop.	98	383	-	-
Solar PV Rooftop–People Sector	4,500	25	-	-
7 Other REs [2/]	5	95	16	259
Total	11,882	10,075	14,948	3,290

Source: Power purchase of EGAT, MEA and PEA

Remarks: Data as at 30 September 2022

[1/] Projects committed to supply electricity to the grid mean projects that are commercially supplying electricity to the grid, projects with PPAs signed and projects having been notified of power purchase acceptance.

[2/] Other REs refer to electricity generation using waste gas from the manufacturing process and geothermal energy.

In Fiscal Year 2022, the OERC regulated power purchase from renewable energy generation according to the government policy in pursuance of the Thailand Power Development Plan 2018-2037, Revision 1 (PDP 2018, Rev.1), approved by the cabinet on 20 October 2020. Regulations and notifications were issued by the OERC on power purchase under the following major programs:

1.1.1 Solar-PV Rooftop Program for the People Sector. The ERC issued the regulation and notification on power purchase under the Solar-PV Rooftop Program for the People Sector, from the residential group on a continuous basis, with a purchase volume of 10 MW/year, and from the group covering schools, academic institutions, hospitals and water pumping for agricultural purposes, with a purchase volume of 10 MW in 2022, emphasizing primarily the generation for one's own use before selling excess electricity to the Distribution Utilities. At present, 5,042 sale application forms with complete documents have been received from the residential group, with a combined installed capacity of 27,595 kWp, of which 3,220 applicants have already signed power purchase agreements, accounting for a combined installed capacity of 17,642 kWp. As for the group covering schools, academic institutions, hospitals and agricultural water pumping, 19 sale application forms with complete documents have been submitted, with a combined installed capacity of 1,969.2 kWp, of which 7 applicants have already signed power purchase agreements, accounting for a combined installed capacity of 750.4 kWp (data as at 31 December 2022). In addition, with a view to promote electricity generation from solar energy, the ERC has reduced the procedures concerning registration of energy operations exempt from license requirement, by allowing online registration via the website www.erc.or.th and via mobile phone by downloading the Application "ERC Thailand." Moreover, the ERC has cooperated with the Distribution Utilities to reduce the connection processing time to enable power dispatch and utilization of equipment within 30 days as from the date of receipt of a request for connection,

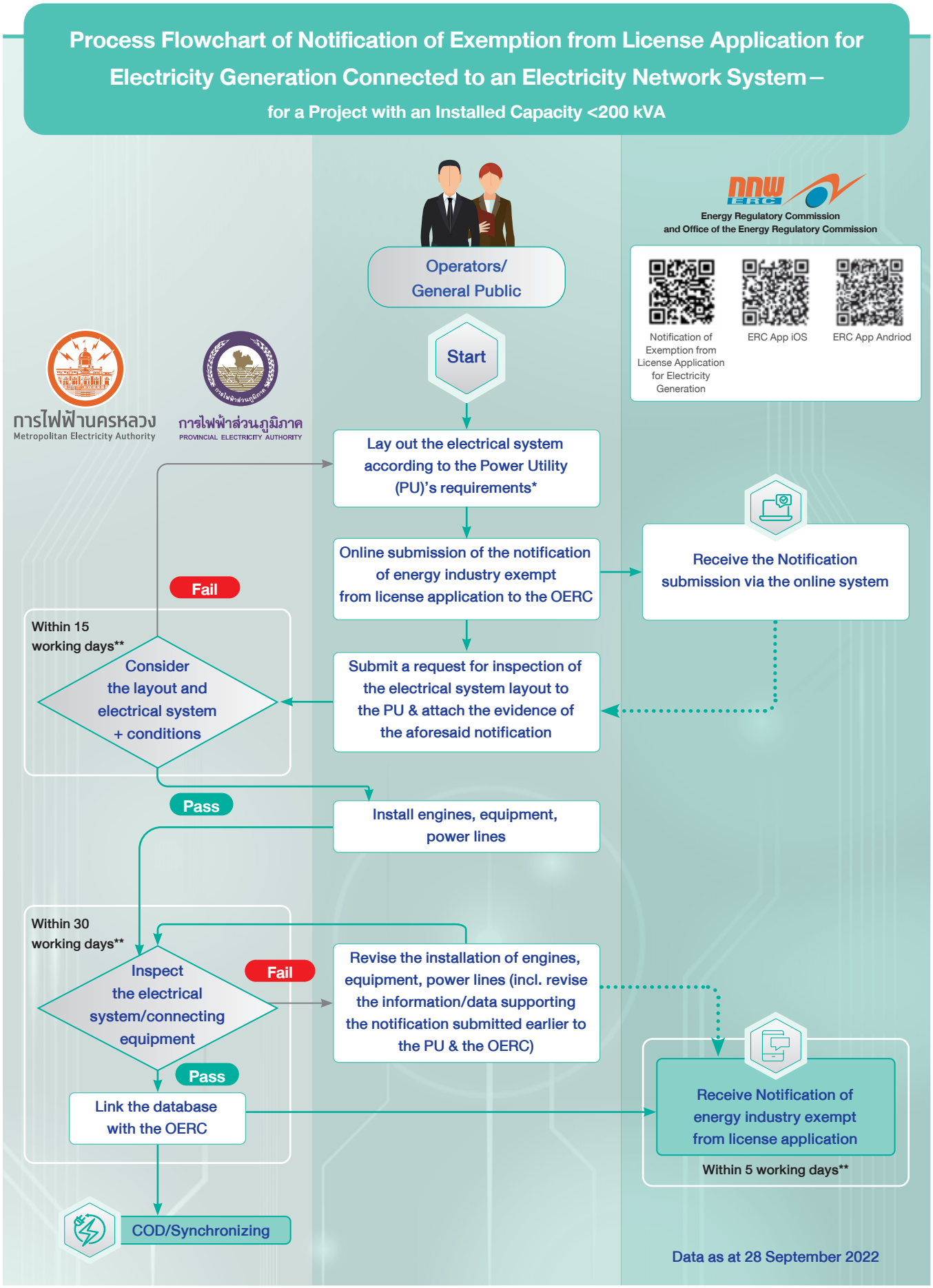
compared with the former duration of about 90-135 days for going through all procedures. In addition, all the 13 OERC Regional Offices have been assigned to give advice on the system installation, maintenance and disposal of used equipment and solar panels as well as receive back used equipment and solar panels from those in the residential sector, having the system installed with an installed capacity not exceeding 10 kVA so as to facilitate and create confidence in sustainable use of renewable energy.

ERC continues supporting Solar PV Rooftops to help reduce electricity bills

On 23 May 2022, Mr. Khomgrich Tantrawanich, OERC Secretary General, in his capacity as spokesman of the ERC, held a press conference providing the progress of the Power Purchase under the Solar-PV Rooftop Program for the People Sector, from the Residential Group with an installed capacity not exceeding 10 kW. The Program is part of the measure to reduce dependence on electricity generation from volatile and expensive fossil fuels due to the world energy price crisis at present.

Process Flowchart of Notification of Exemption from License Application for Electricity Generation Connected to an Electricity Network System –

for a Project with an Installed Capacity <200 kVA



* Existing PU's requirements and those to be enforced in the future.

** Processing duration excluding the duration of revision to the data and the engine/equipment installation

Remark: In the case of a project that sells electricity, the PU's processing duration will be based on the notification of a given power purchase program.

Process Flowchart of Notification of Exemption from License Application for Electricity Generation Connected to an Electricity Network System –

for a Project with an Installed Capacity ≥200 kVA and <1,000 kVA

Operators/
General Public

Energy Regulatory Commission
and Office of the Energy Regulatory Commission

Notification of Exemption from License Application for Electricity Generation

ERC App iOS

ERC App Andriod

การไฟฟ้านครหลวง
Metropolitan Electricity Authority

การไฟฟ้าส่วนภูมิภาค
PROVINCIAL ELECTRICITY AUTHORITY

Start

Lay out the electrical system according to the Power Utility (PU)'s requirements*

Online submission of the notification of energy industry exempt from license application to the OERC

Receive the Notification submission via the online system

Submit a request for inspection of the electrical system layout to the PU & attach the evidence of the aforesaid notification

Within 15 working days**

Consider the layout and electrical system + conditions

Fail

Pass

Install engines, equipment, power lines

Submit application to DEDE for Por Kor 2 (i.e. a regulated energy production license)

Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY

Receive the application for Por Kor 2

Consider & provide opinions to the OERC

Within 30 days

Within 30 working days**

Inspect the electrical system/ connecting equipment

Fail

Revise the installation of engines, equipment, power lines (incl. revise the information/ data supporting the notification submitted earlier to the PU & the OERC)

Pass

Link the database with the OERC

Receive Notification of energy industry exempt from license application

Within 5 working days**

Prepare opinions for submission to the ERC

Sign Por Kor 2

Submit a copy of Por Kor 2 to MEA/PEA as a support document for COD/Synchronizing

COD/Synchronizing

Data as at 28 September 2022

* Existing PU's requirements and those to be enforced in the future.

** Processing duration excluding the duration of revision to the data and the engine/equipment installation

Remark: In the case of a project that sells electricity, the PU's processing duration will be based on the notification of a given power purchase program.

1.1.2 Purchase of electricity generated from municipal solid waste under the Feed-in Tariff (FiT) scheme for the year 2022. The government has set as a national agenda the policy to solve the country's municipal solid waste (MSW) problem, especially in areas with a large amount of solid waste piled up or where there are constraints in finding landfill areas according to the National Solid Waste Management Master Plan (2016-2021) and the National Action Plan on Waste Management (2022-2027). One of the management methods is via waste incineration to generate electricity. Therefore, under the Thailand Power Development Plan 2018-2037, Revision 1 (PDP2018 Rev.1), the NEPC has stipulated power purchase from MSW power projects. Hence, in 2022 the ERC issued the regulation and a subsequent notification on power purchase from MSW power projects already approved by the NEPC, totaling 34 projects, with a total purchase capacity not exceeding 282.98 MW and the scheduled commercial operation date (SCOD) during 2025-2026. To date, 16 project developers have requested the checking of grid connection points and 6 project developers have submitted applications to sell electricity (data as at 8 December 2022).

1.2 Analyzed and provided opinions on the Power Development Plan, the investment plans in the electricity industry, the natural gas procurement plan and the energy network system expansion plan for the cabinet's consideration, taking into account the integration of energy infrastructure development and the cost-effectiveness of energy infrastructure utilization. The ERC gave opinions on 2 natural gas infrastructure projects and the natural gas distribution pipeline network expansion plan to 18 natural gas users; 12 electricity network system expansion plans of the private sector; and 4 investment plans in the electricity industry, i.e. (1) Ratchaprapha Dam Hydropower Plant, Units 1-3, of the Electricity Generating Authority of Thailand (EGAT); (2) Srinagarind Dam Hydropower Plant, Units 4-5 of EGAT; (3) the Distribution System Improvement and Expansion Plan, Phase 13, of the Metropolitan Electricity Authority; and (4) the Transmission System Renovation and Expansion Plan, Phase 3. In this connection, the OERC has regulated the investment in electrification expansion and currently 99.57% of the total households nationwide have access to electricity from the grid.

1.3 Reviewed the determination of types of energy industry licenses and revised three secondary laws, currently in use, to be up-to-date and in line with changing business models and situations at present, i.e. (1) the Notification on Determination of Types and Tenure of Licenses for Energy Industry Operation; (2) the Regulation on Application for Licenses, Permission for and Renewal of Electricity Industry Licenses; and (3) the Regulation on Procedures for Applying for Licenses and Granting Permission for Electricity Industry Operation.

1.4 Improved the process of One Stop Service (OSS) approval for energy industry operation to reduce the processing time and procedures for granting licenses according to the target of reform activities that will create significant impacts on the public (Big Rock) under the National Reform Plan (Revised Version), which can be summarized as follows:

1.4.1 Issued three secondary laws pertaining to the OSS licensing in response to the Ministry of Industry's issuance of the Ministerial Regulation Annulling the Factory Type or Kind No. 88, namely: 1) the Regulation on Preparation of an Environmental Report for Electricity Generation Operations Exempt from or Not Falling within the Scope of Requiring an Environmental Impact Assessment Report, or Exempt from or Not Falling within the Scope of Compliance with Codes of Practice; 2) the Regulation on Safety Standards, Environmental Standards and Sewage or Waste Management for a Power Plant; and 3) the Regulation on Criteria, Procedures and Conditions for Consideration of Power Plant Location and Surroundings for Granting an Electricity Generation License. In addition, the OERC completed the preparation of a Memorandum of Understanding (MoU) between the ERC and the Ministry of Interior on Guidelines and Procedures for Granting Permits for Building Construction and Other Structures for Energy Industry Operation, to be signed by the concerned parties. As for the preparation of a (draft) MoU on Regulation of the Environment, Safety and Sewage or Waste Management of a Power Plant among the ERC, the Ministry of Natural Resources and Environment (MNRE) and the Ministry of Industry, the MNRE has already issued its confirmation letter on the draft MoU. Presently, the OERC is awaiting revision of the Ministerial Regulation to annul the Factory Type or Kind No. 88 by the Ministry of Industry and the amendment to the Royal Decree on Determination of Regulated Energy by the Department of Alternative Energy Development and Efficiency.

Moreover, the OERC has already improved the operational procedures and reduced the processing time/required documents, as well as revised the secondary laws relating to requests for electricity industry licenses and the registration for energy operations that are exempt from license requirement, to be more flexible and rapid. The OERC has developed the work system by allowing online registration via the website www.erc.or.th and via mobile phone by downloading the OERC's Application "ERC Thailand." In addition, the OERC has cooperated with the Distribution Utilities to reduce the connection processing time to enable

power dispatch and utilization of equipment within 30 days as from the date of receipt of a request for connection, compared with the former duration of about 90-135 days for going through all procedures, and now is in the process of linking the database on connections to the electricity network system via digital technology.

1.4.2 Set standards of operational guidelines and a monitoring and evaluation system for power plant inspection, both pre- and post-commercial operation date. The OERC has developed the Regulation on Criteria for Preparing a Report on a Code of Practice and a Report on the Code of Practice Monitoring for Electricity Industry Operation, which was published in the Government Gazette on 6 July 2022, and has developed a digital system for auditing electricity generation business (e-Post Audit) with respect to the environmental and safety aspects so that the monitoring results could be displayed in real time as well as a system to search for the monitoring data via web-based channels, including a display of the results via smart devices, to be used for the regulation and monitoring by the ERC and OERC officials.

1.4.3 Continued developing the e-Licensing system to support online energy industry licensing and integrating the provision of services on registration of license exemption with the Government Service Center, providing services via electronic means for the business sector, or Biz Portal, according to the Doing Business Portal development guidelines of the Office of the Public Sector Development Commission (OPDC).

1.5 Issued licenses for electricity and natural gas industry operation within the specified timeframe – in 2022, the OERC could issue licenses for electricity and natural gas industry operation within the specified timeframe, totaling 179 licenses; for regulated energy production under the law on energy development and promotion, 829 licenses; and for power generation facility operation under the law on factories, 137 licenses. In addition, permits for building construction or modification for the purpose of energy industry operation, and building construction certificates were issued, totaling 102 permits/certificates.

