

STAND BY YOU



**Being Beside Thais
in Every Crisis**



STAND BY YOU

Being Beside Thais in Every Crisis

It has been more than five decades that the Electricity Generating Authority of Thailand (EGAT) has undertaken its important mission in ensuring security for the power system of the country and has played a part in raising the quality of life of the Thai people. Over the years, there were several crises which we have encountered, from the global oil crisis, 1997 Asian financial crisis (Tom Yum Kung Crisis), the Great Flood Crisis up to the recent outbreak of COVID-19 pandemic which has caused an unexpectedly tremendous damage to the country.

Amidst the difficulties, all the Thai people including EGAT have shown an overwhelming helpfulness to relieve the suffering. EGAT promises to always get through every crisis with the Thai people, now and in the future.

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Remuneration of Auditor

Vision

“Innovate power solutions for a better life”

Mission

“Be the country’s main organization to secure the power reliability and enhance competitiveness of the nation through innovation for Thai happiness”

Strategic Positioning

2020

Being electricity producer and supplier

2024

Increasing role in energy solutions

2030

Upgrading to be regional energy trading hub

Strategic Objective

E G A T

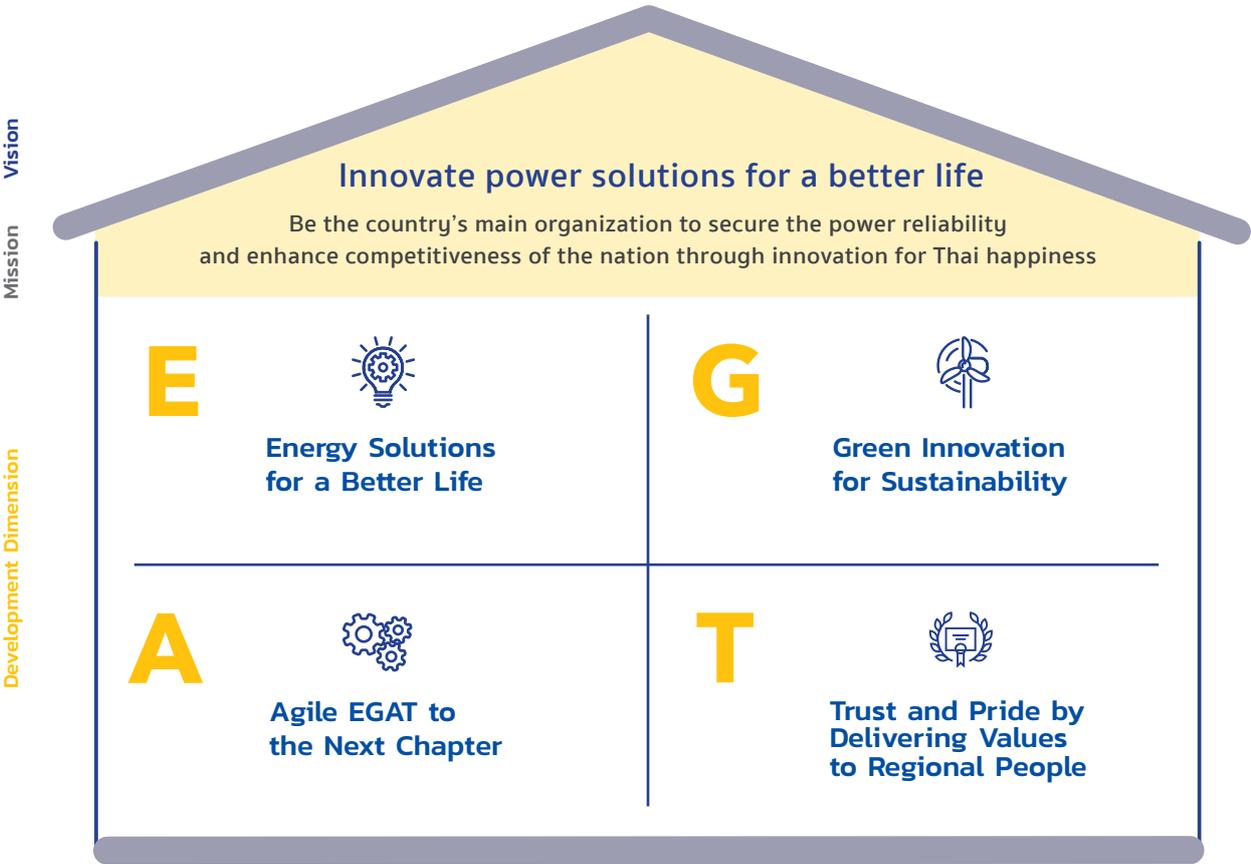
Energy Solutions for a Better Life

Green Innovation for Sustainability

Agile EGAT to the Next Chapter

Trust and Pride by Delivering Values to Regional People

Strategic Map



About EGAT

The Electricity Generating Authority of Thailand (EGAT) was established by virtue of the EGAT Act, B.E. 2511 (1968) on May 1, 1969. Being a state enterprise in the area of energy under the Ministry of Energy and the Ministry of Finance, EGAT is responsible for generating, acquiring, and supplying electricity to the Metropolitan Electricity Authority (MEA), the Provincial Electricity Authority (PEA), legal power users, and neighboring countries, such as Lao PDR and Malaysia. EGAT is also responsible for power related activities and services, producing and selling lignite and its by-products under the EGAT Act, B.E. 2511 (1968) and its amendment, B.E. 2535 (1992).

At present, the operation of EGAT is in accordance with the Electricity Supply Industry whereby, under the supervision of the Energy Regulatory Commission, EGAT is a producer and supplier of electricity and controls the electricity production and distribution throughout the country to be efficient and adequate for the demand in parallel with environmental management for the community and society.

EGAT Headquarters is situated at No. 53, Moo 2, Charansanitwong Road, Bang Kruai District, Nonthaburi Province 11130. The Transmission System Operation has 5 offices; two are in Nonthaburi Province, and the rest are in Phitsanulok, Khon Kaen, and Krabi Provinces.

Capital Investment and Shareholding Structure

The Ministry of Finance has 100 percent shareholding of EGAT with the capital investment as follows:

Sources of Capital Investment	2020	2019	2018
		(Adjusted)	(Adjusted)
EGAT's revenues	10,872	10,872	10,872

Financial Overview

Unit : Million Baht

	2020	2019	2018
		(Adjusted)	(Adjusted)
Operating Performance			
Revenue from sales and services	510,707	560,446	524,768
Income from sales and services	54,881	65,172	72,877
Gains (Losses) on foreign exchange	160	11,360	(39)
Finance costs	33,784	35,093	37,805
Net profit - owners of EGAT	28,031	48,209	45,712
Net profit - non-controlling interests	3,280	3,287	3,097
Financial Position			
Total assets	994,763	1,003,951	1,021,211
Property, plant, and equipment - net	425,693	419,420	393,103
Total liabilities	506,622	529,298	568,381
Long-term loans	137,384	133,069	134,138
Owners' equity and non-controlling interests	488,141	474,653	452,830
Financial Ratios			
Gross profit to net sales (percentage)	13.46	14.68	16.65
Net profit to net sales (percentage)	6.13	9.19	9.30
Return on total assets (percentage)	3.13	5.09	4.86
Debt to equity ratio (times)	1.04	1.12	1.26
Times interest earned (times)	1.93	2.49	2.32

Message from the Chairman

Throughout the year 2020 when the world has faced the outbreak of Coronavirus Disease 2019 (COVID-19), a crisis which everyone has tried very hard to overcome, the Electricity Generating Authority of Thailand (EGAT) is resolute to maintain the energy security to always be ready to generate and transmit electricity to every corner of the country. Concurrently, EGAT has also shared in fighting against COVID-19 with the society by providing medical equipment and tools, producing alcohol hand sanitizer gel, and inventing positive and negative pressure cabinets for distribution to various hospitals. Moreover, EGAT has cooperated with the public and private organizations in offering assistance to the people such as providing survival bags, hygienic face masks, and alcohol hand sanitizer gel. When the situation has become better, EGAT has participated in the economic stimulation and community strengthening in the long run through tourism and support of community products of local people around EGAT dams and power plants. Furthermore, EGAT has responded to the short-term employment policy of the government to create jobs, increase income, and reduce the unemployment problem so that Thai people can move on with less difficulty.

For the energy development, EGAT has continued to carry on its new power plant development for the long-term energy security of the country. Several public hearings were organized to collect comments of the public and stakeholders of the power development projects such as North Bangkok Power Plant (Extension), Phase 1; Replacement of Mae Moh Power Plant, Units 8-9; and last but not least, the 45 MW Hydro-Floating Solar Hybrid Project at Sirindhorn Dam in Ubon Ratchathani Province which is expected to operate commercially by mid-2021. The stability of renewable energy is an important target of EGAT in the sustainable and environmentally-friendly electricity development.

In the area of fuel acquisition, EGAT has imported liquefied natural gas (LNG) to test the system of free competition in LNG provision of phase 1, in accordance with the resolution of Committee on Energy Policy Administration, to serve as fuel for Bang Pakong Power Plant, Block 5; Wang Noi Power Plant, Block 4; and South Bangkok Power Plant Replacement Project, Block 1. In December 2019 and April 2020, the two cargoes of LNG purchased from spot market were imported, resulting in the reduction of the fuel adjustment charge (F_f) of 0.35 and 0.93 Satang per unit, respectively.

The other crisis faced by the country which has become worse every year is the problem of air quality. In this connection, EGAT has developed electric vehicle (EV) as an innovation to contribute to the reduction of greenhouse gas emission, pollution, and particulate matter. The innovations which include EGAT E-Bike, battery swapping station, and energy-saving electric passenger boat have been used in EGAT activities as a pilot study before being launched for public use in the future. Moreover, EGAT has continued to implement its project of modifying used car to become electric car by EV Kit, which is in the process of knowledge transfer to the entrepreneurs as well as the project of modifying decommissioned bus to become air-conditioned battery electric bus. All work is aimed to sustainably upgrade quality of life of the people in all aspects.

Amid the present challenging situation of electricity industry, EGAT has sought allies to create diversity of business and to prepare for new business particularly in the area of electric vehicle (EV) such as charging station, quick charger, smart EV charger solution under the brand of Wallbox which provides consultant, design of electricity system, installation of charger for electric vehicle, and after-sales services by professional EGAT engineers in order to respond to various needs of users in the age of disruptive innovations.

In promoting the efficient use of electricity, reduction of the household energy cost, and reduction of greenhouse gas emission in the past year, EGAT has continued to develop No.5 Housing and expand the scope to become the Smart and Sustainable Community for Better Well-being (SSC).

With a strong determination to take good care of society and environment and to develop innovation in electricity for the public benefit and the country, EGAT received 2 outstanding state enterprise awards from the State Enterprise Policy Office, namely outstanding creativity and innovation award and social and environmental responsibility award. Moreover, EGAT received an honorable mention award from the National Anti-Corruption Commission (NACC Integrity Awards) which reflects its operation based on good governance. However, beyond the pride of the awards is the confidence and trust which the people give to EGAT.

On behalf of the Board of Directors and EGAT Executives, I would like to express my gratitude to all sectors for their assistance in our work during the past year to achieve the target, despite the difficulties and uncertain situation with a lot challenges. No matter what happens in the future, EGAT will still be beside Thai people.



(Mr. Kulit Sombatsiri)

Chairman, Board of Directors
Electricity Generating Authority of Thailand



Report of the Audit Committee

The Audit Committee, appointed by the EGAT Board of Directors, consists of three members, at least two thirds of which are independent directors. One member, at least, shall be knowledgeable and have experience in finance and accounting. The members of the Audit Committee are as follows:

- | | | |
|-----------------|-----------|---------------------------------|
| 1. Gen. Somsak | Roongsita | Chairman of the Audit Committee |
| 2. Mr. Pornchai | Thiravet | Member of the Audit Committee |
| 3. Ms. Niramarn | Laisathit | Member of the Audit Committee |

EGAT Assistant Governor - Internal Audit Office serves as the secretary of the Audit Committee.

The Audit Committee has independently executed its Board-assigned duties and those under EGAT Audit Committee Charter, in accordance with the procedures and operational manual stipulated by Ministry of Finance and the extent of EGAT's operational responsibilities, to enhance integrity, good corporate governance, and sustainable long-term value creation, with due regard for satisfying all stakeholder's expectations.

In 2020, the Audit Committee held 14 meetings to discuss relevant agenda with EGAT executives and the independent auditor. The significant observations and recommendations have been made as follows:

- Review and make recommendations in collecting data and supporting documents for the clarification of complaints from external parties, in order to enhance the completeness of information
- Make recommendations regarding to the preventive measures against the fire incident in PTT gas transmission pipeline which affects EGAT's system

Moreover, the Audit Committee has visited the Hydro-Floating Solar Hybrid Project, the solar cell power plant, and the floating solar cell electricity production system, in Sirindhorn Dam at Ubon Ratchathani Province and made the useful observations and recommendations for the operation.

Summary of the Audit Committee's Performance

1. Review of Financial Statements

- Review with the Deputy Governor - Finance and Accounting and the external auditor on the monthly, quarterly, and annual financial statements of EGAT and its subsidiaries; inquire about the accuracy and completeness of financial statements, the adjustment of key account entries, and the accounting estimation; consider the other important matters; and express the useful opinions to ensure that the financial statements are presented fairly in all material respects, in accordance with Thai Financial Reporting Standards, as well as reliable and timely, and that adequate information was disclosed for the users' benefit

2. Review of Internal Control System, Risk Management Process, and Good Corporate Governance Process

- Review the efficiency and effectiveness of the risk management process that affects EGAT's operation to consider its appropriateness and sufficiency, in order to cover all significant issues and be consistent with EGAT's strategic objectives
- Review EGAT's operation for the establishment of internal control system and the internal control assessment in accordance with the criteria set forth by Ministry of Finance for the effectiveness of EGAT's internal control system and the compliance with the related internal control standards
- Discuss with the top executives and the management of each unit to consider internal control systems, risk management, and process monitoring of key activities within their respective units to ensure the maximum benefit for EGAT's operations
- Review the corporate governance process of EGAT to comply with the good corporate governance principles and the best practice

3. Review of Compliance

- Review EGAT's operations to ensure the compliance with relevant rules, regulations, laws, cabinet resolutions, announcements, and requirements of the regulator relating to EGAT's activities

4. Review of the Evaluation Reports of the Governor's Performance

- Review the evaluation reports of the Governor's performance to ensure the accuracy of key performance indicators and performance appraisal results in each period

5. Discussion of the External Auditor's Scope and Approaches

- Discuss with the external auditor regarding the scope, the audit plan, the auditing approaches, and the independence in performing the Auditor's duties, in order to enhance good coordination and reduce duplication of efforts, as well as meet exclusively with the external auditor on one occasion in the absence of the management

6. Oversight of the Internal Audit Office

- Approve the Annual Audit Plan of 2021 and Three-Year Strategic Audit Plan (2021-2023) which include considering the sufficiency and suitability of the resources, such as budget and staff for the effectiveness and efficiency of the internal audit operations, and the compliance with the international standards
- Approve the performance assessment of the Internal Audit Office of the year 2020
- Review the quarterly internal auditor reports of EGAT and its subsidiaries and continuously follow-up on the correction and improvement in accordance with the audit recommendations
- Review EGAT's operation to ensure the coverage of the criteria according to the Seven Enablers of State Enterprise Assessment Model

- Review the appropriateness of EGAT Internal Audit Charter and the Internal Audit Manual to ensure the coverage of the roles and responsibilities of the Internal Audit function, and the consistency with the criteria set forth by Ministry of Finance, including the compliance with International Professional Practices Framework - IPPF

7. Quality Assurance of the Audit Committee

- Review the appropriateness of EGAT Audit Committee Charter and the Audit Committee Manual to ensure the coverage of the roles and responsibilities of the Audit Committee, and the consistency with the criteria set forth by Ministry of Finance
- Conduct the self-assessments for both the Audit Committee as a whole and each individual member of the Audit Committee, based on the Guidelines for Practice of the Audit Committee of the State Enterprises set forth by Ministry of Finance, and provide the assessment report to EGAT Board of Directors in order to enhance the effectiveness, transparency, and reliability of the Audit Committee
- Provide the Report of the Audit Committee's performance for submission to EGAT Board of Directors, Ministry of Energy, and Ministry of Finance

8. The Consideration of the Annual Audit Fee for the Year 2021

- Consider the performance of external auditor for the year 2020 and nominate the External Auditor with the annual audit fee for the year 2021 to be proposed to EGAT Board of Directors

The Audit Committee provided useful recommendations or observations that helped improve the controls over EGAT's operations which led to the development and enhancement of processes, procedures, operational manuals, and monitoring systems in order to promote effectiveness, efficiency, and value addition, as well as preventing future organizational damages.

The Audit Committee believes that throughout the year 2020, EGAT maintained efficient and effective internal control systems, risk management process, and good corporate governance practices which enabled EGAT's operations to achieve the set objectives. EGAT's financial statements were also prepared in accordance with Thai Financial Reporting Standards and were presented with adequate information disclosure. EGAT also operated in compliance with laws, rules, and regulations with no significant deficiency. In discharging their duties, members of the Audit Committee expressed their opinions independently and provided straightforward recommendations to the management and concerned parties to ensure the maximum benefit for all concerned parties.

General 
(Somsak Roongsita)
 Chairman of the Audit Committee



EV CHARGING
STATION



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SUPPORT
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ALWAYS



Getting through the Past Crises

Over the years, EGAT faced several major crises of Thailand. In coping with the **global oil crisis** during 1971-1982, EGAT tried to expand the generating capacity of its power plants which did not use fuel oil in electricity generation in order to replace its import. To survive the **Tom Yum Kung crisis** which had drastically lowered the demand for electricity as never before, EGAT cut the expense and reduced the investment in power plants and transmission system development to support the economy for recovery. In facing the **Great Flood crisis** in which some power plants were underwater, EGAT attempted to maintain the functioning of the power system with full efficiency. After the flood, EGAT also gave financial support and assistance to affected people.

Overview of Thai Electricity and Economy

In 2020, the overall net peak demand of EGAT power system was 28,636.70 MW occurring at 20.30 hours on Thursday, March 12, 2020 representing a decrease of 2,216.50 MW or 7.18% from the previous year. The total net energy generation requirement throughout the year 2020 declined to 191,934.55 million kWh from 197,873.00 million kWh in 2019. This marked a decrease of 5,938.45 million kWh or 3.00%.

The overall net energy demand of EGAT power system was lower than that in 2019. The main factors which caused a decline in power demand were the spread of COVID-19 pandemic that affected the economy widely such as a sharp drop in global economy and trade volume, and a decrease in the number of tourists and revenue from them, etc. Moreover, the condition and limitations arising from the spread of COVID-19 such as the announcement of the Emergency Decree on Public Administration in the State of Emergency, B.E. 2548 (2005) (Emergency Decree) which prohibits people from leaving homes between specified hours throughout the Kingdom (curfew) have changed their lifestyle, while industrial factories, department stores, and many businesses have to stop their services, etc.

According to Thailand Power Development Plan 2018-2037 (PDP2018 Revision 1), it has been estimated that the overall net peak demand of EGAT power system in 2021 will be approximately 34,006 MW, whereas the total net energy generation requirement of EGAT system will be 228,131 million kWh.

The National Economic and Social Development Council (NESDC) has predicted that Thai economy in 2021 will grow approximately 3.5–4.5% supported mainly by

- 1. The improvement in local demand following the cancellation of curfew*
- 2. The recovery of economy and global trade volume*
- 3. The implementation of government measures to drive economy*
- 4. The unusual low expansion base in 2020*

2021

The maximum net electric power demand of EGAT system is expected to be approximately

34,006_{MW}



Operations

EGAT's Total Contract Capacity

In 2020, the total contract capacity in EGAT's power system was 45,480.37 MW comprising 16,037.32 MW from EGAT's power plants contributing to 35.26% of the system, 14,248.50 MW from Independent Power Producers (IPPs) which was 31.33% of the system, 9,473.95 MW from Small Power Producers (SPPs) or 20.83% of the system, and 5,720.60 MW was imported power contributing to 12.58% of the system.

Power Generation and Power Purchase

The overall net peak demand of EGAT's power system was 28,636.70 MW occurring at 20.30 hours on Thursday, March 12, 2020 representing a decrease of 2,216.50 MW or 7.18% of the previous year (30,853.20 MW at 22.27 hours on Thursday, May 2, 2019).

The net energy in 2020 was 191,934.55 million kWh which was a decrease of 5,938.45 million kWh or 3.00% of the previous year (197,873.00 million kWh). The average net energy per day in 2020 was 524.41 million kWh which was 17.71 million kWh or 3.27% less than the highest value of the previous year (542.12 million kWh).

In 2020, EGAT's electricity generation and electricity purchase still relied on natural gas as the main fuel which could generate the net energy of 112,635.43 million kWh or 58.68% of the total generated and purchased power. Next to natural gas was coal which could generate the net energy of 35,059.19 million kWh or 18.27%. Renewable energy (hydropower, wind, solar, geothermal, and biomass) could generate the net energy of 13,242.23 million kWh or 6.90%. The net energy of 29,572.69 million kWh or 15.41% was imported. Electricity of 967.88 million kWh or 0.50% was generated from bunker oil, palm oil, and diesel. Electricity of 457.13 million kWh or 0.24% was from a pumped-storage hydropower plant.

In 2020, the following new power plants were added to the power system.

EGAT Power Plants

1. South Bangkok Combined Cycle Power Plant, Block 4, Unit 1	610 MW	February 29, 2020
2. South Bangkok Combined Cycle Power Plant, Block 4, Unit 2	610 MW	April 18, 2020
3. Klong Tron Dam Hydropower Plant	2.5 MW	December 16, 2020

Firm Small Power Producers (SPPs Firm)

1. Bangkok Cogeneration Co., Ltd. (Extension)	60 MW	February	3, 2020
2. Buayai Bio Power Co., Ltd.	25 MW	June	2, 2020
3. Amata B.Grimm Power 1 Co., Ltd. (Extension)	60 MW	June	15, 2020
4. Glow Energy (Public) Co., Ltd. (Project 1) (Extension)	60 MW	June	15, 2020
5. Uthong Green Power Co., Ltd.	24 MW	December	16, 2020

Non-Firm Small Power Producers (SPPs Non-Firm)

1. Ruamphol Biopower Co., Ltd. (Project 2)	13 MW	January	15, 2020
2. Gulf Chana Green Co., Ltd.	20.662 MW	March	1, 2020
3. Pattani Green Co., Ltd.	21 MW	May	19, 2020
4. TPI Polene Power Co., Ltd. (Project 1) (Extension)	55 MW	August	1, 2020
5. Ruamkamlarp Power Co., Ltd. (Extension)	18 MW	August	1, 2020

Fuel Consumption

In 2020, natural gas supply for EGAT's electricity generation was derived from various gas fields in the Gulf of Thailand and on-land gas fields (Nam Phong and Sin Phu Hom fields) and imported from Myanmar (Myanmar field and LNG). Natural gas utilization by EGAT's power plants amounted to 272,361 billion BTU costing 64,721 million Baht. The average price of natural gas (including marketing and piping charges) was 237.63 Baht/million BTU. The total price was 109,068 million Baht.

In 2020, the average price of the natural gas was 25.80 Baht/million BTU or 9.8% lower than the price in 2019 as PTT has imported 7 cargoes of LNG spots with the average price of each cargo of 106.14 Baht/million BTU.

Therefore, the cost of natural gas for electricity generation was reduced by 35,726 million Baht or 24.7%.

The amount of natural gas supply from the Gulf of Thailand, onshore, and imported in

2020

= 272,361
Billion BTU



Natural Gas Utilization in Terms of Amount, Price, and Value (2019 - 2020)

Year	Power Plant	Gas Utilization		Price ¹	Value ²
		(Billion BTU)	(%)	(Baht / Million BTU)	(Million Baht)
2019		549,649	100	263.43	144,794
	EGAT	275,952	50		72,694
	IPP	273,697	50		72,100
2020		458,982	100	237.63	109,068
	EGAT	272,361	59		64,721
	IPP	186,621	41		44,347

Remark:

1. The price of natural gas is the average price of natural gas purchased by power producers in Thailand, including marketing and piping charges.
2. The value of natural gas includes marketing and piping charges but does not include the value-added tax (VAT).
3. Amount, price, and value of natural gas in 2020 refers to the period of January - November.

From the above Table, the use of natural gas as fuel in power generation in 2020 was 90,667 billion BTU or 16.5% less than that in 2019 due to the situation of COVID-19 pandemic.

Concerning fuel oil, it was used for replacing main fuel in case of its shortage or when the power plant could not generate electricity or during the peak load which is higher than expected. In 2020, fuel oil was used to support the shortfall of natural gas caused by the discontinuity in gas supply from the Joint Thai-Malaysian Development of Gas Field (JDA-A18) for its annual maintenance, to support the case of

emergency, and to support unpredictable occurrence. So far, bunker oil was used at Krabi Power Plant and diesel oil was used at Chana Power Plant. Diesel oil was used in the operation test of South Bangkok Replacement Power Plant (SBRP1). Moreover, crude palm oil has been used in electricity generation in accordance with the additional measure of the government in balancing the use of palm oil in the country and the guidelines on absorbing crude palm oil. With a variety of fuel oil used in electricity generation, an efficient management of fuel oil is necessary in order to reduce the impact on electricity charge.

Utilization of Bunker Oil, Diesel Oil, and Crude Palm Oil in Electricity Generation (2019 - 2020)

Type	Amount Used		Increase / (Decrease)
	2020	2019	%
Bunker Oil (million liter)	21.29	25.68	(17.10)
Diesel Oil (million liter)	33.60	49.94	(32.72)
Crude Palm Oil (million kilogram)	130.84	226.25	(42.17)



Another important mission of EGAT in fuel acquisition in 2020 was the import of LNG to test the system of promoting competition in natural gas business, Phase 1, in accordance with the resolution of the meeting of the Energy Policy Committee on October 21, 2019. The Committee approved EGAT's import of LNG from spot market and requested EGAT to import 2 cargoes of LNG with the total amount not exceeding 200,000 tons for use in Bang Pakong Power Plant, Block 5, Wang Noi Power Plant, Block 4, and South Bangkok Replacement Power Plant, Block 1. In December 2019 and April 2020, EGAT imported 2 cargoes of LNG from spot market in accordance with the resolution of the meeting of the Energy Policy Committee. As a result, the F_t tariff could be reduced by 0.35 Satang/unit and 0.93 Satang/unit respectively. EGAT would undertake LNG import under Phase 2 of the promotion measure.

Moreover, EGAT has prepared a project to establish the LNG Business Unit to carry out a complete range of business, support competition, and increase business agility. Moreover, EGAT would have more opportunities to develop its business for the future.

For lignite production at Mae Moh Mine, in 2020, Mae Moh Mine supplied the total amount of lignite of 13.23 million tons to Mae Moh Power Plant with the generating capacity of 2,455 MW. The amount of lignite represented 99.3% of the annual production plan as the power plant generated less electricity than that in the plan, while the lignite quality complied with the power plant's standard.

Mae Moh Mine supplied lignite to Mae Moh Power Plant

with the capacity of

2,455

MW

The amount of produced lignite represented

99.3%

of the annual production plan

EGAT's energy sales totaled

187,489.39

million kWh

Available to customers as follows:

-  Metropolitan Electricity Authority (MEA)
-  Provincial Electricity Authority (PEA)
-  Direct customers
-  Lao PDR
-  Malaysia
-  Cambodia
-  Customers purchasing electricity for temporary and standby use, and others

Mae Moh Mine occupies an area of 16,000 rai, having the total quantity of lignite which is the economic cost-benefit amounting to 827 million tons, 517 million tons of which have already been mined and 213 million tons are left. For security in electricity generation, the supply of uncovered lignite reserve must be approximately 3.6 million tons or cover more than the demand for lignite of the power plant for 3 months. On December 31, 2020, Mae Moh Mine had approximately 4.1 million tons of uncovered lignite reserve.

Mae Moh Mine's operation in the environmental area has been recognized nationally and internationally as witnessed by several awards received. In 2020, Mae Moh Mine received the Green Mining Awards 2020 for the 6th consecutive year since 2015 and the CSR-DPIM Continuous Award 2020 for several consecutive years since 2012 from the Department of Primary Industries and Mines.

For the Floating Storage and Regasification Unit (FSRU) Project in the Upper Gulf of Thailand, according to the resolution of the National Energy Policy Council in the 5th meeting on December 8, 2016, EGAT was assigned to construct a Floating Storage and Regasification Unit (FSRU) in the Upper Gulf of Thailand (Project F1) to support the LNG import of 5 million tons per year starting from 2024. The Cabinet endorsed the resolution of the National Energy Policy Council on April 11, 2017. The objective of the project is to supply natural gas to South Bangkok Power Plant in Samut Prakan Province and North Bangkok Power Plant in Nonthaburi Province via the natural gas pipelines of the country (PTT PCL's natural gas pipelines). In this connection, EGAT prepared 3 environmental impact assessment (EIA) reports for public hearing, namely EIA of natural gas pipelines which has received approval from the National Environment Board and has been endorsed by the Cabinet. The EIA of FSRU and EIA of the jetty have been approved by the Expert Committee on Environmental Impact Assessment. The provision of contractor is scheduled within 2021, while the construction and testing are planned to be completed in 2024.

Energy Sales

EGAT's energy sales totaled 187,489.39 million kWh. Its sales included 52,343.73 million kWh sold to the Metropolitan Electricity Authority (MEA), 131,558.55 million kWh to the Provincial Electricity Authority (PEA), 1,205.07 million kWh to direct customers, 2,001.74 million kWh to neighboring countries (Lao PDR, Malaysia, and Cambodia), and 380.30 million kWh to customers purchasing electricity for temporary and standby use, and others.

Electricity Adjustment Charge (F_t Tariff)

In 2020, the price of natural gas which is EGAT's main fuel in electricity generation was lower by 24 Baht/million BTU (the average price in 2019 was 277 Baht/million BTU, whereas the average price in 2020 was 253 Baht/million BTU), resulting in the lower cost of electricity generation, including the cost of fuel and power purchase from IPPs and SPPs in spite of the Baht depreciation of 0.24 Baht/USD (from 31.22 Baht/USD in 2019 to be 31.46 Baht/USD in 2020). The expense for promoting power purchase from renewable energy according to the government policy comprising Adder and FiTa was similar to that in 2019 (51,955 million Baht).

As for the F_t tariff, the Energy Regulatory Commission (ERC) approved the same F_t tariff of -11.60 Satang/unit for the first revision (January - April 2020) and the second revision (May - August 2020) which was the same F_t tariff of 2019. The F_t tariff management fund and refund to maintain the financial status of 3 Electricity Authorities to meet the criteria and fines of 2014 - 2017 would be used to compensate the electricity cost and to reduce the burden of consumers. Moreover, as electricity cost has become lower due to the lowering price of natural gas which was the main fuel in electricity

The price of natural gas as the main fuel

in **2020** was 253 Baht/million BTU
 in **2019** was 277 Baht/million BTU

generation following the declining oil price in the world market, the F_t tariff of the third revision (September - December 2020) would be -12.43 Satang/unit or a decrease of -0.83 Satang/unit from the previous revision.

To assist consumers who were affected by COVID-19 pandemic during March - December 2020, the government had launched several measures, such as a reduction of 3% of electricity charge to all kinds of consumers, free electricity charge for residential users under tariff No. 1.1 who use electricity not more than 90 units per month, and additional assistance for electricity tariff to residential users. Moreover, the minimum charge was exempted for medium-general service, large-general service, specific business service, non-profit organizations, and customers who use water-pumping for agricultural purposes. Therefore, the average retail tariff F_t and assistance to customers affected by COVID-19 was lower than the previous year.

F_t Tariff in 2020

Revision	Month	F _t Tariff	Average Retail Tariff including F _t	Average Retail Tariff including F _t and Assistance to Users Affected by COVID-19
		(Baht/Unit)	(Baht/Unit)	(Baht/Unit)
1	January - April	-0.1160	3.67	3.45
2	May - August	-0.1160	3.65	3.45
3	September - December	-0.1243	3.61	3.61

Remark: Initial value of 2020

EGAT Generation Fleet

The Installed Capacity in Power Generation according to the Types of Power Plants

Type of Power Plant	Installed Capacity (MW)	Percentage of the System Capacity
Combined Cycle	8,262.00	51.52
Thermal	3,687.00	22.99
Renewable Energy (Hydropower)	2,972.40	18.53
Renewable Energy (Others)	85.525	0.53
Diesel	30.40	0.19
Other	1,000.00	6.24
Total	16,037.325	100.00

Remark: As of December 31, 2020

Performance of EGAT Power Plants

No.	Performance	2017	2018	2019	2020
1	Heat Rate (kJ/kWh)	8,252	8,247	8,028	7,987
2	GWEAF (%)	93.67	92.46	93.73	92.19
3	POF (%)	3.37	3.20	3.00	5.29
4	UOF (%)	2.37	3.40	2.71	2.02
5	UDF (%)	0.59	0.94	0.56	0.50

In 2020, the overall performance of EGAT's power plants was higher than that in the previous year with the commercial operation of South Bangkok Power Plant, Block 4 added to the system since 2020.

The Generating Weighted Equivalent Availability Factor (GWEAF) was 1.54% lower than that in the previous year. In comparison with 2019, the Planned Outage Factor (POF) was higher by 2.29% due to COVID-19

pandemic causing the power plant to adjust the time to stop its operation for maintenance as planned to be consistent with the situation. However, the Unplanned Outage Factor (UOF) was reduced by 0.69% and the Unit Derating Factor (UDF) was decreased by 0.06% as EGAT could control the rate of UOF and UDF to be not exceeding 5% continuously since 2008.

Transmission System

In 2020, EGAT's transmission system comprised transmission lines of 37,083.916 circuit-kilometers, 231 substations, and a total transformer capacity of 124,094.28 MVA.

In 2020, the forced outages occurred 53 times, out of which 9 times were caused by failure of the transmission lines and 44 times by failure of the substations. The interruption was mainly caused by the defect of the aged substation equipment and the malfunction of control and prevention equipment (23 times), by animals (13 times), by environment (5 times), by human errors, either staff or outside people (4 times), by weather condition (3 times), by unidentifiable reasons (4 times), and others (1 time).

An occurrence which had an impact on EGAT power system happened at 05.35 hours on Friday, February 14, 2020 at Nakhon Si Thammarat Substation which resulted in the blackout at Nakhon Si Thammarat Substation and every delivery point of Ranod Substation.

The Damages:

- Failure of 7 delivery points
- Total interruption duration 347 minutes
- Total electricity supply cut off 7,960.98 MW-Minutes

Bulk System Disturbance Indices (BDI):

- BDI of EGAT electricity system was 0.278 System-Minutes

Remark:

The system peak of EGAT electricity system was 28,636.7 MW at 20.30 hours on Thursday, March 12, 2020.

In 2020, EGAT's performance index and availability were as follows:

- | | |
|---|----------|
| • System Average Interruption Frequency Index (SAIFI) (number of occurrence/delivery point) | 0.12649 |
| • System Average Interruption Duration Index (SAIDI) (minutes/delivery point) | 1.69265 |
| • Service Availability (SA) (%) | 99.80704 |
| • Transmission Circuit Availability (%) | 99.98327 |
| • Transformer Availability (%) | 99.24611 |
| • Voltage Deviation (VD) (ppm) | 0.053 |
| • Frequency Deviation (FD) (%) | 0.00003 |

Remark:

The index of standard service quality of EGAT takes into account the number of unplanned outages which is used in the performance evaluation of EGAT.

Nature of Business of EGAT and Its Affiliates

EGAT's Business Operations

EGAT is a state-owned enterprise under the supervision of Ministry of Energy and Ministry of Finance. The principal mission of EGAT is electricity generation, electricity acquisition, and electricity sales to the Metropolitan Electricity Authority (MEA), the Provincial Electricity Authority (PEA), a number of direct customers by law, and neighboring countries. EGAT is also responsible for other related businesses as stipulated by EGAT Act.

1. Core Business in Electricity Generation

1.1 Electricity Generation

Electricity is generated from 52 EGAT power plants countrywide. With a total installed capacity of 16,037.32 MW, EGAT power plants consist of 3 thermal power plants, 6 combined cycle power plants, 29 hydropower plants, 9 renewable energy power plants (wind, solar, and geothermal), 4 diesel power plants, and 1 other power plant.

1.2 Electricity Purchase

In addition to operating its own power plants, EGAT also purchases bulk electricity from 11 Independent Power Producers (IPPs) totaling 14,248.50 MW, from Small Power Producers (SPPs) totaling 9,473.95 MW, and from neighboring countries, namely Lao PDR and Malaysia totaling 5,720.60 MW.



1.3 Electricity Transmission

EGAT transmits electricity generated by its own power plants and electricity purchased from private power producers through its own grid network covering all parts of the country. EGAT's transmission lines comprise different voltages ranging from 500 kV, 230 kV, 132 kV, 115 kV, and 69 kV. EGAT sells electricity to its direct customers and to MEA and PEA to distribute electricity to their retail customers countrywide. Moreover, EGAT also sells electricity to the power utilities of neighboring countries, namely Lao PDR at 115 kV and 22 kV lines and Malaysia at 300 kV HVDC lines.

2. Other Businesses

2.1 EGAT Related Business

In 2020, EGAT performed business transactions conforming to the strategy for generating income from the existing expertise and resources by providing quality services in electricity, such as engineering and construction of power plants and transmission system, power plant operation and maintenance to outside customers consisting of Independent Power Producers (IPPs), Small Power Producers (SPPs), and industrial power plants. Other businesses include by-products from electricity generation and telecommunications service. Apart from local customers, EGAT has expanded its business to ASEAN region.

Engineering and Construction of Power Plants and Transmission System Business: Being responsible for energy security of the country, EGAT has had a significant role in engineering planning and construction of numerous power plants countrywide for more than 50 years. With its expertise and long experience, EGAT has gained acceptance, reliability, and trustworthiness among the local and foreign customers. In this area, EGAT provides the service of feasibility study of the projects, selection of qualified subcontractors, engineering consulting for project development, and commissioning test.

Power Plant Operation and Maintenance Business: EGAT is recognized as a leading organization which provides a complete service of power plant operation and maintenance as it is equipped with the work pattern

which serves all needs of customers and teams of professionals with specific expertise, including the application of modern technologies to keep pace with new innovations. EGAT provides the service of operation and routine maintenance and other maintenance services, such as electrical maintenance, mechanical maintenance, repairing, manufacturing, mechanical testing and spare parts management, civil maintenance, and chemical maintenance.

In addition, EGAT has expanded the market of new services, such as operation and maintenance of renewable energy power plants, development of human resource in transformer oil testing, and measuring tool calibration, etc.

Transmission System Maintenance Business: EGAT is well known for its experience and expertise in high voltage transmission system in Thailand which covers all parts of the country. It is the policy of EGAT to offer good quality service in this area to promote reliability and security of the power system of the country. Presently, EGAT provides technical consultancy, procurement, scheduled/predictive/preventive/corrective maintenance, and development and renovation services.

By-Product Business: EGAT has a policy to promote circular economy by making use of the by-products from electricity generation of Mae Moh Power Plant in Lampang Province which uses lignite as fuel.

The by-products are lignite fly ash, lignite bottom ash, and synthetic gypsum. In 2020, lignite fly ash could be used to substitute cement of 880,065 metric tons and carbon dioxide could be reduced in concrete industry. Moreover, EGAT has focused on the development of product innovation to increase efficiency and property of the by-products to meet the demand of customers. EGAT has cooperated with leading educational institutions, researchers, and specialists in different fields to study and conduct research and development of the lignite by-products to be more useful. The research project conducted in 2020 was “The use of lignite bottom ash as concrete admixture to improve the load resistance of soil in the horizontal and high slope level.”

Telecommunications Business: EGAT has provided telecommunications service through its fiber optic network. EGAT has been granted license by the National Broadcasting and Telecommunications Commission (NBTC) to operate telecommunications business of Type 3 and International Private Leased Circuit (IPLC).

EGAT’s optical network covers more than 20,000 kilometers countrywide with more than 250 substations. The optical network has been designed to run between the tops of high voltage transmission towers. The optical ground wire (OPGW) cable contains a tubular structure surrounded by layers of steel and aluminum wires. The optical network of EGAT has high reliability and stability. The services provided are domestic and international bandwidth and dark fiber to public and private sectors.

Moreover, EGAT will support the country development in expanding 4G, 5G, IoT network, and other fundamental telecommunications network in the future as well as the government policy of digital economy.

2.2 EGAT’s Affiliates

EGAT has invested in electricity generation and energy-related businesses in the following 5 companies:

Subsidiary Companies RATCH Group Public Company Limited (RATCH)

Nature of Business

RATCH was established as a holding company on March 7, 2000. As a holding company, RATCH gets dividends from its invested companies as main revenue.

The company focuses mainly on investing and developing electricity generating business which concentrates on diversity of resources, ranging from natural gas, oil, coal, hydro, and renewable energy, such as wind, solar power, etc. The company is also interested in expanding into related businesses and infrastructure, such as operation and maintenance service for power plants, coal mining, investment in the sky train project (Pink and Yellow Lines) and the underground optic fiber network project, and a joint venture in various projects, both in Thailand and other countries.

As of December 31, 2020, RATCH had a total capacity of 8,614.00 MW comprising 5,224.39 MW from domestic projects and 3,389.61 MW from overseas projects.

Shareholding

As of December 31, 2020, RATCH had a total registered capital of 1,450 million shares (equivalent to 14,500 million Baht). Its ownership structure is composed of 45% stakes held by EGAT and 55% stakes held by the general public.

EGAT International Company Limited (EGATi)

Nature of Business

EGATi was established by EGAT on December 18, 2007. The objective of EGATi is to represent EGAT in overseas investment in order to acquire electricity back to Thailand as well as to expand investment opportunity in electricity business and EGAT related businesses in order to create added value and to be beneficial to EGAT's business and Thailand.

At present, EGATi has 2 commercial projects which are in operation, namely Adaro Indonesia in Indonesia and Nam Ngiep 1 in Lao PDR which has the generating capacity according to the share of 86.7 MW. Another 3 projects which are in the process of development are Upper Salween Hydropower Plant Project (Mong Ton) in Myanmar, Quang Tri 1 Thermal Power Plant Project in Vietnam, and Nam Ngum 3 Hydropower Plant Project in Lao PDR.

As of December 31, 2020, EGATi had a total generating capacity of 1,529.70 MW from overseas projects.

Shareholding

As of December 31, 2020, EGATi had a total registered capital of 1,219.74 million shares (12,197.4 million Baht). EGAT holds 99.99% stakes in EGATi.

EGAT Diamond Service Company Limited (EDS)

Nature of Business

EGAT Diamond Service Co., Ltd. (EDS) is a joint venture business founded on December 15, 2009 by EGAT, Mitsubishi Power Asia Pacific Pte. Ltd., Mitsubishi Corporation (MC), and RATCH Group Public Company Limited (RATCH). The objective of the company is to provide refurbishment work for the hot gas path parts of gas turbine in 18 countries, namely Thailand, Malaysia, Singapore, Lao PDR, Myanmar, Vietnam, Cambodia, Brunei, Australia, New Zealand, India, Pakistan, Bangladesh, Sri Lanka, Bhutan, Nepal, Afghanistan, and Maldives.

The Gas Turbine Refurbishment Service Center which is located in Navanakorn Industrial Estate, Pathum Thani Province has started its operation in May 2011.

Shareholding

As of December 31, 2020, EDS had a total registered capital of 6.23 million shares (623 million Baht). Its ownership structure is composed of EGAT, Mitsubishi Power Asia Pacific Pte. Ltd., MC, and RATCH with the portion of 45%, 30%, 15%, and 10% stakes respectively.

Associated Company

Electricity Generating Public Company Limited (EGCO)

Nature of Business

EGCO was established as a holding company by EGAT on May 12, 1992. Its revenues are mainly from dividends of subsidiaries and joint venture.

EGCO focuses mainly on generating and selling electricity to EGAT, other local customers, and customers in Asia-Pacific countries under the long-term Power Purchase Agreement (PPA). The company also provides a variety of energy-related services. Business of EGCO can be categorized into 2 groups as follows:

- 1) Electricity business in Thailand and Asia-Pacific region
- 2) Energy-related businesses, namely energy service, coal mining, and oil pipelines

As of December 31, 2020, EGCO had a total generating capacity of 6,449.74 MW consisting of 3,250.96 MW from domestic projects and 3,198.78 MW from overseas projects.

Shareholding

As of December 31, 2020, EGCO had the total registered capital amounting to 530 million shares (5,300 million Baht) of which 526.465 million shares (5,264.65 million Baht) were issued and paid-up. EGCO's shareholders are EGAT (25.41%), TEPDIA Generating B.V. (23.94%), and the general public (50.65%).

Joint Venture

District Cooling System and Power Plant Company Limited (DCAP)

Nature of Business

DCAP is a joint venture business founded on April 2, 2003 by EGAT, PTT Public Company Limited (PTT), and Metropolitan Electricity Authority (MEA). The objective of the company is to generate and sell electricity and cooling water to the Suvarnabhumi International Airport.

As of December 31, 2020, DCAP had a total electricity generating capacity of 94.5 MW and total cooling water producing capacity of 33,000 RT.

At present, the company is in the process of implementing a new cooling water plant project to support the development of the 2nd phase of Suvarnabhumi International Airport and electricity generation by solar energy project in the area of Suvarnabhumi International Airport.

Shareholding

As of December 31, 2020, DCAP had a total registered capital of 167 million shares (1,670 million Baht). Its ownership structure is composed of EGAT, PTT, and MEA with the proportion of 35%, 35%, and 30% stakes respectively.

EGAT's Investment in Its Affiliates

Company	Name Abbreviation	Registered Capital (Million Baht)	Ownership (%)	Status
RATCH Group Public Company Limited	RATCH	14,500	45	Subsidiary Company
<p>72 Ngamwongwan Road, Bang Khane Sub-district, Mueang District, Nonthaburi Province 11000 Tel: +66 (0) 2794 9999 Fax: +66 (0) 2794 9998 Website: www.ratch.co.th</p>				
EGAT International Company Limited	EGATi	12,197.4	99.99	Subsidiary Company
<p>53 Moo 2, Charansanitwong Road, Bang Kruai Sub-district, Bang Kruai District, Nonthaburi Province 11130 Tel: +66 (0) 2436 6909 Fax: +66 (0) 2436 6957 Website: www.egati.co.th</p>				
EGAT Diamond Service Company Limited	EDS	623	45	Subsidiary Company
<p>56/25 Moo 20, Khlong Nueng Sub-district, Khlong Luang District, Pathum Thani Province 12120 Tel: +66 (0) 2529 0800 Fax: +66 (0) 2529 0900 Website: www.egatdiamond.co.th</p>				
Electricity Generating Public Company Limited	EGCO	5,300	25.41	Associated Company
<p>EGCO Tower 222, Vibhavadi Rangsit Road, Thungsonghong Sub-district, Laksi District, Bangkok 10210 Tel: +66 (0) 2998 5000 Fax: +66 (0) 2998 5999 Website: www.egco.com</p>				
District Cooling System and Power Plant Company Limited	DCAP	1,670	35	Joint Venture
<p>222 Moo 1, Nong Prue Sub-district, Bang Phli District, Samut Prakan Province 10540 Tel: +66 (0) 2327 4242 Fax: +66 (0) 2327 4244 Website: www.dcap.co.th</p>				

Analysis of Operating Results and Financial Position

1. Analysis of Operating Results of EGAT and its Subsidiaries

Operating results of EGAT and its subsidiaries for the years ended December 31, 2020 and 2019 are summarized as follows:

Operating Results	2020	2019 (Adjusted)	Increase / (Decrease) 2020-2019		2018 (Adjusted)
	Million Baht	Million Baht	Million Baht	Percentage	Million Baht
Revenue from sales and services	510,707	560,446	(49,739)	(8.87)	524,768
Revenue from electric energy sales	507,254	557,099	(49,845)	(8.95)	521,555
Revenue from sales of other goods and services	3,453	3,347	106	3.17	3,213
Cost from sales and services	441,958	478,170	(36,212)	(7.57)	437,380
Cost of electric energy sales	440,013	476,451	(36,438)	(7.65)	435,807
Cost of sales of other goods and services	1,945	1,719	226	13.15	1,573
Gross profit	68,749	82,276	(13,527)	(16.44)	87,388
Other income	3,666	15,940	(12,274)	(77.00)	4,517
Profit before expenses	72,415	98,216	(25,801)	(26.27)	91,905
Selling expenses	144	188	(44)	(23.40)	204
Administrative expenses	13,726	16,916	(3,190)	(18.86)	14,307
Other expenses	436	490	(54)	(11.02)	1,424
Operating income	58,109	80,622	(22,513)	(27.92)	75,970
Share of profit from investments in associates and joint ventures	7,090	6,923	167	2.41	11,812
Profit before finance costs and income tax expenses	65,199	87,545	(22,346)	(25.53)	87,782
Finance costs	33,783	35,093	(1,310)	(3.73)	37,805
Income tax expenses	105	956	(851)	(89.02)	1,168
Net profit for the year	31,311	51,496	(20,185)	(39.20)	48,809
Net profit - non-controlling interests	3,280	3,287	(7)	(0.21)	3,097
Net profit - owners of EGAT	28,031	48,209	(20,178)	(41.86)	45,712

Operating results for the year ended December 31, 2020, EGAT and its subsidiaries recorded a net profit of Baht 28,031 million, decreasing by Baht 20,178 million or 41.86% from the year 2019. The details are as follows:

1.1 Analysis of Revenue from Electric Energy Sales

For the year ended December 31, 2020, revenue from electric energy sales, which is the primary source of revenue of EGAT and its subsidiaries, amounted to Baht 507,254 million, decreasing by Baht 49,845 million or 8.95% from Baht 557,099 million in 2019. The revenue which was mainly attributable to the volume of electric energy sales of EGAT and its subsidiaries for the year ended December 31, 2020 has decreased by 5,949.74 million kWh or 3.08% to 187,489.39 million kWh, compared with 193,439.13 million kWh in 2019 from the COVID-19 pandemic. The price of electric energy sales decreased by Baht 0.174 per kWh from Baht 2.880 per kWh in 2019 to Baht 2.706 per kWh in 2020. The significant reasons are the decrease in the price of natural gas which is the main fuel used in power generation and the increase in income claw back to alleviate the electricity bill measure from the COVID-19 situation.

1.2 Analysis of Cost of Electric Energy Sales

For the year ended December 31, 2020, the cost of electric energy sales of EGAT and its subsidiaries decreased from prior year by Baht 36,438 million or 7.65%. The details are as follows:

Costs of Electric Energy Sales	2020	2019 (Adjusted)	Increase / (Decrease)	
	Million Baht	Million Baht	Million Baht	Percentage
Electric energy purchased	206,357	210,590	(4,233)	(2.01)
Fuel cost	164,208	196,425	(32,217)	(16.40)
Generating expenses	56,625	57,104	(479)	(0.84)
Transmission expenses	12,823	12,332	491	3.98
Total	440,013	476,451	(36,438)	(7.65)

1.2.1 Electric Energy Purchased

Electric energy purchased as shown in the statements of income for the year ended December 31, 2020, which is a part of the purchase of electricity from power plants that does not qualify as a lease under power purchase agreement under Financial Reporting Standard No.16: Leases, decreased by Baht 4,233 million or 2.01%. The decrease was mainly attributable to a decrease of electric energy purchased from independent power producers (IPP).

1.2.2 Fuel Cost

Fuel cost as shown in the statements of income for the year ended December 31, 2020 included fuel cost of power plants under the power purchase agreements qualified as finance leases according to Financial Reporting Standard No. 16: Leases. The details are as follows:

Fuel Cost	2020	2019 (Adjusted)	Increase / (Decrease)	
	Million Baht	Million Baht	Million Baht	Percentage
(1) Fuel cost of EGAT and its subsidiaries	103,187	113,808	(10,621)	(9.33)
(2) Fuel cost under finance leases	61,021	82,617	(21,596)	(26.14)
Total	164,208	196,425	(32,217)	(16.40)

The volume of electricity produced by EGAT and its subsidiaries amounted to 76,298.12 million kWh, increasing from the prior year by 562.14 million kWh (from 75,735.98 million kWh in 2019). The details of fuel consumption in 2020 are as follows:

Fuel	2020	2019 (Adjusted)	Increase / (Decrease)	
	Million Unit	Million Unit	Million Unit	Percentage
Natural gas (MBTU)	381.49	366.99	14.50	3.95
Heavy oil (liter)	29.66	25.68	3.98	15.49
Diesel oil (liter)	21.17	27.69	(6.52)	(23.54)
Palm oil (kilogram)	178.73	220.80	(42.07)	(19.05)
Lignite (ton)	13.23	13.61	(0.38)	(2.80)

The fuel cost of EGAT and its subsidiaries amounted to Baht 103,187 million, decreasing from the prior year by Baht 10,621 million or 9.33%. The details of fuel cost are as follows:

Fuel	2020	2019 (Adjusted)	Increase / (Decrease)	
	Million Baht	Million Baht	Million Baht	Percentage
Natural gas	88,850	97,650	(8,800)	(9.01)
Heavy oil	492	478	14	2.93
Diesel oil	462	600	(138)	(23.00)
Palm oil	2,533	3,936	(1,403)	(35.65)
Lignite	10,850	11,144	(294)	(2.64)
Total	103,187	113,808	(10,621)	(9.33)

The decrease in fuel cost was mainly attributable to the significant decrease in price of natural gas that dropped from the prior year by Baht 33.18 per million BTU (Baht 232.90 per million BTU in 2020 and Baht 266.08 per million BTU in 2019). Although the natural gas consumption for electricity generation was higher than the previous year, the decrease of natural gas price brought the total cost of natural gas down by Baht 8,800 million. Moreover, in 2020, the amount of palm oil used as fuel in electricity generation according to government policy decreased from the prior year by 42.07 million kilograms (178.73 million kilograms in 2020 and 220.80 million kilograms in 2019). In addition, the price of palm oil dropped from 2019 by Baht 3.66 per kilogram (Baht 14.17 per kilogram in 2020 and Baht 17.83 per kilogram in 2019). As a result, the total cost of palm oil also decreased from the previous year by Baht 1,403 million.

1.3 Revenue and Cost of Sales of Other Goods and Services

Revenue and cost of sales of other goods and services were mainly derived from revenue from operation and maintenance services, engineering and construction consulting services, and telecommunication services.

For the year 2020, EGAT and its subsidiaries recorded the revenue from sales of other goods and services in the amount of Baht 3,453 million, increasing from the prior year by Baht 106 million or 3.17%. The main reason was the rise in revenue from operation and maintenance services in the amount of Baht 238 million. The cost of sales of other goods and services in 2020 amounted to Baht 1,945 million, increasing from the prior year by Baht 226 million or 13.15%. The main reason was that the cost of operation and maintenance services increased from the prior year by Baht 363 million.

1.4 Other Income

Other income for the year ended December 31, 2020 totaled Baht 3,666 million, decreasing from the year

2019 by Baht 12,274 million or 77.00%, mainly due to the decrease in gain on exchange rates in the amount of Baht 11,200 million in 2020 due to the slight increase in appreciation of Thai baht when compared to U.S. dollar in 2019 which brought the gain on exchange rates to Baht 160 million. However, in 2019, with a significant appreciation of Thai baht when compared to U.S. dollar in 2018, the gain on exchange rates amounted to Baht 11,360 million.

1.5 Other Expenses

Other expenses for the year ended December 31, 2020 totaled Baht 436 million, decreasing from the prior year by Baht 54 million or 11.02%. The decrease was mainly attributable to the drop of the loss on write-off assets from the prior year by Baht 132 million (Baht 90 million in 2020 and Baht 222 million in 2019).

1.6 Share of Profit from Associated Company of EGAT and Share of Profit from Joint Ventures of Subsidiaries by Using the Equity Method

For the year ended December 31, 2020, share of profit under the equity method totaled Baht 7,090 million, increasing from the prior year by Baht 167 million or 2.41% which consisted of an increase in share of profit from subsidiaries and joint ventures of subsidiaries by Baht 568 million, while there was a decrease in share of profit from associated company by Baht 401 million.

1.7 Income Tax Expenses

For the year ended December 31, 2020, the income tax expenses of RATCH Group Pcl., EGAT International Co., Ltd., and EGAT Diamond Service Co., Ltd. amounted to Baht 105 million, decreasing from the prior year by Baht 851 million or 89.02%. The main reason is that Ratchaburi Electricity Generating Co., Ltd., the subsidiary of RATCH Group Pcl., received the return of corporate income tax paid during the period which is a tax benefit from the sales of assets in Tri-Energy Power Plant (TECO). As a result, the income tax of RATCH Group Pcl. decreased from the previous year by Baht 842 million.

2. Analysis of Financial Position of EGAT and its Subsidiaries

Financial Position	Dec 31, 2020	Dec 31, 2019 (Adjusted)	Increase / (Decrease)		Dec 31, 2018 (Adjusted)
	Million Baht	Million Baht	Million Baht	Percentage	Million Baht
Total assets	994,763	1,003,951	(9,188)	(0.92)	1,021,211
Total liabilities	506,622	529,298	(22,676)	(4.28)	568,381
Owners' equity of EGAT and its subsidiaries	454,673	441,611	13,062	2.96	419,504
Non-controlling interests	33,468	33,042	426	1.29	33,326

As at December 31, 2020, the total assets of EGAT and its subsidiaries decreased by Baht 9,188 million, mainly due to the following reasons:

- Right-of-use assets - power plants, net decreased by Baht 17,825 million from depreciation.
- Cash and cash equivalents decreased by Baht 10,652 million, mainly resulting from a decrease in government bonds - maturities within three months of Baht 8,998 million and a decrease in fixed deposit receipts of Baht 2,361 million.
- Intangible assets, net increased by Baht 11,144 million, mainly resulting from an increase in land rights of Baht 11,377 million.
- Investments in associates and joint ventures increased by Baht 9,923 million, mainly resulting from capital increase in associates in which EGAT indirectly held shares (Yandin WF Holdings Pty., Ltd.) of Baht 1,484 million and capital increase in joint ventures in which EGAT indirectly held shares of Baht 4,512 million, such as An Binh Energy and Infrastructure Fund, Nexif Ratch Energy Rayong Co., Ltd., and PT Medco Ratch Power Riau, etc.

As at December 31, 2020, the total liabilities of EGAT and its subsidiaries totaled Baht 506,622 million, decreasing by Baht 22,676 million, mainly detailed as follows:

- Trade accounts payable decreased by Baht 13,791 million because account payable of natural gas and other fuels decreased by Baht

7,892 million, account payable of electricity purchased from independent power producers (IPP) decreased by Baht 6,304 million, and account payable of electricity purchased from small power producers (SPP) decreased by Baht 4,001 million. However, account payable of electricity import and other payables increased by Baht 2,522 million and Baht 1,885 million respectively.

- Finance lease liabilities from Power Purchase Agreement and current portion decreased by Baht 12,906 million because of the repayment according to the agreement.
- Accrued remittance to the Ministry of Finance decreased from the prior year by Baht 5,071 million since the remittance was estimated from 45% of annual income which the 2020 financial performance had a lower profit than the prior year.
- Long term loans and current portion rose from the prior year by Baht 4,976 million because on July 1, 2020 EGAT issued 15-year bonds with an interest and holder in the name-registered certificate, totaling Baht 4,000 million for 4 million units at unit price of Baht 1,000 per unit. The objective is to invest in transmission system development projects.

As at December 31, 2020, owners' equity of EGAT and its subsidiaries totaled Baht 454,673 million, increasing by Baht 13,062 million, as shown in the following details.

- For the year ended December 31, 2020, the net profit of EGAT and its subsidiaries totaled Baht 28,031 million.
- A decrease in other components of equity amounted to Baht 1,979 million.
- A decrease in remittance to the Ministry of Finance amounted to Baht 12,985 million.



3. Analysis of Cash Flow

As at December 31, 2020, cash and cash equivalents of EGAT and its subsidiaries amounted to Baht 69,353 million, decreasing from December 31, 2019 by Baht 10,652 million. The major reasons are as follows:

	Million Baht
Cash and cash equivalents as at December 31, 2019	80,005
Net cash inflows from operating activities	102,125
Net cash outflows from investing activities	(48,863)
Net cash outflows from financing activities	(63,924)
Other effects from cash and cash equivalents	10
Cash and cash equivalents as at December 31, 2020	69,353

Net cash inflows from operating activities totaled Baht 102,125 million which was derived from 2020 profit before income taxes of Baht 31,416 million, adjusted by non-cash items in statements of income such as depreciation and gain/(loss) on exchange rates, etc., totaling an increase of Baht 81,227 million. Besides, changes in working capital resulted in a decrease in cash of Baht 10,522 million, cash receipts on interest of Baht 467 million, and cash payment on income tax expenses of Baht 463 million.

Net cash outflows from investing activities amounted to Baht 48,863 million, mainly consisting of investments for the construction of power plant projects, transmission system, construction projects and durable goods, and interests for construction totaling Baht 44,350 million, the increase in investments in associates and joint ventures of subsidiaries for Baht 5,996 million and cash paid for

long-term loans to other parties of Baht 2,501 million. In addition, there was cash received on dividend in amount of Baht 4,097 million and cash received on interest in amount of Baht 234 million.

Net cash outflows from financing activities totaled Baht 63,924 million, mainly comprising of cash paid for finance costs of lease liabilities from Power Purchase Agreement in the amount of Baht 28,907 million, remittance paid to the Ministry of Finance in the amount of Baht 18,056 million, cash paid for principle elements of lease liabilities from Power Purchase Agreement in the amount of Baht 13,742 million, cash payment on finance costs in the amount of Baht 4,621 million, and dividend paid to non-controlling interests of subsidiaries in the amount of Baht 1,919 million. In addition, there was cash received from long-term loans in the amount of Baht 3,613 million.