Summary of the Issuance of Energy Industry Licenses and Licenses for Regulated Energy Production under the Law on Energy Development and Promotion in Fiscal Year 2022

License Type	Number of Licenses Granted	
	2021	2022
1. Issuance of Energy Industry Licenses	**200**	**179**
1.1 Electricity Industry Licenses:	**195**	**174**
(1) Electricity Generation License	110	89
(2) Electricity Transmission System License	0	0
(3) Electricity Distribution System License	23	23
(4) Electricity Retail License	62	62
(5) Electricity System Operation License	-	-
1.2 Natural Gas Industry Licenses:	**5**	**5**
(1) Natural Gas Transmission through Transmission Pipeline System License	1	1
(2) Natural Gas Procurement and Wholesale License	4	4
(3) Natural Gas Retail through Distribution Pipeline System License	-	-
(4) Natural Gas Storage and Transformation of Liquid to Gas License	-	-
2. Licenses for Regulated Energy Production under the Law on Energy Development and Production	**650**	**829**
3. Licenses for Power Generation Facility Operation under the Law on Factories	**102**	**137**

Remark: Data as at 30 September 2022

Summary of the Issuance of Permits for Building Construction or Modification for Energy Industry Operation and Building Construction Certificates in Fiscal Year 2022

Permission Type	Number Granted	
	Construction	Modification
1. Permits for Building Construction or Modification	**60**	**9**
1.1 New Permits	49	9
1.2 Permit Renewal – 1st renewal and 2nd renewal	11	-
2. Certificates for Building Construction	**27**	**6**
Total	102	

Remark: Data as at 30 September 2022

Objective 2

To protect energy consumers' benefits in terms of both tariffs and service quality

2.1 Managed the electricity generation cost to reduce impact on electricity tariffs. In Thailand, natural gas is the main fuel used for electricity generation and it has been necessary to increase the import volume of liquefied natural gas (LNG) to substitute diminishing natural gas production from the Gulf of Thailand towards the end of the concession period as well as declining natural gas production from Myanmar, which could not maintain the production capacity as before and is likely to decrease continuously from late 2022 to early 2023. Moreover, LNG prices in the world market kept spiraling due to the Russia-Ukraine war and the market conditions were not conducive to LNG contract negotiations. All these factors resulted in an increase in the electricity generation cost. Hence, the ERC had managed the fuel crisis in accordance with the guidelines given by the National Energy Policy Council (NEPC) so as to keep the fuel cost as low as possible, with due consideration of maintaining national energy security and stability. In addition, consideration was given by the ERC to gradually adjust the variable electricity tariff (F_t), from the round of January-April 2022 to the round of September-December 2022, to reflect the increase in fuel costs, only as deemed necessary as there had been no increase for more than two years, with a view to mitigating the impact on the people's cost of living while considering the potential of energy service provision of the service providers. In the course of 2022, the ERC had managed the following: (1) postponement of the decommissioning of Mae Moh Power Plant, Unit 8, until 31 December 2022; (2) additional power purchase from renewable energy generation from Small Power Producers (SPPs) and Very Small Power Producers (VSPPs), both from those with existing contracts and those without contracts with the Power Utilities, that use biomass, biogas, waste, solar and wind energy as fuel; and (3) increase in the proportion of electricity generation from fuel oil and diesel to reduce LNG imports when LNG prices were highly volatile and expensive, concurrently with the implementation of the "Energy Pool Price[1]" measure, by including the incremental cost of electricity generation from other fuels used as substitutes during the natural gas shortage in the Pool Gas[2] price calculation to ensure fairness by averaging the generation cost in the power sector and that in the industrial sector to be the same. In addition, the ERC had regulated electricity tariffs to keep the tariffs low for the general public, on a continuous basis, by:

2.1.1 Adjusting the tariffs for natural gas transportation via the natural gas transmission pipeline system in the part of fixed costs, which could reduce the natural gas transportation cost by approximately 6,231 million Baht/year, resulting in the F_t reduction by about 3 Satangs/unit.

2.1.2 Regulating the use of remittance of income from LNG exports (Reloading), after deducting PTT's expenses, accounting for an amount of 580 million Baht to reduce natural gas prices for all natural gas users, according to the NEPC resolution.

2.1.3 Temporarily suspending the collection of contributions to the Power Development Fund under Section 97(4) and Section 97(5), by setting the rate of contribution remittance to the Fund at zero Baht, which will help reduce the electricity bill burden for the public in 2023 by 0.0063 Baht/unit, accounting for an expected total budget of 1,534.92 million Baht, to be effective as from January 2023 onwards.

[1]Energy Pool Price: the framework for calculating the price of natural gas used for power generation, applied to power plants that sell electricity to the grid under the ERC regulation, which is the weighted average price of fuel costs, comprising natural gas from Pool Gas of PTT Shipper, liquefied natural gas (LNG) of New Shippers, diesel, fuel oil, liquefied petroleum gas (LPG) or other fuels as prescribed by the ERC.

[2]Pool Gas: Natural gas distributed to power plants of the Electricity Generating Authority of Thailand, Independent Power Producers, Small Power Producers and other natural gas users, which is a combination of natural gas from the Gulf of Thailand via gas separation plants, imported natural gas, liquefied natural gas and natural gas from other resources in the future.

Summary of the Electricity Tariffs Charged to Power Consumers from 2017 to 2022

Electricity Tariffs Charged to Power Consumers					
Base Tariff	+	Variable Tariff (F_t) (adjusted every 4 months)	+	Value Added Tax (7% of total tariff)	

Billing Round	Base Tariff	F_t (Satang/unit)		Total Tariff	Difference (%)
	Baht/unit	Charged	Difference	(Excluding VAT)	
Jan-Apr 2017	3.76	-37.29	-4.00	3.39	-1.17%
May-Aug 2017		-24.77	12.52	3.51	3.54%
Sep-Dec 2017		-15.90	8.87	3.60	2.56%
Jan-Apr 2018		-15.90	0.00	3.60	0.00%
May-Aug 2018		-15.90	0.00	3.60	0.00%
Sep-Dec 2018		-15.90	0.00	3.60	0.00%
Jan-Apr 2019		-11.60	4.30	3.64	1.11%
May-Aug 2019		-11.60	0.00	3.64	0.00%
Sep-Dec 2019		-11.60	0.00	3.64	0.00%
Jan-Apr 2020		-11.60	0.00	3.64	0.00%
May-Aug 2020		-11.60	0.00	3.64	0.00%
Sep-Dec 2020		-12.43	-0.83	3.63	-0.28%
Jan-Apr 2021		-15.32	-2.89	3.61	-0.55%
May-Aug 2021		-15.32	0.00	3.61	0.00%
Sep-Dec 2021		-15.32	0.00	3.61	0.00%
Jan-Apr 2022		+1.39	+16.71	3.78	+4.43%
May-Aug 2022		+24.77	+23.38	4.00	+5.82%
Sep-Dec 2022		+93.43	+68.66	4.72	+18.00%

2.2 Determined the electricity tariff structure for the period 2023-2025 pursuant to the policy on electricity tariff restructuring for the period 2021-2025, already approved by the NEPC. The ERC has considered and given consent to the reduction of monthly service charges to be in line with the Power Utilities' costs of meter reading and billing to be reasonable and fair to power consumers; this will take effect as from 1 January 2023 onwards. Currently, the ERC is considering other electricity tariff categories to reduce impacts of the global energy price crisis.

Summary of the Monthly Service Charge Reduction

Power Consumer Category	Present Monthly Service Charge (Baht/case/month)	New Monthly Service Charge (Baht/case/month)	Difference (Baht/case/month)
1. Residential			
1.1 Normal tariff: >150 units/month	38.22	24.62	-13.60
1.2 TOU tariff			
Voltage: <22 kV/ <12 kV	38.22	24.62	-13.60
2. Small General Service			
2.1 Normal tariff			
Voltage: <22 kV/ <12 kV	46.16	33.29	-12.87
2.2 TOU tariff			
Voltage: <22 kV/ <12 kV	46.16	33.29	-12.87
3. Agricultural Water Pumping			
TOU tariff: all voltage levels	228.17	204.07	-24.10

2.3 Tariff Adjustment in the Natural Gas Industry to be in line with the current situation and to accommodate promotion of competition in the natural gas industry in Phase 2. The ERC approved natural gas tariffs–in the part of fixed costs (Td) and that of variable costs (Tc)–of the licensees operating natural gas transportation through the natural gas transmission pipeline system as well as the tariffs for natural gas storage and transformation of liquid to gas and the tariffs for natural gas procurement and wholesale.

Tariffs for Natural Gas Transmission through the Natural Gas Transmission Pipeline System

Zone	**Tariff Charged** (Baht per MMBTU)
1) **Fixed Costs (Td)***	
Zone 1: Offshore natural gas transmission pipeline, including TTM	12.8869
Zone 2: Onshore natural gas transmission pipeline, at Khanom	2.1135
Zone 3: Onshore natural gas transmission pipeline	11.6894
Zone 4: Onshore natural gas transmission pipeline, at Chana	1.0061
Zone 5: Onshore natural gas transmission pipeline, at Namphong	0.2693
2) **Variable Costs (Tc)****	
Zone 1: Offshore natural gas transmission pipeline, including TTM	0.1903
Zone 2: Onshore natural gas transmission pipeline, at Khanom	0.0002
Zone 3: Onshore natural gas transmission pipeline	1.3954
Zone 4: Onshore natural gas transmission pipeline, at Chana	0.0901
Zone 5: Onshore natural gas transmission pipeline, at Namphong	0.0000

Remarks: * Td tariffs, effective as from August 2022 onwards, or until the tariff adjustment is approved by the ERC.
** Tc tariffs, effective from 1 August 2022 to 31 July 2023, or until the tariff adjustment is approved by the ERC.

In this regard, the OERC has developed a manual for preparing accounting and financial reports for energy industry regulation pursuant to the international standards (Uniform System of Accounts: USOA) so that natural gas industry licensees could prepare their accounting and financial reports in accordance with specified criteria and formats, to be used for auditing and regulating tariffs in the natural gas industry to reflect the costs and business operation efficiency.

2.4 Set guidelines for subsidizing electricity tariffs based on the e-Social Welfare database integrated system in order to comply with the policy framework approved by the NEPC on 1 April 2021, which stipulates that a study and preparations shall be undertaken to accommodate changes in the electricity industry by providing electricity tariff subsidization for residential power consumers, especially for those with low income, for which consideration shall be made of the qualifications of those really in need of assistance based on the system integrated with e-Social Welfare database instead of considering merely the amount of electricity consumption. In this connection, the MEA, PEA and the Sattahip Electricity Authority–the Royal Thai Navy Welfare Concession–(SEA) were assigned to carry out publicity to inform low-income residential power consumers who are presently subsidized under the free-of-charge electricity consumption measure and who wish to receive the right to electricity bill relief for low-income consumers from 2023 onwards to register for a state welfare card during 5 September-19 October 2022 so that their eligibility would be checked and verified for the assistance based on the e-Social Welfare database integrated system, set by the Ministry of Finance.

Objective 3

To promote competition in the energy industry and prevent abusive use of dominance in energy industry operation

The ERC adjusted the regulation of infrastructure utilization in the natural gas industry to accommodate the policy on promotion of competition in the natural gas industry, Phase 2, to enhance competition in the natural gas procurement and wholesale business (Shipper business), pursuant to the NEPC resolution of 1 April 2021, by allowing the private sector to jointly use the infrastructure, both the natural gas network system and the natural gas storage & transformation of liquid to gas, on a fair basis. In 2022, the following notifications and regulations were revised by the ERC.

3.1 Revised the Transmission System Operator Regulatory Framework (TSO Regulatory Framework), including the Third Party Access Code for the use of LNG Terminal (TPA Code for LNG Terminal) on the issues of capacity booking terms, fines and the setting of conditions. Also, a regulatory framework was laid down for regulating and auditing the operations of the Transmission System Operator and LNG Terminals to ensure fairness to all natural gas procurement and wholesale operators (Shippers). Currently, there are eight Shippers, i.e. PTT Plc, Electricity Generating Authority of Thailand, Gulf Energy Development Plc, Hin Kong Power Holding Co., Ltd., B.Grimm LNG Co., Ltd., Electricity Generating Plc, the Siam Cement Plc and PTT Global LNG Co., Ltd. In addition, the criteria for setting LNG prices (LNG Benchmark) was established, and approval was given to natural gas tariffs of licensees engaged in natural gas transmission through the transmission pipeline system of PTT under the natural gas price structure for promotion of competition in the natural gas industry, Phase 2, as prescribed by the NEPC.

Set guideline on promotion of competition in the natural gas industry, Phase 2, divided into 2 groups:

1. Regulated Market

Natural gas users from former suppliers (Old Supply)

Shippers that procure LNG for use in the power sector, for selling to the grid

2. Partially Regulated Market

Shippers that procures LNG for use in power plants, without selling to the grid, in the industrial sector and for own business, i.e.

Natural Gas Users from Old Supply

PTT is entrusted with managing the following:
- Natural gas from domestic resources
- Malaysia-Thailand Joint Development Area (JDA)
- Natural gas from Myanmar resources
- Imported LNG under existing contracts (5.2 Mtpa)

It is stipulated that priority of Gulf Gas utilization be given to gas separation plants and that PTT open bidding for a long-term LNG import contract (LNG Spot Flexible), with a price cheaper than Pool Gas, under the ERC's regulation interms of both quantity and conditions.

Set Criteria of Gas Sale Agreements for Old Demand (industrial customers, NGV, IPPs, SPPs, VSPPs and EGAT)

- To sell natural gas to users under existing GSAs & conditions (Pool Gas) and the National Control Center (NCC) shall order power plant dispatching as per the current methods, i.e. *must run, must take & merit order**

* **Must Run:** base power plants that have to supply electricity at all times to maintain the power system security so that supply would not be interrupted.

Must Take: base power plants that must supply electricity as stipulated in the contracts, i.e. GSAs and PPAs.

Merit Order: the sequence in which power plants are ordered to deliver power, from the lowest to highest marginal cost, to meet the power demand.

Shippers (new traders)

- Shippers are to procure LNG for power plants that sell electricity to the grid under the ERC regulation and pursuant to the long-term contract conditions, as prescribed by the CEPA/NEPC.

Natural Gas Price Structure to comply with CEPA/NEPC Stipulation

Components:

Natural gas price	Service charge for natural gas procurement & wholesale	Throughput rate for new Shippers shall be calculated in the part of onshore pipelines only.	LNG Terminal service charges	Throughput rate
				

Source: Guidelines on promotion of competition in the natural gas industry, Phase 2, pursuant to the NEPC resolution of 1 April 2021

3.2 Conducted a study on guidelines for regulating commercial operations of an LNG Receiving Terminal to accommodate Thailand's development to be the Regional LNG Trading Hub, according to the National Energy Reform Plan, by gathering in-depth information about Thailand's LNG Receiving Terminal operations and preparing recommendations on the feasibility for Thailand to become the Regional LNG Trading Hub and the guidelines for regulating commercial operations of an LNG Receiving Terminal. In this connection, a seminar was organized on 18-19 May 2022 to present the study results.

3.3 Issued five secondary laws concerning prevention of monopoly and reduction or restriction of competition in the energy industry, comprising: (1) the Notification on Criteria, Procedures and Conditions for the Transfer of Rights under Energy Industry Licenses; (2) the Regulation on Criteria and Procedures for Merger and Cross-shareholding in the Energy Industry; (3) the Regulation on Market Definitions and Scope of Related Energy Service Markets; (4) the Regulation on Criteria for a Business Operator Having Market Dominance; and (5) the Regulation on Criteria and Procedures for Determining Measures against Practices of Monopoly, Competition Reduction or Limitation in the Energy Industry.