4. Financial Ratios

Based on the operating performance and financial position for the years ended December 31, 2020 and 2019, the financial ratios of EGAT and its subsidiaries are as follows:

	2020	2019 (Adjusted)
Liquidity Ratios		
Current ratio (times)	1.34	1.35
Quick ratio (times)	1.22	1.25
Cash ratio (times)	0.84	0.79
Profitability Ratios		
Gross profit to net sales (percentage)	13.46	14.68
Net profit to net sales (percentage)	6.13	9.19
EBITDA (million Baht)	108,117	119,399
Efficiency Ratios		
Return on total assets (percentage)	3.13	5.09
Return on fixed assets (percentage)	18.31	27.41
Total assets turnover (times)	0.52	0.58
Financial Policy Ratios		
Debt to equity ratio (times)	1.04	1.12
Times interest earned (times)	1.93	2.49
Fixed charge coverage (cash basis) (times)	1.60	1.37



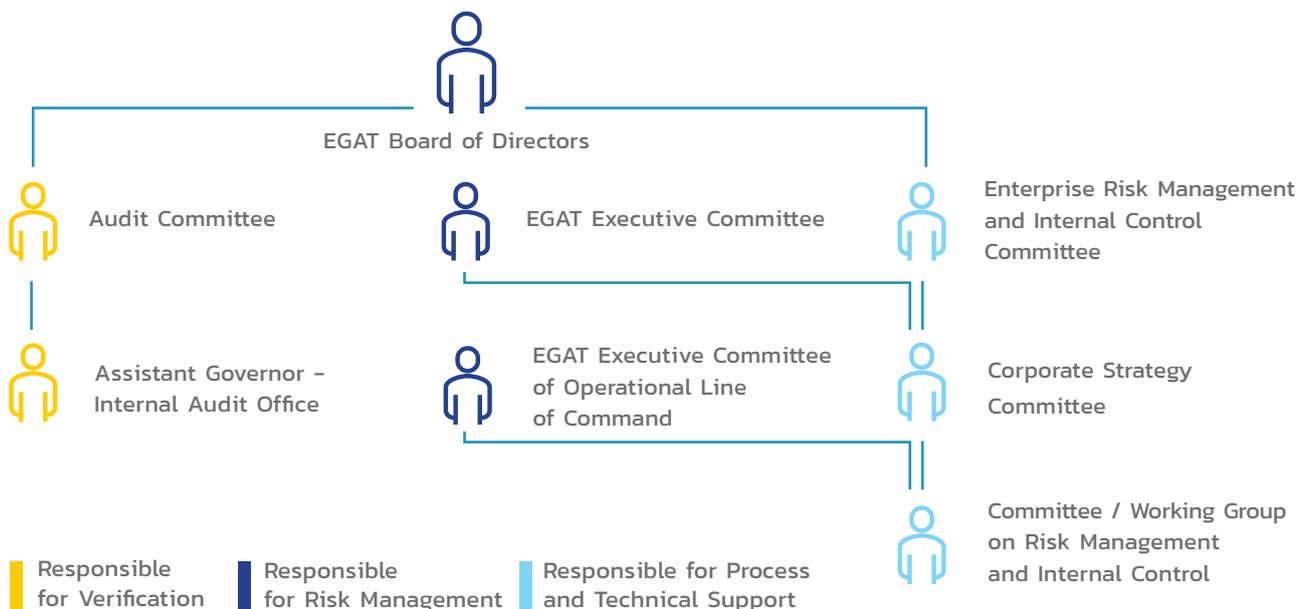
Enterprise Risk Management and Internal Control

EGAT realizes the importance of risk management and internal control in the changing situation of which the internal and external factors may affect EGAT's operation. Enterprise risk management and internal control in compliance with the international standard of the Committee of Sponsoring Organization of the Treadway Commission (COSO) has been implemented by EGAT, which is in line with the State Enterprise Assessment Model (SE-AM) of the State Enterprise Policy Office (SEPO) and the integrated framework of COSO 2017 (Enterprise Risk Management Integrating with Strategy and Performance). The COSO 2017 gives importance to value addition to the organization, alignment of

strategic plan with the risk management, and creation of corporate culture which regards risk management essential for all working processes that are linked with all levels and is implemented in the same way by the whole organization.

EGAT Board of Directors appointed the Risk Management and Internal Control Committee to be responsible for risk management and internal control. Moreover, the Corporate Strategy Committee was appointed by EGAT Governor to be responsible for the effectiveness of EGAT risk management.

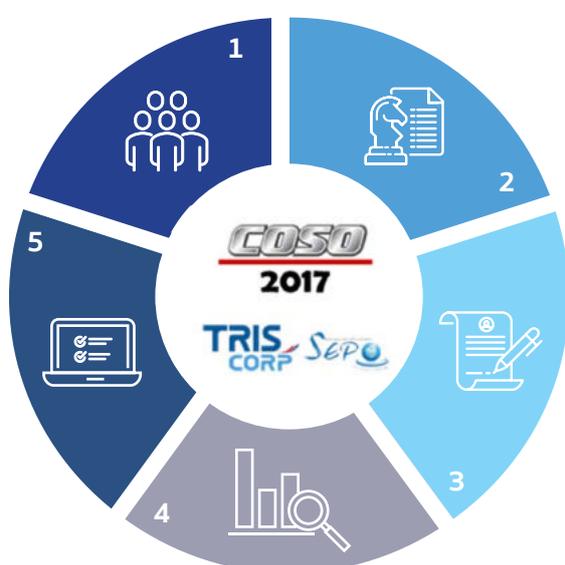
Structure of Enterprise Risk Management and Internal Control



Enterprise risk is managed systematically through each committee and integrated with the strategic plan so that the risk management plan is efficient, effective, and consistent with EGAT's goal and strategy. Operational risk management is under the supervision of the head of each line of command and under the responsibility of all units to manage and control the risk to be within the risk appetite.

Risk Management in 2020

In 2020, EGAT complied its risk management according to the guidelines of the State Enterprise Policy Office and the guidelines of COSO Enterprise Risk Management Integrating with Strategy and Performance 2017 (COSO-ERM 2017) in 5 components, namely:



- 1 Governance & Culture**
 - Risk Management Structure
 - Risk Appetite Guideline Preparation
- 2 Strategy & Objective Setting**
 - Business Objective Setting
 - Risk Appetite and Risk Tolerance Setting
- 3 Performance**
 - Risk Factor Setting
 - Risk Factor Impact Assessment
 - Risk Management Work Plan/Measure Preparation
- 4 Review & Revision**
 - Risk Management Result Review and Revision
 - Risk Management Revision Guideline Setting
- 5 Information, Communication & Reporting**
 - Risk Management Communication
 - Risk Management Monitoring and Reporting
 - Risk Management System Development

1. Governance and Culture

The Enterprise Risk Management and Internal Control Committee set the policy which focuses on integration of corporate governance, risk management and internal control, and support of risk management of all levels. EGAT executives are required to use information concerning risks for decision-making and administration.

2. Strategy and Objective Setting

EGAT has carried out the risk management to achieve its vision and mission which is linked with strategic objective and operational direction of the organization. EGAT risk management plan is prepared and revised every year to be consistent with the changing situation by considering internal and external factors which may affect EGAT's operation. The key risk indicators (KRI) are defined to cover all important risks and are managed to be within the risk appetite or not exceeding the risk tolerance both at the enterprise level and operational level. The risk management plan is submitted to the Risk Management and Internal Control Committee for approval and implementation.

3. Performance

For risk identification and risk assessment process, EGAT considers the chance of occurrence from the statistics or the forecast as well as the impact or severity on EGAT's operation. The risk management plan is prepared to cover significant risks to reduce the chance of occurrence and its impacts which will prevent EGAT from its achievement. Moreover, a risk map which shows risk correlation is used to analyze the cause and effect of the enterprise risk so that the risk can be managed timely.

4. Review and Revision

EGAT prepares the annual risk management plan for approval by the Risk Management and Internal Control Committee and uses it as the guideline for enterprise risk management. The result of risk management is monitored quarterly. The work plan and measures of risk management are adjusted to be consistent with the changing internal and external factors. All functional units responsible for each risk factor are kept informed on the annual risk management plan.

5. Information, Communication, and Reporting

To promote the implementation of risk management, the Risk Management Manual is publicized on EGAT intranet system via website: Risk Management and Internal Control. The implementation of risk management plan, measures, and activity is monitored regularly and reported to the Risk Management and Internal Control Committee and the Board of Directors quarterly. Comments and recommendations of the Committee are used in the improvement of the operation and the risk management plan and internal control. In addition, EGAT has developed a package software on Risk Management System (RMS) and Internal Control for collecting and analyzing information as well as monitoring and reporting risk management and internal control at the functional and enterprise levels.

EGAT has carried out risk management in 4 aspects as follows:

1. Strategic and Corporate Risk

EGAT develops its strategy to cope with the changes in terms of economy, society, energy, technology, and consumer behavior, which are affected by the global changes. EGAT reviews its vision, strategy, and future plan in the annual seminar of executives and Board of Directors. The strategic plan and action plan for the revised vision are prepared. In the EGAT executives meeting, the strategic plan is also considered and revised.

2. Operational Risk

EGAT analyzes and identifies risk for significant operations and prepares itself to take on risks inherent to all aspects of security of the power system, such as the construction and development of new power plants according to the Power Development Plan (PDP) as well as the development of transmission system and transmission lines to support economic growth, including the control and power supply for the security of the electricity system of the country.

In addition, EGAT has placed emphasis on security of information technology system; the use of equipment, innovation, and modern technology to improve the competitiveness of EGAT's operation; and the development and management of human resources and social responsibility.

In 2020, there were external factors which affected EGAT's operation. If the outbreak of COVID-19 pandemic lasts long, the risk can occur from a "new normal" for the economy which will change consumer behavior and the supply chain system. As a result, it will be necessary for EGAT to review its future business's nature. Moreover, EGAT was affected

by other situations such as the distrust of electricity tariff.

Therefore, EGAT has evaluated the sufficiency of its activity under the existing control and the sufficiency of business continuity plan (BCP) focusing on the interruption of electricity generation, transmission, and distribution which may have wide impacts, such as a blackout/partial blackout or damage on important equipment or tools. Moreover, EGAT has evaluated the sufficiency and effectiveness of the business continuity management (BCM) to cover all kinds of situations.

3. Financial Risk

Financial risk management has been carried out by EGAT in an effort to maintain its financial stability and provide adequate capital investment or adequate returns to ensure the optimum efficiency of capital management under the appropriate cost. Moreover, EGAT has prepared the capital structure which can maintain important financial ratio appropriately in comparison with other leading organizations in the same industry. In addition, EGAT could manage the annual budget of all functional units for the efficient management of expenditure and cost.

4. Compliance Risk

In order to perform the work correctly and comply with EGAT's policy, law, rules, and regulations, EGAT has adopted the policy on corporate governance. Furthermore, EGAT has closely followed up the change of policy, law, rules, and regulations of regulatory bodies to keep EGAT's operation consistent with the change. All functional units have been promoted to adhere to the principles of corporate governance and internal control. EGAT has integrated risk assessment and monitored the compliance of the functional units with policy, law, rules, and regulations. Risk management plan has been prepared, monitored, and reported to the responsible Committee.

Moreover, EGAT has considered additional plans and measures which EGAT should implement to cope with the COVID-19 pandemic with 5 steps.

5 Steps of COVID-19 Support Measures



Resolve

Urgent measures to resolve the problem



Resilience

Flexibility in the operation, both in the preparation of emergency plan and business continuity plan



Return

Returning to the original plan according to the target



Re-Imagination

Imagination of the situation which may happen and planning of management and resource allocation



Reform

Review of corporate strategy in case of the state of new normal occurring in electricity industry

Internal Control System

To achieve the objective of internal control, EGAT internal control system complies with the regulation of Ministry of Finance on the Standard and Regulation of Internal Control for Government Agency, B.E. 2561 (2018). To achieve integration of risk management and internal control, the annual internal control evaluation report is prepared and submitted to the Audit Committee for verification of the sufficiency and appropriateness before submission to EGAT Board of Directors and the Ministry of Energy.

EGAT evaluates the internal control system in accordance with the criteria of Ministry of Finance to ensure that EGAT's mission achieves the objectives with efficiency and effectiveness. The results of the evaluation of the 5 components of internal control are as follows:

1. Control Environment

To achieve the objective of internal control with efficiency, effectiveness, transparency, fairness, and verifiability with good attitude towards internal control, EGAT promotes appropriate environment of internal control based on the principles of corporate governance. Moreover, EGAT also promotes honesty, ethics, and responsibility among the employees by announcing the policy on corporate governance and anti-corruption and publicizing its code of ethics and code of conduct to the Board of Directors, executives, and employees for implementation.

EGAT Board of Directors which is independent from EGAT executives has the authority to supervise and develop internal control, vision, mission, corporate plan, strategic objectives, key indicators, and clear and measurable operational plans as guidelines for the executives and employees. The Board of Directors' committees are authorized to work to achieve the objectives.

To promote EGAT as an organization with strong value and culture, EGAT motivates its employees to adhere to the corporate value "SPEED" and integrate with other processes. Moreover, EGAT has clearly defined approval authority and job description of all levels as well as key performance indicators (KPIs) as guidelines for working and benchmarking. In human resource recruitment and development, EGAT tries to find and keep knowledgeable and competent persons with the organization.

2. Risk Assessment

EGAT carries out risk management based on COSO 2017 and EGAT strategy. The results of risk management are monitored and reviewed quarterly. The Enterprise Risk Management and Internal Control Committee is responsible for supervising enterprise risk management and specifying the scope of risk management, risk appetite, risk tolerance, and written policy on risk management.

Moreover, EGAT analyzes and assesses internal and external factors which may prevent the organization from achieving the targets covering 4 aspects of risk. The assessment also includes the opportune risk for different kinds of corruption and the risk significance which is considered from opportune incident and possible effect in order to prepare an appropriate plan and measures for risk management.

3. Control Activities

To achieve the objectives of internal control, EGAT organizes efficient and effective control activities to prevent or reduce damages or errors which may arise. Policy, rules and regulations, order, and working procedures are set up to cover all aspects of operation. Several necessary activities for internal control are

identified, such as separation of authority, approval authority of executives of different levels, automated and manual control, and development of control activity by using information technology such as General Controls, Application Controls, etc.

4. Information and Communication

EGAT has a financial and non-financial information system and database management system. EGAT Digital Committee is responsible for the administration, supervision, and acquisition of digital system, including consideration of digital development plan for EGAT's transformation into a digital organization. The Executive Information System (EIS) is also available to support the decision-making of executives.

Furthermore, EGAT has the communication system for executives and relevant personnel inside and outside of EGAT to exchange information through various channels systematically and timely, both in normal situation and in crisis.

5. Assessment

EGAT has carried out the monitoring system of internal control assessment regularly and continuously. Clear guidelines are available for the case of failure to meet the target, including monitoring and reporting the result of improvement and verification of sufficiency of internal control. In addition, EGAT has developed the risk management system (RMS) to support risk management and internal control together with the early warning system to cope with the fast-changing situation.

EGAT Assistant Governor - Internal Audit Office is in charge of the preparation of a balancing and transparent audit plan covering management process and core process.

The person is also responsible for assessing the sufficiency of internal control system and the implementation of internal control system, monitoring the improvement, and reporting to executives, Audit Committee, and Board of Directors regularly.

From the assessment, the structure of EGAT internal control is complete with 5 components in accordance with the Standard and Regulation of Internal Control for Government Agency, B.E. 2561 (2018) of Ministry of Finance which is an effective and sufficient standard to achieve success according to the objectives of internal control.



Organization Chart

Board of Directors

Governor

Assistant Governor - Internal Audit Office

Deputy Governor - Strategy

- Assistant Governor - Corporate Strategy
- Assistant Governor - Research, Innovation and Business Development
- Assistant Governor - Sustainability Management

Deputy Governor - Generation

- Assistant Governor - Generation 1
- Assistant Governor - Generation 2
- Assistant Governor - Renewable Power Plant

Deputy Governor - Transmission System

- Assistant Governor - Transmission System Development
- Assistant Governor - System Control
- Assistant Governor - Transmission System Operation and Asset Management

Deputy Governor - Power Plant Development and Renewable Energy

- Assistant Governor - Power Plant Engineering and Construction
- Assistant Governor - Power Plant Planning

Deputy Governor - Administration

- Assistant Governor - Organization Development
- Assistant Governor - Information Technology
- Assistant Governor - Legal Affairs and Corporate Governance
- Assistant Governor - Procurement and General Services

Deputy Governor - Finance and Accounting (CFO)

- Assistant Governor - Finance
- Assistant Governor - Accounting

Deputy Governor - Fuel

- Assistant Governor - Fuel Management
- Assistant Governor - Mae Moh Mine

Deputy Governor - Power Business

- Assistant Governor - Operation and Maintenance Business
- Assistant Governor - Business Project

Structure of Organizational Management

EGAT carries out its mission in accordance with the EGAT Act, B.E. 2511 (1968). The responsibility and the role of the Board of Directors and the EGAT executives are clearly separated. The EGAT Board of Directors is responsible for supervising the administration, decision-making, and setting policy and strategy of EGAT, whereas the responsibility of the executives is to set policy and administer the work of EGAT. However, to provide a link between the supervision and the administration, EGAT Governor who is the top management of EGAT and an ex-officio Director is appointed by the Board of Directors to be the Secretary of the Board.



Law
1 Person



Economics
2 Persons



Information Technology
1 Person



Public Finance
2 Persons



Energy
3 Persons



Innovation
1 Person



Business Administration
5 Persons

1. Board of Directors

1.1 Composition, Qualifications, and Appointment

The Board of Directors is appointed by the Cabinet and comprises Chairman and Directors of not exceeding 10 members, including EGAT Governor who is the ex-officio Director. All members must have qualifications as stated in the EGAT Act, B.E. 2511 (1968) and the Act on Standards for Qualification of Board of Directors Members and Employees of State Enterprises, B.E. 2518 (1975) and its amendment.

Moreover, members of the Board of Directors are selected from the 11 skill matrix in line with EGAT mission and strategies as follows:



Finance
3 Persons



Science
1 Person



Accounting
1 Person



Engineering
8 Persons

1.2 Authority and Responsibility

- Establish EGAT's vision and policies, and be accountable for the performance of EGAT executives
- Review and approve significant policies and strategies, including financial goal, corporate governance, social responsibility and environmental management, and EGAT plans, as well as monitor the performance of EGAT executives regularly according to the plans
- Ensure the reliability of the accounting system, financial and non-financial statements, and auditing; ensure the availability of the evaluation process of the internal control and internal audit, risk management, financial statements, and follow-up to be effective and efficient
- Inspect and address conflicts of interest issues which may occur among members of the Board of Directors, executives, and employees as well as control the misuse of EGAT's property and misconduct of the members of the Board of Directors, executives, and employees

- Lay down regulations and orders concerning EGAT performance and personnel administration appropriately with the possibility to authorize EGAT Governor or a person designated by the Governor to establish regulations, orders, criteria, and details which conform to the regulations
- Appoint the Subcommittee to set operational policies and guidelines for practice or other manuals to conform to corporate governance, and approve master plan or work plans before reporting to EGAT Board of Directors as well as give opinions and recommendations concerning EGAT operation
- Ensure that the structure and practices of the Board of Directors comply with the principles of corporate governance and ethical standard
- Ensure the appropriateness of human resources management in terms of position classification and manpower
- Set criteria for EGAT Governor's nomination, remuneration, and evaluation of work performance appropriately as well as carry out the evaluation of EGAT Governor performance and review the work plans regularly

1.3 Independence of Board of Directors

EGAT Board of Directors comprises 6 independent outsiders which can express their views freely. Two of them are from the list of members of State Enterprises' Boards of Directors or Director's Pool: DP. (EGAT Board of Directors has 7 members on the list.)

The appointment of independent outsiders to be members of the Board of Directors complies with the Principles and Guidelines for Corporate Governance for State Enterprise of 2562 (2019) issued by the State Enterprise Policy Office (SEPO), Ministry of Finance which specifies that at least one third of the members of the Board of Directors should be independent outsiders

so as to have real freedom in decision-making, and the number of independent members should be sufficient to ensure that their comments are heard by the meeting. They should be specialized in the area useful for the operation of the State Enterprise. At least one of the independent members should be appointed from the list of members of State Enterprises' Boards of Directors (Director's Pool - DP) prepared by the Ministry of Finance. Moreover, the appointment of the Board of Directors complies with Section 12/1 of the Act on Standards for Qualification of Board of Directors Members and Employees of State Enterprises, B.E. 2518 (1975) which states that in the appointment of any committee members which are not ex-officio members, not less than one third should be from the list of members of State Enterprises' Boards of Directors (Director's Pool - DP) prepared by the Ministry of Finance.



1.4 Members of the Board of Directors

No.	Name	Position in the Board / Working Position	Independent Member	DP
1	Mr. Kulit Sombatsiri	Chairman / Permanent Secretary, Ministry of Energy		●
2	General Somsak Roongsita	Director / Secretary General, Office of the National Security Council	●	
3	Ms. Nantika Thangsuphanich	Director (Representative of Ministry of Energy) / Director General, Department of Energy Business		●
4	Mr. Suthon Boonprasong	Director / Former EGAT Deputy Governor - Transmission System	●	●
5	Mr. Pornpoth Penpas	Director / Director General, Department of Public Works and Town & Country Planning, Ministry of Interior	●	
6	Professor Pisut Painmanakul	Director / Associate Dean, Innovation Strategy and Sustainability, Faculty of Engineering, Chulalongkorn University	●	
7	Mr. Pakorn Apaphant	Director / Executive Director, Geo-Informatics and Space Technology Development Agency (Public Organization)	●	●
8	Ms. Niramarn Laisathit	Director / Senior Executive Vice President, Bangkok Bank Public Company Limited	●	
9	Mr. Pornchai Thiravet	Director (Representative of Ministry of Finance) / Fiscal Policy Advisor, Ministry of Finance		●
10	Mr. Viboon Rerksirathai	Director (Ex-Officio) and Secretary / EGAT Governor		●
11	Mr. Boonyanit Wongrukmit	Director (Ex-Officio) and Secretary / EGAT Governor		●

Remark:

No.7 resigned on November 1, 2020.

No.10 retired as having completed the term of EGAT Governor on December 3, 2020.

2. Board Committees

To ensure the efficiency in the supervision of the work of EGAT, the Board of Directors appointed 12 Committees/ Subcommittees/Task Force as follows:

Nine committees to scrutinize important issues are Executive Committee, Audit Committee, Enterprise Risk Management and Internal Control Committee, Corporate Governance and Social Responsibility Committee, Law and Regulation Compliance Committee, Human Resources Committee, EGAT Deputy Governor and Assistant Governor Nomination Committee, EGAT Labor

Relations Committee, and Digital Technology, Knowledge Management, and Innovation Committee.

Three ad hoc committees and subcommittee are EGAT Governor Nomination Committee, EGAT Governor's Remuneration Subcommittee, and EGAT Governor's Performance Evaluation and Criteria Subcommittee.

An ad hoc task force is Improvement of EGAT Operation to Cope with Changes Task Force.

2.1 Executive Committee

Authority and Responsibility

- Scrutinize all issues concerning financial matters, policies, and investment plans as well as annual budget of EGAT
- Approve the adjustment of disbursement plan, Terms of Reference (TOR), and procurement within the financial amount limit by the Board of Directors
- Perform any other tasks assigned by the Board of Directors

Members of the Executive Committee

No.	Name	Position
1	Ms. Nantika Thangsuphanich	Chairman
2	Mr. Suthon Boonprasong	Member
3	Professor Pisut Painmanakul	Member
4	Ms. Naree Tantasathien	Member
5	EGAT Governor	Member and Secretary

2.2 Audit Committee

Authority and Responsibility

- Verify the appropriateness of EGAT operation such as financial statements, the efficiency and effectiveness of EGAT internal control system, risk management, internal audit, information technology system, corporate governance, procedure to oversee the observance of the law, rules, and regulations, resolutions of the Cabinet, assignments of relevant organizations, and related-party transactions (RPT)
- Supervise the operation of the Office of Assistant Governor - Internal Audit concerning the internal audit system
- Perform any other tasks assigned by the Board of Directors

Members of the Audit Committee

No.	Name	Position
1	General Somsak Roongsita	Chairman
2	Mr. Pornchai Thiravet	Member
3	Ms. Niramarn Laisathit	Member
4	EGAT Assistant Governor - Internal Audit Office	Secretary

2.3 Enterprise Risk Management and Internal Control Committee

Authority and Responsibility

- Ensure the efficiency of EGAT risk management system to comply with the criteria and guidelines for corporate governance
- Perform any other tasks as assigned by the Board of Directors

Members of the Enterprise Risk Management and Internal Control Committee

No.	Name	Position
1	Mr. Pornpoth Penpas	Chairman
2	Mr. Pakorn Apaphant	Member
3	Mr. Kong Rungsawang	Member
4	EGAT Governor	Member
5	EGAT Deputy Governor - Strategy	Member and Secretary

Remark:

No.2 resigned on November 1, 2020.

2.4 Corporate Governance and Social Responsibility Committee

Authority and Responsibility

- Give policies or guidelines for corporate governance, morality and ethics, social responsibility, sustainable organization, stakeholder management, and customer service
- Approve and revise EGAT master plans, annual operational plans, and handbooks
- Oversee and follow up on the implementation
- Perform any other tasks as assigned by the Board of Directors

Members of the Corporate Governance and Social Responsibility Committee

No.	Name	Position
1	Ms. Nantika Thangsuphanich	Chairman
2	Professor Pisut Painmanakul	Member
3	EGAT Deputy Governor - Administration	Member
4	EGAT Deputy Governor - Strategy	Member
5	EGAT Assistant Governor - Legal Affairs and Corporate Governance	Secretary

2.5 Law and Regulation Compliance Committee

Authority and Responsibility

- Give policies on law and regulation compliance
- Oversee and follow up on compliance with laws and related regulations
- Scrutiny draft rules and regulations of EGAT prior to submitting to the Board of Directors
- Perform any other tasks as assigned by the Board of Directors

Members of the Law and Regulation Compliance Committee

No.	Name	Position
1	Mr. Pornpoth Penpas	Chairman
2	Mr. Pakorn Apaphant	Member
3	Mr. Thrump Chaleechan	Member
4	Mrs. Chuensumon Niwatawong	Member
5	EGAT Deputy Governor - Administration	Member
6	EGAT Deputy Governor - Finance and Accounting (CFO)	Member
7	EGAT Assistant Governor - Legal Affairs and Corporate Governance	Secretary

Remark:

No.2 resigned on November 1, 2020.

2.6 Human Resources Committee

Authority and Responsibility

- Give policy on EGAT human resources administration and development as well as propose EGAT human resources master plan for approval by the Board of Directors
- Report to Board of Directors with comments and recommendations and oversee EGAT human resources policy
- Perform any other tasks as assigned by the Board of Directors

Members of the Human Resources Committee

No.	Name	Position
1	Mr. Suthon Boonprasong	Chairman
2	Professor Pisut Painmanakul	Member
3	Mr. Nonthikorn Kanchanachitra	Member
4	EGAT Governor	Member
5	EGAT Deputy Governor - Administration	Member
6	EGAT Assistant Governor - Organization Development	Secretary

Remark:

No.4 was appointed by EGAT Notification No. Kor 101/2563 dated November 18, 2020.

2.7 Deputy Governor and Assistant Governor Nomination Committee

Authority and Responsibility

The Committee is responsible for recommending candidates for nomination or rotation for the positions of Deputy Governor and Assistant Governor or equivalent based on their knowledge, experience, performance, potential, capability, and other necessary qualifications to the Board of Directors for approval.

Members of the Deputy Governor and Assistant Governor Nomination Committee

No.	Name	Position
1	Ms. Nantika Thangsuphanich	Chairman
2	Mr. Suthon Boonprasong	Member
3	Mr. Wanchai Hongcherdchai	Member
4	Mr. Saharath Boonpotipukde	Member
5	EGAT Governor	Member and Secretary



2.8 EGAT Labor Relations Committee

Authority and Responsibility

- Give opinions and comments on the efficiency improvement of the operation of state enterprise
- Promote and develop labor relations, seeking ways for a compromise and dispute settlement
- Consider the improvement of rules and regulations regarding working which will be beneficial for employers, employees, and the organization
- Give advice to find a solution to the complaints received from employees or the Labor Union as well as complaints regarding disciplinary punishment
- Give advice to improve the hiring condition

According to the resolution of EGAT Board of Directors in the 12th meeting on December 26, 2019, Mr. Pornpoth Penpas, member of Board of Directors was appointed as Chairman of the EGAT Labor Relations Committee for another term starting from March 1, 2020 - February 28, 2022. The 18 Committee members comprising representatives of employers and employees are as follows:

Members of the EGAT Labor Relations Committee

No.	Name	Position
1	Mr. Boonyanit Wongrukmit	Member, representative of employer
2	Mr. Polsri Suvisisarsa	Member, representative of employer
3	Mr. Pattarakit Techasikarn	Member, representative of employer
4	Ms. Kamolrat Kularbkeo	Member, representative of employer
5	Mr. Natthavutthi Chamchang	Member, representative of employer
6	Mr. Roengchai Khongthong	Member, representative of employer
7	Mr. Suttichai Juprasertporn	Member, representative of employer
8	Mr. Ampon Kitichotkul	Member, representative of employer
9	Mr. Charan Khumngeon	Member, representative of employer
10	Mrs. Sriwan Buranachokepibal	Member, representative of employer
11	Mr. Dussadee Kleebbua	Member, representative of employer
12	Ms. Chanika Yudhasamprasit	Member, representative of employer
13	Mr. Piyapong Anantasoogath	Member, representative of employee
14	Mr. Phanomthuan Thongnoi	Member, representative of employee
15	Mr. Aut Sangchan	Member, representative of employee
16	Mr. Phitsanu Phokaew	Member, representative of employee
17	Mr. Pairoj Tienthong	Member, representative of employee
18	Mr. Prasong Saitangjai	Member, representative of employee
19	Mr. Kaweephon Waidab	Member, representative of employee
20	Mr. Surasri Arunsorn	Member, representative of employee
21	Mr. Nopparat Lekmuang	Member, representative of employee
22	Mr. Surapong Keawkong	Member, representative of employee

Remark:

No.1 resigned as having been appointed as EGAT Governor on December 4, 2020.

No.2 was appointed in replacement of No. 1 by EGAT Notification No. Khor 113/2563 dated December 16, 2020.

No.3, No.11, and No.14 retired on October 1, 2020.

No.4, No.12, and No.15 was appointed in replacement of No.3, No.11, and No.14 respectively by EGAT Notification No. Khor 89/2563 dated October 21, 2020.

2.9 Digital Technology, Knowledge Management, and Innovation Committee

Authority and Responsibility

- Give policies for digital technology, knowledge management, and innovation
- Oversee, follow up, and give comments and recommendations concerning activities in digital technology, knowledge management, and innovation to achieve efficiency
- Perform any other tasks as assigned by the Board of Directors

Members of the Digital Technology, Knowledge Management, and Innovation Committee

(in the process of appointment)

2.10 EGAT Governor Nomination Committee

Authority and Responsibility

The committee is responsible for recruiting knowledgeable, competent, and experienced persons as candidates for the position of EGAT Governor for consideration of the Board of Directors.

Members of the EGAT Governor Nomination Committee

No.	Name	Position
1	Ms. Nantika Thangsuphanich	Chairman
2	Mr. Pornpoth Penpas	Member
3	Professor Pisut Painmanakul	Member
4	Mr. Somboon Norkaew	Member
5	Mr. Chanwit Nakburi	Member
6	Mr. Suttichai Juprasertporn	Secretary

Remark:

The committee was appointed by the resolution of the EGAT Board of Directors in the 1/2020 meeting on January 24, 2020.

2.11 EGAT Governor's Remuneration Subcommittee

Authority and Responsibility

- Consider the payment and other remuneration for EGAT Governor
- Consider the criteria and method of remuneration payment, prepare hiring contract, and negotiate the rate of payment and other remuneration with the selected candidates for the position of EGAT Governor for consideration of the Board of Directors

Members of the EGAT Governor's Remuneration Subcommittee

No.	Name	Position
1	Mr. Suthon Boonprasong	Chairman
2	Mr. Pakorn Apaphant	Member
3	Representative of the State Enterprise Policy Office, Ministry of Finance	Member
4	Mr. Suttichai Juprasertporn	Secretary

Remark:

The subcommittee was appointed by the resolution of the EGAT Board of Directors in the 1/2020 meeting on January 24, 2020.
No.2 resigned on November 1, 2020.

2.12 EGAT Governor's Performance Evaluation and Criteria Subcommittee

Authority and Responsibility

- Scrutinize the work plan and criteria for evaluation of the work performance of EGAT Governor in accordance with the framework of the hiring contract
- Scrutinize the evaluation of the work performance in accordance with the hiring contract for consideration of the Board of Directors

Members of the EGAT Governor's Performance Evaluation and Criteria Subcommittee

No.	Name	Position
1	Mr. Pornpoth Penpas	Chairman
2	Mr. Pakorn Apaphant	Member
3	Ms. Nantika Thangsuphanich	Member
4	Mr. Sompop Pattanariyankool	Member
5	EGAT Assistant Governor - Corporate Strategy	Secretary
6	EGAT Division Director - Corporate Planning	Assistant Secretary

Remark:

No.2 resigned on November 1, 2020.