3.4 Provided a platform for testing and development of energy service innovations under the ERC Sandbox Program, Phase 2, to be prepared for mobilizing the policy on restructuring Thailand's energy system to achieve the Carbon Neutrality target and the policy on promotion of competition in the electricity industry, by providing a platform to test the trading of electricity generated from renewable energy/carbon credits/Renewable Energy Certificate (REC) and to test innovations related to Smart Grid system or enhancement of the grid flexibility to accommodate renewable energy generation and to trial the application of new models of corporate power purchase agreements (PPAs), such as Virtual PPA and Sleeved PPA. Emphasis is placed on the study in four aspects, i.e. technology, commerce, regulations and systems involved. A total of 36 projects have been selected to participate in the Program, with the implementation duration of one year.

3.5 Set guidelines for determining electricity tariffs for service provision for consumers wishing to use electricity generated from renewable energy. In response to Thailand's target of greenhouse gas emission reduction in accordance with the energy policy that promotes electricity generation from renewable energy to accommodate increasing demand for electricity generated from renewable energy in the industrial sector, the OERC had developed guidelines for determining the Utility Green Tariff for presentation to the NEPC to prescribe the policy on electricity tariff determination, according to Section 64 of the Act. On 7 November 2022, the NEPC passed a resolution approving the proposed guidelines to provide an alternative for power consumers under both options of the retail electricity tariff structure, i.e. with specified RE sources and without specified RE sources. The OERC will proceed with the development of the framework for determining the Utility Green Tariff.

Launching of the ERC Sandbox, Phase 2

On 16 June 2022, Commissioner Buntoon Srethasirote chaired the launch of ERC Sandbox Program, Phase 2, and a seminar to publicize and exchange opinions about the ERC Sandbox, Phase 2, with a view to providing detailed information how to participate in the project.

ERC joins hands with Trade Competition Commission of Thailand (TCCT) to lay down a framework to promote competition in the energy industry

On 29 April 2022, the ERC together with the TCCT organized a workshop on energy market regulation and promotion of competition in the energy industry, attended by executives and employees of the Office of the TCCT, media and interested persons, to share perspectives and experiences of the ERC and the TCCT and to provide a platform for exchanging opinions so as to jointly set up a regulatory framework to reduce monopoly and to promote competition in the energy industry.

Objective 4

To promote fair and transparent energy network system service provision, without unjust discrimination

Issued the Notification on Framework Guidelines for Developing Third Party Access Code for the Use of an Electricity Network System (Third Party Access Framework Guidelines) and determined the Wheeling Charges for the use of an electricity network system by a third party under the ERC Sandbox Program, Phase 2, by testing the transaction calculation and simulation under different schemes of the wheeling charge rates in the form of desk study. All study results will be taken into account when determining appropriate wheeling charge rates for Thailand to get prepared for transparent and fair regulation of the provision of electricity network system services in support of the government policy to improve the electricity industry structure to allow competition in the future pursuant to the National Energy Reform Plan.

Objective 5

To promote efficient energy industry operation and ensure fairness to both licensees and energy consumers

5.1 Revised regulations to control environmental impacts arising from electricity generation operations. The OERC has revised measures to prevent, remediate and monitor environmental impacts, imposed on electricity generation licensees using municipal solid waste as fuel with an installed capacity from 10 MW up, so that the operational criteria related to environmental quality measurement would be up to standard and in line with the resolution of the National Environment Board of 10 June 2015 and the law on promotion and conservation of national environmental quality. This is aimed to prevent and solve environmental impacts caused by waste-to-energy thermal power plant projects at all stages–from the pre-construction phase to the plant decommissioning. Revisions were also made to the regulations on the preparation of a report on a Code of Practice (CoP) and a report on the CoP monitoring for the electricity generation business to be up to standard, with clear practice guidelines, as well as the revision to measures to prevent, remediate and monitor environmental impacts for each type of fuel used in power generation.

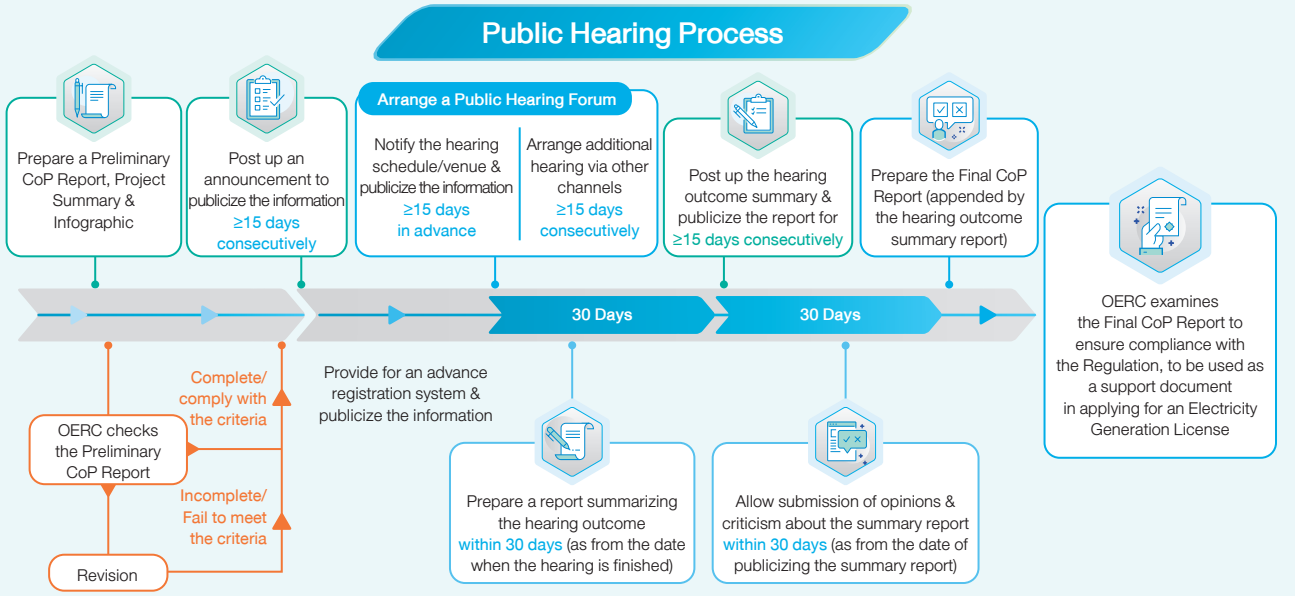
5.2 Developed a system for reporting the performance according to the environmental standards (Self-Declaration Report) so that electricity generation operators can conveniently report their information in this respect and that monitoring of environmental-related aspects of energy industry operation facilities could be rapidly undertaken.

Objective 6

To protect rights and liberty of energy consumers, local communities, the general public and licensees in terms of participation, accessibility, utilization and management of energy under the criteria which are fair to all parties

6.1 Enhanced the process of public participation in energy industry regulation. The ERC revised the Regulation on Public Hearing and Creation of Understanding of the Public and Stakeholders pertaining to Consideration of the Electricity Generation License Issuance, which came into effect on 4 February 2022, so that the public would have a platform to express their opinions on the project development and would be confident that energy industry regulation is transparent and fair.

Process of Public Hearing & Application for an Electricity Generation License



Where the installed capacity is ≥10 MW, the ERC shall appoint a public hearing committee, comprising 9-15 members, to oversee the hearing process and give consent to the arrangement of the hearing.

Are all projects or electricity generation business required to arrange a public hearing according to the ERC Regulation on Public Hearing (2022)?

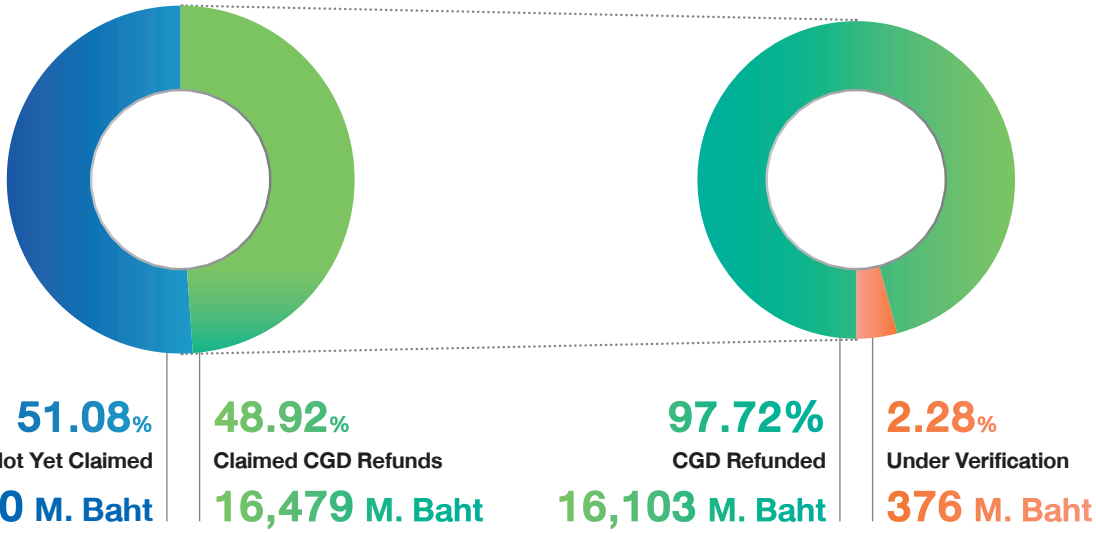
The ERC Regulation on Public Hearing (2022) is not enforceable on projects falling under the category and the size of a project or an undertaking requiring an initial environmental impact assessment (IEE) report, or an environmental impact assessment (EIA) report, or an environmental and health impact assessment (EHIA) report for a project, an undertaking or operation that may seriously impact natural resources, environmental quality, health, sanitation, quality of life of people in the community according to the law on enhancement and conservation of national environmental quality.

6.2 The OERC has taken into account the human rights in various aspects pursuant to Section 61 of Thailand's Constitution of 2017, which stipulates that the State shall provide efficient measures or mechanisms to protect and safeguard the rights of consumers in various aspects. On 29 March 2022, the ERC issued a Notification on the Declaration of Rights of Electricity Service Users B.E. 2565 (2022) so that electricity service users and the general public would obtain optimal benefits from electricity service provision and have the right to be assured of safety of electricity service provision and would be aware of their rights to be protected and guaranteed of their rights as energy consumers in accordance with the intent of the Act.

6.3 Regulated the implementation of the measure on customer guarantee deposit (CGD) refunds, on a continuous basis, so as to protect energy consumers. In pursuance of the criteria specified in the ERC Notification on Refunds of Customer Guarantee Deposit to Power Consumers under Schedule 1: Residential Customers and Schedule 2: Small General Service, B.E. 2563 (2020), the Metropolitan Electricity Authority (MEA), the Provincial Electricity Authority (PEA) and the Sattahip Electricity Authority–the Royal Thai Navy Welfare Concession–(SEA) have been regulated to pay the CGD back to power consumers under the Residential and Small General Service categories, involving a total of 23.99 million cases nationwide that are eligible to claim for the CGD refunds, with a total budget of over 33,689 million Baht. To date (as at December 2022), 8.57 million cases have registered for CGD refunds, accounting for a budget of 16,479 million Baht and CGD refunds have already been made to 8.34 million cases, accounting for a budget of 16,103 million Baht.

Status of Customer Guarantee Deposit (CGD) Refunds

Eligible Consumers for CGD Refunds: 23.99 million cases; Total Budget: 33,689 million Baht



Data as at 27 December 2022

6.4 Recruited the RECCs, a key mechanism in driving the process of public participation in energy consumer protection.

The OERC has recruited the 4th set of Regional Energy Consumer Committees (RECCs), totaling 143 persons nationwide. The components of each RECC comprise one Chairperson and other members of no more than 10 persons–nine shall be energy consumer representatives in proportion of each province in a given region and two energy consumers nominated by private organizations in each region. The RECCs are tasked with the following duties: to consider complaints of power consumers who have suffered damage or injustice caused by the service provision of Power Utilities, such as a power dip or outage causing damage to electrical appliances and the collection of incorrect or unfair tariffs and also to reflect opinions or propose measures to improve energy service provision to the ERC in order to issue policy guidelines on energy consumer protection. The name list of new RECCs was promulgated by the ERC on 12 October 2022.

Lot drawing by the OERC to recruit the 4th set of RECCs to represent consumers in solving problems related to electricity services and protecting energy consumers' benefits

On 26 September 2022, the OERC organized a lot drawing to recruit the 4th set of RECCs, which was broadcast live via the OERC website: www.erc.or.th/Facebook Fanpage: OERC and via Zoom witnessed by the attendance of representatives from government agencies, the private sector and the media at the OERC Office, Chamchuri Square Building, 19th floor, Bangkok.

6.5 Addressed complaints within the specified timeframe. The ERC had received 122 complaints altogether. Of these, complaint consideration was finalized for a total of 107 cases and 15 cases are still under consideration within the specified timeframe.

Summary of the Performance on Complaint Consideration

Type of Complaints	Total No. of Complaints	Status of Complaint Consideration	
		Finalized	Under Process
1. Complaints under Sections 100 and 103–where energy consumers have difficulties as a result of service provision of the licensees and unfair collection of service charge	76	75	1
2. Complaints under Section 90–where electrification expansion is requested or where the service exists but is inadequate to meet energy consumers' demand	18	7	11
3. Complaints opposing power plant construction	15	15	0
4. Complaints against operators regarding wastewater disposal and soot emission	6	6	0
5. Other complaints	7	4	3
Total	122	107	15

Remark: Data as at 30 September 2022

6.6 Considered appeals about utilization of immovable property for installation of energy network systems within the specified timeframe. The ERC had received a total of 719 appeals. Consideration of appeals against the demarcation of areas to be surveyed, notifications on demarcation of energy network systems, determination of compensation prices for land and assets, objections to energy network system construction and appeals on compensation for property covered by energy network system boundaries was finalized for a total of 537 cases and 182 cases are still under process.

Summary of the Performance on the Regulation of Immovable Property Utilization

Issue	Total No. of Appeals	Status of Appeal Consideration	
		Finalized	Under Process
1. Notification on demarcation of areas to be surveyed for energy network systems, pursuant to Section 105	1	1	-
2. Notifications on demarcation of energy network system areas, pursuant to Section 106	33	28	5
3. Determination of compensation prices for land and assets	15	13	2
4. Appeals against notifications on demarcation of energy network system areas and objections to energy network system construction, pursuant to Section 106 and Section 108(1)	366	253	113
5. Appeals on compensation for property covered by energy network system boundaries, pursuant to Section 108(4)	304	242	62
Total	719	537	182

Remark: Data as at 30 September 2022

Objective 7

To promote economical and efficient use of energy and resources in the energy industry operation and to raise public awareness of energy saving as well as alternative energy utilization, with due consideration of environmental impacts and the balance of natural resources

7.1 Conducted a program on the study, research and demonstration of improvement in technologies for electricity industry operation to enhance efficiency and create a minimal impact on the environment as well as promoted economical use of resources in energy industry operation and the use of renewable energy in the electricity industry via the allocation of money from the Power Development Fund under Section 97(4) and dissemination of the study results on the OERC website: www.erc.or.th. Additionally, in order to promote energy industry regulatory research during the energy transition with a view to reduce the amount of greenhouse gas emissions and achieving the Carbon Neutrality target, the OERC and Thailand Science Research and Innovation (TSRI) have signed a Memorandum of Understanding on cooperation in energy innovation research and development so as to allocate the Fund money under Section 97(4) to create quality research and innovation on energy and to apply research results for the benefit of economic and social development to accommodate the energy transition.

7.2 Provided a budget for the implementation of the Project on "Young Architect ECO Home Contest" via the Power Development Fund, under Section 97(5). The OERC organized an award ceremony for energy-saving and efficient home designs under the "Young Architect ECO Home Contest" on 4 November 2021, conferring three prizes for ECO home designs with a maximum usable area of 150 square meters and another three prizes for ECO home designs with a maximum usable area of 300 square meters and also exhibited the contest results at the Home Mega Show 2022 during 8-16 January 2022, at the Future Park Fair during 25-29 May 2022 and at the Home Lovers–One Stop Home Expo, at Boonthavorn Kaset-Nawamin during 9-30 June 2022.

Objective 8

To promote the use of alternative energy for electricity industry operation that renders minimal impact on the environment

To promote electricity generation from solar energy, the OERC has implemented the Project on Promotion of Electricity Generation from Renewable Energy–Strategic Grant, via the Power Development Fund under Section 97(4), by issuing a notification to provide financial support for two groups of public agencies, namely: 1) educational agencies–to install solar PV systems for 166 educational agencies under the Ministry of Education in remote areas with no grid access (Off-grid), with a total budget framework of 95.048 million Baht; and 2) public health agencies–to install solar PV systems that are connected to an electricity network system (On-grid) for 70 hospitals, with an installed capacity of not more than 100 kilowatts/hospital and a budget of not more than 3 million Baht/hospital, with a total budget framework of 210 million Baht.

In Fiscal Year 2022, the OERC allocated money from the Power Development Fund under Section 97(4) to support the installation of solar PV systems that are connected to an electricity network system (On-grid) for hospitals under various agencies under the Project on Promotion of Electricity Generation from Renewable Energy–Strategic Grant, with a total budget of 427.23 million Baht, consisting of 68 hospitals under the Ministry of Public Health, with a total budget of 204 million Baht; 12 hospitals under 9 projects of the Faculties of Medicine under the Ministry of Higher Education, Science, Research and Innovation, and the Bangkok Metropolitan Administration (BMA), with a total budget of 223.23 million Baht. All of these can reduce greenhouse gas emissions by 10,623 kgCO_2e/year. The objectives are to enable electricity generation for own use, reduce expense burden, reduce greenhouse gas emissions and respond to the national policy to achieve the target of Carbon Neutrality in 2050.

Objective 9

To administer a modern and efficient organization and build up human resource capacity to be professional in energy industry regulation

9.1 Upgraded the corporate operations management system towards transparency, good governance and efficient operations on a par with international standards. The OERC had undergone the Integrity & Transparency Assessment (ITA) of government agency performance, according to the criteria of the Office of the National Anti-Corruption Commission and obtained a score of 96.32. In addition, the OERC has been ISO 9001:2015 certified by the Management System Certification Institute (Thailand) since 24 December 2021. The OERC was also ISO 9001:2015 certified in Fiscal Year 2022.

Outcome of the Integrity & Transparency Assessment of government agency performance **in Fiscal Year 2022** by the Office of the National Anti-Corruption Commission

ITA

OERC obtained a score of **96.32** & ranked **AA** level

9.2 Developed the corporate operations management system and service provision with the application of digital technology, i.e. the provision of e-Licensing service for energy industry operation and the Power Development Fund management; the development of a digital platform, "Smart EIA Management System," for administration and assessment of environmental impacts; the e-Petition System improvement to address complaints; and the development of the ERC Thailand Application to provide knowledge about clean energy and to be a channel for searching information about power plants, expressing opinions and providing suggestions related to electricity, notifying the OERC of energy industry operation that is exempt from license requirement and receiving complaints; including the improvement of the information system, "ERC Data Sharing Platform," on a continuous basis.

On 29 September 2022, Mr. Samerjai Suksumek, Chairman of the Energy Regulatory Commission, presided over the opening ceremony of a seminar on "Energy Situation Reporting System" held at the OERC office and via the online channel, attended by 90 participants, comprising executives, staff members and employees of the OERC. The objective was to create knowledge and understanding about the OERC digital development plan, information system and application of the information to enhance and develop the personnel potential in regulating the energy industry to be more efficient.

Power Development Fund Management

in Fiscal Year 2022

Power Development Fund Management in Fiscal Year 2022

Power Development Fund for sustainable community development

Energy Regulatory Commission
Office of the Energy Regulatory Commission

Under Section 97(3) for development or rehabilitation of localities affected by power plant operation.

Overview in 2022

Power plants		**Budget Framework**	
Total	256 Plants	Total	4,527.40 M. Baht
Power Development Funds		**Approved Budget**	
Total	56 PDFs	Total	2,352.53 M. Baht

Northern Region

No. of Power Plants:	2
No. of PDFs:	2
Budget Framework:	935.67 M. Baht
Approved Budget:	746.61 M. Baht

Central Region

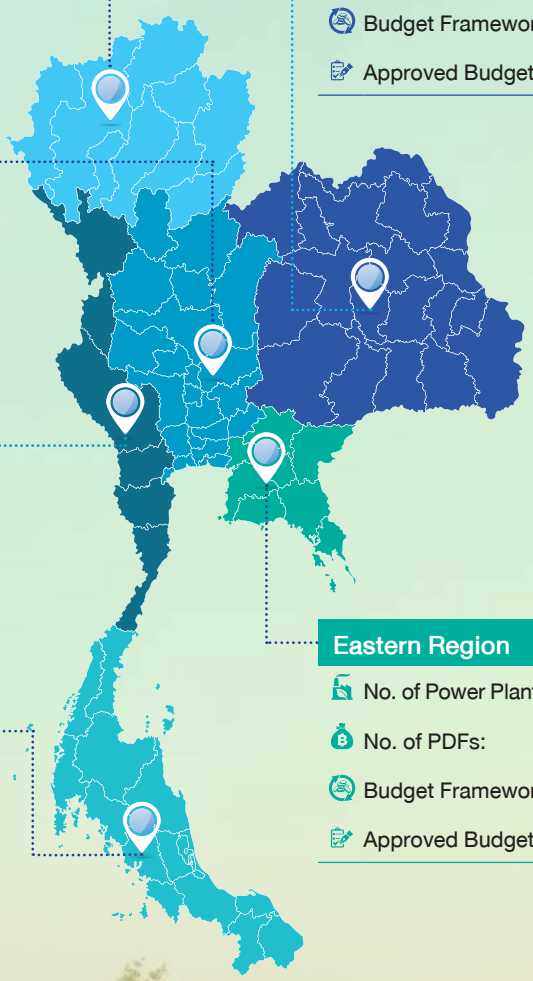
No. of Power Plants:	94
No. of PDFs:	21
Budget Framework:	1,197.87 M. Baht
Approved Budget:	479.56 M. Baht

Western Region

No. of Power Plants:	31
No. of PDFs:	9
Budget Framework:	562.95 M. Baht
Approved Budget:	351.91 M. Baht

Southern Region

No. of Power Plants:	9
No. of PDFs:	4
Budget Framework:	209.76 M. Baht
Approved Budget:	176.31 M. Baht



Northeastern Region

No. of Power Plants:	17
No. of PDFs:	6
Budget Framework:	77.27 M. Baht
Approved Budget:	51.80 M. Baht

Eastern Region

No. of Power Plants:	103
No. of PDFs:	14
Budget Framework:	1,543.88 M. Baht
Approved Budget:	546.35 M. Baht

Remark: Approved Budget for community projects, exclusive of the administrative budget.

Large-Scale Funds

Name of Local Power Development Fund (PDF)	Province	No. of Power Plants	Fiscal Year 2022 Budget Framework (M. Baht)	Approved Budget in Fiscal Year 2022 (M. Baht)
PDF: Mae Moh, Lampang Province	Lampang	1	923.500	736.027
PDF: Wang Noi Power Plant, Phra Nakhon Si Ayutthaya Province	Phra Nakhon Si Ayutthaya, Pathum Thani, Saraburi	2	140.660	84.056
PDF: Gulf JP UT Co., Ltd.	Phra Nakhon Si Ayutthaya	1	70.430	23.023
PDF: Saraburi Province 1	Saraburi	12	91.230	35.020
PDF: Gulf JP NS Co., Ltd.	Phra Nakhon Si Ayutthaya, Saraburi	1	83.490	60.311
PDF: Chonburi Province 1	Chonburi	10	72.170	23.937
PDF: Map Ta Phut Industrial Estate, Rayong Province	Rayong	25	826.120	192.322
PDF: Rayong Province 1	Rayong, Chonburi	13	159.530	35.758
PDF: Bang Pakong	Chachoengsao, Chonburi	2	196.490	178.626
PDF: Ratchaburi Province 1	Ratchaburi	3	391.280	229.768
PDF: Khanom	Nakhon Si Thammarat	2	81.850	69.425
PDF: Chana Power Plant, Songkhla Province	Songkhla	4	111.870	95.678
PDF: Samut Prakan Province 3	Samut Prakan, Bangkok	3	131.450	81.403
PDF: North Bangkok Combined Cycle Power Plant	Nonthaburi, Bangkok	2	206.810	25.665
Total: 14 PDFs		81	3,486.880	1,871.019

Medium-Scale Funds

Name of Local Power Development Fund (PDF)	Province	No. of Power Plants	Fiscal Year 2022 Budget Framework (M. Baht)	Approved Budget in Fiscal Year 2022 (M. Baht)
PDF: Sirikit Dam Power Plant, Uttaradit Province	Uttaradit	1	12.170	10.580
PDF: Bhumibol Dam Power Plant, Tak Province	Tak, Chiang Mai, Lamphun	3	16.550	14.130
PDF: Phitsanulok Province 3	Phitsanulok	2	14.060	12.238
PDF: Nakhon Sawan Province 1	Nakhon Sawan, Chai Nat	5	8.120	5.722
PDF: Phetchabun Province 3	Phetchabun	4	2.680	2.090
PDF: Nam Phong District, Khon Kaen Province	Khon Kaen	4	46.970	36.109
PDF: Loei Province 1	Loei	4	6.550	5.870
PDF: Kalasin Province 1	Kalasin, Roi Et	3	4.160	3.455
PDF: Lamtakong Jolabha Vadhana Power Plant, Nakhon Ratchasima Province	Nakhon Ratchasima	1	9.820	2.190
PDF: Nakhon Ratchasima Province 4	Nakhon Ratchasima	4	5.590	4.176
PDF: Mitr Phol Bio-Power Co., Ltd.	Chaiyaphum, Khon Kaen	1	4.180	
PDF: Pathum Thani Province 1	Pathum Thani, Phra Nakhon Si Ayutthaya	8	102.710	4.678
PDF: Pathum Thani Province 2	Pathum Thani, Bangkok, Nonthaburi	3	38.310	15.512
PDF: Phra Nakhon Si Ayutthaya Province 2	Phra Nakhon Si Ayutthaya	7	48.380	15.222
PDF: Phra Nakhon Si Ayutthaya Province 4	Phra Nakhon Si Ayutthaya	4	35.150	13.083
PDF: Phra Nakhon Si Ayutthaya Province 12	Phra Nakhon Si Ayutthaya	3	23.120	10.663
PDF: Ang Thong Province 5	Ang Thong, Lop Buri, Sing Buri	1	22.140	10.428
PDF: Saraburi Province 2	Saraburi, Phra Nakhon Si Ayutthaya	10	54.720	43.272

Medium-Scale Funds (Cont.)				
Name of Local Power Development Fund (PDF)	Province	No. of Power Plants	Fiscal Year 2022 Budget Framework (M. Baht)	Approved Budget in Fiscal Year 2022 (M. Baht)
PDF: Saraburi Province 3	Saraburi	8	21.640	17.098
PDF: Prachin Buri Province 2	Prachin Buri	8	58.070	47.422
PDF: Prachin Buri Province 3	Prachin Buri	3	29.090	
PDF: Sa Kaeo Province 1	Sa Kaeo, Prachin Buri	15	3.760	2.526
PDF: Sa Kaeo Province 2	Sa Kaeo	3	6.460	4.146
PDF: Chonburi Province 2	Chonburi, Rayong	3	11.610	2.334
PDF: Chonburi Province 3	Chonburi, Chachoengsao	5	62.780	5.402
PDF: Rayong Province 2	Rayong	5	51.800	22.931
PDF: Rayong Province 3	Rayong	4	45.970	15.010
PDF: Chachoengsao Province 1	Chachoengsao	6	10.990	8.090
PDF: Gulf JP NNK Co., Ltd.	Chachoengsao	1	9.040	7.848
PDF: Kanchanaburi Province 5	Kanchanaburi	3	35.720	26.967
PDF: Kanchanaburi Province 8	Kanchanaburi	2	19.190	16.516
PDF: Kanchanaburi Province 2	Kanchanaburi	3	3.940	1.030
PDF: Kanchanaburi Province 9	Kanchanaburi	5	17.330	12.672
PDF: Suphan Buri Province 3	Suphan Buri	8	6.970	5.780
PDF: Ratchaburi Province 3	Ratchaburi	1	5.840	5.122
PDF: Ratchaburi Province 2	Ratchaburi, Kanchanaburi	8	42.690	27.918
PDF: Ratchaburi Province 6	Ratchaburi	3	30.140	17.792
PDF: Rajjaprabha Dam Power Plant, Surat Thani Province	Surat Thani	1	10.660	7.288
PDF: Bang Lang Dam & Ban Santi Dam Power Plants, Yala Province	Yala	2	5.380	3.915
PDF: Samut Prakan Province 2	Samut Prakan, Bangkok	4	27.150	3.267
PDF: Samut Prakan Province 1	Samut Prakan	5	54.960	8.750
PDF: Eastern Power and Electric Co., Ltd.	Samut Prakan, Chachoengsao	1	13.690	2.276
Total: 42 PDFs		175	1,040.520	481.516

Year	Budget Framework (M. Baht)	Approved (M. Baht)
2015	3,246.05	2,319.65
2016	3,670.31	2,988.20
2017	2,689.70	2,280.39
2018	3,088.50	2,646.43
2019	3,687.16	2,877.30
2020	3,297.13	2,521.18
2020 (addition)[1/]	1,546.23	701.39
2021[2/]	2,919.24	1,950.70
2022[2/]	4,527.40	2,643.23

Remarks: [1/]Budget framework (addition) in 2020 for boosting the economy according to the government policy and to solve problems related to COVID-19.
[2/]No budget framework for Small-Scale Funds in the 2021 & 2022 budget frameworks.