No.3 was appointed by the circular resolution dated November 5, 2020 to be effective on November 13, 2020.

No.4 was appointed by the resolution of the Board of Directors in the 12/2020 meeting on October 26, 2020.

2.13 Improvement of EGAT Operation to Cope with Changes Task Force

Authority and Responsibility

- Set policies and the direction of the improvement of EGAT operation to be consistent with the future electricity industry by collecting comments from stakeholders and communicating with EGAT employees and stakeholders
- Appoint working groups as appropriate

Members of the Improvement of EGAT Operation to Cope with Changes Task Force

No.	Name		Position
1	Mr. Kulit	Sombatsiri	Chairman
2	Professor Pisut	Painmanakul	Vice Chairman
3	Mr. Pakorn	Apaphant	Vice Chairman
4	Mr. Viboon	Rerksirathai	Member
5	Mr. Boonyanit	Wongrukmit	Member
6	Mr. Nutthavutthi	Chamchang	Member
7	Mr. Thepparat	Theppitak	Member
8	EGAT Deputy Governor - Strategy		Member
9	EGAT Deputy Governor - Administration		Member
10	Mr. Piyapong	Anantasooragath	Member
11	Mr. Phanomthuan	Thongnoi	Member
12	Mr. Pairoj	Tienthong	Member
13	EGAT Division Director - Human Resources and Organization Development		Secretary
14	EGAT Division Director - Corporate Planning		Assistant Secretary
15	EGAT Division Director - Business Development		Assistant Secretary

Remark:

No.3 resigned on November 1, 2020.

No.4 completed the hiring contract as EGAT Governor on December 3, 2020.

No.7 resigned as having been appointed as Director Chief Executive Officer, EGCO Public Company Limited on July 1, 2020.

No.11 retired on October 1, 2020.

3. Meetings of the Board of Directors and Its Committees

Meetings of EGAT Board of Directors are held in accordance with EGAT Regulation concerning meetings and work of EGAT Board of Directors. Members of the Board will be informed on the meeting schedule of the coming year in advance to enable the Board members to attend the meeting regularly.

In 2020, meetings were convened on the fourth week of each month. For each meeting, the agenda together with supporting documents and the letter of invitation were circulated 7 days in advance of the meeting date to give sufficient time for the Board members to study the issues and to request additional documents or information so that the Board members would have

enough information for consideration thoroughly.

In the meeting of EGAT Board of Directors, EGAT Deputy Governors of every line of command can attend the meeting to give additional information and to directly receive policies as well as the views and recommendations of the Board of Directors and can transfer them for action correctly, appropriately, and rapidly.

Moreover, to provide transparency in the administration, a representative from EGAT Labor Union, i.e., Chairman or Vice-Chairman is invited to attend the meeting as observers.

Meetings of EGAT Board of Directors and its committees in 2020 are as follows:

No.	Name	Board of Directors	Executive Committee	Audit Committee	Enterprise Risk Management and Internal Control Committee	Corporate Governance and Social Responsibility Committee	Law and Regulation Compliance Committee	Human Resources Committee	EGAT Deputy Governor and Assistant Governor Nomination Committee	EGAT Labor Relations Committee	EGAT Governor Nomination Committee	EGAT Governor's Remuneration Subcommittee	EGAT Governor's Performance Evaluation and Criteria Subcommittee	Improvement of EGAT Operation to Cope with Changes Task Force
1	Mr. Kulit Sombatsiri	15/15												1/1
2	General Somsak Roongsita	12/15		12/12										
3	Ms. Nantika Thangsuphanich	15/15	11/11			8/8			4/4		4/4		1/1	
4	Mr. Suthon Boonprasong	15/15	11/11					6/6	4/4			4/4		
5	Mr. Pornpoth Penpas	13/15			6/6		5/5			9/9	4/4		4/4	
6	Professor Pisut Painmanakul	11/15	11/11			8/8		5/6			4/4			1/1
7	Mr. Pakorn Apaphant	12/13			4/4		4/5					4/4	3/3	1/1
8	Ms. Niramarn Laisathit	15/15		11/12										
9	Mr. Pornchai Thiravet	15/15		11/12										
10	Ms. Naree Tantasathien		11/11											
11	Mr. Kong Rungsawang				6/6									
12	Mr. Thrump Chaleechan						5/5							
13	Mrs. Chuensumon Niwatawong						4/5							
14	Mr. Nonthikorn Kanchanachitra							6/6						
15	Mr. Wanchai Hongcherdchai								4/4					
16	Mr. Saharath Boonpotipukde								4/4					
17	Mr. Somboon Norkaew										4/4			
18	Mr. Chanwit Nakburi										4/4			
19	Ms. Pattrawan Chuansanit											4/4		
20	Mr. Sompop Pattanariyankool												1/1	
21	Mr. Viboon Rerksirathai	14/14	10/10		5/5				4/4					1/1
22	Mr. Boonyanit Wongrukmit	1/1	1/1		0/1									
	Number of meetings in the year	15	11	12	6	8	5	6	4	9	4	4	4	1

Remark:

- 1) The name of "Enterprise Risk Management Committee" is changed to be "Enterprise Risk Management and Internal Control Committee" by EGAT Notification No. Kor 100/2563 dated November 18, 2020.
- 2) The name of "EGAT Governor's Performance Evaluation Subcommittee" is changed to be "EGAT Governor's Performance Evaluation and Criteria Subcommittee" by EGAT Notification No. Kor 92/2563 dated October 26, 2020.
- 3) Ms. Pattrawan Chuansanit represented State Enterprise Policy Office, Ministry of Finance in the meetings of EGAT Governor's Remuneration Subcommittee.



4. Self-Assessment of EGAT Board of Directors

The Board of Directors gives importance to self-assessment as it will help to identify weak points that need improvements. The self-assessment also provides an opportunity for all Board members to straightforwardly review their past performance and obstacles confronted, including their contributions to the success of EGAT in order to improve their performance in determining EGAT's strategic directions and in the supervision of the administration of EGAT executives efficiently. According to the Criteria and Guidelines for Corporate Governance

for State Enterprise issued by the State Enterprise Policy Office (SEPO), Ministry of Finance, the Board of Directors should conduct self-assessment regularly at least once a year so that improvement of work performance can be made based on the results of self-assessment.

In 2020, EGAT Board of Directors conducted both types of self-assessment, i.e. collective self-assessment and individual self-assessment. The results of both assessments were "excellent."

5. Remuneration for EGAT Board of Directors

The remuneration rate for EGAT Board of Directors is authorized by the Cabinet. The Board members who received additional responsibilities, e.g., Audit Committee, Executive Committee, Corporate Governance and Social Responsibility Committee, Enterprise Risk Management and Internal Control Committee, also received an added rate as authorized by the Cabinet. The remuneration for EGAT Board of Directors in 2020 totaled 12,747,779.74 Baht with details as follows:

No.	Name	Remuneration	Meeting Allowance					
			Board of Directors	Audit Committee	Executive Committee	Corporate Governance and Social Responsibility Committee	Law and Regulation Compliance Committee	Enterprise Risk Management and Internal Control Committee
1	Mr. Witoon Kulcharoenwirat ²	-	-	-	-	-	-	-
2	Mr. Apichart Chinwanno ⁴	-	-	-	-	-	-	-
3	Mr. Distat Hotrakitya ³	-	-	-	-	-	-	-
4	General Walit Rochanapakdee ⁴	-	-	-	-	-	-	-
5	Mr. Poramettee Vimolsiri ⁴	-	-	-	-	-	-	-
6	Mr. Pakorn Apaphant ⁵	100,000.00	240,000.00	-	-	-	30,000.00	40,000.00
7	Mr. Viboon Rerksirathai ⁶	110,967.74	300,000.00	-	90,000.00	-	-	60,000.00
8	General Somsak Roongsita	120,000.00	260,000.00	300,000.00	-	-	-	-
9	Ms. Nantika Thangsuphanich	120,000.00	320,000.00	-	125,000.00	87,500.00	-	-
10	Mr. Suthon Boonprasong	120,000.00	320,000.00	-	100,000.00	-	-	-
11	Mr. Pornpoth Penpas	120,000.00	280,000.00	-	-	-	62,500.00	75,000.00
12	Professor Pisut Painmanakul	120,000.00	240,000.00	-	90,000.00	70,000.00	-	-
13	Ms. Niramarn Laisathit	120,000.00	320,000.00	240,000.00	-	-	-	-
14	Mr. Pornchai Thiravet	120,000.00	320,000.00	240,000.00	-	-	-	-
15	Mr. Kulit Sombatsiri	240,000.00	400,000.00	-	-	-	-	-
16	Mr. Boonyanit Wongrukmit	9,032.26	20,000.00	-	10,000.00	-	-	-
17	Mr. Sompop Pattanariyankool	-	-	-	-	-	-	-
18	Ms. Patrawan Chuansanit	-	-	-	-	-	-	-
19	Mr. Chanwit Nakburi	-	-	-	-	-	-	-
20	Mr. Somboon Norkaew	-	-	-	-	-	-	-
21	Mr. Nonthikom Kanchanachitra	-	-	-	-	-	-	-
22	Mr. Thrump Chaleechan	-	-	-	-	-	40,000.00	-
23	Mr. Kong Rungsawang	-	-	-	-	-	-	60,000.00
24	Mr. Saharath Boonpotipukde	-	-	-	-	-	-	-
25	Mr. Wanchai Hongcherdchai	-	-	-	-	-	-	-
26	Ms. Naree Tantasathien	-	-	-	100,000.00	-	-	-
27	Mrs. Chuensumon Niwatawong	-	-	-	-	-	50,000.00	-
28	Mr. Aut Sangchan	-	-	-	-	-	-	-
29	Mr. Surapong Keawkong	-	-	-	-	-	-	-
30	Mr. Nopparat Lekmuang	-	-	-	-	-	-	-
31	Mr. Phitsanu Phokaew	-	-	-	-	-	-	-
32	Mr. Surasri Arunsorn	-	-	-	-	-	-	-
33	Mr. Kaweephon Waidab	-	-	-	-	-	-	-
34	Mr. Pairoj Tienthong	-	-	-	-	-	-	-
35	Ms. Chanika Yudhasamprasit	-	-	-	-	-	-	-
36	Mr. Ampon Kitichotkul	-	-	-	-	-	-	-
37	Mr. Charan Khumngeon	-	-	-	-	-	-	-
38	Mr. Piyapong Anantasooragath	-	-	-	-	-	-	-
39	Mr. Natthavutthi Chamchang	-	-	-	-	-	-	-
40	Mr. Pattarakit Techasikarn	-	-	-	-	-	-	-
41	Mr. Dussadee Kleebua	-	-	-	-	-	-	-
42	Mrs. Sriwan Buranachokepisal	-	-	-	-	-	-	-
43	Mrs. Asharee Densirimongkol	-	-	120,000.00	-	-	-	-
44	Ms. Kamolrat Kularbkeo	-	-	-	-	-	-	-
45	Mr. Roengchai Khongthong	-	-	-	-	-	-	-
46	Mr. Phanomthuan Thongnoi	-	-	-	-	-	-	-
47	Mr. Suttichai Juprasertporn	-	-	-	-	-	-	-
48	Mr. Prasong Saitangjai	-	-	-	-	-	-	-
	Total	1,300,000.00	3,020,000.00	900,000.00	515,000.00	157,500.00	182,500.00	235,000.00

Remark:

- 1) The bonus of the Board of Directors of 2019 was paid in 2020 according to the letter of the State Enterprise Policy Office No. Gor Kor 0818.1/Lor 406 dated March 27, 2020.
- 2) Completion of the term on February 22, 2019, appointed on March 19, 2019 and having resigned on August 1, 2019
- 3) Completion of the term on February 22, 2019, appointed on March 19, 2019 and having resigned on July 15, 2019

Meeting Allowance							Bonus ¹	Total
EGAT Human Resources Committee	EGAT Labor Relations Committee	EGAT Governor Nomination Committee	EGAT Deputy Governor and Assistant Governor Nomination Committee	EGAT Governor's Remuneration Subcommittee	EGAT Governor's Performance Evaluation and Criteria Subcommittee	Digital Technology, Knowledge Management, and Innovation Committee		(Baht)
-	-	-	-	-	-	-	242,502.53	242,502.53
-	-	-	-	-	-	-	65,104.16	65,104.16
-	-	-	-	-	-	-	241,515.45	241,515.45
-	-	-	-	-	-	-	65,104.16	65,104.16
-	-	-	-	-	-	-	65,104.16	65,104.16
-	-	-	-	30,000.00	30,000.00	-	343,413.98	813,413.98
-	-	-	20,000.00	-	-	-	437,500.00	1,018,467.74
-	-	-	-	-	-	-	343,413.98	1,023,413.98
-	-	37,500.00	37,500.00	-	-	-	343,413.98	1,070,913.98
65,000.00	-	-	30,000.00	27,500.00	-	-	343,413.98	1,005,913.98
-	100,000.00	10,000.00	-	-	50,000.00	-	343,413.98	1,040,913.98
50,000.00	-	20,000.00	-	-	-	-	343,413.98	933,413.98
-	-	-	-	-	-	-	343,413.98	1,023,413.98
-	-	-	-	-	-	-	343,413.98	1,023,413.98
-	-	-	-	-	-	-	116,137.44	756,137.44
-	80,000.00	-	-	-	-	-	-	119,032.26
-	-	-	-	-	10,000.00	-	-	10,000.00
-	-	-	-	30,000.00	-	-	-	30,000.00
-	-	30,000.00	-	-	-	-	-	30,000.00
-	-	30,000.00	-	-	-	-	-	30,000.00
60,000.00	-	-	-	-	-	-	-	60,000.00
-	-	-	-	-	-	-	-	40,000.00
-	-	-	-	-	-	-	-	60,000.00
-	-	-	40,000.00	-	-	-	-	40,000.00
-	-	-	40,000.00	-	-	-	-	40,000.00
-	-	-	-	-	-	-	-	100,000.00
-	-	-	-	-	-	-	-	50,000.00
-	20,000.00	-	-	-	-	-	-	20,000.00
-	100,000.00	-	-	-	-	-	-	100,000.00
-	100,000.00	-	-	-	-	-	-	100,000.00
-	100,000.00	-	-	-	-	-	-	100,000.00
-	100,000.00	-	-	-	-	-	-	100,000.00
-	100,000.00	-	-	-	-	-	-	100,000.00
-	100,000.00	-	-	-	-	-	-	100,000.00
-	100,000.00	-	-	-	-	-	-	100,000.00
-	20,000.00	-	-	-	-	-	-	20,000.00
-	80,000.00	-	-	-	-	-	-	80,000.00
-	80,000.00	-	-	-	-	-	-	80,000.00
-	100,000.00	-	-	-	-	-	-	100,000.00
-	100,000.00	-	-	-	-	-	-	100,000.00
-	70,000.00	-	-	-	-	-	-	70,000.00
-	70,000.00	-	-	-	-	-	-	70,000.00
-	90,000.00	-	-	-	-	-	-	90,000.00
-	-	-	-	-	-	-	-	120,000.00
-	20,000.00	-	-	-	-	-	-	20,000.00
-	100,000.00	-	-	-	-	-	-	100,000.00
-	80,000.00	-	-	-	-	-	-	80,000.00
-	100,000.00	-	-	-	-	-	-	100,000.00
-	100,000.00	-	-	-	-	-	-	100,000.00
175,000.00	1,810,000.00	127,500.00	167,500.00	87,500.00	90,000.00	-	3,980,279.74	12,747,779.74

4) Completion of the term on February 22, 2019
5) Appointed on March 19, 2019 and having resigned on November 1, 2020
6) Completion of the term on December 3, 2020



Board of Directors

Mr. Kulit Sombatsiri

Chairman

Age 57

Education

- M.P.A. (Public Administration), San Diego State University, USA
- M.B.A., University of Southern California, USA
- B.A. (Public Administration), Ramkhamhaeng University

Training

- The Rule of Law and Democracy Course (Class 6/2018), College of the Constitutional Court
- The Executive Program in Energy Literacy for a Sustainable Future (Class 6/2015), Thailand Energy Academy
- National Defense Regular Course (Class 54/2011), Thailand National Defense College
- Training programs organized by the Thai Institute of Directors (IOD)
 - Director Certification Program (DCP) (Class 124/2009)
 - Financial Statement for Directors (FSD) (Class 2009)
- Senior Executive Program 1 (Class 40/2004), the Civil Service Development Institute
- Capital Market Academy Leadership Program (Class 10/2000), Capital Market Academy

Work Experience

- | | |
|----------------|---|
| 2018 - Present | Permanent Secretary, Ministry of Energy |
| 2015 - 2018 | Director General, the Customs Department, Ministry of Finance |
| 2014 - 2015 | Director General, State Enterprise Policy Office, Ministry of Finance |
| 2011 - 2014 | Inspector General, Ministry of Finance |

Directorship / Management Position in Other State Enterprises / Companies

- Chairman of the Board of Directors, Electricity Generating Public Co., Ltd.

Shares of the companies in the same industry or business in which EGAT operates and the amount of the shares held is equal to or higher than 10 percent of the total voting rights

None

Connected Transactions in 2020

None



General Somsak Roongsita

Director

Age 60

Education

- M.Eng. (Electrical Engineering), Virginia Polytechnic Institute and State University, USA
- B.Eng. (Electrical Engineering) (First Class Honors), Virginia Military Institute, USA
- Chulachomklao Royal Military Academy (Class 30)
- Armed Forces Academies Preparatory School (Class 19)

Training

- Training programs organized by the Thai Institute of Directors (IOD)
 - Risk Management Program for Corporate Leaders (RCL) (Class 21/2020)
 - Director Accreditation Program (DAP) (Class 161/2019)
 - Financial Statement for Directors (FSD) (Class 39/2019)
 - IT Governance and Cyber Resilience Program (ITG) (Class 12/2019)
- National Defense Regular Course (Class 58/2015), Thailand National Defense College
- Logistics Cooperation for Stabilization and Reconstruction Program (2014), Institute for Defense and Business, USA
- Civil - Military Responses to Terrorism Course (2003), Naval Postgraduate School, USA
- International Defense Resources Management Course (2002), Naval Postgraduate School, USA

- Regular Course (Class 70/1992), Command and General Staff College

Work Experience

2020 - Present	Chairman of the National Strategy Committee for National Security
2019 - 2020	Secretary - General of the National Security Council
2018 - 2019	Deputy Permanent Secretary for Defense, Ministry of Defense
2017 - 2018	Director General, Office of Policy and Planning, Ministry of Defense
2015 - 2017	Deputy Director General, Office of Policy and Planning, Ministry of Defense
2014 - 2015	Assistant Director General, Office of Policy and Planning, Ministry of Defense
2013 - 2014	Director, Policy and Strategy Office, Office of Policy and Planning, Ministry of Defense

Directorship / Management Position in Other State Enterprises / Companies

None

Shares of the companies in the same industry or business in which EGAT operates and the amount of the shares held is equal to or higher than 10 percent of the total voting rights

None

Connected Transactions in 2020

None



Miss Nantika Thangsuphanich

Director

Age 55

Education

- M.A. (Urban Studies), Long Island University, USA
- B.A. (Political Science), Kasetsart University

Training

- National Defense Regular Course (Class 61/2018), Thailand National Defense College
- Training program organized by the Thai Institute of Directors (IOD)
 - Director Certification Program (DCP) (Class 248/2017)
- The Executive in Energy Literacy for a Sustainable Future (Class 7/2015), Thailand Energy Academy
- Corporate Governance Program for Directors and Senior Executives of Regulator, State Enterprises, and Public Organizations (Class 10/2012), King Prajadhipok's Institute
- E-Government Executive Program (e-GEP) (Class 2/2010), Thailand Digital Government Academy (TDGA)
- Executive Program for Inspector General (2010), Office of the Civil Service Commission and Office of the Permanent Secretary, Prime Minister Office
- Senior Executive Program 1 (Class 66/2009), the Civil Service Development Institute

Work Experience

- 2018 - Present Director General, Department of Energy Business, Ministry of Energy
- 2017 - 2018 Deputy Permanent Secretary, Ministry of Energy
- 2009 - 2017 Inspector General, Ministry of Energy
- 2007 - 2009 Director, Central Administration Office, Office of the Permanent Secretary, Ministry of Energy
- 2006 - 2007 Chief, Office of the Ministry, Ministry of Energy

Directorship / Management Position in Other State Enterprises / Companies

- Member of the Board of Directors, RATCH Group Public Co., Ltd.

Shares of the companies in the same industry or business in which EGAT operates and the amount of the shares held is equal to or higher than 10 percent of the total voting rights

None

Connected Transactions in 2020

None



Mr. Suthon Boonprasong

Director

Age 63

Education

- M.B.A., Chiang Mai University
- B.Econ., Sukhothai Thammathirat Open University
- LL.B., Ramkhamhaeng University
- B.Eng. (Electrical Engineering), Chulalongkorn University

Training

- Training programs organized by the Thai Institute of Directors (IOD)
 - Financial Statement for Directors (FSD) (Class 40/2019)
 - Director Certification Program (DCP) (Class 164/2014)
- Politics and Governance in Democratic System for Executives (Class 19/2015), King Prajadhipok's Institute
- Advanced Management Program, Harvard Business School, USA
- Public Economics Management for Executives (Class 9/2010), King Prajadhipok's Institute
- Advanced Police Command Course (Class 27/2007), Institute of Police Administration Development
- Senior Executive Development Program (Class 2/2006), Foundation for International Human Resource Development
- Finance for Executive Decision Program (2006), Continuing Education Center, Chulalongkorn University

Work Experience

2017	Retired
2013 - 2017	EGAT Deputy Governor - Transmission System
2010 - 2013	EGAT Assistant Governor - Transmission System Operation
2010	EGAT Assistant Governor - Corporate Social Affairs

Directorship / Management Position in Other State Enterprises / Companies

- Member of the Board of Directors, RATCH Group Public Co., Ltd.

Shares of the companies in the same industry or business in which EGAT operates and the amount of the shares held is equal to or higher than 10 percent of the total voting rights

None

Connected Transactions in 2020

None



Mr. Pornpoth Penpas

Director

Age 54

Education

- M.Eng., Northrop University, USA
- B.Eng., Chulalongkorn University
- B.P.A., Sukhothai Thammathirat Open University

Training

- Senior Executive Program on Justice Administration (Class 24/2019), Judicial Training Institute, Office of the Judiciary
- Executive Program on Rule of Law and Development (Class 3/2019), Thailand Institute of Justice
- Urban Administration (Urban Leadership) for Executives (Class 1/2016), Navamindradhiraj University
- Financial and Fiscal Management for Senior Executives (Class 1/2014), the Comptroller General's Department
- National Defense Regular Course (Class 57/2014), Thailand National Defense College
- Good Governance for Sustainable Development (Class 1/2013), Office of the Public Sector Development Commission
- Certificate Course in Environmental Good Governance for Executive (Class 1/2012), King Prajadhipok's Institute
- Leadership Development Program: Sufficiency Economy under the Royal Initiation (Class 1/2011), Thailand National Defense College

- Senior Governing Executive Training Program (Class 46/2004), Prince Damrong Rajanubhab Institute, Ministry of Interior

Work Experience

2020 - Present	Director - General, Department of Public Works and Town & Country Planning, Ministry of Interior
2018 - 2020	Deputy Permanent Secretary, Ministry of Interior
2017 - 2018	Governor, Sa Kaeo Province, Ministry of Interior
2012 - 2017	Deputy Director - General, Department of Disaster Prevention and Mitigation, Ministry of Interior

Directorship / Management Position in Other State Enterprises / Companies

- Member of the Board of Directors, Provincial Waterworks Authority

Shares of the companies in the same industry or business in which EGAT operates and the amount of the shares held is equal to or higher than 10 percent of the total voting rights

None

Connected Transactions in 2020

None



Professor Pisut Painmanakul

Director

Age 43

Education

- Ph.D. (Laboratoire d'Ingénierie des Procédés de l'Environnement), INSA-Toulouse, France
- D.E.A. (Diplôme d'Etude Approfondie), INSA-Toulouse, France
- Dipl.Ing. (Diplôme d'Ingénieur), INSA-Toulouse, France
- B.Eng. (Environment Engineering), Chulalongkorn University

Training

- Training programs organized by the Thai Institute of Directors (IOD)
 - Advanced Audit Committee Program (AACCP) (Class 38/2020)
 - Director Certification Program (DCP) (Class 280/2019)
- Institute of Security Psychology Course (Class 115/2015), Thailand National Defense College

Work Experience

- 2016 - Present Associate Dean - Innovation Strategy, Faculty of Engineering, Chulalongkorn University
- 2008 - 2016 Assistant Dean, Faculty of Engineering, Chulalongkorn University

Directorship / Management Position in Other State Enterprises / Companies

- Member of the Board of Directors, National Housing Authority
- Member of the Board of Directors, Electricity Generating Public Co., Ltd.

Shares of the companies in the same industry or business in which EGAT operates and the amount of the shares held is equal to or higher than 10 percent of the total voting rights

None

Connected Transactions in 2020

None



Miss Niramarn Laisathit

Director

Age 53

Education

- M.B.A., Saint Louis University, USA
- B.Eng. (Industrial Engineering), Chulalongkorn University

Training

- National Defense Regular Course (Class 62/2019), Thailand National Defense College
- Top Executive Program in Industrial Business Development and Investment (Class 4/2017), Institute of Business and Industrial Development
- The Executive Program in Energy Literacy for a Sustainable Future (Class 7/2015), Thailand Energy Academy
- Advanced Management Program (Class 182/2012), Harvard Business School, USA

Work Experience

- 2019 - Present Senior Executive Vice President, Bangkok Bank Public Co., Ltd.
- 2007 - 2019 Executive Vice President, Bangkok Bank Public Co., Ltd.

Directorship / Management Position in Other State Enterprises / Companies

- Member of the Board of Directors (Authorized Director), Gateaux House Co., Ltd.
- Member of the Board of Directors and Chairman of Risk Management Committee, Bangkok Bank (China) Co., Ltd. (Republic of China)
- Member of the Board of Directors, Perennial HC Holdings Pte., Ltd.
- Member of the Board of Commissioners, PT Bank Permata Tbk (Republic of Indonesia)
- Member of the Board of Directors, RATCH Group Public Co., Ltd.

Shares of the companies in the same industry or business in which EGAT operates and the amount of the shares held is equal to or higher than 10 percent of the total voting rights

None

Connected Transactions in 2020

None



Mr. Pornchai Thiravet

Director

Age 52

Education

- Ph.D. (Education - Non-Formal Education), Chulalongkorn University
- Ph.D. (Management), Rajabhat Suan Dusit University
- M.Pol.Sc. (Public Administration), Thammasat University
- M.B.A. (Finance), Notre Dame College, USA
- B.A. (Accounting), Thammasat University

Training

- E-Government Program for Chief Executive Officer Program (e-GCEO) (Class 6/2019), Thailand Digital Government Academy (TDGA)
- Capital Market Academy Leadership Program (Class 26/2018), Capital Market Academy
- Advanced Budget Management for Executives (Class 4/2017), Budget Bureau
- Training program organized by the Thai Institute of Directors (IOD)
 - Director Certification Program (DCP) (Class 227/2016)
- Senior Executive Program 2 (Class 8/2016), the Civil Service Development Institute
- Senior Executive Program 1 (Class 78/2013), the Civil Service Development Institute

Work Experience

- 2016 - Present Fiscal Policy Advisor, Fiscal Policy Office, Ministry of Finance
- 2015 - 2016 Deputy Director - General, Fiscal Policy Office, Ministry of Finance

Directorship / Management Position in Other State Enterprises / Companies

- Member of the Board of Directors, MFC Asset Management Public Co., Ltd.