Power Development Fund Performances in Fiscal Year 2022

The "Power Development Fund (the Fund)" is legal working capital with no juristic person status and is set up under the Office of the Energy Regulatory Commission (OERC), which is a state agency, pursuant to the Energy Industry Act of 2007 (the Act) with the objectives to be used as the capital to support an extensive extension of electricity service provision to various localities so as to decentralize prosperity to provincial areas; to develop the local communities affected by power plant operation; to promote the use of renewable energy and technologies in the electricity industry operation that have minimal impact on the environment, with due consideration of the balance of natural resources and creation of fairness for power consumers. The Fund shall be used for activities under Section 97 of the Act, as follows:

(1) to compensate and subsidize electricity industry licensees who have provided services for underprivileged power consumers or to enhance extensive electrification or to support the policy on development decentralization to provincial areas;

(2) to compensate power consumers who have to pay more expensive electricity rate as the licensee who has an electricity system operator breaches Section 87, clause two;

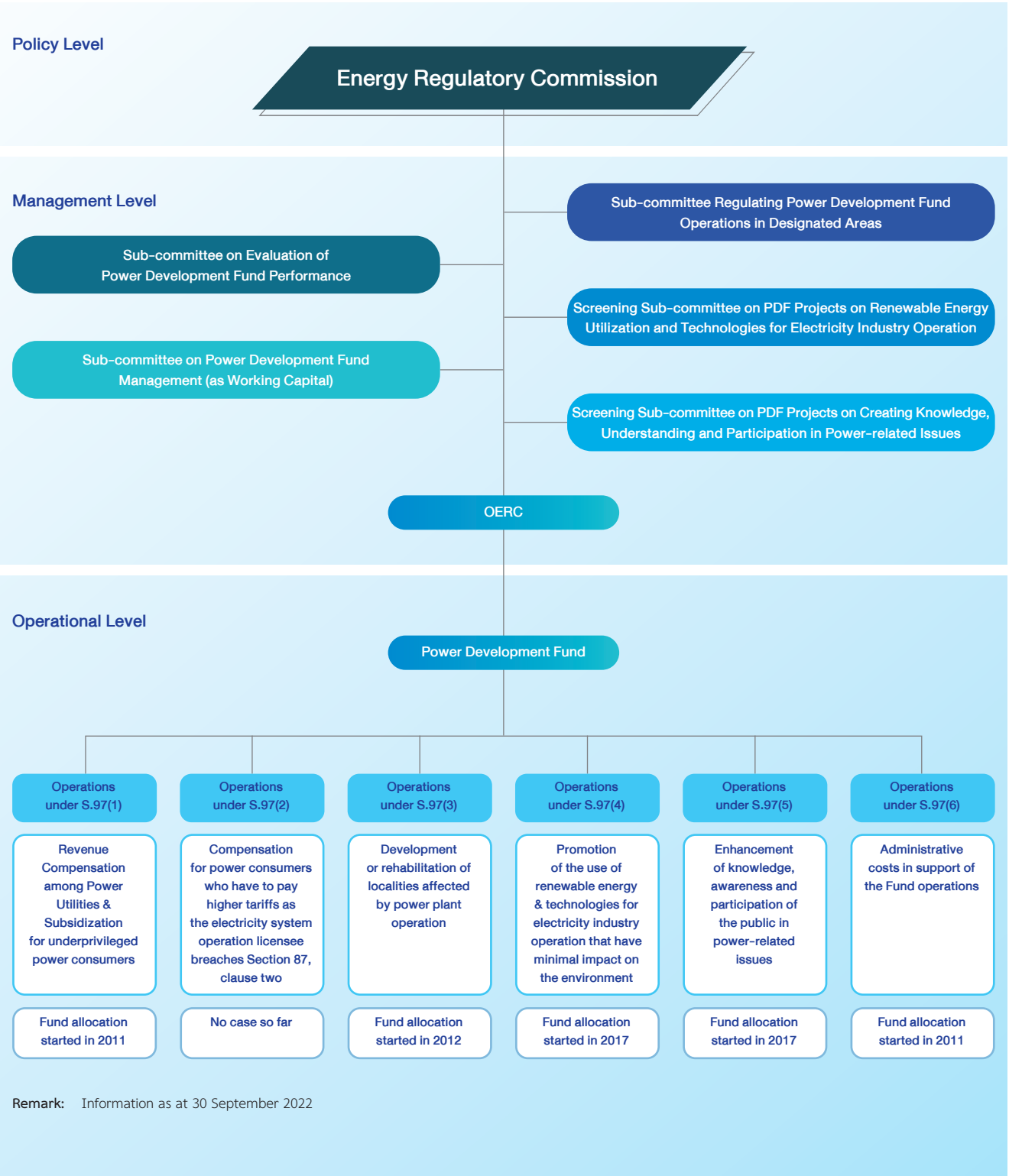
(3) to develop or rehabilitate localities affected by power plant operation;

(4) to promote the use of renewable energy and technologies for electricity industry operation that have minimal impact on the environment;

(5) to increase knowledge, awareness and participation of the public in power-related issues; and

(6) to pay for administrative costs of the Fund.

Internal Management Structure of the Power Development Fund



Remark: Information as at 30 September 2022

The Fund operations will be under the ERC regulation in accordance with the policy framework of the NEPC. The Fund money and assets are not subject to remittance to the Ministry of Finance as state revenue under the law on treasury balance and the law on budgetary procedure. The OERC is tasked with the receipt, disbursement, keeping and management of the Fund money in conformity to the regulations prescribed by the ERC, by separating the Fund money from the OERC budget. The Fund operations will be subject to an audit by the State Audit Office of the Kingdom of Thailand.

Fund Performance under Section 97(1)

To compensate and subsidize electricity industry licensees who have provided services for underprivileged power consumers or to enhance extensive electrification or to support the policy on development decentralization to provincial areas. In Fiscal Year 2022, the compensation and subsidies totaled 13,765 million Baht.

Revenue compensation among the Power Utilities: to compensate electricity industry licensees who have provided extensive electricity services. In this connection, the ERC has issued an order regarding sending contributions to and disbursement of money from the Fund under Section 97(1) for revenue compensation among the Power Utilities to enhance extensive electrification. During Fiscal Years 2011-2015, the OERC collected contributions from the Electricity Generating Authority of Thailand (EGAT) and the Metropolitan Electricity Authority (MEA) for use as revenue compensation to the Provincial Electricity Authority (PEA). As from 2016 onwards, contributions have been collected from the MEA to compensate the PEA. Up to the present, the revenue compensation among the Power Utilities has totaled around 173,949 million Baht. In Fiscal Year 2022 alone, the revenue compensation among the Power Utilities was 12,000 million Baht.

Subsidization for underprivileged power consumers: to subsidize electricity industry licensees who have provided services for underprivileged power consumers. In this regard, the ERC has issued an order regarding electricity retail licensees' sending of contributions to and disbursement of money from the Fund under Section 97(1) for subsidizing underprivileged power consumers. Since November 2018, the OERC has collected contributions at a rate of zero Baht/net retail unit (excluding VAT) and subsidized for underprivileged power consumers according to the government policy, by paying subsidies via electricity retail operators who are state-owned enterprises, i.e. EGAT, MEA, PEA and Sattahip Electricity Authority–the Royal Thai Navy Welfare Concession–(SEA), and about 315 private-sector electricity retail licensees at the present, from July 2011 - May 2012 under the 90-unit free-of-charge electricity consumption measure and since June 2012 up to the present under the 50-unit free-of-charge electricity consumption measure. To date, the accumulated subsidization for free-of-charge electricity consumption for underprivileged power consumers is around 36,613 million Baht. In Fiscal Year 2022, the collection and subsidization for free-of-charge electricity consumption for residential power consumers, with the installation of a 5-ampere meter and consumption not over 50 units per month for at least three consecutive months, accounted for a total sum of 1,765 million Baht.

Compensation and Subsidization for Electricity Industry Licensees Having Provided Services for Underprivileged Power Consumers or to Enhance Extensive Electrification during Fiscal Years 2011-2022

Unit: Million Baht

Category	Fiscal Year												
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Revenue compensation among the PUs	9,707	13,291	14,192	14,404	12,456	21,028	19,153	15,679	14,874	14,838	12,327	12,000	**173,949**
Subsidization for underprivileged power consumers	2,810	8,631	3,212	3,631	3,578	2,428	2,109	2,225	2,113	2,079	2,032	1,765	**36,613**
Total	12,517	21,922	17,404	18,035	16,034	23,456	21,262	17,904	16,987	16,917	14,359	13,765	210,562

Remark: Data as at December 2022

Fund Performance under Section 97(2)

As for the Fund operation under Section 97(2), there has been no case reported so far regarding an unfair power dispatch order by the electricity system operation licensee. However, the OERC will get prepared to properly handle such a situation should any case arise.

Fund Performance under Section 97(3)

To develop and rehabilitate localities affected by power plant operation. Since 2012, the OERC has collected contributions from electricity generation licensees to the Fund, with a contribution rate based on the fuel type used for electricity generation, and allocated the Fund money in accordance with the objectives of the Fund spending under Section 97(3) of the Act, by allocating 95% of the Fund money for operations under Section 97(3) to develop communities surrounding power plants and the remaining 5% as the administrative cost of the Fund for operations under Section 97(6).

Power Development Fund Operations
To develop or rehabilitate localities affected by power plant operation

Remittance to the Fund

Electricity Generation Licensees

1. **During construction 50,000 Baht/MW/year**
   or no less than **50,000 Baht/year**
   (only those obtaining licenses as from 21 December 2010 when the Regulation came into force)

2. **During operation 1-2 Satangs/unit,**
   based on the (monthly) amount of energy generated and fuel types used

Fuel Type	Satang/unit
Natural gas	1.0
Fuel oil, Diesel	1.5
Coal, Lignite	2.0
Waste heat	1.0
Renewable Energy	
• Wind & Solar	1.0
• Hydro	2.0
• Biogas, Biomass, Residues & Wastes, MSW, Industrial waste, etc.	1.0

Spending of the Fund

95% for operations under Section 97(3)

Determine designated areas/ Recruit local Committees

Allocate the Fund money to local Committees for development of communities surrounding power plants

5% for operations under Section 97(6)

1. a reserve in the case of emergency to remediate or mitigate damage caused by power plant operation
2. subsidies for localities for which the allocated money from the Fund is insufficient for development or rehabilitation
3. the Fund administrative cost

The Performance in Fiscal Year 2022

1. Issued notifications on the determination of designated areas which are eligible to be beneficiaries of financial support from the Fund, according to the implications of Section 97(3) of the Act and in compliance with the Regulation of the ERC on the Power Development Fund for Development or Rehabilitation of Localities Affected by Power Plant Operation B.E. 2563 (2020). Currently, the determination of designated areas is divided into two levels, namely: (1) the areas encompassing Tambons (sub-districts) surrounding a power plant (for local PDFs established before 1 October 2020) and (2) the areas encompassing villages surrounding a power plant (for local PDFs established as from 1 October 2020). For both levels of the designated areas, the area measurement will be within a radial distance of 1 or 3 or 5 kilometers from the center of a power plant, based on the amount of annual electricity generation of the plant. Accordingly, the OERC, by and with ERC approval, has issued notifications on the determination of designated areas and on the establishment of large-, medium- and small-scale local PDFs; as at 30 September 2022, a total of 730 local PDFs have been established, covering 77 provinces nationwide (inclusive of Bangkok).

2. Continued increasing efficiency and upgrading standards of the Fund administration under Section 97(3), by reviewing and making revisions to relevant notifications, criteria and manuals to be in line with legal provisions, current contexts and situations, as well as enhancing comprehensive knowledge of the Community Development Committees for Areas Surrounding Power Plants (CDCs) to be prepared to manage the local PDFs with optimal efficiency and effectiveness so as to achieve the objectives of the Fund money spending under Section 97(3). In Fiscal Year 2022, the OERC organized eight training workshops to provide knowledge for CDCs, officials and persons concerned with local PDF operations, covering targeted groups of over 800 persons, and also acted as an advisor and set a system for audits and evaluation of the performance of the projects in designated areas so as to bring about maximum efficiency.

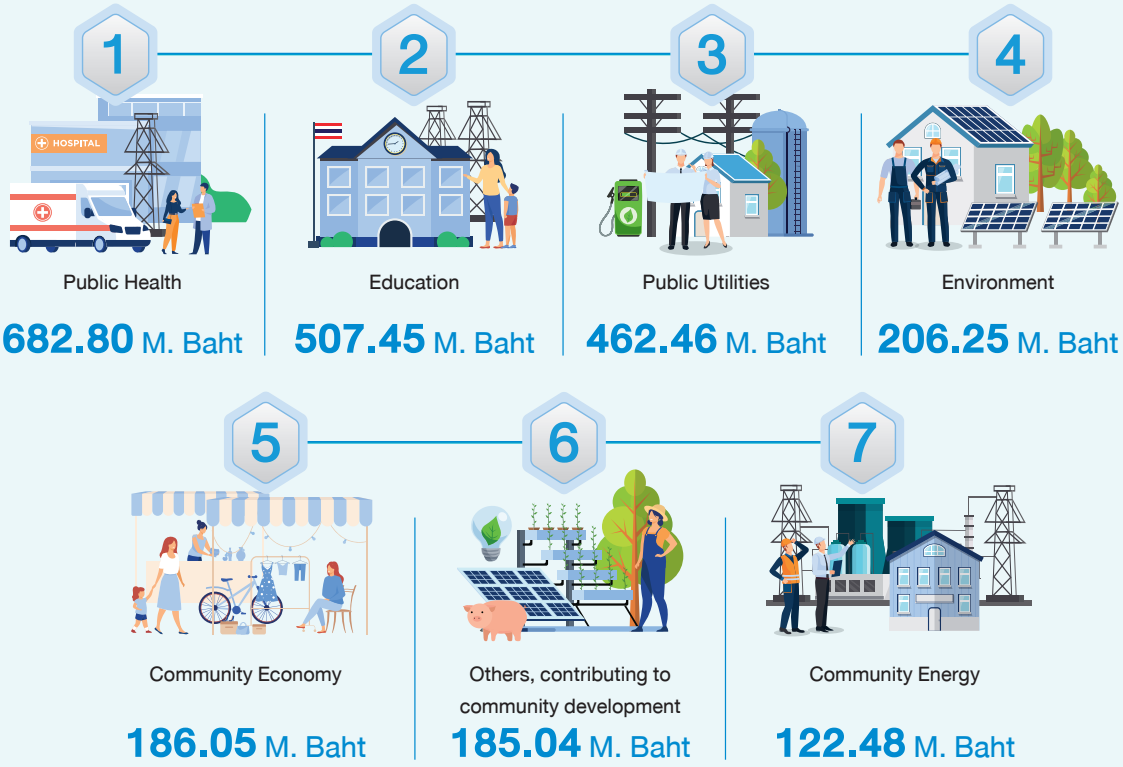
Training workshops organized by the OERC to educate CDCs and local PDF officials

The OERC organized a workshop for the Community Development Committees for Areas Surrounding Power Plants (CDCs) to build up knowledge and understanding of the role of CDCs in their capacity as officials under the Criminal Code and to equip them with ethics, necessary skills and understanding of the operational guidelines for managing the Power Development Fund so that they could carry out their duties correctly and completely according to the principles of good governance, with transparency and accountability. Training workshops were also organized for officials of local Power Development Funds in designated areas to create knowledge and understanding about the ERC, the Power Development Fund, good governance practice, accountability and being state officials under the code of law, including enhancing knowledge about the creation of communication power and public engagement.

3. The OERC organized a contest, "Power Development Fund Awards 2022," to select large- and medium-scale local Funds that have outstanding management, outstanding community projects in each aspect of the work programs as well as role-model villages of local development that have received budgets from the Fund to showcase and expand the implementation to upgrade the quality of life of people in areas around power plants across the country.