Shares of the companies in the same industry or business in which EGAT operates and the amount of the shares held is equal to or higher than 10 percent of the total voting rights

None

Connected Transactions in 2020

None



Mr. Boonyanit Wongrukmit

Director and Secretary (Ex-Officio)

Age 57

Education

- M.B.A. (Energy Management), University of Montreal (HEC - Montréal), Canada
- M.B.A., Chiang Mai University
- B.Eng. (Mechanical Engineering), Chiang Mai University

Training

- The Executive Program in Energy Literacy for a Sustainable Future (Class 15/2020), Thailand Energy Academy
- National Defense Regular Course (Class 61/2018), Thailand National Defense College
- Corporate Governance for Directors and Senior Executives of Regulator, State Enterprises, and Public Organizations (Class 18/2018), King Prajadhipok's Institute
- Advanced Master of Management Program (AMM) (Class 1/2018), National Institute of Development Administration
- Advanced Management Program (2016), Harvard Business School, USA
- Leadership Succession Program (LSP) (Class 4/2015), Institute of Research and Development for Public Enterprises (IRDPE)
- Principle of Life Coaching, Thailand Coaching Academy

- Training program organized by the Thai Institute of Directors (IOD)
 - Director Certification Program (DCP) (Class 187/2014)

Work Experience

2020 - Present	EGAT Governor
2020	EGAT Senior Deputy Governor
2018 - 2020	EGAT Deputy Governor - Power Business
2017 - 2018	EGAT Deputy Governor - Business Development
2016 - 2017	EGAT Deputy Governor - Corporate Social Affairs

Directorship / Management Position in Other State Enterprises / Companies

- Chairman of the Board of Directors (Representative of EGAT), RATCH Group Public Co., Ltd.
- Chairman of the Board of Directors, EGAT International Co., Ltd. (EGATi)

Shares of the companies in the same industry or business in which EGAT operates and the amount of the shares held is equal to or higher than 10 percent of the total voting rights

None

Connected Transactions in 2020

None

EGAT determines guidelines to verify the qualifications of the EGAT Board of Directors to make sure that they are able to carry out their duties with transparency and independence without conflict of interest. The verification process occurs once a board member is appointed and every year-end comprising



Profile



Directorship / management position in other state enterprises / companies



Shares of the companies in the same industry or business in which EGAT operates and the amount of the shares held is equal to or higher than 10 percent of the total voting rights





Executives

Mr. Boonyanit Wongrukmit

Governor

Age 57

Education

- Master of Business Administration (Energy Management), University of Montreal (HEC - Montréal), Canada
- Master of Business Administration, Chiang Mai University
- Bachelor of Engineering (Mechanical Engineering), Chiang Mai University

Training

- The Executive Program in Energy Literacy for a Sustainable Future, Thailand Energy Academy
- National Defense Regular Course, Thailand National Defense College (2018 - 2019)
- Corporate Governance for Directors and Senior Executives of Regulator, State Enterprises, and Public Organizations, King Prajadhipok's Institute (2018)
- Advanced Master of Management Program, National Institute of Development Administration (2018)
- Advanced Management Program, Harvard Business School, USA (2016)
- Leadership Succession Program, Institute of Research and Development for Public Enterprises (2015)
- Training program organized by the Thai Institute of Directors (IOD)
 - Director Certification Program (DCP) (2014)

Work Experience

December 4, 2020	EGAT Governor
October 1, 2020	Senior Deputy Governor
October 1, 2018	Deputy Governor - Power Business
October 1, 2017	Deputy Governor - Business Development
October 1, 2016	Deputy Governor - Corporate Social Affairs
October 1, 2015	Assistant Governor - Business Administration



Mr. Nutthavutthi Chamchang

Deputy Governor - Power Business

Age 57

Education

- Master of Environmental Business Administration (Energy Management), University of Twente, the Netherlands
- Bachelor of Engineering (Mechanical Engineering), Chulalongkorn University

Training

- EGAT Executive Development
- Executive Branding, John Robert Power
- Bhumipalung Phandin for Executive Program, Chulalongkorn University
- Corporate Governance for Directors and Senior Executives of Regulator, State Enterprises, and Public Organizations, King Prajadhipok's Institute
- Executive Training Program for Public Sector Leaders for the Future at Republic of Singapore, King Prajadhipok's Institute
- Training program organized by the Thai Institute of Directors (IOD)
 - Director Certification Program (DCP)
- Advanced Management Program, Harvard Business School, USA
- Promotion of Peaceful Society Course, King Prajadhipok's Institute
- Leadership Succession Program, Institute of Research and Development for Public Enterprises

- Water Management Leadership Program, Water Institute for Sustainability, the Federation of Thai Industries

Work Experience

October 1, 2020	Deputy Governor - Power Business
October 1, 2018	Deputy Governor - Generation
October 1, 2017	Assistant Governor - Hydro Power Plant



Mr. Roengchai Khongthong

Deputy Governor - Transmission System

Age 60

Education

- Master of Business Administration, Thammasat University
- Bachelor of Engineering (Electrical Engineering), Prince of Songkla University

Work Experience

- | | |
|------------------|--|
| October 1, 2018 | Deputy Governor - Transmission System |
| December 1, 2017 | Assistant Governor - Transmission System Maintenance |

Training

- Advanced Master of Management Program, National Institute of Development Administration
- Agri-Nature Development towards Sufficiency Economy Philosophy System, Mab-Ueang Agri-Nature Center
- Corporate Governance for Directors and Senior Executives of Regulator, State Enterprises, and Public Organizations, King Prajadhipok's Institute
- Training program organized by the Thai Institute of Directors (IOD)
 - Director Certification Program (DCP)
- Public Economics Management for Executives, King Prajadhipok's Institute
- RTAF & CEO Relationship, Royal Thai Armed Forces Headquarters, Institute of Security Psychology
- Royal Thai Army War College Course, the Royal Thai Army Institute of Advanced Military Studies



Mr. Suttichai Juprasertporn

Deputy Governor - Administration

Age 60

Education

- Ph.D. Program in Management, Sardar Patel University, India
- Master of Public Administration, National Institute of Development Administration
- Bachelor of Business Administration (Accountancy), Sukhothai Thammathirat Open University
- Bachelor of Business Administration (General Management), Sukhothai Thammathirat Open University

Work Experience

- | | |
|-----------------|---|
| October 1, 2019 | Deputy Governor - Administration |
| October 1, 2018 | Assistant Governor - Organization Development |
| October 1, 2017 | Assistant Governor - Human Resources |

Training

- Corporate Governance for Directors and Senior Executives of Regulator, State Enterprises, and Public Organizations, King Prajadhipok's Institute
- Training program organized by the Thai Institute of Directors (IOD)
 - Director Certification Program (DCP)
- Advanced Master of Management Program, National Institute of Development Administration
- Agri-Nature Development towards Sufficiency Economy Philosophy System, Mab-Ueang Agri-Nature Center
- Promotion of Peaceful Society Course, King Prajadhipok's Institute



Mr. Polsri Suvisisarsa

Deputy Governor - Generation

Age 59

Education

- Bachelor of Laws, Sukhothai Thammathirat Open University
- Bachelor of Engineering (Mechanical Engineering), Kasetsart University

Work Experience

- | | |
|-----------------|-----------------------------------|
| October 1, 2020 | Deputy Governor - Generation |
| October 1, 2018 | Assistant Governor - Generation 2 |

Training

- Advanced Master of Management Program, National Institute of Development Administration
- Executive Development Program, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Advanced Certificate Course in Public Administration and Law for Executives, King Prajadhipok's Institute
- Training Course for Middle Level Development Administrator, National Institute of Development Administration
- Training program organized by the Thai Institute of Directors (IOD)
 - Director Accreditation Program (DAP)
- EGAT Director Development Program (EDDP)
- EGAT New Leader Development Program (ENLP)
- EGAT Assistant Director Development Program (EADP)



Mr. Prasertsak Chergchawano

Deputy Governor - Power Plant Development
and Renewable Energy

Age 57

Education

- Master of Engineering (Energy Technology), Asian Institute of Technology
- Bachelor of Engineering (Electrical Engineering), Khon Kaen University

Work Experience

- | | |
|-----------------|--|
| October 1, 2020 | Deputy Governor - Power Plant Development and Renewable Energy |
| October 1, 2018 | Assistant Governor - Corporate Strategy |

Training

- Advanced Certificate Course in Public Economics Management for Executives, King Prajadhipok's Institute
- EGAT Executive Development
- Strategy Management Program, Fiscal Policy Research Institute Foundation
- EGAT Director Development Program (EDDP)
- Training Course for Middle Level Energy Executive, Ministry of Energy
- EGAT Newly-Promoted Executive Orientation Program (ENOP)
- EGAT New Leader Development Program (ENLP)



Miss Choosri Kietkajornkul

Deputy Governor - Finance and Accounting (CFO)

Age 57

Education

- Master of Accountancy (General Accounting), Chulalongkorn University
- Bachelor of Accountancy, Chulalongkorn University

Work Experience

- | | |
|-----------------|--|
| October 1, 2020 | Deputy Governor - Finance and Accounting (CFO) |
| October 1, 2018 | Assistant Governor - Finance |

Training

- Financial and Fiscal Management Program for Senior Executives, Public Fiscal and Accounting Personnel Development Institute
- Chief Financial Officer Certification Program, Federation Accounting Professions under the Royal Patronage of His Majesty the King
- EGAT Executive Development, Sasin Graduate Institute of Business Administration
- Postgraduate Certificate in Finance and Management, London School of Business and Finance, United Kingdom
- Accounting for Non-Accountants, Faculty of Commerce and Accountancy, Chulalongkorn University



Mrs. Rane Kositvanich

Deputy Governor - Fuel

Age 58

Education

- Master of Science in Development Administration (Economic Development), National Institute of Development Administration
- Bachelor of Science (Economics), Kasetsart University

Work Experience

- | | |
|-----------------|--------------------------------------|
| October 1, 2020 | Deputy Governor - Fuel |
| October 1, 2018 | Assistant Governor - Fuel Management |

Training

- Advanced Master of Management Program, National Institute of Development Administration
- Environmental Governance for Executive Officer, Ministry of Natural Resources and Environment
- Basic Concept of Conflict Management by Peaceful Means, King Prajadhipok's Institute
- EGAT Director Development Program (EDDP)
- EGAT Enhancing Program (EEP)



Miss Jiraporn Sirikum

Deputy Governor - Strategy
Serving as EGAT Spokesperson

Age 55

Education

- Ph.D. Program in Engineering (Industrial Engineering and Management), Asian Institute of Technology
- Master of Engineering (Energy Planning and Policy), Asian Institute of Technology
- Bachelor of Engineering (Industrial Engineering), Khon Kaen University

Work Experience

- | | |
|-----------------|--|
| October 1, 2020 | Deputy Governor - Strategy
Serving as EGAT Spokesperson |
| October 1, 2018 | Assistant Governor - Research,
Innovation and Business
Development |

Training

- Digital CEO in Agribusiness, Digital Economy Promotion Agency
- Digital CEO, Digital Economy Promotion Agency
- Innovation for Sustainable Development, Institute for Good Governance Promotion, Office of the Public Sector Development Commission
- EGAT Director Development Program (EDDP)
- Management Program for New Leaders, Fiscal Policy Research Institute Foundation
- EGAT New Leader Development Program (ENLP)



Mr. Kijja Sripatthangkura

Deputy Governor - Governor's Office
Appointed as Director Chief Executive Officer,
RATCH Group Public Company Limited

Age 60

Education

- Bachelor of Engineering (Electrical Engineering), Prince of Songkla University

Training

- Training program organized by the Thai Institute of Directors (IOD)
 - Director Certification Program (DCP)
- The Executive Program in Energy Literacy for a Sustainable Future, Thailand Energy Academy
- Public Economics Management for Executives, King Prajadhipok's Institute
- Advanced Management Program, Harvard Business School, USA
- Senior Executive Program, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Thailand and ASEAN Economic Community Course, King Prajadhipok's Institute

Work Experience

- | | | |
|---------|----------|--|
| April | 17, 2019 | Deputy Governor - Governor's Office
Appointed as Director Chief Executive Officer, RATCH Group Public Company Limited |
| April | 6, 2017 | Deputy Governor - Governor's Office
Appointed as Director Chief Executive Officer, Ratchaburi Electricity Generating Holding Public Company Limited |
| October | 1, 2015 | Deputy Governor - Policy and Planning |
| October | 1, 2013 | Assistant Governor - Planning |



Mr. Santichai Osotpavapusit

Deputy Governor - Governor's Office

Appointed as Senior Executive Vice President,
Acting President, EGAT International Company Limited

Age 60

Education

- Bachelor of Engineering (Electrical Engineering), Chulalongkorn University

Training

- EGAT Executive Development Program for Level 13-14 (EGAT XD for Level 13-14)
- EGAT Director Development Program (EDDP)
- EGAT New Leader Development Program (ENLP)
- Executive Development Program, Fiscal Policy Research Institute Foundation
- Training program organized by the Thai Institute of Directors (IOD)
 - Director Certification Program (DCP)
- The Executive Program in Energy Literacy for a Sustainable Future, Thailand Energy Academy
- Energy Symposium 2017, Institute of Industrial Energy, the Federation of Thai Industries
- Leadership Succession Program, Institute of Research and Development for Public Enterprises
- Advanced Police Command Course, Institute of Police Administration Development

Work Experience

- | | |
|------------------|---|
| October 22, 2019 | Deputy Governor - Governor's Office
Appointed as Senior Executive Vice President, Acting President, EGAT International Company Limited |
| October 1, 2019 | Deputy Governor - Governor's Office |
| October 1, 2018 | Deputy Governor - Governor's Office
Appointed as Senior Executive Vice President, Acting President, EGAT International Company Limited |
| October 1, 2017 | Assistant Governor - Transmission System Engineering |



Mr. Thepparat Theppitak

Deputy Governor - Governor's Office

Appointed as Director Chief Executive Officer,
EGCO Public Company Limited

Age 55

Education

- Master of Science (Electricity Industry Management and Technology), University of Strathclyde, United Kingdom
- Bachelor of Engineering (Mechanical Engineering), Chiang Mai University

Training

- National Defense Regular Course, Thailand National Defense College
- Leadership for Inspiration for Senior Management, King Prajadhipok's Institute
- The Executive Program in Energy Literacy for a Sustainable Future, Thailand Energy Academy
- Advanced Management Program, Harvard Business School, USA
- Senior Executive Program, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Training program organized by the Thai Institute of Directors (IOD)
 - Director Certification Program (DCP)
- Advanced Police Command Course, Institute of Police Administration Development

Work Experience

- | | |
|-----------------|---|
| July 1, 2020 | Deputy Governor - Governor's Office
Appointed as Director Chief Executive Officer, EGCO Public Company Limited |
| October 1, 2018 | Deputy Governor - Power Plant Development and Renewable Energy |
| October 1, 2017 | Assistant Governor - Renewable and New Energy |

Executives Retired in 2020



Mr. Boontawe Kangwankit

Deputy Governor - Governor's Office

October 1, 2018 - September 30, 2020

Retired on October 1, 2020



Mr. Patana Sangsriroujana

Deputy Governor - Strategy
Serving as EGAT Spokesperson

October 1, 2018 - September 30, 2020

Retired on October 1, 2020

Policy on Remuneration of EGAT Executives



Mr. Pattarakit Techasikarn

Deputy Governor - Finance and Accounting
(CFO)

October 1, 2018 - September 30, 2020
Retired on October 1, 2020



Mr. Tawatchai Jakpaisal

Deputy Governor - Fuel

October 1, 2018 - September 30, 2020
Retired on October 1, 2020

EGAT Board of Directors has an important role in formulating policy and supervising the remuneration of EGAT executives to be at the appropriate level which is consistent with their responsibilities, in order to retain the knowledgeable and competent executives to stay with the organization. The remuneration must be comparatively at the same level with the organizations of the same business. The remuneration rate is based on the survey of the remuneration of other organizations of the same nature of business. The remuneration rate of senior executives (from the level of division

directors and above) is in accordance with the EGAT payroll structure. Moreover, there is compensation in terms of monetary and non-monetary, such as provident fund, bonus, medical expenses, and other benefits in accordance with EGAT regulations.

EGAT Board of Directors approves an increase of the salary of executives from the level of division directors and above from their performance individually and their achievements according to the operational target of each line of operation.

Corporate Governance

Corporate governance is essential for providing transparency, efficiency, and effectiveness to the important processes of EGAT. It includes strategic management process, core business process, and supporting process so that EGAT can provide deliverables to stakeholders and increase trust and acceptance of EGAT.



Strategic Management Process: According to EGAT corporate policy, EGAT Board of Directors has reviewed EGAT rules on corporate governance in order to develop EGAT management to have transparency and comply with international standards. Moreover, EGAT policy on corporate governance and anti-corruption which is an operational policy has also been reviewed in order to be used as guidelines for observing EGAT rules and regulations by the Board of Directors, executives, and employees. EGAT corporate governance covers 6 principles, namely rule of law, morality, transparency, participation, accountability, and effectiveness. In the development of EGAT vision, strategies, and major plans, it is necessary to take into account risk management, internal control system, and stakeholders including to have a follow-up and reporting system which is correct, complete, and timely.

In formulating EGAT vision and strategic objectives in response to the development dimension, the following

factors were taken into account, namely the government policy, the 20-year National Strategy, National Reform Plan in Energy, requirement and expectation of stakeholders, organizational environment, and other related factors. EGAT Committee on Strategy Driving is responsible for establishing guidelines for the implementation, information transfer, overseeing the implementation, the follow-up and evaluation as well as risk management and setting the system of internal control to enable EGAT to achieve its vision and fulfill its mission.

Core Business Process: EGAT has used the corporate governance policy as a framework for its power plant development, transmission system development, electricity generation, fuel management, electricity transmission, and related business management. The objective is to provide deliverables to stakeholders, such as security and reliability of the power system, operation's transparency, fairness, verifiability, efficiency, and environmental friendliness. Moreover, the deliverables are derived from the resources which are used wisely and useful innovations, responding to the need, expectation, and participation of stakeholders.

Supporting Process: The corporate governance policy contributes to the correctness of financial and accounting system, the environment which supports the human resource development based on governance, the efficient use of technology and information system which is linked, the appropriate

control of organizational information, the promotion of social responsibility, and the attention to human rights and labor with fair treatment and equity. The process to monitor the compliance with laws and regulations is to prevent corruption and conflict of interest.

As a result of the implementation of the processes under the governance guidelines, EGAT's electricity generation achieved the target, having sufficient power supply for the demand of industrial sector with an ability to maintain security for the power system of the country, without any negative effects to stakeholders and environment. Moreover, the economic, social, and environmental development has resulted in the better quality of life. In 2020, EGAT's achievement in the area of corporate governance was as follows:



Outstanding State-Owned Enterprise Awards 2020 in the category of *social and environmental responsibility and creativity and innovation* from State Enterprise Policy Office



The 9th NACC Integrity Awards (Honorable Mention Award) from Office of the National Anti-Corruption Commission



Conflict of Interest

EGAT has a preventive measure against the conflict of interest at all levels. At the level of the Board of Directors, the qualifications of members must comply with the provision of the Act on Qualification Standards for Directors and Employees of State Enterprises, B.E. 2518 (1975), EGAT Act, B.E. 2511 (1968), resolution of the Cabinet on August 6, 2019 concerning guidelines on the appointment of members of Board of Directors of state enterprises and other related laws. Upon their appointment and at the end of the year, every Board member has to report on management position they are holding in other state enterprises or companies as well as connected transactions, amount/value of shares in other companies in the same industry or business in which EGAT operates and the amount of the shares held is equal to or higher than 10 percent of the total voting rights. Moreover, the role and responsibility of the Board of Directors has been clearly defined and ensured that there will not be conflict of interest among the Board of Directors, executives, and employees.

The EGAT Governor and Deputy Governors must disclose the conflict of interest between one's personal interest and the organization's interest on their appointment and at the end of the year. EGAT Assistant Governors and other employees must disclose the conflict of interest by electronic means at the end of the year. The employee who is appointed member of any procurement committee and supply management must disclose the conflict of interest to the superior when the problem is found on duty.

Anti-Corruption Policy

EGAT has raised awareness of the employees to perform their duty with transparency, fair treatment, verifiability, and participation in anti-corruption. The employees have to follow EGAT's corporate governance policy and anti-corruption which uses the guidelines and measures of the National Strategy on Anti-Corruption, Phase 3 (2017-2021) as a framework for setting measures, organizing activities concerning anti-corruption, and disseminating information on prevention and anti-corruption to employees. The system, measures, and guidelines for watching, inspection, and whistle blowing must be available to prevent the misconduct in every working process. When any corruption found to have taken place, immediate investigation and severe punishment will be undertaken to prevent the same occurrence.

Moreover, EGAT supports the upgrade of the level of integrity and transparency of the country by participating in the Integrity and Transparency Assessment (ITA) of the government agency in accordance with the MOU on Driving the National Strategy concerning Anti-Corruption, Phase 3 (2017-2021) signed by the Office of the National Anti-Corruption Commission, State Enterprise Policy Office, and all state enterprises. The criteria and result from the assessment are used in the improvement of the working process to be more transparent, fair, and verifiable. EGAT Anti-Corruption Operation Center is responsible for monitoring and promoting ethics and code of conduct, prevention of corruption, and systematic handling of complaints.

Promotion Concerning Corporate Governance

EGAT's Corporate Governance Master Plan (2017-2026) comprises 4 strategies, namely

Strategy 1: To promote among the employees the ideology of being a person who adheres to governance and gets prepared for inspection

Strategy 2: To develop immunity for EGAT to be firm in its governance by building alliance

Strategy 3: To communicate to reach the mind of the target groups

Strategy 4: To promote EGAT as an organization of the people

The master plan will be used as a framework for the long-term promotion of governance supported by the operational plan of corporate governance promotion and anti-corruption. In 2020, EGAT Anti-Corruption Operation Center would review the operational plan of corporate governance promotion and anti-corruption and prepare a new plan for consideration of the Committee on Corporate Governance and Social Responsibility. The operational plan would include activities, such as a selection of model projects and a role model person in governance as well as organizing an event “EGAT - Organization of Transparency,” etc. The operational plan would be implemented by related lines of command which would report the result to EGAT Anti-Corruption Operation Center, Committee on Corporate Governance and Social Responsibility, and Board of Directors quarterly.



The event of “EGAT - Organization of Transparency”

SIDE



SIDE



Fighting COVID-19 Together

The spread of COVID-19 has caused problems to the daily life of Thai people and tremendously affected the economic situation of the country. In such circumstances, apart from **maintaining the security of electricity system** around the clock, EGAT **gave support to medical personnel** and hospitals countrywide by providing them with medical equipment and devices, its invention of positive/negative pressure cabinet, acrylic partition, pedal activated hand sanitizer dispenser, and its own production of alcohol hand sanitizer gel “EGAT’s Nam Jai.” Furthermore, to **alleviate the impact on the public**, EGAT also distributed survival bags, hygienic face masks, alcohol hand sanitizer gel, food, and drinking water “EGAT’s Nam Jai” to the inhabitants of nearby community.

Official Information Act Compliance Report

In compliance with the Official Information Act, B.E. 2540 (1997), EGAT has appointed the EGAT Information Management Committee to be responsible for setting policy, measures, or criteria concerning information management, permission, and information service. Moreover, EGAT Information Center is responsible for information service in accordance with EGAT policy on information management which confirms EGAT's intention to provide information service in a fair, equitable, and transparent manner and in compliance with the Official Information Act, B.E. 2540 (1997) and other relevant laws. EGAT defines the scope and procedures for information disclosure and information service under the clear instruction complying with the Official Information Act, B.E. 2540 (1997). EGAT information service is available in various forms, such as documents, internet-accessible information, telephone information service, faxes, and assistance by EGAT staff. Moreover, interested persons can visit the EGAT Information Center at EGAT Headquarters.

Important information and documents with a lot of details are kept at the relevant divisions under the responsibility of appointed EGAT staff. Interested persons can visit the required division themselves or by telephone.

Internet-Accessible Information

Information on various activities of EGAT operation is available at EGAT website: www.egat.co.th and the website of the Office of the Official Information Committee (electronic information center of official organizations: www.oic.go.th) which is accessible around the clock, such as information on EGAT's operation, power plants, transmission system, electricity generation, energy sales, power development plan, power plant construction projects, etc. The purpose of the website is to provide a convenient communication channel to give information, handle inquiries, as well as deal with complaints from the public and announcement of emergency.

Social media (Facebook/EGAT1416 and Twitter/EGAT1416) is also provided as another communication channel.



Facebook/EGAT1416



Twitter/EGAT1416

EGAT Call Center 1416

EGAT call center provides enquiry service and other public benefits, including advice and notification of emergency or failure of high voltage transmission lines. People all over the country can contact **EGAT Call Center 1416** which is available on a 24-hour basis.



Activities of EGAT Information Center in 2020

1. Enquiry service via telephone, EGAT website, and assistance to visitors at EGAT Information Center during office hours
2. Information service via EGAT Call Center 1416 (during January - December 2020) to a total of 7,224 calls which included the following items:
 - Power generation and transmission
 - EGAT’s CSR activities
 - Energy sales and procurement
 - Job recruitment, internship training opportunity, and request for the visit of EGAT offices, power plants, dams, and guesthouse
 - Contact of EGAT staff and units in EGAT
 - Emergency of transmission system and other complaints
3. Information service via EGAT Electronics Official Information Center (www.oic.go.th/infocenter6/623) in accordance with the policy of the Office of the Official Information Commission.

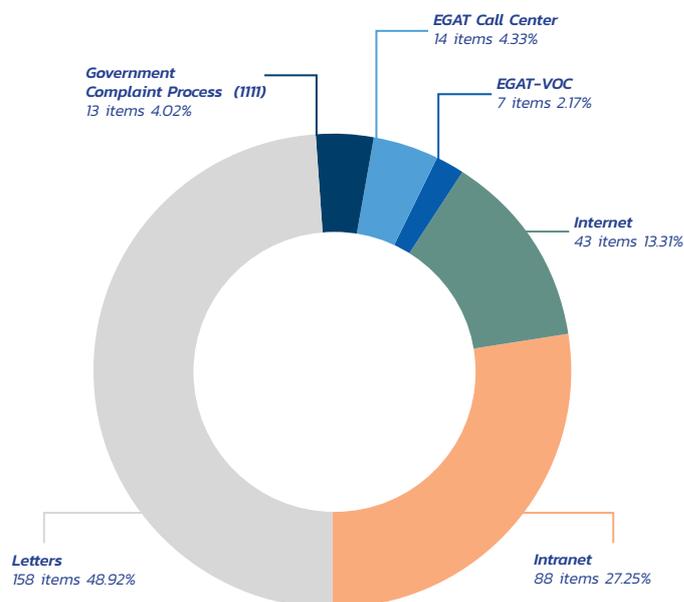
EGAT Information Management Committee

EGAT Information Management Committee is responsible for setting policy and measures or criteria on information management system, information service, and considering complaints or objection according to the Official Information Act, B.E. 2540 (1997). The resolutions of the Committee will be sent to relevant units of EGAT for action.

Public Complaints Process

As EGAT has given importance to the administration with transparency, accountability, and verifiability based on corporate governance, participation of the public and all groups of stakeholders is vital. In 2020, EGAT received 323 suggestions/comments and complaints via several channels.

Comments received in 2020 categorized by channels



Comments/Complaints Management

EGAT Information Center forwarded comments/complaints received via the 6 channels to relevant units of EGAT to take action. The comments/complaints were explained, solved, and ended. The complainants were informed of the action taken by EGAT.

Power Development and Future Plan

Power Plant Development Projects

EGAT's power plant development projects according to the Power Development Plan 2018-2037 First Revision (PDP2018 Revision 1) which are in the process of seeking approval from the Cabinet are as follows:

1. Thermal Power Plant Projects

1.1 Nam Phong Power Plant Replacement Project

Nam Phong Power Plant Replacement Project will be constructed in the area of the existing Nam Phong Power Plant in Nam Phong Sub-district, Nam Phong District, Khon Kaen Province. The power plant will be a combined cycle power plant with an installed capacity of 650 MW using natural gas as primary fuel and diesel oil as supplementary fuel. The power plant will replace the existing Nam Phong Power Plant, Blocks 1-2, which will be decommissioned in 2025. The objective of the project is to maintain security of the power system in the Northeast and stability of the electricity system of the country. The power plant will start its commercial operation in 2025.

1.2 Mae Moh Power Plant Replacement Project, Units 8-9

The power plant will be located in the area of the existing Mae Moh Power Plant in Mae Moh Sub-district, Mae Moh District, Lampang Province. The power plant will be a thermal power plant with an installed capacity of 600 MW and will replace the existing Mae Moh Power Plant, Units 8-9, which will be decommissioned in 2022 and 2025 respectively. The objective of the project is to maintain security of the power system

in the North and Northeast and stability of the electricity system of the country. The power plant will use lignite from Mae Moh mine as fuel and employ advanced technology in pollution control with better emissions limit value than that of the environmental standards. The power plant is scheduled to start its commercial operation in 2026.

1.3 South Bangkok Power Plant Project (Addition)

The power plant will be located in the area of the existing South Bangkok Power Plant in Bang Prong Sub-district, Mueang District, Samut Prakarn Province. It is a combined cycle power plant comprising 3 blocks of which the first block is 700 MW, the second and third blocks are 1,400 MW (2x700). The objective of the construction is to maintain security of the power system and respond to the increasing demand for electricity in the metropolitan area. The power plant will use natural gas as primary fuel and diesel oil as supplementary fuel. The first block is scheduled for commercial operation in 2026. The second and third blocks will start their commercial operation in 2027.



1.4 Surat Thani Power Plant Project, Blocks 1-2

The power plant will be located in the area of the existing Surat Thani Power Plant in Khao Hua Khwai Sub-district, Phunphin District, Surat Thani Province. It will be a combined cycle power plant with 2 blocks, each of which is 700 MW totaling 1,400 MW. The objective of the project is to maintain security of the electricity system in the South, particularly on the Andaman Coast which still lacks a baseload power plant and to cope with the economic growth and tourism in the South. The power plant will use natural gas as primary fuel and diesel oil as supplementary fuel. It is scheduled for commercial operation in 2027 and 2029 respectively.

1.5 North Bangkok Power Plant Project (Addition), Phase 1

The power plant will be located in the area of the existing North Bangkok Power Plant and EGAT Headquarters in Bang Kruai Sub-district, Bang Kruai District, Nonthaburi Province. It will be a 700 MW combined cycle power plant. The objective of the project is to maintain the long-term security of electricity system in the metropolitan area and nearby area. The power plant will use natural gas as fuel. It is scheduled for commercial operation in 2028.

2. Hydropower Plants Downstream of Irrigation Dams

First Phase

The Cabinet approved, on October 30, 2007, the construction of power plants downstream of 6 irrigation dams, namely Chao Phraya Dam, Naresuan Dam, Mae Klong Dam, Khun Dan Prakan Chon Dam, Pasak Jolasid Dam, and Kwaie Noi Bumrung Dan Dam with the total generating capacity of 78.7 MW. Presently, the construction was completed and the power plants are in operation.

Second Phase

The Cabinet approved, on October 18, 2011, the construction of the power plants downstream of 3 dams, namely Kiew Kho Ma Dam, Khlong Tron Dam, and Chulabhorn Dam (EGAT's dam) with the total capacity of 9.25 MW. Presently, the hydropower plant downstream of Kiew Kho Ma Dam has been in commercial operation since April 9, 2018. The hydropower plant downstream of Chulabhorn Dam started commercial operation on November 29, 2019, and the hydropower plant downstream of Khlong Tron Dam started commercial operation on December 16, 2020.

Third Phase

The Cabinet approved, on September 12, 2017, the construction of a 14 MW hydropower plant at Pha Chuk Dam. Presently, the power plant is under construction. It is scheduled for commercial operation in December 2021.

Fourth Phase

EGAT has conducted a feasibility study of the following 7 small hydropower plant development projects for approval of the Cabinet in 2021-2022 according to the PDP2018 Revision 1.

Project	Province	Installed Generating Capacity	Estimated Completion Date
		(MW)	
Lamtakong Dam Hydropower Plant	Nakhon Ratchasima	1.50	2025
Nam Pee Dam Hydropower Plant	Phayao	2.00	2025
Lam Pao Dam Hydropower Plant	Kalasin	2.50	2025
Huay Mae Tho Dam Hydropower Plant	Tak	1.25	2026
Phya Man Dam Hydropower Plant	Phitsanulok	3.00	2026
Pranburi Dam Hydropower Plant	Prachuap Khiri Khan	1.50	2027
Nam Pad Dam Hydropower Plant	Uttaradit	2.00	2027
Total		13.75	

Additionally, the following 17 small hydropower plant development projects in accordance with the PDP2018 Revision 1 are in the process of feasibility study.

Project	Province	Installed Generating Capacity	Estimated Completion Date
		(MW)	
Nam Kon Dam Hydropower Plant	Nan	2.00	2028
Yasothon - Phanom Phrai Dam Hydropower Plant	Yasothon	4.00	2028
Nam Ki Dam Hydropower Plant	Nan	1.00	2029
Mid Mae Lamao Dam Hydropower Plant	Tak	1.50	2029
Upper Huay Uum Piam Dam Hydropower Plant	Tak	1.50	2030
Huay Nam Sai Dam Hydropower Plant	Nakhon Si Thammarat	2.00	2030
Chon Nabot Dam Hydropower Plant	Khon Kaen	1.50	2031
Khlong Luang Dam Hydropower Plant	Chon Buri	1.00	2031
Tub Salao Dam Hydropower Plant	Uthai Thani	1.50	2032
Krasiew Dam Hydropower Plant	Suphan Buri	1.50	2032
Mae Kuang Udom Thara Dam Hydropower Plant	Chiang Mai	1.00	2033
Mae Suai Dam Hydropower Plant	Chiang Rai	2.00	2033
Mae Wong Dam Hydropower Plant	Nakhon Sawan	12.00	2034
Mae Khan Dam Hydropower Plant	Chiang Mai	16.00	2034
Lower Mae Ping Dam Hydropower Plant	Tak	4.50	2035
Huay Sataw Dam Hydropower Plant	Chanthaburi	1.50	2036
Lam Saphung Dam Hydropower Plant	Chaiyaphum	0.75	2037
Total		55.25	

3. Pumped-Storage Hydropower Plant Projects

EGAT has completed the feasibility study of Chulabhorn Dam Pumped-Storage Hydropower Plant Project in Chaiyaphum Province comprising 3 units, each of which is 800 MW. At present, EGAT is in the process of preparing the Environmental Impact Assessment (EIA) of the project. EGAT is also in the process of studying the potential of the 3 x 800 MW Vajiralongkorn Dam Pumped-Storage Hydropower Plant Project in Kanchanaburi Province. The power plants are scheduled for commercial operation in 2035 and 2037 respectively.

4. Renewable Power Plant Projects

4.1 Hydro-Floating Solar Hybrid Project of Sirindhorn Dam, Ubon Ratchathani Province

It is a pilot project of hybrid system development of floating solar panels in the reservoir of EGAT dams together with the hydropower system controlled by the energy management system (EMS) to generate electricity appropriately and increase flexibility in energy management. The project was approved by the Cabinet on October 29, 2019. As of December 2020, the progress of the construction was 82.04%. The power plant is scheduled for commercial operation in June 2021.

4.2 Hydro-Floating Solar Hybrid Project of Ubol Ratana Dam, Khon Kaen Province

The 24 MW hydro-floating solar hybrid project of Ubol Ratana Dam is of the same system as the project of Sirindhorn Dam but uses the solar energy forecast system to evaluate the potential of the power system and improve the efficiency of electricity generation to be more flexible. The project is in the process of seeking approval by the Cabinet. The commercial operation date is scheduled to be in 2023.

Pumped-Storage Hydropower Plant Projects

**Chulabhorn Dam
Pumped-Storage
Hydropower Plant Project**
3 Units

Capacity
800
MW

**Vajiralongkorn Dam
Pumped-Storage
Hydropower Plant Project**
3 Units

Capacity
800
MW

4.3 Renewable Power Plant Development Projects in Accordance with the PDP2018 Revision 1 with the Total Capacity of 2,725 MW

Project	Province	Installed Generating Capacity	Commercial Operation Date
		(MW)	
Hydro-Floating Solar Hybrid, Sirindhorn Dam	Ubon Ratchathani	45	2021
Hydro-Floating Solar Hybrid, Ubol Ratana Dam	Khon Kaen	24	2023
Hydro-Floating Solar Hybrid, Bhumibol Dam	Tak	158	2026
Hydro-Floating Solar Hybrid, Srinagarind Dam	Kanchanaburi	140	2026
Hydro-Floating Solar Hybrid, Vajiralongkorn Dam	Kanchanaburi	50	2027
Hydro-Floating Solar Hybrid, Srinagarind Dam (Extension)	Kanchanaburi	280	2029
Hydro-Floating Solar Hybrid, Bhumibol Dam (Extension)	Tak	300	2030
Hydro-Floating Solar Hybrid, Vajiralongkorn Dam (Extension)	Kanchanaburi	250	2031
Hydro-Floating Solar Hybrid, Srinagarind Dam (Extension 2)	Kanchanaburi	300	2032
Hydro-Floating Solar Hybrid, Chulabhorn Dam	Chaiyaphum	40	2033
Hydro-Floating Solar Hybrid, Bang Lang Dam	Yala	78	2033
Hydro-Floating Solar Hybrid, Bhumibol Dam (Extension 2)	Tak	320	2033
Hydro-Floating Solar Hybrid, Rajjaprabha Dam	Surat Thani	140	2034
Hydro-Floating Solar Hybrid, Sirikit Dam	Uttaradit	325	2035
Hydro-Floating Solar Hybrid, Rajjaprabha Dam (Extension)	Surat Thani	100	2036
Hydro-Floating Solar Hybrid, Sirikit Dam (Extension 1)	Uttaradit	175	2037

Power Purchase Projects (PDP2018 Revision 1)

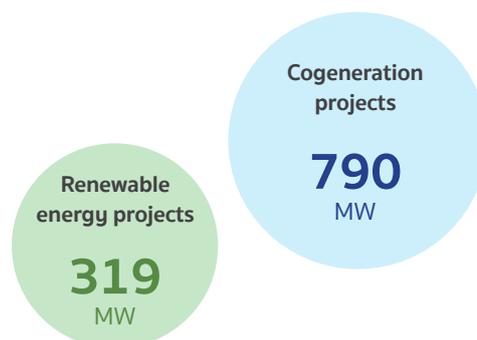
Power Purchase from Independent Power Producers (IPPs)

During 2021-2027, EGAT signed 6 power purchase agreements with Independent Power Producers (IPPs). The construction is in process, and the total capacity is 6,940 MW.

Project	Installed Capacity (MW)	Estimated Completion Date
Gulf SRC Co., Ltd.	1,250 (2x625)	Mar./Oct. 2021
Gulf SRC Co., Ltd.	1,250 (2x625)	Mar./Oct. 2022
Gulf PD Co., Ltd.	1,250 (2x625)	Mar./Oct. 2023
Gulf PD Co., Ltd.	1,250 (2x625)	Mar./Oct. 2024
Hin Kong Power Co., Ltd.	1,400 (2x700)	Jan. 2024/2025
Burapa Power Generation Co., Ltd.	540 (1x540)	Nov. 2027
Total	6,940	

Power Purchase from Small Power Producers (SPPs)

The projects of power purchase from Small Power Producers (SPPs) with the scheduled commercial operation dates during 2021-2025 total 1,109 MW comprising 790 MW from cogeneration projects and 319 MW from renewable energy projects.



Power Purchase from Neighboring Countries

EGAT has purchased power from neighboring countries comprising 9 projects with a total capacity of 5,716.6 MW.

Project	Country	Installed Capacity (MW)
Theun-Hinboun Hydropower Plant	Lao PDR	430
Huay Ho Hydropower Plant	Lao PDR	126
Nam Theun 2 Hydropower Plant	Lao PDR	948
Nam Ngum 2 Hydropower Plant	Lao PDR	597
Xayaburi Hydropower Plant	Lao PDR	1,220
Nam Ngiep 1 Hydropower Plant	Lao PDR	269
Xe-Pian Xe-Namnoy Hydropower Plant	Lao PDR	354
Hongsa Thermal Power Plant	Lao PDR	1,473
Thai-Malaysia HVDC Transmission Lines	Malaysia	300
Total		5,716.6

During 2021-2022, EGAT signed a power purchase agreement with the following project which is under construction. The total capacity is 514.30 MW.

Project	Country	Energy Source	Capacity (MW)	Scheduled Commercial Operation Date
Nam Theun 1	Lao PDR	Hydro	514.30	May 2022

Transmission System Development and Improvement Projects

Approved Projects

1. Bulk Power Supply for the Greater Bangkok Area Project, Phase 2 (GBAS2)

Being a successive project of the Bulk Power Supply for the Greater Bangkok Area Project, Phase 1, the investment cost of GBAS2 is 9,170 million Baht consisting of the construction of transmission lines of 89.03 circuit-kilometers and a new substation, expansion of 4 substations, installation of transformers of 9,200 MVA and capacitor bank of 672 MVAR, and 21 miscellaneous works relating to the transmission system expansion. As of December 2020, the progress of the project was 89.84%. The project is expected to be completed in 2021.

2. Transmission System Development Project for Power Purchase from IPPs (IPPP)

The purpose of this transmission system development project is to accommodate the power purchase from the IPP power plants under 4 sub-projects with the installed capacity of approximately 4,400 MW. The project costs 7,958 million Baht and comprises the construction of transmission lines of 169.40 circuit-kilometers and 2 new substations, expansion of 6 substations, installation of transformers totaling 1,000 MVA, and 4 miscellaneous works relating to the transmission system expansion. As of December 2020,

the progress of the project was 76.84%. The construction of the transmission system for power purchase from 3 IPPs was completed. The construction of the transmission system for the power project of Burapa Power Generation Co., Ltd. to support the Eastern Economic Corridor (EEC) which the company is responsible for the cost of 2,120.0 million Baht for the improvement of new transmission facilities (NTF) is in process and is expected to be completed in 2026.

3. Transmission System Expansion and Renovation Project, Phase 1: Substation (RSP1)

The project involves the improvement, replacement, or addition of equipment and control building of the substations. The project costs 3,815 million Baht for the renovation of 15 substations. As of December 2020, the progress of the project was 85.60%. The project is expected to be completed in 2023.

4. Main Transmission System Expansion Project for Power Purchase from SPP Cogeneration Power Plants, Based on Request for Proposal 2010 (SPPC)

This project is the expansion of main transmission system to accommodate the power purchase from SPP's cogeneration power plants. The project costs 10,610 million Baht and comprises the construction of transmission lines of 490 circuit-kilometers and a new substation, expansion of 93 substations and improvement of control and prevention system of the substations, and installation of transformers totaling 2,500 MVA. As of December 2020, the progress of the

project was 91.96%. The project is scheduled to be completed in 2023.

5. Transmission System Renovation and Expansion Project, Phase 1: Transmission Line (RLP1)

This project involves the renovation of aged transmission lines and expansion of transmission lines. The project costs 9,850 million Baht and comprises the construction of 15 transmission lines of 331 circuit-kilometers and renovation and expansion of 14 substations. As of December 2020, the progress of this project was 91.75%. It is scheduled to be completed in 2024.

6. Transmission System Development Project in the Area of Loei, Nong Bua Lam Phu, and Khon Kaen Provinces for Power Purchase from Lao PDR (LNKP)

The purpose of the transmission system development project is to accommodate power purchase from Xayaburi Hydropower Plant in Lao PDR to enhance the security of the electricity system. The project costs 12,060 million Baht and comprises the construction of transmission lines of 505 circuit-kilometers and 3 new substations, expansion of 4 substations, and installation of transformers totaling 3,067 MVA. As of December 2020, the progress of this project was 96.614%. It is scheduled to be completed in 2022.

7. Transmission System Renovation and Expansion Project, Phase 2 (RTS2)

The project costs 21,900 million Baht and comprises the construction of 11 transmission lines of 1,267 circuit-kilometers as well as construction, renovation, and expansion of 19 substations. As of December 2020, the progress of this project was 61.26%. It is scheduled to be completed in 2025.

8. Transmission System Improvement Project in Eastern Region for System Security Enhancement (TIPE)

The purposes of this transmission system improvement project are to enhance security of the power system in the Eastern part of the country, to cope with the increase of new power plants, and to promote the expansion of industry and tourism of the region. The project costs 12,000 million Baht and comprises the construction of transmission lines of 469.664 circuit-kilometers and 3 new substations, expansion of a substation, installation of transformers of 3,000 MVA, and 8 miscellaneous works relating to the expansion of the transmission system. As of December 2020, the progress of this project was 38.30%. It is scheduled to be completed in 2024.

9. Bulk Power Supply for the Greater Bangkok Area, Phase 3 (GBA3)

Being a successive project of the Bulk Power Supply for the Greater Bangkok Area, Phase 2 (GBA2), the objectives of this project are to respond to the increasing demand for electricity in the Greater Bangkok area and to enhance security of the power system of Thailand. The project costs 12,100 million Baht and comprises the construction of transmission lines of 194.91 circuit-kilometers and 2 new substations, expansion of 4 substations, installation of transformers of 8,100 MVA and capacitor bank of 288 MVA, and 27 miscellaneous works relating to the expansion of transmission system. As of December 2020, the progress of this project was 58.71%. It is scheduled to be completed in 2025.

10. Transmission System Expansion Project, Phase 12 (TS12)

TS12 is a successive scheme of Transmission System Expansion Project, Phase 11 (TS11). The project costs 60,000 million Baht and comprises the construction of transmission lines of 3,127.927 circuit-kilometers and 7 new substations, expansion of 75 substations,

installation of transformers of 25,700 MVA, capacitor bank of 1,770 MVar, Static Var Compensator (SVC) inductive of 50 MVar/Capacitive of 100 MVar, and 182 miscellaneous works relating to the transmission system expansion. As of December 2020, the progress of this project was 52.50%. It is scheduled to be completed in 2025.

11. Transmission System Improvement Project in Western and Southern Regions to Enhance System Security (TIWS)

The project involves the construction of 500 kV transmission lines and additional improvement of the 230 kV transmission systems to cope with the increasing electricity demand in the Southern part of Thailand in the long run. The project increases the capability of the transmission system from the West and the Central parts of Thailand to the South and promotes the expansion of business, industry, and tourism. Moreover, the project will solve the problem of power outage in the South. The project costs 63,200 million Baht and comprises the construction of transmission lines of 2,192 circuit-kilometers and a new substation, expansion of 8 substations, installation of transformers totaling 4,000 MVA, capacitor bank of 360 MVar, shunt reactor of 1,760 MVar, Static Var Compensator (SVC) inductive of 140 MVar/Capacitive of 250 MVar, and 10 miscellaneous works relating to the transmission system expansion. As of December 2020, the progress of this project was 47.08%. It is scheduled to be completed in 2024.

12. Transmission System Improvement Project for System Security Enhancement of the Northeast, Lower North, and Central Parts, including Bangkok Metropolitan (TIEC)

The objectives of the project are to enhance security of the power system, to support renewable and alternative power projects with the capacity of 13,927 MW, and to support the ASEAN Power Grid (APG)

Project. The project costs 94,040 million Baht and comprises the construction of the transmission lines of 2,645 circuit-kilometers, expansion of 13 substations, installation of transformers totaling 12,000 MVA, shunt reactor of 2,420 MVar and Static Var System (SVC) inductive of 700 MVar/Capacitive of 1,500 MVar, and 2 miscellaneous works relating to the transmission system improvement. As of December 2020, the progress of this project was 23.18%. It is scheduled to be completed in 2030.

13. Transmission System Improvement Project for the Upper Northern Region for System Security Enhancement (TIPN)

The project involves the construction of additional 500 kV and 230 kV transmission lines to support the rising demand for electricity in Chiang Mai and Lamphun Provinces, enhance the system security, respond to the increasing electricity demand in the long run, and support the power plant projects in neighboring countries and the ASEAN Power Grid Project (APG). The project costs 12,240 million Baht and comprises the construction of transmission lines of 420 circuit-kilometers, construction of a new substation, expansion of 7 substations, and installation of transformers of 3,350 MVA. As of December 2020, the progress of this project was 19.32%. It is scheduled to be completed in 2024.

14. Transmission System Project for South Bangkok Power Plant Replacement Project, Phase 1 (SBR1)

This project involves the construction of the transmission system to support the new power plant to replace 1,330 MW South Bangkok Thermal Power Plant, Units 1-5, which were decommissioned in 2019. The project costs 1,090 million Baht and comprises the construction of 230 kV underground transmission lines of 1.0 circuit-kilometer from the switchyard of the power plant to South Bangkok Substation and the expansion of South Bangkok Substation. As of December 2020, the progress of the project was 74.88%. It is scheduled to be completed in 2022.

15. Transmission System Improvement Project in Lower Southern Region to Enhance System Security (TILS)

The project involves the construction of the transmission system of 500 kV from Surat Thani Province to Songkhla Province and additional improvement of the transmission system of 230 kV and 115 kV. The objectives of the project are to enhance security of the power system of the South to cope with the electricity demand of household, business, industry, and tourism after the formation of the ASEAN Economic Community (AEC), to support the link of the baseload power plants or renewable power plants according to the government policy in response to the policy of fuel diversification for electricity generation, to solve the problem of annual overhaul of natural gas pipelines, and to support the ASEAN Power Grid (APG) and power purchase from neighboring countries. The project costs 35,400 million Baht and comprises the construction of transmission lines of 1,409 circuit-kilometers and 2 new substations, expansion of 9 substations, and installation of transformers of 4,000 MVA. As of December 2020, the progress of this project was 5.617%. It is scheduled to be completed in 2026.

16. Transmission System Development for Pha Chuk Hydropower Plant Project (PCHP)

The project aims to promote the use of renewable energy in order to decrease the amount of imported energy. The project costs 211.50 million Baht and comprises the construction of transmission lines of 115 kV Sirikit - Uttaradit as well as Pha Chuk Substation of 7 circuit-kilometers, construction of Pha Chuk Substation, and improvement of 2 substations. As of December 2020, the progress of this project was 52.688%. It is scheduled to be completed in 2021.

17. Transmission System Development Project for Power Purchase from Independent Power Producers, Phase 3 (IPP3)

The objectives of the project are to link the power purchase from the Independent Power Producers to EGAT's system to cope with the growing electricity demand in the Eastern and Central parts of the country, to increase agility in the control and power supply in the Eastern region, and to solve the problem of power shortage when the power plants need to disconnect from the system and to close for overhaul. As of December 2020, the progress of this project was 12.186%. It is scheduled to be completed in 2023.

Two IPP projects were selected, namely the projects of Gulf SRC Co., Ltd. with the capacity of 2,500 MW which will be in commercial operation on March 1, 2021 and Gulf PD Co., Ltd. with the capacity of 2,500 MW which will be in commercial operation on March 1, 2023.

18. Transmission System Improvement Project by Installation of Energy Storage System at Chaiyaphum and Lopburi Provinces for Mitigating Impact from Renewable Energy (ESCL)

The purposes of this project are to maintain security and stability of EGAT's power system in terms of voltage and frequency, including reducing the fluctuation from renewable firming, to support the renewable energy power plants according to the Alternative Energy Development Plan (AEDP2015), and to reduce power loss in the system (System Loss Saving). ESCL is a pilot project to study, evaluate, and collect information to be applied in other areas. As of December 2020, the progress of the project was 42.291%. It is scheduled to be completed in 2021.

19. Transmission System Development Project for the Power Plant of Hin Kong Power Holding Co., Ltd. (THKP)

The objective of this project is to enhance security of the electricity system in the Western and Southern parts of the country. The Energy Policy Committee approved, on May 3, 2019, the proposal of RATCH Group Public Co., Ltd. to construct the 700 MW Former Western Power Plant which will be in commercial operation on March 1, 2024 and a new power plant with the capacity of 700 MW which will be in commercial operation on January 1, 2025 to make the total capacity of 1,400 MW. RATCH Group Public Co., Ltd. will be responsible for the investment in the improvement of natural gas pipelines and transmission lines which will be completed in 2023.

20. Transmission System Development Project for Power Purchase from SPP Firm Cogeneration Power Plants of which the Power Purchase Agreement Expires in 2019-2025 (TSFC)

The project is prepared as assigned by the regulator to accommodate the power purchase from the SPP Firm Cogeneration Power Plants to maintain security and stability of EGAT's power system concerning the operation of the equipment of control and prevention system. The project is expected to be completed in 2025.

Projects in Approval Process

1. Transmission System Renovation Project for Linking HVDC with Khlong Ngae Substation (RHDC)

The government has a policy to promote Thailand as a hub for energy trading of the region. At present, the transmission lines between Thailand and Malaysia is High Voltage Direct Current (HVDC). The equipment of the 19-year-old HVDC Khlong Ngae Substation, Thai-Malaysia situated in Songkhla Province, had been aged and needs renovation. It is therefore necessary for EGAT to improve the transmission system to be stable and reliable. The aim of the project is to extend

the service life of the equipment to the minimum of 10 years. The project is expected to be completed in 2023.

2. Transmission System Development Project for Linking Floating Solar with Hydropower Plant of Ubol Ratana Dam (URS1)

The objectives of the project are to promote the use of renewable energy of the local electricity generation sector to the fullest potential, to reduce the import of energy, and to keep the overall generating capacity of renewable power plants to comply with the PDP2018. The 24 MW Hydro-Floating Solar Hybrid of Ubol Ratana Dam is planned to be in commercial operation by 2023.

3. Transmission System Development Project for Special Economic Zone Project, Phase 1 (SEZ1)

EGAT plans to construct/improve additional 230 kV and 115 kV transmission lines and substations in Tak and Mukdahan Provinces to supply more electricity to the economic zone, to enhance the system security in the long run, and to support the government policy in promoting electricity generation from renewable energy in the Special Economic Zone which is not supported by other transmission system development plans. The project is expected to be completed in 2024.

4. Transmission System Development Project for Mae Moh Power Plant Replacement Project, Units 8-9 (MMR2)

The project involves the transmission system to support the Mae Moh Power Plant Replacement Project, Units 8-9, which is a new power plant according to the PDP2018 Revision 1 to replace the existing Mae Moh Power Plant, Units 8-9, which will be decommissioned in 2022 and 2025 respectively. The power plant has the generating capacity of 600 MW using lignite from Mae Moh Mine as fuel. The objectives of the project are to support the electricity demand of the country, to maintain security of the power system, and to respond to the government policy in maximizing

the benefit of local fuel. The project is expected to be in commercial operation in 2026.

5. Transmission System Development Project for Nam Phong Power Plant Replacement Project (NPR1)

The objective is to support Nam Phong Power Plant Replacement Project according to the PDP2018 Revision 1 to replace the existing Nam Phong Power Plant, Blocks 1-2 which will be decommissioned in 2025. The project will enhance security of the power system in the Northeastern part of the country. The power plant has the generating capacity of 650 MW using natural gas as primary fuel and diesel oil as supplementary fuel. It is planned to operate commercially in 2025.

6. Transmission System Development Project for Submarine Cable to Samui Island in Surat Thani Province for System Security Enhancement (SPSS)

The project involves the construction of the 2 circuits of submarine cable of 230 kV from Khanom Substation to Samui Island Substation (new substation) with the distance of approximately 52.5 km on a new electricity network. The project aims to increase the capability of supplying electricity to the southern archipelago in Samui District, Surat Thani Province, and the nearby islands in response to the rising demand for electricity and to enhance system security in the long run. The project is planned to be completed in 2026.

7. High-Voltage Substation Improvement Project in the 3 Southern Border Provinces (HSIT)

The objectives of the project are to enhance the security of the power system and to reduce the risk of damage to equipment of the substations in the 3 Southern Border Provinces. The project involves the construction, expansion, and improvement of Yala 1 Substation, Pattani Substation, and Su-ngai Kolok Substation which are air-insulated substations (AIS) to be gas-insulated substations (GIS). The project is planned to be completed in 2026.

8. Transmission System Development Project for South Bangkok Power Plant (Addition) (SBA1)

The project involves the transmission system to link the South Bangkok Substation and South Bangkok Power Plant (Addition) which is a new power plant to replace the South Bangkok Combined Cycle Power Plant, Blocks 1-3 and North Bangkok Power Plant, Blocks 1-2 which will be gradually decommissioned in 2020-2036. South Bangkok Power Plant (Addition) with a generating capacity of 2,100 MW will maintain security of the power system in the Metropolitan area using natural gas as primary fuel. The first block is planned to be in commercial operation in 2026, the second and third blocks in 2027.

9. Transmission System Development Project for Surat Thani Power Plant, Blocks 1-2 (SRC1)

The objective of the project is to support the power supply of Surat Thani Power Plant, Blocks 1-2. The project will increase the capacity of electricity generation, enhance the security of the electricity system in the South, and reduce dependency on electricity from the Central part and import from Malaysia. The project is planned to be in commercial operation in 2027 and 2029 respectively.

10. Transmission System Development Project for North Bangkok Power Plant (Addition), Phase 1 (NBA1)

The project will support the power supply of North Bangkok Power Plant (Addition) which has a generating capacity of 700 MW using natural gas as fuel and is planned to be in commercial operation in 2028. The objectives of the project are to enhance the security of the electricity system and to cope with the increasing demand for electricity in the metropolitan area which has a tendency to raise an average of 1.9 percent per year.

11. Transmission System Development Project for Special Economic Zone Project, Phase 2 (SEZ2)

The Special Economic Zone Project is established by the government consisting of 2 phases, namely phase 1 covering Tak, Sa Kaeo, Songkhla, Trat, Mukdahan, and Nong Khai Provinces and phase 2 including Narathiwat, Chiang Rai, Nakhon Phanom, and Kanchanaburi Provinces. To support the project, EGAT proposed the Transmission System Development Project for Special Economic Zone, Phase 2 which involves the construction of additional transmission lines in the Special Economic Zone in Chiang Rai Province to increase the capability of power supply to meet the growing demand. The project will respond to the policy on electricity generation from renewable energy, enhance the long-term system security of Chiang Rai Province, and support the grid interconnection with neighboring countries in the future. The project is also in line with the government policy for the development of Special Economic Zone and PDP2018 Revision 1. The project is expected to be complete in 2029.

Research and Development

In 2020, EGAT approved the financial support of 1,077.1 million Baht to 69 research and development projects of educational institutions, units in EGAT, and other organizations. A total of 28 projects have been completed, and the cumulative return is 2,331.7 million Baht. Moreover, realizing the important role of electric vehicle (EV) in the future, EGAT has focused its support on the following 4 research and development projects relating to EV under the concept of “EGAT’s E-Mobility” for smart lifestyle of the Thai people.

1. EV Kit & Blueprint Project

The project is a cooperation between EGAT and the National Electronics and Computer Technology Center (NECTEC) under the National Science and Technology Development Agency (NSTDA).

The EV Kit & Blueprint Project is developed on top of the successful development of Honda Jazz which is the first model of the modified electric car of the electric car project (EGAT-NSTDA) (i-EV), phase 1. For phase 2, additional 4 electric cars have been developed comprising 2 Nissan Almera cars and 2 Toyota Altis cars with better capacity. They can run at the maximum speed of 160 km/h at the distance of not less than 200 km per one electric charge. The average speed is 90 km/h.

Moreover, the project focuses on the development of EV Kit from local automotive parts which are easy to modify, take less time, and require less cost of not more than 200,000 Baht per car excluding battery. Therefore, the modified car that can be registered is cheaper than the manufactured car, which is still expensive. In 2020, EGAT organized 2 classes of theory training on car modification with internal combustion engines to be electric car for interested people. For manufacturers, they were invited to participate in the practice training. Therefore, the research and development project has been developed to be a commerce-oriented project so that consumers can access the electric car at an affordable price.

2. Modification of Used Bus of Bangkok Mass Transit Authority as Electric Bus

To motivate the development of electric vehicle industry in Thailand and to upgrade the buses, the study project involves the modification of internal combustion engine bus which has been decommissioned according to the law of Bangkok Mass Transit Authority to be electric bus and register for use. In this connection, EGAT, in cooperation with Metropolitan Electricity Authority (MEA), Provincial Electricity Authority (PEA), Bangkok Mass Transit Authority (BMTA), and National Science and Technology Development Agency (NSTDA) selected the potential manufacturer to carry out the bus modification. Phanthong Machinery Co., Ltd. was chosen to modify the bus for EGAT. A 12-meter-long

used bus has been modified to be electric bus by keeping the basic function of a bus but changing the engine to be electric motor with permanent magnets of 370 kW (maximum) which uses lithium battery made of nickel manganese cobalt oxide (NMC) to create the driving power of 195 kWh. The bus body and cabin interior are improved by using local automotive parts. The modified bus is nearly the same as a new bus which runs at the highest speed of not less than 80 km/h at the distance of 180 km per one electric charge. The modified bus must be tested by running on the route specified by BMTA. At present, EGAT is in the process of conducting a feasibility study and cost-benefit analysis of the actual use of the modified bus or for replacement of the former bus.

3. Pilot Project for Study of the Use of Electric-Powered Passenger Boat for Public and for Development as the Connection Point of “Wheel, Rail, and Boat” (by Faculty of International Maritime Studies at Sriracha, Kasetsart University)

Electric boat is an innovation of clean energy technology supported by EGAT in promotion of the efficient use of energy and in an environmentally-friendly manner. EGAT has cooperated with Kasetsart University in conducting a pilot project of developing an electric-powered boat as a shuttle boat for EGAT employees and for the use in EGAT’s mission as well as 2 charging stations. Two types of boats were designed for performance comparison, namely monohull and catamaran. Each boat consists of a driving kit which includes 2 sets of 55 kW motor, 214 kWh lithium battery, and 175 kW DC charger. The boat body is made of aluminum. The monohull can carry a total load of 23,000 kg and the catamaran can support 25,000 kg. Both types can accommodate the maximum of 80 passenger seats. They run at 20 km/h with the maximum distance of 60 km per one charge. At the initial stage, the boats will be tested on their performance before being put into public use to connect with the different travelling mode by “wheel, rail, and boat.”

4. Research and Development Project of Electric Motorcycle, Case Study of Public Electric Motorcycle in Bang Kruai District, Nonthaburi Province (by King Mongkut’s University of Technology North Bangkok)

The study project involves the use of electric motorcycle based on the case study of public electric motorcycle in Bang Kruai District, Nonthaburi Province. An application has been developed to facilitate the service and to promote the wide use of public electric motorcycle. In the study, 51 electric motorcycles were tested. The following data is collected by cloud system: information from GPS concerning motorcycle such as position and time, information from battery swapping station concerning energy used and others such as status of battery, information from smart meter at home of the rider concerning energy use, information from the analysis concerning riding behavior and pollution emissions, and information from the application such as the use of application and satisfaction of riders and passengers. From the project, the study results of public electric motorcycle service, behavior of riders, electricity used, satisfaction of the riders and passengers, economic analysis, and environmental impact are obtained.



Organization and Human Resource Development

Human Resource Management

EGAT gives high importance to its employees as valuable resource which is vital for achieving its vision and mission. Its human resource management focuses on promoting good, professionally competent, and happy employees with loyalty to the organization. EGAT's corporate value and culture are defined to guide the employees' behavior. Moreover, EGAT regularly reviews its organization structure, workforce, competency, and other factors relating to human resource management to enhance the business agility. The organization structure has been improved to be appropriate for EGAT's mission and the workforce has been adequate both in terms of quantity and quality. The personnel are knowledgeable, skillful, and competent to cope with changes and able to efficiently and effectively contribute to EGAT's vision, mission, and strategy today and in the future.

Human Resource Development

The objective of human resource development is to meet the need of the organization, different units, as well as the employees taking into account significant inputs such as vision, mission, strategy, positioning, master plans, etc.

In 2020, EGAT prepared a human resource development roadmap. According to the roadmap, human resource development is carried out for employees of each level, position, and career as well as development of new skills to cope with the future mission such as Floating Solar with Hydro, Behind the Meter Solution, RE Friendly Grid, etc. Moreover, the development to improve the mindset concerning innovation, digital technology, and entrepreneurship (Innovation-Driven Entrepreneurship or IDE mindset) is carried out for the target group and by suitable development methods to prepare the employees for changes particularly in business operation of the present time which involves the use of digital technology.

For the development of executive successors and talent groups, EGAT has prepared the appropriate development

program for the qualified candidates in taking important positions and taking charge of the management with continuity. The development program is conducted in the type of non-classroom training such as the one-on-one coaching, project based learning, apprenticeship program, and participation in the training courses organized by leading local and foreign organizations for the purpose of networking and building connections with executives and management of other public and private sectors.

In the situation of COVID-19 pandemic, EGAT has modified the pattern of human resource development by using a variety of digital technology such as e-learning and VDO conference and promoted, through EGAT mass media, the learning culture and self-learning on the online learning platforms of EGAT and outside platforms.

Furthermore, EGAT has promoted the national qualification of vocational competence of personnel in the area of power plants and transmission system with an aim of developing EGAT to be a Certified Body in

2021. To this end, EGAT has prepared the project of Occupational Standard and Professional Qualifications for energy and renewable energy and for electricity generation system in cooperation with Thailand Professional Qualification Institute (Public Organization).

Digital Technology Management

With an aim to become a digital organization in response to the age of rapid change, EGAT extensively pushes ahead with digital transformation by applying digital technology for driving its business both in core business process and supporting process. The focus is placed on development of digital platforms and digital infrastructure services coupled with risk management and cyber security. The accomplishments in this area are as follows:

1. Core Business Process

EGAT uses innovative digital technology such as big data, data analytics, digital twin, and Internet of Things (IoT) as tools for growing its business sustainably. In the area of **electricity generation**, EGAT is in the process of developing the existing power plants to become digital power plants by integrating appropriate digital solutions to achieve operational excellence as well as to increase efficiency and reliability of the generating system with competitive pricing. North Bangkok Power Plant would be developed to be a model digital power plant followed by South Bangkok Power Plant. For **electricity control and transmission**, digital technology is used for improvement of efficiency of the operational work and maintenance of the transmission system such as the



transformer on-line monitoring system for real-time transformer diagnosis. EGAT also puts its efforts in infrastructure development with a focus on management of grid modernization. The Renewable Energy Forecasting and Control Center, for example, has been established to serve in conducting a short-term (intraday and day-ahead), medium-term, and long-term forecast of electricity generation of solar and wind power plants. The Center could enhance the efficiency of the management of electricity system and operation of the power plants, reduce the cost of operation, and maintain security and stability of the power system from the fluctuation of renewable energy power plants. In the area of mining to supply fuel to the power plant, the Internet of Things (IoT) technology has been used in monitoring the stability of the pit wall in order to increase efficiency of the mine maintenance.