4. The ERC approved the Fiscal Year 2022 budget framework for large- and medium-scale local PDFs, with a combined budget of 4,527.40 million Baht, to be used for the development of communities around power plants, according to the prescribed objectives. In addition, the criteria of the Fund operation under Section 97(3) in this Fiscal Year were relaxed to enable the Fund money utilization for necessary activities, without delay, to address the situation of Coronavirus Disease (COVID-19) outbreaks as well as to remediate the localities and to boost the economy in areas surrounding power plants; emphasis was still placed on community participation and enhancement of sustainable development in all dimensions. In this regard, the ERC acknowledged the results of the CDCs' approval of the Fund budget under Section 97(3) for community project implementation, totaling 2,352.53 million Baht, for community development in the following seven aspects pursuant to the work programs identified by the ERC: (1) Public Health, to reduce or prevent health problems in the communities around power plants; (2) Education, to increase the educational quality of students and teachers in government schools in community areas surrounding power plants; (3) Community Economy, to increase income of the communities in the vicinity of power plants; (4) Environment, to enhance or conserve the environment in areas surrounding power plants for good quality of life; (5) Public Utilities, to increase access to and extensive provision of public utility services; (6) Community Energy, to promote coexistence between power plants and communities; and (7) Other aspects contributing to community development. The approved budget for community development can be classified by work program category as illustrated in the following figure.

Power Development Fund Budget Allocation under Section 97(3), Fiscal Year 2022



Summary of the Power Development Fund Budget Approval under Section 97(3)

Fiscal Year	Budget Framework (M. Baht)	Approved Budget							
		Large- and Medium-Scale PDFs				Small-Scale PDFs[1/]			Total Approved Budget (M. Baht)
		No. of PDFs	Administration (M. Baht)	Community Projects		Community Projects			
				No. of Projects	Budget (M. Baht)	No. of PDFs	No. of Projects	Budget (M. Baht)	
2017	2,686.70	67	236.29	5,560	1,989.99	145	393	54.11	**2,280.39**
2018	3,088.50	74	264.07	6,392	2,320.01	164	419	62.36	**2,646.44**
2019	3,687.16	75	273.98	7,184	2,517.57	169	498	85.75	**2,877.30**
2020	3,297.13	75	204.01	5,872	2,126.27	244	808	190.90	**2,521.18**
2020 (Addition)[2/]	1,546.23	72	-	1,434	673.83	67	145	27.56	**701.39**
2021[3/]	2,919.24	55	283.68	4,640	1,667.02	-	-	-	**1,950.70**
2022	4,527.40	55	290.70	4,641	2,352.53	-	-	-	**2,643.23**

Remarks: Data as at 1 October 2022

[1/] Budget allocation for small-scale PDFs commenced in Fiscal Year 2015.

[2/] In Fiscal Year 2020 (Addition), the ERC approved an additional budget to support the government policy to help mitigate drought problems, to create local employment in order to boost the economy and to solve public health problems due to COVID-19.

[3/] In Fiscal Years 2021-2022, the administration of small-scale PDFs was under review, so budget allocation was still pending.

5. The OERC and the Office of Public Sector Anti-Corruption Commission (PACC) have signed a memorandum of agreement on academic cooperation and enhancement of prevention and suppression of corruption in the public sector to upgrade the operational efficiency of local PDFs to be transparent and to reduce the risk of corruption in the Fund management.

Fund Performance under Section 97(4)

In order to promote the use of renewable energy and technologies for electricity industry operations that render minimal impact on the environment, the ERC has stipulated that electricity retail licensees send contributions to the Fund for spending on the Fund operations under Section 97(4), pursuant to the NEPC policy framework, at a rate of 0.005 Baht per retail unit in a monthly billing round, effective since 31 December 2014. Electricity retail licensees have been obliged to send contributions to the Fund as from March 2015 onwards.

Later, in 2022 the ERC reviewed the contribution rate to the Fund under Section 97(4) imposed on electricity retail licensees to be at a rate of zero Baht/net retail unit to reduce electricity bill burden on the general public due to the current crisis of spiraling energy prices, which can help decrease the electricity bill burden by about one billion Baht/year; this will be put into force as from the electricity billing round of January 2023 onwards until a notification is issued to revise, amend or terminate this rate. Notwithstanding, the implementation according to the objective of the Fund money allocation under Section 97(4) can still proceed, with no disruption, by using the accumulated balance from the Fund implementation during Fiscal Years 2017-2022.

Sending of Contributions to the Power Development Fund

Electricity Industry Licensees

การไฟฟ้านครหลวง Metropolitan Electricity Authority

การไฟฟ้าส่วนภูมิภาค PROVINCIAL ELECTRICITY AUTHORITY

การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย

Power Development Fund for sustainable community development

กกพ. ERC Energy Regulatory Commission Office of the Energy Regulatory Commission

1,000 M. Baht/Year

Contribution rate to the fund:

0.5 Satang/retail unit

as from the billing month of January 2015

The sending must be made within **45 days**

as from the end of a given month.

Spending of the Fund Money

OERC issued Request for Proposals for Fund allocation according to ERC Regulations

1. Program on **promotion & demonstration** of renewable energy utilization in the electricity industry operation
2. Program on **development & improvement** of technologies for electricity industry operation that are efficient and create minimal impact on the environment
3. Program on **study & research** on renewable energy and technologies for electricity industry operation that are efficient and create minimal impact on the environment
4. Program on **administration** – expenses in support of the operation
5. **Other programs** relevant to the Fund objectives under Section 93 or Section 97(4) as stipulated by the ERC

The Regulation of the ERC on Criteria and Procedures for Allocating Power Development Fund Money to Promote the Use of Renewable Energy and Technologies for Electricity Industry Operation that Have Minimal Impact on the Environment B.E. 2559 (2016) was issued by the ERC and hence, since Fiscal Year 2017, Requests for Proposals have been issued to invite submission of local PDF projects on activities under Section 97(4) to promote the use of renewable energy and technologies for electricity industry operation that render minimal impact on the environment. The status of the Fund money allocation can be summarized as follows:

Summary of the Power Development Fund Budget Approval under Section 97(4)

Fiscal Year	Budget Framework (M. Baht)	Proposed Projects		Approved Projects	
		No. of Projects	Budget (M. Baht)	No. of Projects	Budget (M. Baht)
2017	650.00	725	2,942.56	4	18.08
2018	1,050.00	73	1,578.02	4	11.72
2019	1,880.00	54	2,149.24	9	625.56
2020	1,800.00	59	3,242.66	13	137.67
2021	1,920.00	262	1,276.41	72	323.51
2022	1,930.00	45	1,477.53	12	344.47
Total	9,130.00	1,218	12,666.43	114	1,451.01

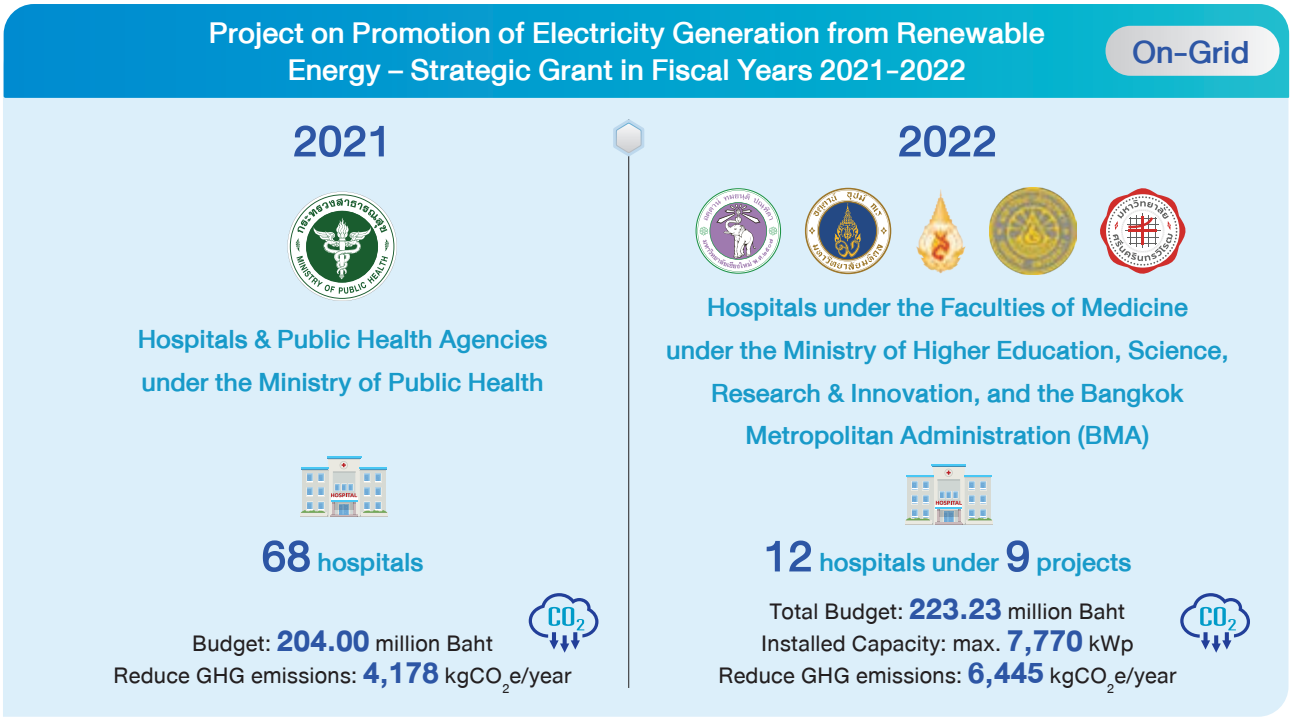
Remark: Data as at 1 October 2022

In Fiscal Year 2022, the OERC issued a Notification on Power Development Fund Money Allocation for Promotion of the Use of Renewable Energy and Technologies for Electricity Industry Operation that Render Minimal Impact on the Environment for Fiscal Year 2022, dated 10 June 2022, with a total budget framework of 1,930 million Baht, comprising: (1) Open Grant projects: with a budget framework of 415 million Baht, (2) Project on Promotion of Electricity Generation from Renewable Energy–Strategic Grant: 1,000 million Baht, (3) Support through cooperation with agencies having executed Memorandums of Understanding with the OERC: 315 million Baht, and (4) Research projects in support of the OERC operations: 200 million Baht.

On 18 July 2022, the OERC and Thailand Science, Research and Innovation (TSRI) signed a Memorandum of Understanding on Cooperation in the Management of Power Development Fund Research Grants at The Sukosol Hotel, Bangkok, with an aim to jointly promote research, further develop research results and innovations to be applicable to policies pertaining to electricity industry regulation, commercial- and community-scale utilization to accommodate changing energy demand situations of the country.

The ERC has given importance to the promotion of electricity generation from renewable energy at educational and public health agencies to help improve the quality of life of the public, i.e. to provide access to quality health services and to ensure that quality education is inclusive and equitable for all as well as to ensure that everyone has access to modern, sustainable energy, via the installation of electricity generation systems using renewable energy, which is in line with the Sustainable Development Goals (SDGs), including promotion of integration between the Power Development Fund under the OERC and Thailand Science, Research and Innovation.

The OERC has allocated the Fund money under Section 97(4) to support the installation of solar power generation (solar PV) systems that are connected to an electricity network system (On-grid) for hospitals under various agencies under the Project on Promotion of Electricity Generation from Renewable Energy–Strategic Grant, with a total budget of 427.23 million Baht, comprising 68 hospitals under the Ministry of Public Health, with a total budget of 204 million Baht; 12 hospitals under 9 projects of the Faculties of Medicine under the Ministry of Higher Education, Science, Research and Innovation, and the Bangkok Metropolitan Administration (BMA), with a total budget of 223.23 million Baht. All of these can reduce greenhouse gas emissions by 10,623 $kgCO_2e$/year. The objectives are to generate electricity for own use, reduce expense burden, reduce greenhouse gas emissions and respond to the national policy to achieve Carbon Neutrality in 2050.



In addition, the ERC approved a budget framework for the Project on Promotion of Electricity Generation from Renewable Energy, under Strategic Grant (Educational Agencies), to install solar PV systems for 164 educational agencies in remote areas with no grid access (Off-grid), with a budget framework of 95.00 million Baht. The Fund money allocation will be made through the cooperation between the OERC and agencies under the Ministry of Education; at present, a memorandum of understanding on the cooperation is being prepared.

The OERC also allocated the Fund money under Section 97(4) for studies related to the policy on promoting the generation and utilization of electricity from renewable energy as well as studies contributing to the country's electricity industry and the implementation of the National Energy Reform Plan, according to the Memorandum of Understanding between the OERC and the Ministry of Energy on cooperation to support policy-wise implementation to accommodate the implementation related to electricity industry operations under Section 97(4). The following projects were completed in Fiscal Year 2022: (1) the project on development of Thailand's medium-term smart-grid development plan 2022-2031, (2) the project on preparedness to pilot the development of demand-response business, (3) the project on survey and improvement of long-term load forecast to accommodate demand arising from disruptive technology, (4) the project on study and review of the cost of power purchase from renewable energy generation and guidelines for managing power purchase agreements for renewable energy generation, (5) the pilot project on the use-case development–the utilization of electricity-related data for policy analysis and energy industry regulation, (6) the study project on development of an action plan to promote the manufacture of battery energy storage systems (BESS), (7) the project on formulation of the electric-vehicle (EV) battery charging station development plan to support the national target of EV promotion, (8) the study project on guidelines on the application of the REC mechanism to improve policies and mechanisms related to the promotion of renewable energy generation, and (9) the study project on designing and development of a database system and the information transmission model for managing renewable energy generation systems of the Department of Alternative Energy Development and Efficiency (DEDE).

Fund Performance under Section 97(5)

In order to increase knowledge, awareness and participation of the public in power-related issues, the ERC has stipulated that electricity retail licensees send contributions to the Fund to be spent on the Fund operations under Section 97(5) pursuant to the NEPC policy framework at a rate of 0.002 Baht per retail unit of electricity in a monthly billing round, effective as from 31 December 2014. As a result, electricity retail licensees have sent contributions to the Fund as from March 2015 onwards. Later, in 2022 the ERC reviewed the contribution rate to the Fund under Section 97(5) imposed on electricity retail licensees to be at a rate of zero Baht/net retail unit to reduce electricity bill burden on the general public due to the current crisis of spiraling energy prices, which can help decrease electricity bill burden by about 400 million Baht/year; this will be enforced as from the billing round of January 2023 onwards until a notification is issued to revise, amend or terminate this rate. Notwithstanding, the implementation according to the objective of the Fund money allocation under Section 97(5) can still proceed, with no disruption, by using the accumulated balance from the Fund implementation during Fiscal Years 2017-2022.

The Regulation of the ERC on Criteria and Procedures for Allocating Power Development Fund Money to Increase Knowledge, Awareness and Participation of the Public in Power-related Issues B.E. 2559 (2016), and as amended, was issued. Hence, as from Fiscal Year 2017, Requests for Proposals have been issued to invite submission of local PDF projects on activities under Section 97(5) to increase knowledge, awareness and participation of the public in power-related issues.

Fund operation to increase knowledge, awareness and participation of the public in power-related issues

Remittance to the Fund

Public & Private Electricity Retail Licensees

การไฟฟ้านครหลวง Metropolitan Electricity Authority

การไฟฟ้าส่วนภูมิภาค PROVINCIAL ELECTRICITY AUTHORITY

Contribution rate to the fund:

0.2 Satang/retail unit

as from the billing month of January 2015

Sending of contributions to the Fund must be made within **45 days** as from the end of a given month.