2. Supporting Process

For the purpose of achieving a paperless organization, EGAT uses digital technology to change the former working process of the back-office system to an electronic workflow and mobile application. The dashboards are developed to display real-time data and to create standardized visualizations of automated analytical reports to fit certain roles of users. Through the dashboards, the data-driven visualization helps optimize its planning and improve its operation. The Smart Life Platform is developed to provide convenient and easier services and to offer a variety of required services relating to human resource management and internal services for EGAT's staff which helps create optimal user experiences as well as reduce the service costs and documentation burden. The Unified Communications and Collaboration Platform (UCC) is also developed to support the concept of Digital Workplace in response to EGAT's policy of Work from Anywhere. The platform facilitates communication and collaboration of users from anywhere, at any time, and on any device through real-time content sharing of files and documents. In addition, Geographic Information System (GIS) technology which is used for enhancing EGAT's operational efficiencies in its core business process and in the area of environment,

community, and society could save cost and time of operation while increasing efficiency and competitiveness.

3. New Business Development Process

In the area of new product and business development, several digital platforms have been created by EGAT. Among others, the peer-to-peer Energy Trading Platform uses the blockchain technology for real-time electricity tariff calculation. To obtain an efficient and fair energy trading system, relevant laws and regulations are studied for improvement. The Smart Energy Solution Platform which is initiated to support the ESCO Platform embraces several elements ranging from problem analysis on energy consumption, implementation of IoT tools to measure energy consumption, the use of data analytics to analyze energy consumption behavior, consulting and advisory services relating to energy saving via application, and customer support by using Line Chatbot. The development of products and services concerning digital technology is a new dimension of EGAT's mission that tries to make use of the expertise in energy saving, which is EGAT's strength as consultant. Recognizing the issues of air pollution and environmental conservation, EGAT is trying to solve the problem by promoting the development of the infrastructure and the application to support the use of electric vehicle (EV).

In 2020 during the situation of COVID-19 pandemic, EGAT had to implement the measures of Working from Home (WFH) and Working from Anywhere (WFA). As EGAT is fully equipped with the working processes and digital infrastructure which can satisfactorily support the core business process and supporting process, EGAT could provide its deliverables to the stakeholders successfully and in continuity.



Corporate Social Responsibility

EGAT has undertaken its mission with corporate social responsibility aiming at sustainable development in accordance with “EGAT’s Notification No.39/2563 on EGAT’s Sustainable Development Policy.” The purpose of the notification is to be consistent with the 5th strategy of the National Strategy which is eco-friendly development and growth and the Sustainable Development Goals of the United Nations (UNSDGs).

EGAT’s Policy on Sustainable Development



1. Promote access to energy with reliability and reasonable price by conducting research and development to increase efficiency and stability in electricity generation by renewable energy and transmission system development to support renewable energy



2. Reduce the impact of climate change by improving the process of electricity generation by fossil fuel and reducing the greenhouse gas emissions and pollution in the electricity generation process



3. Promote continued and sustainable economic growth by developing the electricity generation system to be adequate for the demand and to be stable and reliable, developing and improving the electricity transmission system and smart grid, developing infrastructure, increasing local employment, developing EGAT dams and power plants to become tourism spots and learning center, and promoting occupational health and safety management



4. Promote energy and environmental conservation, including the support of sustainable production and consumption by means of management of hazardous



- waste arising from electricity generation process, circular economy development, demand-side management, and smart city development
5. Conserve and restore the ecosystem, upgrade sustainable access to water resource, and promote sustainable agriculture by reduction of impact from electricity generation process, efficient water management, implementation of environmental projects to stop land degradation, and promotion of organic farming according to Sufficiency Economy Philosophy to create biodiversity and food security

Moreover, EGAT complies strictly with the law, regulations, standards, and requirements in environment. EGAT has implemented environmental management system according to the international standards and the corporate social responsibility activities continuously in order to give knowledge of the organization and increase the understanding and acceptance of EGAT leading to sustainable development.

Environmental Activities

1. Study of Environmental Impact of the Projects

1.1 Approved Projects

- EIA for the Replacement Project of Wang Noi Combined Cycle Power Plant (Replacement of Blocks 1 and 2) with the capacity of 1,470 MW using natural gas as primary fuel and diesel oil as supplementary fuel (approved by the National Environment Board on February 19, 2020)
- EIA for the project of Floating Storage Regasification Unit (FSRU) pipelines to South Bangkok Power Plant (approved by the National Environment Board on July 20, 2020)
- IEE for the project of electricity network of 500 kV of Thung Song - Songkhla 3 (the part over additional protected forest area) (approved by the Expert Committee on Environmental Impact Assessment on August 6, 2020)
- IEE for the project of electricity network of 230 kV (Junction) (electricity network of 230 kV of Yasothon - Ubon Ratchathani 1) - Ubon Ratchathani 1 (the part over additional protected forest area) (approved by the Expert Committee on Environmental Impact Assessment on August 13, 2020)
- CoP and ESA for the project of Hydro-Floating Solar Hybrid of Sirindhorn Dam with the net output of 45 MW (ac) and installed capacity of 58.5 MW (dc), using the solar panels made of monocrystalline silicon with the type of bifacial mono PERC half-cell double glass module which can generate electricity with high efficiency and is highly moisture-proof and

suitable to be installed in water, while the float is made of HDPE plastic which is resistant to UV corrosion, approved by the regulator/licensing organization as follows:

Factory License (Factory 4)

The Energy Regulatory Commission of Thailand approved the issuance of factory license (Factory 4) of the sequential number 88 (1) dated June 5, 2020 to EGAT. (Factory license No. ERC 02-24/2563 (2020) dated June 5, 2020)

Electricity Generation License

The Energy Regulatory Commission of Thailand approved the change of the installed generating capacity of the hydro turbine generator in the electricity generation license and the increase of installed generating capacity of hydro-floating solar hybrid in the electricity generation license on August 19, 2020. (Electricity generation license No. ERC 01-1(2)/52-005 was dated February 19, 2009. In the condition for the approval in Appendix A, the approval for Sirindhorn Dam Power Plant on February 19, 2009 was placed in the first order before the approval for hydro-floating solar hybrid on August 19, 2020 which was put in the second order.)

1.2 Projects under Consideration

- EHIA for the Replacement Project of Mae Moh Thermal Power Plant (Units 8-9) with the capacity of 660 MW using coal as fuel
- EIA for the project of Floating Storage Regasification Unit (FSRU) in the upper Gulf of Thailand, which receives LNG imports for

regasification prior to transferring to the power plant (The Expert Committee considered the environmental impact of the project and agreed on July 10, 2020 that the information was sufficient for the consideration of the National Environment Board.)

- EIA for the project of Floating Jetty for Anchoring FSRU, one side for FSRU port and the other side for LNG carrier to load the fuel (The Expert Committee agreed on October 27, 2020 that the information was sufficient for the consideration of the National Environment Board.)
- EIA for the Replacement Project of Nam Phong Combined Cycle Power Plant of the maximum installed capacity of 830 MW using natural gas as primary fuel and diesel oil as supplementary fuel
- EIA for the project of Surat Thani Combined Cycle Power Plant, Blocks 1-2, with the capacity of 2 x 830 MW using natural gas as primary fuel and diesel oil as supplementary fuel
- EIA for the project of electricity network of 230 kV of Tak 2 - Mae Sot (the part over the watershed class 1)
- IEE for the project of electricity network of 500 kV of Mae Moh 3 - Lamphun 3 (the part over additional protected forest area)
- IEE for the project of electricity network of 230 kV of Tak 2 - Mae Sot (the part over additional protected forest area)

1.3 Projects in Study Process and Report Preparation

- EHIA for the project of South Bangkok Combined Cycle Power Plant (Addition) with the capacity of 3 x 830 MW using natural gas as primary fuel and diesel oil as supplementary fuel
- EIA for the project of North Bangkok Combined Cycle Power Plant (Addition), Phase 1, with the

maximum installed capacity of 830 MW using natural gas as fuel

- EIA for the project of electricity network of 230 kV of Lamphun 3 - Sop Moei (the part over the watershed class 1)
- EIA for the project of electricity network of 230 kV, connection point of the project of hydro-floating solar power plant - Bhumibol Dam (the part over the watershed class 1)
- EIA for the project of electricity network of 230 kV, connection point of the project of hydro-floating solar power plant - Vajiralongkorn Dam (the part over the watershed class 1)
- IEE for the project of electricity network of 230 kV of Phayao - Chiang Rai (the part over additional protected forest area)
- IEE for the project of electricity network of 500 kV of Bang Saphan 2 - Surat Thani 2 (the 3rd and 4th circuits) (the part over additional protected forest area)
- IEE for the project of electricity network of 230 kV of Klong Ngae - Satun (the part over additional protected forest area)
- IEE for the project of submarine cable of 230 kV of Khanom - Samui Island

2. Environmental Quality Monitoring

In 2020, EGAT continuously monitored the environmental impacts which might occur as a result of EGAT operation such as air quality, noise level, water quality, water ecosystem and quality of life, as well as garbage and waste management. EGAT also reported the result of the 31-project implementation, according to the measures of environmental prevention and mitigation and measures of environmental impact monitoring to the Office of Energy Regulatory Commission and related regulatory bodies every 6 months.

3. Network Activities and Cooperation in Environmental Projects

In 2020, EGAT organized activities for environmental network in the vicinity of EGAT power plants and implemented development projects continuously as follows:

3.1 Environmental Network of Nam Phong Power Plant

On September 25, 2020, EGAT, in cooperation with Nam Phong Technical College, Nam Phong District, Khon Kaen Province organized environmental activities for 79 teachers, officers, and students from Nam Phong Technical College to learn about the mission of EGAT, electricity generation, mass relations, and measures in monitoring environmental quality of Nam Phong Power Plant.

3.2 Network of Educational Institutions on Energy and Environment

On September 23, 2020, the network of educational institution on energy and environment comprising 48 teachers and students from Faculty of Science and Technology, Rajamangala University of Technology Phra Nakhon which was located near the North Bangkok Power Plant were invited to visit EGAT Learning Center - Headquarters, to learn about EGAT's activities in energy and environment. The purpose of the visit was to increase their understanding of electricity generation and environmental management and to build their trust in environmental protection of EGAT power plants, particularly North Bangkok Power Plant. The visit has also strengthened relations between EGAT and the network of educational institutions on environment.

3.3 Environmental Network of Surat Thani Power Plant

On November 11, 2020, EGAT, in cooperation with educational institutions around Surat Thani Power Plant organized an activity on “Environmental Network

of Youth with Surat Thani Power Plant” at Phunphin Pittayakom School, Phunphin District, Surat Thani Province. About 100 teachers and students participated in the activity. The purpose of the activity was to increase their understanding and raise their awareness of natural resources, environmental and energy conservation, and information about Surat Thani Power Plant, Blocks 1-2.

3.4 Environmental Network of Teachers - Academics

EGAT has publicized its environmental activities and also consulted with environmental network of teachers and academics of educational institutions about the guidelines for organizing technical activity concerning energy and environment.

3.5 Public-Private Cooperation in Thai Environmental Protection

In the celebration of the “2020 Thai Environment Day and the National Day of Volunteers for Natural Resources and Community Environmental Protection” organized by the Ministry of Natural Resources and Environment under the concept of “New Normal, Care for Environment” on December 4, 2020 at Samyan Mitrtown, Bangkok, EGAT received the royal trophy of His Majesty the King for being an outstanding organization in environment. The award was given to EGAT as a role model organization which has promoted the value of natural resources and environmental conservation.

4. Greenhouse Gas Management

EGAT gives importance to the activity to decrease the effect of the climate change by implementing EGAT long-term plan in greenhouse gas management (2018-2030) in response to Thailand's policy on reducing greenhouse gas emissions and to support the Nationally Determined Contribution (NDC).



For the implementation of the project of greenhouse gas reduction in 2020, EGAT received carbon credit of 110,266 tCO₂e from Thailand Greenhouse Gas Management Organization (Public Organization) for EGAT's Kiew Koh Ma Hydropower Plant which is a volunteer project under Thailand Voluntary Emission Reduction Program (T-VER). Moreover, Klong Tron Dam Hydropower Plant which was estimated to have greenhouse gas reduction of 6,425 tCO₂e/y has also been registered to be under T-VER.

Moreover, EGAT gives importance to corporate carbon footprint assessment and has prepared a report of greenhouse gas emissions of the organization in accordance with ISO 14064-1. The report covers the operating areas of EGAT reflecting transparency of the greenhouse gas emissions in its operation. In 2020, the amount of greenhouse gas emissions was 31.59 MtCO₂e. The information on greenhouse gas emissions will be used in the management of greenhouse gas emissions with efficiency.

In addition, EGAT organized the event “Thailand Clean Energy Network 2020” to announce the success of the allies of electricity producers comprising EGAT and IPPs in the reduction of greenhouse gas emissions of 10.03 MtCO₂e which EGAT submitted to the Ministry of Energy as a part of the reduction of greenhouse gas emissions of the energy sector. In the event, the Renewable Energy Certificate (REC) business was launched, in which EGAT has been authorized by the International REC Standard Foundation (I-REC) to be the sole issuer of I-RECs in Thailand.

5. Innovation in Promotion of Energy Conservation Development

5.1 Refrigeration and Air Conditioning Nationally Appropriate Mitigation Actions (RAC NAMA)

EGAT cooperated with the German International Cooperation (GIZ) or Deutsche Gesellschaft für Internationale Zusammenarbeit GMBH in the implementation of the project of refrigeration and air conditioning nationally appropriate mitigation actions (RAC NAMA) with financial support to promote the production and use of high efficiency technology as well as the use of environmentally-friendly refrigerant for 4 products, namely refrigerator, freezer, chiller, and air-conditioner. Since 2017, EGAT has managed the RAC NAMA fund of 8.3 million Euro (approximately 300 million Baht) to promote the technology of environmentally-friendly refrigerant in production, consumption, and service. Over 2 years, EGAT has given the following financial support:

- 1) The amount of 10 million Baht to stimulate the purchase of products in the market which has promoted the sales of over 15,000 refrigerators with environmentally-friendly refrigerant and saved energy about 1.1 million units per year
- 2) The short-term loan of 52 million Baht with 1-year grace period to manufacturers of refrigeration and

air-conditioning to increase the financial liquidity for the modification of the former production line into the environmentally-friendly refrigerant technology

3) The grant of 90 million Baht to manufacturers of refrigeration and air-conditioning to modify the former production line into the environmentally-friendly refrigerant technology

4) The grant of 15 million Baht for acquisition of training equipment and establishment of 8 training centers all over the country

5) The interest-free loan of 155 million Baht for marketing in order to increase sales of air-conditioners and refrigerators

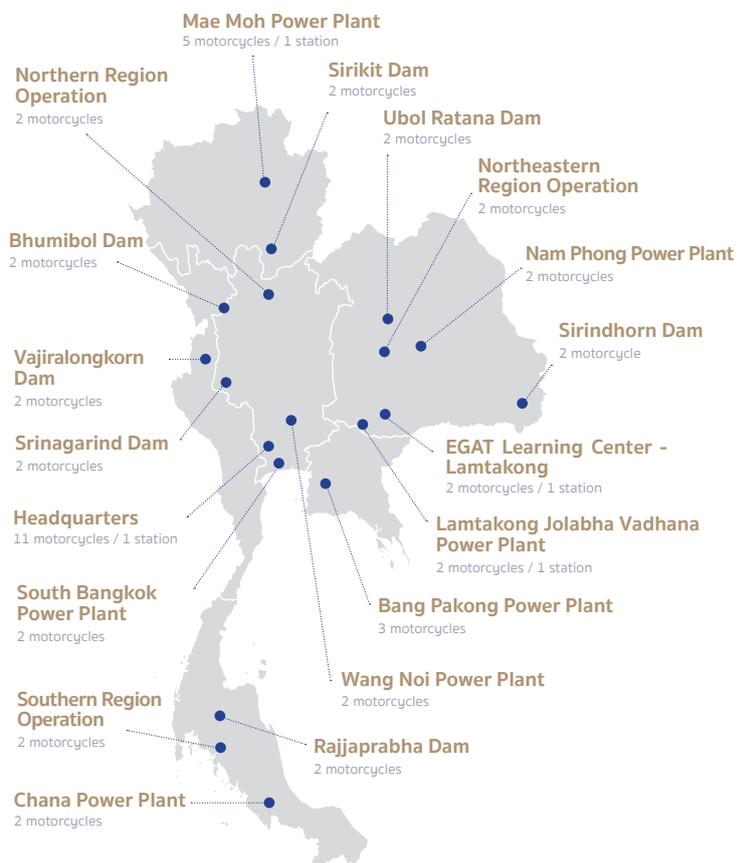
On February 17, 2020, EGAT, in cooperation with the Office of Natural Resources and Environmental Policy and Planning, Ministry of Natural Resources and Environment, and German International Cooperation (GIZ) announced the achievement of RAC NAMA in promoting successfully 9 manufacturers of air-conditioners and refrigerators to use environmentally-friendly refrigerant technology and establishing 8 training centers countrywide with 150 trained model lecturers.

5.2 Promotion of Electric Vehicle in EGAT

EGAT promotes the use of electric vehicle in its general activities and activities of social affairs as a conservation model in the efficient use of energy and decarbonization to build a good image of environmental conservation. In this connection, EGAT has developed the property and requirements of the electric motorcycle to meet the demand and expectation of the users in order to promote the wide use of electric vehicle, support the implementation of the No.5 electric motorcycle project, and promote the development of electric motorcycle in the market as a whole.



In 2020, EGAT developed 51 battery swapping electric motorcycles under the brand “ENG” as a pilot project for use in general activities and activities of social affairs in 19 EGAT sites across the country. Three battery swapping stations were installed at EGAT Learning Center - Headquarters in Nonthaburi Province, Mae Moh Power Plant in Lampang Province, and EGAT Learning Center - Lamtakong in Nakhon Ratchasima Province. The battery swapping stations are equipped with RFID access to facilitate the users in battery swapping.



Demand Side Management

Throughout 27 years, EGAT has carried out activities in demand side management by promoting the conservation of energy and environment with several measures to reduce unnecessary use of electricity, reduce the import of fuel, and reduce the emissions of CO₂ under the 3E strategies.

E1 - Energy Saving Equipment

In 2020, under the project of No.5 energy-saving label, the 28.33 million labels were attached on products, which could save electricity demand of 281 MW, save the energy of 1,865 million kWh, and decrease the carbon dioxide emissions from the process of electricity generation of 908.61 thousand tCO₂e. (For the cumulative value since the beginning of the project from 1993 to 2020, the project could save the maximum energy of 5,309 MW, the electric power of 31,880 million kWh, and the carbon dioxide emissions from the process of electricity generation of 17,871 thousand tCO₂e.)

The labelling scheme would be expanded to 2 more products in 2021, namely air purifier and horizontal drum type washing machine. Meetings with manufacturers and testing laboratories were held to determine the energy efficiency criteria. The labelling and marketing of the new products is scheduled to start on January 1, 2021.

Moreover, through the project of No.5 energy-saving label, EGAT has promoted the circular economy model which involves the reduction, reuse, and recycling of resources to create appropriate separation process to obtain resource for reuse with cost-effectiveness and environmental friendliness. In 2020, EGAT, in cooperation with the Electrical and Electronics Institute and allies, supported the pilot project in research and development on electronic waste management by simulation. The objective of the project was to obtain the waste management process in accordance with the draft Act on Management of Waste from Electrical and Electronic

Equipment which specifies 5 types of waste, namely computer, telephone and cordless phone, air-conditioner, television, and refrigerator. The potential and readily available project sites for study and practice are Nonthaburi Municipality, Nonthaburi Province, and Buri Ram Province. The meeting with manufacturers participating in the project of No.5 energy-saving label was held to propose the guidelines for determining the criteria for circular economy and the management of waste from electrical and electronic equipment.

E2 - Energy Saving Building

- **Pilot Project to Promote Energy Efficiency Resources Standard (EERS) for Power Producers and Distributors:** EGAT, in cooperation with MEA and PEA promoted EERS to reduce energy use in the target group by providing consultancy and financial motivation, which could result in an energy saving of 27.68 million kWh.
- **Project of Energy Efficiency Labelling for Housing and Building:** EGAT, in cooperation with allies in the public and private sectors, including educational institutions, has promoted the construction of houses and buildings with design of high efficiency energy saving which meet the efficiency criteria. In 2020, there were 7 designs of houses and buildings which fulfilled the criteria. The scope of the project would be expanded to be Smart and Sustainable Community for Better Well-Being (SSC) by means of technological and innovation integration to raise the quality of life of the people in all dimensions with sustainability. In this connection, EGAT has cooperated with the National Housing Authority (NHA) in the implementation of the pilot project at Bang Chalong Uea-Athon Housing Project, Samut Prakan Province.

E3 - Energy Saving Habit

EGAT, in cooperation with the Office of the Basic Education Commission, has implemented the “Green Classroom” project since 1998. Presently, 464 primary and secondary schools countrywide have participated in the project. The project has expanded to other activities such as Green School (model school of energy and environmental conservation), Low Carbon School (school with reduction of electricity use), Low Carbon School to Community (reduction of electricity use at student’s home), No.5 Energy-Saving Building in Educational Institution, Energy and Environmental Conservation Learning Center, and No.5 Energy-Saving Community.

Each year, more than 800,000 students have learned and participated in the energy and environmental activities and could apply the related knowledge in their daily life and extend the experience to their family. Activities of energy saving are as follows:

- **Green School (Model School of Energy and Environmental Conservation):** The purpose of the project is to promote the integration of the energy and environmental conservation principle with all systems in schools, including energy management, teaching and learning, school activities, and arrangement of landscape to facilitate education for students. From 2009 to present, 209 schools have met the criteria of “Green School.”
- **Low Carbon School (School with Reduction of Electricity Use):** From 2014 to present, 129 schools could reduce electricity use of 1.87 million kWh and save the cost of 8.76 million Baht. The reduction of carbon dioxide gas emissions from the process of electricity generation was 1,062 tCO₂e.
- **Low Carbon School to Community (Reduction of Electricity Use at Student’s Home):** Starting from 2016 to present, the project has supported the schools to extend the reduction

of electricity use to students’ families to decrease the use of energy at the minimum of 5%. In 2020, a total of 33,769 households could save the energy of 4.91 million kWh and save the cost of 17.79 million Baht. The decrease of carbon dioxide emissions from the process of electricity generation was 2,783 tCO₂e.

- **No.5 Energy-Saving Building in Educational Institution:** Starting from 2018, the project has supported the development of the learning building to use energy with maximum efficiency by taking into account 3 factors, namely building, equipment, and energy saving habit. At present, 23 schools have fulfilled the criteria.
- **Green Classroom in the Group of 10 Schools under the Royal Patronage of the Crown Prince:** On the occasion of the coronation of His Majesty the King, as a part of the celebration, EGAT and Ministry of Energy has implemented the Green Classroom Project to increase the efficiency of electricity use in the educational institutions.



- Green Classroom 2020:** EGAT, in cooperation with Office of the Basic Education Commission, the Secondary Educational Service Office - Area 34, and Sanpatong Wittayakom School in Chiang Mai Province, extended the network of Green Classroom Project to create the society of wisdom and transfer the knowledge in energy, efficient use of electricity, and environmental conservation to the youth, and increased interactive learning in the “Green Classroom 2020.” Moreover, EGAT supported the improvement of energy efficiency at the Center of Promoting Talent of Wisdom (Phra Phrom Mongkhon Vi.) at Sanpatong Wittayakom School in Chiang Mai as a No.5 energy-saving building.
- Reduction of Greenhouse Gas Emissions:** EGAT supported the reduction of greenhouse gas emissions activity by means of reduction of electricity use in schools such as replacing electric bulb with energy-saving bulb, organizing low carbon school activity, reducing electricity use in schools and at student’s homes, and participating in Low Emission Support Scheme (LESS) of Thailand Greenhouse Gas Management Organization (Public Organization) to take part in the reduction of carbon dioxide emissions of the country.



for the community, leading to sustainable quality of life according to the strategic objective of EGAT. In 2020, two model communities were selected and registered as social enterprise, namely Ban Lao Noi Community in Maha Sarakham Province and Ban Dong Pasak Community in Phu Phiang District, Nan Province. The Social Return on Investment (SROI) was analyzed by ERM Siam Company Limited, consultant in social impact assessment which collected data of the model community of Ban Dong Pasak in Nan Province.

Moreover, under the MOU between EGAT and the Office of the Vocational Education Commission concerning cooperation in the Biological Way of Life for Sustainable Development Project, EGAT financially supported the effort of students and teachers of Lamphun College of Agriculture and Technology for the invention of a multi-function mobile solar energy bag for agriculture. The solar energy bag can be used in helping agriculturists and in draught mitigation and can also be used in the Biological Way of Life for Sustainable Development Project for the maximum benefit.

Reforestation Project

In 2020, EGAT carried out the participatory reforestation project with community or forest resource conservation network for the area of 1,300 rai comprising 760 rai in Chumphon Province and 540 rai in Chanthaburi Province

Activities Concerning Community, Society, and Environment

Project of “Biological Way of Life for Sustainable Development”

EGAT has further developed the model community of biological way of life based on the sufficiency economy to become a model community of biological way of life for social enterprise to generate stable income

as well as taking care of forest resources in Nan, Phrae, Chumphon, and Nakhon Si Thammarat Provinces totaling 1,615 rai. The recovered forest area of 500 rai in Nan and Phrae Provinces has been handed over to the Department of National Park, Wild Life and Plant Conservation.

Wan Kaew Project

In 2020, EGAT and the allies comprising Metta Pracharak Hospital (Wat Rai Khing) and Better Vision Group Co., Ltd. provided 9 mobile units to help the 4,559 poor people who had eyesight problems. The satisfaction rate was 97.80%.

Young Volunteers Project

Recognizing the importance of the new generation as the hope of the country, based on the King Rama IX's Philosophy, "Understand, Access, and Develop," and the sufficiency economy philosophy, EGAT has implemented projects in the form of Sufficiency Economy Camp for 12 consecutive years. The objective of the project is to promote creativeness and voluntary spirit of the youth by trying to develop innovations for use in the community and instilling leadership with dedicated spirit and public mind. In 2020, five volunteer camp projects of educational institutions were selected (the projects were developed further from the previous year), namely the Volunteer Engineers of That Phanom College of Nakhon Phanom University, the 2nd Volunteer Camp of King Mongkut's University of Technology Thonburi, the 2nd Volunteer Camp of Rambhai Barni Rajabhat University, the 9th Volunteer Camp (Co-operative and Sufficiency Economy) of Sisaket Rajabhat University, and the 9th Volunteer Camp (Graduates and Innovation) of Lampang Rajabhat University.

Sport Supporting Projects

EGAT has continuously placed importance on the sports potential development of the youth and of the sport associations. In 2020, EGAT sponsored the amount of 14.5 million Baht to 4 sports associations.

- **Thai Amateur Weightlifting Association (TAWA)**

In 2020, EGAT provided a total of 8.5 million Baht sponsor to Thai Amateur Weightlifting Association. The fund of 4.5 million Baht would be for organizing the "2020 Thailand Weightlifting Championship" comprising the 3rd year competition for people in general for the King's trophy and competition for the youth for the trophy of Her Royal Highness Princess Maha Chakri Sirindhorn. The other fund of 4 million Baht was for the potential development of the weightlifting athletes in sports science.

- **The Rowing and Canoeing Association of Thailand (RCAT)**

In 2020, EGAT gave a fund of 2 million Baht to sponsor the "2020 Thailand Rowing Championship" for the trophy of Their Majesties the King and the Queen. The 9th competition was organized by EGAT, the Rowing and Canoeing Association of Thailand (RCAT), and Tak Province during November 26-29, 2020 at Bhumibol Dam in Tak Province. More than 1,700 athletes from different groups participated in the competition.

- **The Petanque Association of Thailand**

In 2020, EGAT gave financial support of 2 million Baht to the Petanque Association of Thailand.

- **Thailand e-Sports Federation (TESF)**

EGAT gave financial support of 2 million Baht to Thailand e-Sports Federation (TESF) as a contribution to developing the potential of Thailand e-sports and for preparation of new athletes for the international competition in the future.

Project on Disaster Mitigation

EGAT gave assistance to the victims of disasters particularly from natural disasters which caused damage to life and property of the people and needed urgent assistance.



Community Relations in the Area of Power Development Projects

Building Relationships and Keeping Network

In order to have good relationships with the stakeholders in the area, EGAT has organized activities to build relationships and maintain network by supporting the activities of local organizations and communities as follows:

- Participation in monthly meetings of heads of organizations and local administration of Bang Kruai District to be informed and collect items relevant to EGAT's operation for work integration and to clarify the issues related to EGAT projects
- Supporting, in collaboration with local organizations, the activity of the 2020 National Children's Day
- Providing lunch boxes and drinking water of EGAT under the brand "Nam Jai" and souvenirs for activities organized by local organizations

Enhancing Understanding and Raising Awareness

To facilitate the mission of EGAT in power plant development, EGAT has organized small group meetings and empirical study visits for nearby communities to increase their understanding and raise their awareness of EGAT projects.

- North Bangkok Power Plant (Addition), Phase 1
 - Six small group meetings were held to hear and clarify the concerns of the community expressed in the first and second public hearings. Moreover, EGAT made clarification to the group of stakeholders who had made comments in the public hearings.
 - EGAT had a small group meeting with Sunthornsiri Community, a community next door of EGAT Headquarters, to listen to their concerns about EGAT's operation, and promised to collaborate and follow up with related divisions about the complaint.
 - The empirical study tours were organized 3 times for 376 officers of the local administration of Bang Kruai District comprising chairman group of the village headman club, village health volunteers (VHV), and chairman group and community subcommittee to the North Bangkok Power Plant and Srinagarind Dam in Kanchanaburi Province. They also participated in the activity of "Khok Nong Na Model."
- Surat Thani Power Plant, Blocks 1-2
 - The empirical study visits were organized 2 times for 96 officers of the local administration of Phunphin District and Mueang District of Surat Thani Province to North Bangkok Power Plant and EGAT Learning Center - Headquarters.
- Replacement Project of Nam Phong Power Plant
 - The empirical study tours were organized 2 times for 135 officers of the local administration comprising group of heads

of local administration, Nam Phong District community leaders, executives and personnel of Nam Phong Hospital, District Public Health officers, Sub-district Public Health Promoting Hospital, and medical personnel to the construction site of Sirindhorn Dam Hydro-Floating Solar Hybrid Project and the 50th Anniversary of Mahavajiralongkorn Hospital in Ubon Ratchathani Province.

- Hydro-Floating Solar Hybrid Project at Sirindhorn Dam
 - Four groups of a total of 410 students and teachers of Sirindhorn Wittayanusorn School, Ban Kham Khuen Kaew School, Model School of Pa Dong Hin Kong, and Thairat Wittaya School 87 were invited to a study visit at the construction site of Sirindhorn Dam Hydro-Floating Solar Hybrid Project in Ubon Ratchathani Province.
 - Members of the group of planters of bamboo for sticky rice steamer in Ban Sang Udom, Khor Lan Sub-district, Buntharik District, Ubon Ratchathani Province were invited to a study visit at Ban Wern Beuk Handicrafts Center to learn about the local wickerwork and to exchange ideas for improvement of their occupation in producing sticky rice steamer.
- Floating Storage Regasification Unit Project
 - A group of 50 leaders of Song Klong Sub-district was invited to a study visit at the Pipeline Operations Center, Region 8 in Tha Muang District, Kanchanaburi Province and Srinagarind Dam.

Community Development and Career Promotion

The objective of the activity is to give benefits to the community in the target area, to develop the occupation which generates income, and to develop the community and environment for the better quality of life and the well-being of the people.

- The project of “model hospital for sustainable environment by self-reliance with the use of Effective Microorganisms (EM)” for the 50th Anniversary of Mahavajiralongkorn Hospital in Ubon Ratchathani Province
 - EGAT established the EM center to solve the sanitary and environmental problem of wastewater treatment system of the 50th Anniversary of Mahavajiralongkorn Hospital. With 3 step-treatment, namely downstream, middle stream, and upstream, the cost of wastewater treatment could be reduced tangibly. The knowledge has been transferred to the organizations and community in the vicinity of the hospital to be able to solve the problem of wastewater by themselves.