Spending of the Fund

OERC issued a Request for Proposals for Fund Allocation as per the ERC Regulations

1. Program on enhancement of competency, role and knowledge about power-related issues of the public or concerned persons
2. Program on public relations to create awareness and foster consciousness, understanding & positive attitude towards power-related issues
3. Program on promotion of participation in power-related issues, e.g. development of networking or creation of participatory networks of the public or power-related agencies
4. Program on enhancement of power supply security and preparedness for electricity incidents
5. Program on administration–expenses in support of the operation
6. Other programs relevant to the Fund objectives under Section 93 or Section 97(5) as stipulated by the ERC

In Fiscal Year 2022, the ERC approved the allocation of the Fund money to increase knowledge, awareness and participation of the public in power-related issues, with a total budget framework of 800 million Baht, comprising:

1. Communication under the main theme, "Clean Energy for Life," with a budget framework of 600 million Baht, with the following sub-themes: (1) the interrelation between Energy Transition and Climate Change, and ERC's roles and missions; (2) communication to create understanding about the ERC's missions, authority and duties with regard to energy industry regulation; (3) communication to create correct understanding and build up public participation in relation to the regulation of power plants according to the law on energy industry regulation and the Power Development Fund under Section 97(3); and (4) knowledge management, knowledge repositories and communication of the Power Development Fund under Section 97(5).

2. Campaigns on reduction of electricity consumption during a crisis, with a budget framework of 100 million Baht.

3. Cooperation between the OERC and the Ministry of Energy to increase knowledge, awareness and participation of the public in power-related issues, with a budget framework of 100 million Baht.

Summary of the Power Development Fund Budget Approval under Section 97(5)

Fiscal Year	Budget Framework (M. Baht)	Proposed Projects		Approved Projects	
		No. of Projects	Budget (M. Baht)	No. of Projects	Budget (M. Baht)
2017	210.00	58	916.14	15	88.95
2018	490.00	54	734.56	9	126.92
2019	685.00	139	3,099.03	18	463.80
2020	600.00	163	3,459.98	26	476.47
2022	800.00	157	4,105.71	4	78.08
Total	2,785.00	555	11,856.62	72	1,234.22

Remarks: Data as at 30 September 2022

In Fiscal Year 2021, no Request for Proposals for project submission was issued due to the COVID-19 situation, which had caused projects approved in 2020 to extend their implementation duration to 2021.

Project Activities Supported by the Power Development Fund under Section 97(5)

Exhibitions

Future Kids, Future Energy

The National Science Museum organized an exhibition, "Clean Energy for Life: Use Clean Energy for a Better Quality of Life for All," during October 2021 - June 2022 to communicate the importance and benefits of Clean Energy, not only for users themselves but also for the public as a whole, which comprised: (1) electricity from solar energy, (2) waste-to-energy, (3) electricity from biomass, (4) electricity from biogas, (5) the use of modern technology or online social media, and (6) promotion of economic and efficient use of energy.

Clean Energy Temporary Exhibition

Rakluke Human and Social Innovation Co., Ltd. organized a Clean Energy Temporary Exhibition at the Provincial Science Center for Education in Trang, Nakhon Phanom and Phitsanulok provinces to provide knowledge about 5 issues: (1) how electricity is generated, (2) energy situation and impact, (3) Clean Energy for sustainability, (4) knowing and changing for a better living for all, and (5) regulation of clean renewable energy generation.

Educational Media

3-D Cartoon Animation Series: Electric Man–Protector of the Earth, Season 2

The Academic Service Center of Srinakharinwirot University disseminated knowledge about Clean Energy affordable by everyone, on the issue of electricity generation from renewable energy, i.e. solar energy, waste, biomass and biogas, to raise awareness about the wise use of electricity and to cultivate good attitude, via the use of 3D cartoon animation in 30 episodes: Electric Man–Protector of the Earth, disseminated on YouTube and Facebook and also communicated via an influencer (Ajarn Adam) to provide knowledge about electricity and environment through English language learning.

Electricity Comes to…Community

MCOT Plc broadcasted a documentary program that creates correct understanding about electricity generation from biomass–from the procurement of raw materials to the monitoring of environmental impacts–illustrating the use of agricultural waste to generate energy.

Training/Seminars

Green Station

Toya Media Co. Ltd. organized training to provide knowledge about electricity generation from biomass, in both economic and environmental aspects, including proper operation of biomass power plants, in 4 provinces in 4 regions, namely: Nakhon Ratchasima, Suphan Buri, Phitsanulok and Surat Thani, with 200 participants, comprising civil society networks, volunteer networks, local media networks, farmer networks, local administrative organizations, academicians, entrepreneurs, community leaders and villagers.

"Khon Bandarn Fai," Season 2

TV Burapha Co., Ltd. organized training to educate participants about the installation and maintenance of solar PV systems as well as a creative media contest, "Junior Frog," to communicate knowledge and the use of renewable energy that enhances the quality of life and the environment.

"Dek Wake Up," Season 2

Worklink Da Agency Co., Ltd. organized activities and a creative media contest in the category of books or viral clips under the theme, "New Options: Electricity from Renewable Energy, from Waste and Biomass," to provide knowledge and understanding (Education), including participation (Action), about electricity generation so that the new generation would realize the importance of electricity and would pass on their knowledge and understanding to others in the society.

Innovations

The Electric Playground

The National Innovation Agency (NIA) held a contest for innovative works of secondary school students in the course, "STEAM4INNOVATOR," which integrates knowledge and problem analysis, leading to a concept to develop pieces of work, under the guidance of experts, resulting in 10 qualified innovations that were exhibited to showcase and disseminate the knowledge to the public.

Fund Performance under Section 97(6)

To use the Fund money for the following three administrative matters: (1) the Fund administrative cost; (2) a reserve in the case of emergency to remediate or mitigate, in the first instance, damage caused by power plant operation; and (3) subsidies for development or rehabilitation of localities which are affected by power plant operation but for which the allocated money from the Fund is insufficient for such implementation.

Evaluation of the Power Development Fund Performance (as Working Capital)

The Power Development Fund is considered as working capital and hence it is required to have a performance evaluation system that is up to international standard with the application of Balanced Scorecard (BSC) principles, as prescribed by the Ministry of Finance, or with the application of an equivalent tool. Moreover, a third party must be appointed to conduct the evaluation and report the performance evaluation outcome to the Comptroller General's Department (CGD) so that the latter can collect the information and prepare a report summarizing the overall evaluation outcome of this working capital for presentation to the cabinet at the end of each fiscal year. In this connection, the OERC has conducted the evaluation of the Fund performance as working capital since Fiscal Year 2014 onwards.

In Fiscal Year 2022, the evaluation of the Fund performance, as a whole, resulted in an average score of 4.37 from the full score of 5, accounting for 87.40%, which was above the specified benchmark and close to that obtained in Fiscal Year 2021, i.e. an average score of 4.40 or 87.93%. The score obtained in each aspect was as follows:

1. Finance, with a score of 1.17, or 23.30%, having a rather high ratio of the operating expense and personnel expense to the Fund's total revenue, i.e. 1.68, when compared with the targeted ratio of 1.30, because the earned revenue decreased while both aforementioned expenses increased;

2. Response to Stakeholders' Benefits, with a score of 3.85, or 77.10%, based on the Fund operations that could respond to the needs and expectations of stakeholders in terms of the ability to carry out activities as planned, complaint handling, and performance evaluation at both project and local PDF levels. In this regard, it is advised that the Fund should clearly set respective targets so that the evaluation of program achievements could be made against the targets set. Also, the Fund should create knowledge and understanding of persons involved so that the project implementation would truly benefit the community, and should notify the community project operators of the evaluation criteria so that their project implementation would be in line with the evaluation guidelines;

3. Operations, with a score of 4.96, or 99.28%, based on the efficiency of the Fund operations, via the evaluation of the following aspects: the establishment of performance standards and criteria for concerned personnel, project monitoring and evaluation, submission of financial statements and implementation according to relevant work plans;

4. Power Development Fund Administration, with a score of 5.00, or 100%, based on the systematic management of the Fund, involving the internal control and risk management, the internal audit as well as the information and digital management;

5. Performance of the Managing Committee, the Fund (Working Capital) Administrator, Staff & Employees, with a score of 4.95, or 99%, based on the performance and development of the Fund's personnel at all levels, which involved the performance according to the roles of the Sub-committee on Power Development Fund Management (as Working Capital) and the human resource management;

6. Implementation pursuant to Policies of the Government/ Ministry of Finance, with a score of 5.00, or 100%, based on the implementation of the matters related to the government policies or as directed by the Ministry of Finance, involving the disbursement pursuant to the approved expense plans and the receipt/disbursement of money via an electronic system.

Summary of the Evaluation Outcome of the Power Development Fund Performance (as Working Capital) in Fiscal Years 2021–2022

Evaluation Criteria	Fiscal Year 2021		Fiscal Year 2022	
	Weight	Score	Weight	Score
Finance	10	4.40	10	1.17
Response to Stakeholders' Benefits	20	3.20	20	3.85
Operations	35	5.00	35	4.96
Power Development Fund Administration	15	4.88	15	5.00
Performance of the Managing Committee, the Fund (Working Capital) Administrator, Staff & Employees	10	4.94	10	4.95
Implementation Pursuant to Policies of the Government/ Ministry of Finance	10	3.40	10	5.00
Total Score	100	4.40	100	4.37
Percentage		87.93		87.40

Operational Plan

of the Office of the Energy Regulatory Commission

in Fiscal Year 2023

Operational Plan of the Office of the Energy Regulatory Commission in Fiscal Year 2023

The OERC has devised the Action Plan for Energy Industry Regulation, Phase 5 (2023-2027) to be a framework for the OERC implementation of energy industry regulation over a period of 5 years in order to achieve the objectives stipulated in the Energy Industry Act of 2007 and to respond to the mobilization of Thailand's 20-Year National Strategy (2018-2037) under three National Strategies–No. 2: Competitiveness Enhancement, No. 5: Eco-Friendly Development and Growth, and No. 6: Public Sector Rebalancing & Development–and the Master Plan No. 7 under the National Strategy–Infrastructure, Logistics and Digital Systems. It is also in line with the National Energy Reform Plan (Revised Version) as well as the national reform activities that will create significant changes and impacts on the general public (Big Rock), i.e. the materialization of One Stop Service of electricity industry licensing and the restructuring of electricity industry and natural gas business to increase competition; including the 13th National Economic and Social Development Plan (2023-2027), the United Nations Sustainable Development Goals (SDGs), the target to reduce greenhouse gas and to achieve Carbon Neutrality by 2050 as pledged by Thailand at the 26th Conference of Parties of the United Nations Convention on Climate Change (COP26), and the energy policy of the government. The Action Plan for Energy Industry Regulation, Phase 5 (2023-2027), will focus on the **"promotion of energy transition to attain sustainable and eco-friendly energy industry development, participation in the mobilization of low-carbon economy and society, and disruption of the corporate management and service provision with digital technology applications."**

Interconnection Between Energy Industry Regulation and 3-Tier Plans, Energy Policy & Other Relevant Policies

20-Year National Strategy	**Strategy 2** Competitiveness Enhancement	**Strategy 5** Eco-Friendly Development and Growth	**Strategy 6** Public Sector Rebalancing & Development
Master Plan under National Strategy	**Targets under Issue 7: Infrastructure, Logistics and Digital Systems**		
	Share of natural gas in power generation mix at ≤60% by 2027	Share of the use of domestically produced RE in electricity & heat generation and bio-fuel at 19-22% of final energy consumption	Efficiency improvement using smart grid technology
National Energy Reform Plan (revised)	One Stop Service Licensing for electricity industry	Restructuring the electricity industry and natural gas businesses to increase competition	
13th NESDP	**Milestone 3** Thailand is the world's major EV manufacturing base	**Milestone 10** Thailand is circular economy & low carbon society	**Milestone 13** Thailand has a modern, efficient and responsive public sector
SDG 7 COP26	**"Ensure access to affordable, reliable, sustainable & modern energy for all"**		
	CO_2 emission reduction by 40% by 2030	Carbon Neutrality by 2050	Net Zero GHG Emissions by 2065
National Energy Plan	**"Thailand achieves stable and sustainable growth for the quality of life improvement via Energy Transition"**		
	Boost RE ≥50%	Transform the transport fuel to Green Energy, via EV promotion – 30@30 policy	Energy sector restructuring to accommodate Energy Transition = 4D1E
Digital Govt. Development Plan 2023-2027	**"digital government, open, connected and cooperating on creating valuable services for the citizens"**		
	Paradigm shift in work operations and service provision with digital technologies which are convenient, fast & accurate and deploy data to enhance work execution to be transparent, efficient and effective		Develop HR potential to acquire skills of digital literacy

Action Plan for Energy Industry Regulation, Phase 5 (2023-2027)

Energy Transition & Competition

Objective 1	To promote sufficient, secure & extensive energy service provision, while ensuring fairness to both energy consumers & licensees.	**Target** 1. Energy procurement is sufficient, extensive & secure to accommodate the Energy Transition.
Objective 2	To promote fair competition in the energy industry, with reasonable tariffs that reflect the cost of efficient energy business operation.	**Targets** 1. Phase 2 of competition in the natural gas industry is implemented. 2. Promote the trading of electricity generated from RE. 3. Have reasonable and fair energy tariffs that reflect the cost of efficient energy industry operation.

Low Carbon Economy and Society

Objective 3	To regulate energy industry operation to be efficient, safe and eco-friendly.	**Targets** 1. Energy industry operation facilities meet safety, environmental and service quality standards. 2. Energy consumption in energy industry operations is economical and efficient, with the use of RE & technologies for electricity industry operations that have minimal impact on the environment.
Objective 4	To protect rights & liberty of energy consumers, local community, general public and licensees to take part in, have access to, use and manage energy matters.	**Targets** 1. Stakeholders are satisfied with energy industry regulation. 2. Strong alliance networks are established, covering all 77 provinces. 3. Quality of life of the public & local communities is improved & the Power Development Fund management system is modernized.

Digital Transformation

Objective 5	To administer the organization to have good governance and meet international standards.	**Targets** 1. The organization achieves ITA score at AA level by 2025 and maintains the organizational management quality system according to the ISO standards. 2. An Information Center on Energy Industry Regulation is established by 2024. 3. Develop HR to have learning & management capability so as to achieve the organization's goals.

Summary of the Operational Plan in Fiscal Year 2023, classified according to the objectives under the Action Plan for Energy Industry Regulation, Phase 5 (2023-2027).

Objective 1

To promote sufficient, secure and extensive energy service provision, while ensuring fairness to both energy consumers and licensees.

Target

Energy procurement is sufficient, extensive and secure to accommodate the energy transition.

Development Guideline 1: Support development towards clean energy

Major plan/project

1. Issue regulations and notifications on electricity procurement according to the plan to increase electricity generation from clean energy during the period 2021-2030 under the Thailand Power Development Plan 2018-2037, Revision No. 1 (PDP 2018 Rev.1) and policies approved by the NEPC.

2. Develop criteria for providing extensive energy services at reasonable and fair prices.

3. Support projects on electricity generation from renewable energy, both connected to an electricity network system (On-grid) and in remote areas with no access to the grid (Off-grid), via the Power Development Fund support under Section 97(4).

Development Guideline 2: Strengthening efficiency of the energy management system

Major plan/project

1. Project on the study and development of a forecasting model for natural gas demand in order to increase efficiency of the natural gas procurement management to sufficiently meet the demand.

Objective 2

To promote fair competition in the energy industry, with reasonable tariffs that reflect the cost of efficient energy industry operation.

Targets

1. Phase 2 of competition in the natural gas industry is implemented.
2. Promote the trading of electricity generated from renewable energy.
3. Have reasonable and fair energy tariffs that reflect the cost of efficient energy industry operation.

Target 1 Development Guideline: Develop natural gas industry regulation to enhance fair competition

Major plans/projects

1. Revise the code pertaining to the transmission system management and the natural gas transmission system operator (TSO Code), the codes for natural gas business operations in relation to the operation of energy network systems and LNG terminals to ensure fair competition in the natural gas industry and increase eff iciency in energy procurement.
2. Conduct the study on Strategic Reserve in the natural gas industry.

Target 2 Development Guideline: Develop the electricity industry regulation to lay the foundation for competition, including infrastructure and technology, to accommodate the energy industry restructuring according to the 4D1E approach

Major plans/projects

1. An appropriate framework for determining electricity tariffs to accommodate the trading of electricity generated from renewable energy.
2. ERC Sandbox Program, Phase 2, to trial the renewable energy trading market system, new business models of energy service provision and new models of electrical system management in order to improve the regulations pertaining to promotion of the renewable energy trading market and energy system management.
3. Establish academic cooperation in energy industry regulation with domestic and foreign agencies with regard to the transformation from a regulated electricity industry to a competitive electricity industry as well as the renewable energy trading market.

Target 3 Development Guideline: Establish a mechanism to regulate energy tariffs and enhance the potential to analyze the data on energy service cost

Major plans/projects

1. Project on the study and establishment of guidelines on Electricity Tariff Impact Assessment.
2. Project on the study, analysis and assessment of the cost of electricity tariff by region.
3. Study and determine the framework for determining electricity tariffs to be reasonable and in line with the policy on the determination of the electricity tariff structure.
4. Develop the framework for determining fees of the application for power supply connection, which are other remunerations that a licensee collects from electricity users apart from electricity tariffs, and also other fees charged to power producers, such as fees for connecting to an energy network system.

Objective 3

To regulate energy industry operation to be efficient, safe and eco-friendly.

Targets

1. Energy industry operation facilities meet safety, environmental and service quality standards.
2. Energy consumption in energy industry operations is economical and efficient, with the use of renewable energy and technologies for electricity industry operations that have minimal impact on the environment.

Target 1 Development Guideline: Modernize energy industry operation standards and regulate the operators to comply with safety, environmental and service quality standards

Major plans/projects

1. Project on human resource development to enable standardized inspection and monitoring of energy industry operation facilities (Post Audit), by creating cooperation with academic institutions to develop the standards for inspection and monitoring of energy industry operation facilities, whereby the OERC personnel must be trained and be certified by a neutral organization, such as the Engineering Institute of Thailand and the Management System Certification Institute (Thailand).
2. Revise the service quality standards for the natural gas industry by establishing the framework for regulating and auditing the operations of the TSO and LNG Terminals in order to manage natural gas quality.
3. Revise the safety engineering standards for the electricity industry to accommodate the policy on new business models.

Target 2 Development Guideline: Promote electricity generation using technologies that help increase electricity generation efficiency and reduce environmental impact

Major plans/projects

1

Project on the development of criteria for setting Thailand's power plant sustainability indexes and forge ahead with the application of ISO 50001: Energy Management System to large power plants so as to drive Sustainable Development Goal No. 7 (SDG 7).

2

Support studies and research on the development of technologies to increase the efficiency of electricity generation from renewable energy/ clean fuels and on the management of new electricity system models, via the Power Development Fund under Section 97(4).

Objective 4

To protect rights and liberty of energy consumers, local communities, the general public and licensees to take part in, have access to, use and manage energy matters under fair criteria to all parties.

Targets

1. Stakeholders are satisfied with energy industry regulation.
2. Strong alliance networks are established, covering all 77 provinces.
3. Quality of life of the public and local communities is improved and the Power Development Fund management system is modernized.

Target 1 Development Guideline: Develop a systematic participatory process so that energy users, local communities, the general public and licensees can take part in all stages

Major plans/projects

1

Develop digital systems for promoting participation and handling complaints.

2

Project on public relations of activities related to energy industry regulation and corporate image management.

3

Project on a survey to evaluate the satisfaction with energy industry regulation and service provision of the OERC and to evaluate the communication image of the OERC.

4

Create alliances to build up knowledge and awareness of electricity-related issues under the concept "Clean Energy for Life," focusing on the energy transition to clean energy in order to reduce climate change impacts.

Target 2 Development Guideline: Reinforce the protection of energy consumers' rights

Major plans/projects

1. Create strong and sustainable networks of alliances on energy consumer protection to be widely accessible in all regions and establish channels for communication and receiving complaints that are convenient, fast and efficient, by creating cooperation with civil society networks, academicians and local power consumers, including organizing forums to exchange knowledge and to brainstorm with concerned local agencies.
2. Project on the promotion of participation and creation of energy consumers' awareness, aiming to organize activities to create a participatory process in energy consumer protection and to educate people/energy consumers in responsible areas of respective OERC Regional Off ices.
3. Project on training for the 4th set of Regional Energy Consumer Committees (RECCs), by reviewing the basic knowledge courses for the RECCs and organizing training to enhance the RECCs' potential.

Target 3 Development Guideline: Modernize the management and promote participation in the Power Development Fund operations under Section 97(3) for sustainable development of the quality of life of the people and local communities

Major plans/projects

1. Improve the digital system for Power Development Fund management, continuously from 2022, and develop an application to be a tool to create participation in the selection of projects of the communities in the Fund's designated areas, by reviewing relevant regulations and the selection process of projects on community development in the Fund's designated areas, including the trial of the application with one local PDF as a pilot project.
2. Evaluate the Fund performance under Section 97(3) with regard to the improvement of the quality of life of the people and local communities in order to prepare recommendations and to improve the criteria and method of local PDF money allocation.

Objective 5

To administer the organization to have good governance and meet international standards.

Targets

1. The organization achieves the Integrity and Transparency Assessment (ITA) score at AA Level by 2025 and maintains the organizational management quality system according to the ISO standards.
2. An Information Center on Energy Industry Regulation is established by 2024.
3. Develop human resources to have learning and management capability so as to achieve the organization's goals.

Target 1 Development Guideline: Develop the organization with a quality management system and in accordance with good governance principles

Major plans/projects

1. Develop an organizational management system with transparency and good governance according to the ITA criteria and move forward to be certified pursuant to the ISO 37001: Anti-bribery Management System.

2. Project to maintain the organization's quality management system according to ISO 9001:2015.

Target 2 Development Guideline: Increase organizational capabilities via digital technology

Major plans/projects

1. ERC Smart Operation–a program on improvement and development of operation systems by using digital technologies.

2. Project on Data Science and Analytics–the development of a data management system and data analysis for energy industry regulation, by linking with the ERC Data Sharing Platform with a view to becoming an energy information center in Fiscal Year 2024.

3. Set up the information technology (IT) system infrastructure to prevent the risk of threats in compliance with international standards.

Target 3 Development Guideline 1: Modernize the human resource management system

Major plans/projects

1. Improve the human resource management process and system with the application of digital technology to accommodate hybrid operations.

2. Review competencies, career path plans and succession plans.

3. Set a knowledge management system.

Target 3 Development Guideline 2: Develop the personnel potential to be multi-skilled so as to accommodate new energy business models

Major plans/projects

1. Project on devising the Individual Development Plan.

2. Provide training for the personnel to enhance knowledge and skills necessary for their work execution according to the Training Roadmap and essential skills of digital literacy as well as knowledge about energy industry regulation to accommodate new energy business models.

3. Secondment Program, or the exchange of employees through temporary assignments to work with another organization, by creating cooperation with other regulatory bodies/other agencies to implement the program.

4. Scholarship program for the personnel to study abroad.

Operational Plan
of the Power Development Fund

in Fiscal Year 2023

Operational Plan of the Power Development Fund in Fiscal Year 2023

The Power Development Fund (the Fund) is set up under the OERC with the objective to be used in compliance with the objectives under Section 97 of the Energy Industry Act of 2007. The spending of the Fund money complies with the regulations prescribed by the Energy Regulatory Commission under the policy framework of the National Energy Policy Council (NEPC). The Fund performance must be reported to the NEPC, the Minister of Energy, the cabinet, the House of Representatives and the Senate and must be made public; it is also subject to an audit by the State Audit Office of the Kingdom of Thailand. In this regard, the OERC has collected contributions and spent the Fund money since Fiscal Year 2011.

The OERC manages the Fund, classified by objective under Section 97 of the Energy Industry Act of 2007, which can be summarized as follows:

The Fund operations under Section 97(1)

To compensate and subsidize electricity industry licensees who have provided services for underprivileged power consumers or to enhance extensive electrification or to support the policy on development decentralization to provincial areas. In this connection, an order has been issued regarding subsidies to electricity retail licensees who have provided extensive electrification in various localities, including the sending of contributions to and disbursement of money from the Fund imposed on electricity retail licensees to be used for compensation and subsidization to electricity retail licensees who have provided services for underprivileged power consumers.

The Fund operations under Section 97(2)

To compensate power consumers who have to pay a more expensive electricity rate resulting from the licensee who has an electricity system operator having breached Section 87, clause two. So far, there has been no case reported regarding an unfair power dispatch order by the electricity system operation licensee. However, the OERC will get prepared to properly handle such a situation should any case arise.

The Fund operations under Section 97(3)

To develop and rehabilitate localities affected by power plant operation. Operations have been carried out in compliance with the regulations, criteria and orders issued by the ERC as from Fiscal Year 2012 onwards, by determining the objective framework and classifying the project characteristics into the following seven aspects:

(1) Public Health, to reduce or prevent health problems in the communities around power plants;

(2) Education, to increase the educational quality of students and teachers in government schools in community areas surrounding power plants;

(3) Community Economy, to increase income of the communities in the vicinity of power plants;

(4) Environment, to enhance or conserve the environment in areas surrounding power plants for good quality of life;

(5) Public Utilities, to increase access to and extensive provision of public utility services, i.e. water resources, roads, tap water supply and electricity, that are sufficient for communities in the areas surrounding power plants;

(6) Community Energy, to promote coexistence between power plants and communities in areas surrounding power plants, the use of renewable energy to reduce energy cost and increase energy efficiency; and

(7) Other programs that contribute to community development.

The Fund operations under Section 97(4)

To promote the use of renewable energy and technologies for electricity industry operation that render minimal impact on the environment. The implementation has been carried out since Fiscal Year 2017 via the issuance of Requests for Proposals for Fund allocation in accordance with the programs and regulations prescribed by the ERC. Under the operational framework, there are four programs as follows:

(1) Program on promotion and demonstration of the use of renewable energy in electricity industry operation;

(2) Program on development and improvement of technologies for electricity industry operation to be more efficient and create a minimal impact on the environment;

(3) Program on study and research on renewable energy and technologies for electricity industry operation that are efficient and render minimal impact on the environment; and

(4) Program on administration, involving expenses in support of the operations.

The Fund operations under Section 97(5)

To increase knowledge, awareness and participation of the public in power-related issues. Emphasis is placed on the creation of knowledge, understanding and expansion to actual practice. The implementation has been carried out via the issuance of Requests for Proposals, as from Fiscal Year 2017 onwards, to invite submission of project proposals according to the aforementioned objective. Under the operational framework, there are five programs as follows:

(1) Program on enhancement of competency, role and knowledge about power-related issues of the general public or concerned personnel;

(2) Program on public relations to create awareness and cultivate consciousness, understanding and positive attitude towards power-related issues;

(3) Program on promotion of participation in power-related issues, e.g. development of networks or creation of participatory networks of the public or power-related agencies;

(4) Program on enhancement of power supply security and preparedness for electricity incidents; and

(5) Program on administration, involving expenses in support of the operations.

The Fund operations under Section 97(6)

To use the Fund money for the following three administrative matters:

(1) The Fund administrative cost;

(2) A reserve in the case of emergency to remediate or mitigate, in the first instance, damage caused by power plant operation; and

(3) Subsidies for development or rehabilitation of localities which are affected by power plant operation but for which the allocated money from the Fund is insufficient for such implementation.

Note: It is to be noted that the use of the Fund money will be for the implementation of the Fund's objectives under Section 97 of the Energy Industry Act of 2007 and cannot be used for the administration of the OERC.

Abbreviations

Act, The	Energy Industry Act B.E. 2550 (A.D. 2007)
Adder	Additional energy purchasing price
AEDP	Alternative Energy Development Plan
BBTU	Billion British Thermal Unit–a measurement unit of the heat content of fuels or energy sources, equal to 1,000,000,000 BTU
CDC	Community Development Committee for areas surrounding a power plant
CEPA	Committee on Energy Policy Administration
COD	Commercial Operation Date
CoP Report	Report on a Code of Practice
EGAT	Electricity Generating Authority of Thailand
EIA Report	Environmental Impact Assessment Report
ERC	Energy Regulatory Commission
ERC Sandbox	Energy Regulatory Commission Sandbox–a program on trials on technological innovations to support energy service provision
F_t	Electricity Tariff according to the Automatic Power Tariff Adjustment Mechanism
FiT	Feed-in Tariff–a fixed power purchasing price throughout the lifetime of a power project, which is a measure to promote renewable energy generation
Fund, The	Power Development Fund
GW	Gigawatt–a unit of electric power equal to 1,000 megawatts, or 1,000,000 kilowatts or 1,000,000,000 watts
GWh	Gigawatt hour–a unit of energy representing 1,000 megawatt hours, or 1,000,000 kilowatt hours or 1,000,000,000 watt hours
IEE Report	Initial Environmental Examination Report
IPP	Independent Power Producer–a large-scale private power producer
IPS	Independent Power Supply–the generation of power for one's own use
$kgCO_2e$	Kilograms of carbon dioxide equivalent–a measurement unit of greenhouse gas emission
kVA	Kilovolt Ampere–a unit of apparent power, or the total power flowing, in an electric circuit equal to 1,000 volt-amperes
kWp	Kilowatt Peak–a unit of maximum electricity generation from solar cells, e.g. 10-kWp solar cells will generate maximum electricity at 10 kW or 10,000 watts

Lc	Liquefied Natural Gas Commodity Charge–service fees for the use of natural gas storage and transformation of liquid to gas, in the part of variable costs, for an LNG Terminal
Ld	Liquefied Natural Gas Demand Charge–service fees for the use of natural gas storage and transformation of liquid to gas, in the part of fixed costs, for an LNG Terminal
Managing Committee	Managing Committee on Power Generation from Renewable Energy Promotion
MEA	Metropolitan Electricity Authority
MMBTU	Million British Thermal Unit–a measurement unit of the heat content of fuels or energy sources, equal to 1,000,000 BTU
MW	Megawatt–a unit of electric power equal to 1,000 kilowatts or 1,000,000 watts
NEPC	National Energy Policy Council
OERC	Office of the Energy Regulatory Commission
OPDC	Office of the Public Sector Development Commission
PDP	Thailand Power Development Plan
PEA	Provincial Electricity Authority
PPA	Power Purchase Agreement
PTT	PTT Public Company Limited
REC	Renewable Energy Certificate–a mechanism certifying that an amount of electricity is generated from a renewable energy resouce
RECC	Regional Energy Consumer Committee
SCOD	Scheduled Commercial Operation Date according to a Power Purchase Agreement
SPP	Small Power Producer
Tc	Transmission Commodity Charge–service fees, in the part of variable costs, for natural gas transmission through a natural gas transmission pipeline system
Td	Transmission Demand Charge–service fees, in the part of fixed costs, for natural gas transmission through a natural gas transmission pipeline system
TSO	Transmission System Operator–an entity entrusted with controlling the transmission of energy in the form of natural gas or electricity at national or regional levels
VSPP	Very Small Power Producer