Assistance in Time of Crisis

- Provision of Hygienic Face Mask
 - Due to the situation of PM2.5 which has caused problems to the daily life of the people, EGAT provided hygienic face masks to 5 Centers for Rehabilitation of Social and Economic Performance of People with Disability Quality and Aged People and 34 communities in Bang Kruai District.
- EGAT Charity Project
 - In response to the recommendation of the Royal Patriarch, EGAT established the COVID-19 Management Centers in 11 temples in Nonthaburi Province, namely Wat Bang Oy Chang, Wat Sak Yai, Wat Chalor, Wat Tanod, Wat Cherg Krabue, Wat Song Phlu, Wat Hu Chang, Wat Ko Non Mahasawat, Wat Pho Phuek, Wat Sri Prawat, and Wat Mai Phadungkhiet. Moreover, EGAT provided lunchboxes and drinking water, EGAT’s “Nam Jai,” to the people living around EGAT Headquarters.

STEP TO FUTURE



Developing for the Future

When the COVID-19 situation began to be resolved and schools were reopened, EGAT has provided students countrywide with hygienic products to welcome them back to schools. EGAT carries on its mission in **community strengthening** by giving support to community products and promoting tourism of EGAT's dams and power plants. Moreover, EGAT moves forward with its **development of innovation for renewable energy**, such as the hybrid of "hydropower from the dams" and "solar energy from floating solar cells in the dams" and **development of electric vehicle (EV)** for public transport in order to upgrade the quality of life and reduce air pollution, particularly PM2.5. Last but not least, EGAT continues to **further its projects** on social responsibility and **build wisdom society** by transferring knowledge through EGAT Learning Centers. The ultimate goal of EGAT's activities is the well-being and the happiness of the Thai people.

Events



Her Royal Highness Princess Maha Chakri Sirindhorn stayed overnight at the special guesthouse of Rajjaprabha Dam in Surat Thani Province on March 4-5, 2020 during her royal mission in Chumphon Province.



Her Royal Highness Princess Maha Chakri Sirindhorn stayed overnight at the special guesthouse of Vajiralongkorn Dam on September 14-15, 2020 during her mission in Kanchanaburi Province. On this occasion, the Princess visited the display of OTOP products at Ruen Khao Laem restaurant and tourist attractions of the dam.



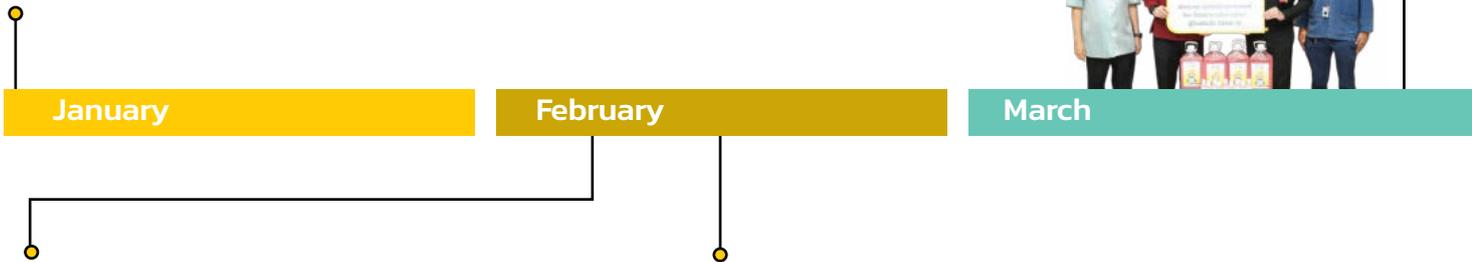
Her Royal Highness Princess Maha Chakri Sirindhorn performed the opening ceremony of the online 2020 Red Cross Fair on December 19, 2020 at the Auditorium 1210 of Chulalongkorn Memorial Hospital, the Thai Red Cross Society, which is on the 12th floor and in Zone B of Bhumisiri Mangkhalanusorn Building. On this occasion, the Princess gave certificates to the winners of the contest of online booths in the Red Cross Fair. EGAT's booth which was designed under the concept of "Sustainable Giving" was the winner in the category of state enterprise and independent organization.



EGAT and the consortium of BGRIM Power - Energy China signed a power generation contract for 45 MW Hydro-Floating Solar Hybrid Project at Sirindhorn Dam, Ubon Ratchathani Province on January 20, 2020, at Centara Grand at Central Plaza Ladprao Bangkok. The project is considered to be the world’s largest hydro-floating solar hybrid project, which is an important step of the renewable energy development in Thailand to enhance the power system security and stability with green energy.



EGAT gave financial support with a total amount of 30 million Baht to 7 main medical center hospitals which are responsible for COVID-19 treatment, up-country hospitals, and communities around EGAT power plants and dams for providing medical equipment to medical personnel, during March 26-27, 2020. Moreover, EGAT distributed “EGAT’s Friendly Sanitizer Gel,” alcohol gel hand sanitizer, which is produced by EGAT, and hygienic face masks to hospitals and general people.



EGAT participated in “Future Energy Asia 2020” (FEA 2020) which was an international exhibition and conference on energy innovation. The exhibition of EGAT displayed its potential of fuel business, renewable energy technology, and power grid which reflected the Thai electricity industry in the future. The event was held during February 12-14, 2020 at Bangkok International Trade and Exhibition Center (BITEC), Bang Na, Bangkok.

In the 18th Thailand Quality Award (TQA), EGAT received the prize of 2019 Thailand Quality Class (TQC) for its management of North Bangkok Power Plant in Nonthaburi Province. The award reflects EGAT’s capability as a national leading organization with excellence in management system. The award was given by Thailand Productivity Institute which is a network of Ministry of Industry to the organization which has the best practice of operation and achievements at the international level. The event was held on February 20, 2020 at Bangkok International Trade and Exhibition Center (BITEC), Bang Na, Bangkok.





EGAT launched a caravan carrying 120 positive/negative pressure cabinets to 100 hospitals nationwide. The cabinet is an innovation developed by EGAT and Faculty of Medicine, King Mongkut's Institute of Technology Ladkrabang to reduce the risk of contact with the secretion of COVID-19 patients and to provide safety for the medical personnel. The launching took place on April 21, 2020, at EGAT Headquarters in Nonthaburi Province.



To support the government in alleviating the effect of COVID-19 transmission, EGAT delivered 6 medical innovations to hospitals countrywide on June 9, 2020 to prevent the spread of disease and reduce the risk of infection among medical personnel. The innovations which were developed by EGAT volunteer employees comprise acrylic partition, negative/positive pressure cabinet, negative pressure mobile bed, mobile PAPR protective mask, and pedal-mechanical stand for alcohol dispenser. The delivery took place at Santi Maitri Building, the Government House.



April

June

July

Under the Project “Together, We Fight Against COVID-19,” Ministry of Energy joined hands with EGAT and PTT Public Company Limited to deliver alcohol totaling 2.4 million liters to the Sub-District Health Promoting Hospitals starting from 76 hospitals in Nonthaburi Province followed by other 9,800 hospitals countrywide so that alcohol is available to all people. The event took place on April 20, 2020 at Nonthaburi City Hall.



EGAT signed an MOU with the Marine Department on technical cooperation and innovation development for the pilot project on the research and development of Rama V pier and Rama VII pier to be modern and smart piers. The technology and innovation would be used to achieve maximum benefit in transportation and energy management to promote sustainability in the economy, society, and environment of the country. The MOU signing was organized on July 16, 2020 at EGAT Learning Center, EGAT Headquarters in Nonthaburi Province.



EGAT participated in the ASEAN Sustainable Energy Week 2020. Under the concept of “EGAT’s E-Mobility,” EGAT introduced its 4 electric vehicles (4E) comprising EGAT-NSTDA modified EV (EGAT i-EV), E-Bus, E-Bike, and E-Boat as well as the preparation of infrastructure, installation of charging station, and management of electricity for electric vehicle. The aim was to promote wider use of electric vehicle among Thai people. The event was organized during September 23-26, 2020 at Bangkok International Trade and Exhibition Center (BITEC), Bang Na, Bangkok.



September

EGAT participated in the press conference and announcement of cooperation of leading public and private organizations to solve the problem of PM2.5 under the project of “Sensor for All” which approached its 3rd year of implementation organized by the Faculty of Engineering, Chulalongkorn University on November 5, 2020 at 100-Year Building, Faculty of Engineering, Chulalongkorn University. The objective of the project was to integrate cooperation in increasing sensors for PM2.5 to cover the whole country and to develop analysis and prediction system in order to find the cause, leading to a sustainable solution for better quality of life of the Thai people.



November

EGAT organized an event “E Trans E” (Electric Transportation of EGAT) to display EGAT electric vehicle innovations, with a launch of an electric motorcade and to introduce a pilot electric passenger boat. The event affirmed EGAT’s determination to promote the development of electric vehicle in public transport, to connect the transport by wheels, rails, and boat, and to upgrade quality of life by reducing air pollution and particulate matter (PM2.5) released from the transport sector. The event was organized on September 22, 2020 at EGAT Learning Center, EGAT Headquarters in Nonthaburi Province.



EGAT received the awards for outstanding creativity and innovation and outstanding social and environmental responsibility in the 2020 SOE Award organized by State Enterprise Policy Office on November 16, 2020. The award presentation was organized at Santi Maitri Building, the Government House.

EGAT organized the launching ceremony of the first set of floating solar panels of the Hydro-Floating Solar Hybrid Project at Sirindhorn Dam in Ubon Ratchathani Province on November 29, 2020. The project with a generating capacity of 45 MW uses the hybrid system for power generation and is controlled by the energy management system (EMS) to generate electricity continuously with full capacity. It is expected to operate commercially by mid-2021.



November

EGAT launched 51 electric motorcycles with EGAT brand (EGAT E-Bike) and a battery swapping station at EGAT Headquarters in Nonthaburi Province on November 27, 2020. The EGAT E-Bikes have been piloted in 19 EGAT areas with an aim to become a green organization and to promote an environmentally-friendly ecosystem of electric vehicles.



December



In the celebration of the 2020 Thai Environment Day and the National Day of Volunteers for Natural Resources and Community Environmental Protection organized by Ministry of Natural Resources and Environment, EGAT received the award for being an outstanding organization in environment for its continued implementation of the environmental projects which are beneficial to the society and the country and for performing the mission in taking into account the environmental impact. The award presentation was held at Samyan Mitr Town, Bangkok on December 4, 2020.

EGAT received the Prime Minister’s Industry Award 2020 in the category of social responsibility for its “Bang Pakong Model” of Bang Pakong Power Plant in Chachoengsao Province. Bang Pakong Model is a social innovation with an emphasis on participation in sustainable development of life and environment of the community around Bang Pakong Power Plant. The award presentation was organized by Ministry of Industry to encourage industry which intends to achieve efficient business taking into account consumers and environment. The event was organized on December 14, 2020 at the Thai Army Club, Bangkok.



EGAT received Sustainability Disclosure Award for its 2019 Sustainability Development Report which discloses its economic, social, and environmental management and achievements to the public and stakeholders based on the internationally recognized Global Reporting Initiative (GRI) standard. The award reflects the importance given by EGAT to the disclosure of information of its operation on sustainable development. The award presentation was organized by Thaipat Institute on December 22, 2020 at Bangkok Art and Culture Center.

Key Statistical Data

System Installed Generating Capacity

Type of Power Plant	2020		2019		Increase / (Decrease)
	MW	Percentage	MW	Percentage	Percentage
EGAT's Power Plants					
Thermal	3,687.00	8.11	3,687.00	8.14	-
Combined cycle	8,262.00	18.17	7,358.00	16.24	12.29
Hydropower	2,972.40	6.54	2,972.40	6.56	-
Renewable energy	85.52	0.19	81.78	0.18	4.57
Diesel	30.40	0.07	30.40	0.07	-
Other (pumped storage hydropower plant)	1,000.00	2.20	1,000.00	2.21	-
Subtotal	16,037.32	35.26	15,129.58	33.40	6.00
Purchase from					
Domestic Private Power Plants					
IPPs (including EGAT affiliates)	14,248.50	31.33	14,948.50	33.00	(4.68)
SPPs	9,473.95	20.83	9,498.32	20.97	(0.26)
Neighboring Countries					
Laos	5,420.60	11.92	5,420.60	11.97	(0.07)
EGAT-TNB Interconnection System	300.00	0.66	300.00	0.66	-
Subtotal	29,443.05	64.74	30,167.42	66.60	(2.41)
Grand Total	45,480.37	100.00	45,297.00	100.00	0.40

Monthly Peak Generation Requirement

Month	Monthly Peak Generation Requirement (MW)		Increase / (Decrease)	
	2020	2019	MW	Percentage
January	27,422.60	25,898.30	1,524.30	5.89
February	27,112.30	27,214.80	(102.50)	(0.38)
March*	28,636.70	28,721.50	(84.80)	(0.30)
April	27,747.20	30,120.20	(2,373.00)	(7.88)
May	28,327.70	30,853.20	(2,525.50)	(8.19)
June	27,239.80	29,799.90	(2,560.10)	(8.59)
July	26,855.10	28,014.60	(1,159.50)	(4.14)
August	27,234.50	26,987.20	247.30	0.92
September	27,159.40	26,936.70	222.70	0.83
October	26,161.60	28,026.00	(1,864.40)	(6.65)
November	27,433.00	26,958.00	475.00	1.76
December	25,924.10	26,295.00	(370.90)	(1.41)
Yearly Peak Generation Requirement	28,636.70	30,853.20	(2,216.50)	(7.18)

Remark:

- * 2020 peak generation requirement occurred on Thursday, March 12, 2020 at 20.30 hours.
- 2019 peak generation requirement occurred on Thursday, May 2, 2019 at 22.27 hours.

Monthly Energy Generation Requirement

Month	Monthly Energy Generation Requirement (Million kWh)		Increase / (Decrease)	
	2020	2019	Million kWh	Percentage
January	16,137.75	15,091.71	1,046.05	6.93
February	15,476.75	15,143.27	333.48	2.20
March	17,618.36	17,738.31	(119.95)	(0.68)
April	15,724.44	17,388.40	(1,663.96)	(9.57)
May	16,899.48	18,260.13	(1,360.65)	(7.45)
June	15,894.49	17,107.79	(1,213.29)	(7.09)
July	16,390.24	17,023.58	(633.35)	(3.72)
August	16,348.95	16,618.83	(269.88)	(1.62)
September	16,195.02	15,970.21	224.81	1.41
October	15,474.81	17,022.90	(1,548.09)	(9.09)
November	15,291.60	15,841.93	(550.33)	(3.47)
December	14,482.65	14,665.95	(183.30)	(1.25)
Total	191,934.55	197,873.00	(5,938.45)	(3.00)

Gross Energy Generation and Purchase (by Type of Fuel)

Source	2020		2019		Increase / (Decrease)
	Million kWh	Percentage	Million kWh	Percentage	Percentage
EGAT's Power Plants					
Natural gas	41,738.99	21.75	38,828.25	19.62	7.50
Coal (lignite)	16,550.45	8.62	16,074.20	8.12	2.96
Renewable energy (hydropower and others)	4,139.35	2.16	6,042.72	3.05	(31.50)
Fuel oil and palm oil	584.29	0.30	932.07	0.47	(37.31)
Diesel oil	154.09	0.08	127.89	0.07	20.49
Other (pumped storage hydropower plant)	457.13	0.24	311.27	0.16	46.86
EGAT's Total Generation	63,624.30	33.15	62,316.40	31.49	2.10
Purchase from					
Domestic Private Power Plants					
- IPPs (including EGAT affiliates)					
Natural gas	28,472.62	14.83	39,265.45	19.85	(27.49)
Coal (bituminous)	16,762.57	8.73	15,816.72	7.99	5.98
Fuel oil	-	-	-	-	-
Diesel oil	33.93	0.02	14.84	0.01	128.64
Subtotal	45,269.12	23.58	55,097.01	27.85	(17.84)
- SPPs					
Natural gas	42,423.82	22.10	43,023.09	21.74	(1.39)
Coal	1,746.17	0.91	2,028.78	1.03	(13.93)
Hydropower	29.37	0.02	35.26	0.02	(16.70)
Fuel oil	195.57	0.10	207.16	0.10	(5.59)
Biomass	5,169.72	2.69	5,276.95	2.67	(2.03)
Solar power and wind power	3,903.79	2.03	4,362.87	2.20	(10.52)
Subtotal	53,468.44	27.86	54,934.11	27.76	(2.67)
Neighboring Countries					
- Laos					
	29,446.64	15.34	25,407.09	12.84	15.90
- Malaysia					
	126.05	0.07	118.39	0.06	6.47
Subtotal	29,572.69	15.41	25,525.48	12.90	15.86
Total Energy Purchase	128,310.25	66.85	135,556.60	68.52	(5.35)
Grand Total	191,934.55	100.00	197,873.00	100.00	(3.00)

Energy Sale

Customer	2020		2019		Increase / (Decrease)
	Million kWh	Percentage	Million kWh	Percentage	Percentage
Metropolitan Electricity Authority (MEA)	52,343.73	27.92	55,002.17	28.43	(4.83)
Provincial Electricity Authority (PEA)	131,558.55	70.17	134,605.47	69.59	(2.26)
Direct customers	1,205.07	0.64	1,213.23	0.63	(0.67)
Standby power supply	173.60	0.09	133.36	0.07	30.18
Electricité du Laos (EDL)	1,375.40	0.73	1,316.51	0.68	4.47
Tenaga Nasional Berhad (TNB) - Malaysia	610.10	0.33	136.14	0.07	348.16
Electricité du Cambodge (EDC)	16.24	0.01	942.01	0.49	(98.28)
Other minor customers	206.70	0.11	90.26	0.05	129.01
Total	187,489.39	100.00	193,439.13	100.00	(3.08)

Average Energy Sales Price

Customer	2020	2019	Increase / (Decrease)
	Baht / kWh	Baht / kWh	Percentage
Metropolitan Electricity Authority (MEA)	2.79	2.89	(3.42)
Provincial Electricity Authority (PEA)	2.76	2.79	(0.92)
Direct customers	2.92	2.96	(1.21)
Standby power supply	5.88	7.06	(16.71)
Electricité du Laos (EDL)	1.76	1.71	3.21
Tenaga Nasional Berhad (TNB) - Malaysia	2.08	2.47	(15.79)
Electricité du Cambodge (EDC)	3.49	3.49	-
Overseas independent power producers	6.48	3.88	67.04
Other minor customers	3.75	3.73	0.65
Overall Average Sales Price	2.77	2.82	(1.84)

Remark:

As of January 10, 2021

Data of TNB as of December 2020 is an estimate.

Transmission System

Voltage Level (kV)	2020			2019		
	Line Length (Circuit-Kilometers)	Number of Substations	Transformer Capacity (MVA)	Line Length (Circuit-Kilometers)	Number of Substations	Transformer Capacity (MVA)
500	6,912.292	22	41,949.69	6,575.182	22	40,949.70
230	15,697.865	83	66,400.01	15,357.714	82	64,700.01
132	8.705	-	133.40	8.705	-	133.40
115	14,423.188	126	15,223.16	13,997.982	125	15,048.16
69	18.800	-	-	18.800	-	-
300 (HVDC)	23.066	-	388.02	23.066	-	388.02
Total	37,083.916	231	124,094.28	35,981.449	229	121,219.29

Fuel Consumption

Type of Fuel	Consumption		Increase / (Decrease)
	2020	2019	Percentage
Natural gas (million cubic feet)			
- EGAT	324,543.52	303,583.20	6.90
- IPPs	232,530.51	310,439.12	(25.10)
Total	557,074.03	614,022.32	(9.27)
Fuel oil (million liters)			
- EGAT	28.86	25.35	13.84
- IPPs	-	-	-
Total	28.86	25.35	13.84
Coal (million tons)			
- EGAT	13.23	13.76	(3.81)
- IPPs	18.30	18.17	0.69
Total	31.53	31.93	(1.25)
Diesel oil (million liters)			
- EGAT	32.24	28.23	14.18
- IPPs	8.43	2.84	196.83
Total	40.66	31.07	30.87

Reservoir Operation

Operation	2020	2019	Increase / (Decrease)
	Percentage		
Total reservoir capacity (million cubic meters)*	62,447	62,447	-
Total storage at year end (million cubic meters)*	37,851	40,099	(5.61)
Total water inflow (million cubic meters)*	25,390	28,310	(10.31)
Total water release (million cubic meters)*			
- Passed through generators	24,541	33,153	(25.98)
- Extra release through spillways	20	131	(84.78)
- Extra release for irrigation	521	698	(25.32)
- Other benefits	-	-	-
- Evaporation	2,786	3,113	(10.50)
Total water release	27,868	37,095	(24.87)
Water pumped up into the upper reservoir (million cubic meters)**	631	579	9.14
Generated energy (million kWh)***	4,057	5,972	(32.07)
Water used for energy generation (cubic meters / kWh)	6.05	5.55	8.97

Remark:

- * Excluding Pak Mun Dam, Lamtakong Jolabha Vadhana Hydropower Plant, and other mini hydropower plants
- ** Water pumped up into Bhumibol Dam, Srinagarind Dam, and Lamtakong Jolabha Vadhana Hydropower Plant
- *** Generated energy from EGAT hydropower plants (except pumped storage hydropower plant)



Environmental Quality Monitoring

Results of Air Quality Monitoring at EGAT Power Plant's Stacks in 2020

Power Plant	Generation Unit	Fuel	SO ₂ (ppm)		NO _x (ppm)		Dust (mg/m ³)	
			Concentration	Standard	Concentration	Standard	Concentration	Standard
Mae Moh	Thermal, Unit 8	Lignite	13.72 - 152.31	320	174.82 - 296.45	500	6.60 - 6.66	180
	Thermal, Unit 9	Lignite	10.04 - 136.68	320	122.35 - 310.39	500	4.33 - 6.15	180
	Thermal, Unit 10	Lignite	14.64 - 128.14	320	101.15 - 271.48	500	4.08 - 4.94	180
	Thermal, Unit 11	Lignite	9.23 - 132.20	320	168.13 - 275.20	500	4.98 - 5.67	180
	Thermal, Unit 12	Lignite	6.02 - 110.81	320	151.61 - 268.60	500	5.65 - 6.16	180
	Thermal, Unit 13	Lignite	16.53 - 117.99	320	150.00 - 280.53	500	6.86 - 6.87	180
	Replacement, Units 4-7 (T1)	Lignite	24.20 - 86.00	180	55.56 - 92.03	200	2.21 - 2.28	80
Bang Pakong	Thermal, Unit 3	Natural gas and crude palm oil	0.76 - 0.90	320	108.14 - 183.70	200	0.27 - 0.36	120
	Thermal, Unit 4	Natural gas	0.41 - 2.80	320	65.16 - 132.19	200	0.26 - 3.46	120
	Combined Cycle, Block 4	Natural gas	0.00 - 1.12	60	104.31 - 177.32	230	13.44 - 14.99	60
	Combined Cycle, Block 5	Natural gas	0.28 - 0.60	20	44.74 - 62.80	120	0.24 - 0.59	60
Krabi	Thermal, Unit 1	Fuel oil	2.30 - 6.35	450	64.80 - 100.72	180	25.65 - 42.92	120
South Bangkok	Combined Cycle, Block 2	Natural gas	0.24 - 0.72	60	28.17 - 32.89	175	0.77 - 1.38	60
	Combined Cycle, Block 3	Natural gas	0.91 - 11.20	20	69.98 - 78.11	120	0.47 - 1.05	60
	Combined Cycle, Block 4	Natural gas	0.47 - 0.53	20	30.61 - 32.16	120	0.20 - 1.47	60
Wang Noi	Combined Cycle, Block 3	Natural gas	0.33 - 0.96	60	71.41 - 130.52	175	0.50 - 6.45	60
	Combined Cycle, Block 4	Natural gas	0.37 - 1.56	20	13.01 - 19.63	120	0.80 - 1.70	60
Nam Phong	Combined Cycle, Block 1	Natural gas	3.06 - 4.14	60	223.73 - 234.21	250	1.20 - 6.30	60
	Combined Cycle, Block 2	Natural gas	3.00 - 4.49	60	232.40 - 244.61	250	1.40 - 3.80	60
Chana	Combined Cycle, Block 1	Natural gas	0.25 - 0.87	20	29.78 - 37.47	120	0.24 - 0.80	60
	Combined Cycle, Block 2	Natural gas	0.47 - 0.74	20	8.08 - 12.44	120	0.24 - 0.90	60
	Combined Cycle, Block 2	Diesel oil	1.46	35	70.62	144	0.8	35
North Bangkok	Combined Cycle, Block 1	Natural gas	0.41 - 1.52	20	35.17 - 73.01	120	2.11 - 3.38	60
	Combined Cycle, Block 2	Natural gas	0.14 - 0.54	20	6.43 - 10.12	120	0.85 - 3.00	60

Remark:

Bang Pakong Combined Cycle Power Plant, Block 4 was decommissioned on April 30, 2020.

South Bangkok Power Plant, Block 4, Unit 1 started commercial operation on February 29, 2020.

South Bangkok Power Plant, Block 4, Unit 2 started commercial operation on April 18, 2020.

Greenhouse Gas Management

Greenhouse Gas Emissions Reduction by EGAT's Measures in 2019

Measure	Greenhouse Gas Emissions Reduction (tCO ₂ e)	
	2019	
1. Electricity generation by renewable energy	3,317,418	
2. Efficiency improvement for electricity generation	4,262,443	
3. Standard criteria and the attachment of Label No.5 for energy efficiency	796,972	
Total	8,376,833	

Workforce

Educational Level	at December 2020		at December 2019		Increase / (Decrease)
	Number of Persons	Percentage	Number of Persons	Percentage	Percentage
Bachelor's Degree and Higher	7,510	42.57	7,692	40.80	(2.37)
Diploma / Higher Vocational Certificate	7,430	42.12	7,800	41.37	(4.74)
Vocational Certificate	1,166	6.61	1,505	7.98	(22.52)
Others	1,534	8.70	1,858	9.85	(17.44)
Total	17,640	100.00	18,855	100.00	(6.44)

Auditor's Report

Independent Auditor's Report

To the Board of Directors of Electricity Generating Authority of Thailand

My opinion

In my opinion, the consolidated financial statements and the separate financial statements present fairly, in all material respects, the consolidated financial position of Electricity Generating Authority of Thailand (EGAT) and its subsidiaries (the Group) and the separate financial position of EGAT as at 31 December 2020, and its consolidated and separate financial performance and its consolidated and separate cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRS).

What I have audited

The consolidated financial statements and the separate financial statements comprise:

- the consolidated and separate statements of financial position as at 31 December 2020;
- the consolidated and separate statements of income for the year then ended;
- the consolidated and separate statements of comprehensive income for the year then ended;
- the consolidated and separate statements of changes in equity for the year then ended;
- the consolidated and separate statements of cash flows for the year then end; and
- the notes to the consolidated and separate financial statements, which include significant accounting policies and other explanatory information.

Basis for opinion

I conducted my audit in accordance with the State Audit Standards and Thai Standards on Auditing (TSAs). My responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the consolidated and separate financial statements section of my report. I am independent of the Group and EGAT in accordance with the State Audit Standards as determined by the State Audit Commission and the Code of Ethics for Professional Accountants issued by the Federation of Accounting Professions that are relevant to my audit of the consolidated and separate financial statements, and I have fulfilled my other ethical responsibilities in accordance with the State Audit Standards and these ethical requirements. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Other matter

The State Audit Standards as described in the basis for opinion section and the auditor's responsibilities for the audit of the consolidated and separate financial statements is relevant to the particular section of audit on the financial reporting by independent auditor.

Responsibilities of management for the consolidated and separate financial statements

Management is responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRS, and for such internal control as management determines is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, management is responsible for assessing the Group's and the EGAT's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group and EGAT or to cease operations, or has no realistic alternative but to do so.

The audit committee assists the directors in discharging their responsibilities for overseeing the Group's and the EGAT's financial reporting process.

Auditor's responsibilities for the audit of the consolidated and separate financial statements

My objectives are to obtain reasonable assurance about whether the consolidated and separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the State Audit Standards and TSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated and separate financial statements.

As part of an audit in accordance with the State Audit Standards and TSAs, I exercise professional judgment and maintain professional scepticism throughout the audit. I also:

-
- Identify and assess the risks of material misstatement of the consolidated and separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
 - Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the EGAT's internal control.
 - Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
 - Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the EGAT's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the consolidated and separate financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group and the EGAT to cease to continue as a going concern.
 - Evaluate the overall presentation, structure and content of the consolidated and separate financial statements, including the disclosures, and whether the consolidated and separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
 - Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with audit committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

PricewaterhouseCoopers ABAS Ltd.

Amornrat Pearmpoonvatanasuk
Certified Public Accountant (Thailand) No. 4599

Bangkok

19 March 2021



VAJIRALONGKORN DAM

Financial Statements

Electricity Generating Authority of Thailand
Statement of Financial Position
As at 31 December 2020

	Notes	Consolidated financial statements			Separate financial statements		
		31 December 2020	31 December 2019	1 January 2019	31 December 2020	31 December 2019	1 January 2019
		Million Baht	Million Baht (Restated)	Million Baht (Restated)	Million Baht	Million Baht (Restated)	Million Baht (Restated)
Assets							
Current assets							
Cash and cash equivalents	11	69,353	80,005	93,643	63,885	74,397	78,227
Short-term investments	12	-	9,686	19,739	-	321	14,996
Financial assets measured at amortised cost	12	8,569	-	-	59	-	-
Financial assets measured at fair value through profit or loss		843	-	-	-	-	-
Trade receivables, net	13	54,179	59,001	61,181	54,230	58,780	60,720
Other receivables, net		8,108	9,966	10,880	7,801	9,105	10,168
Accrued revenue from electric energy sales according to automatic tariff adjustment (Ft)	27.1	-	1,879	-	-	1,879	-
Fuel and spare parts, net	14	11,960	12,963	11,765	10,107	11,035	9,762
Other current assets		357	330	256	267	311	195
Total current assets		153,369	173,830	197,464	136,349	155,828	174,068
Non-current assets							
Financial assets measured at amortised cost	12	543	-	-	-	-	-
Financial assets measured at fair value through other comprehensive income		7,675	-	-	6,204	-	-
Available-for-sale investments		-	8,408	8,379	-	6,465	5,839
Investments in subsidiaries	15.2	-	-	-	19,003	19,003	19,003
Investments in associates	15.3	43,346	39,622	38,063	1,588	1,588	1,588
Investments in joint ventures	15.4	35,491	29,292	29,843	585	585	585
Other long-term investments		-	2,495	2,555	-	-	-
Derivative assets		6	266	226	-	-	-
Long-term loans to related parties, net	36.5	523	541	43	-	-	-
Long-term loans to other parties, net	16	2,385	-	-	-	-	-
Property, plant and equipment, net	17	425,693	419,420	395,272	393,913	395,029	375,184
Right-of-use assets - Power plants, net	18	261,161	278,986	297,116	261,161	278,986	297,116
Goodwill	19	170	170	229	-	-	-
Intangible assets, net	20	54,529	43,385	37,990	51,235	39,753	35,005
Deposit for deferred revenue for electricity compensation	27.2	748	778	5,588	748	778	5,588
Deferred development cost		512	470	487	-	-	-
Land for development projects	21	1,319	1,337	2,060	939	939	1,742
Deferred tax assets, net	22	46	40	203	-	-	-
Other non-current assets	23	7,247	4,911	5,485	5,296	2,991	3,390
Total non-current assets		841,394	830,121	823,539	740,672	746,117	745,040
Total assets		994,763	1,003,951	1,021,003	877,021	901,945	919,108

(Mr. Boonyanit Wongrukmit)
Director and Governor

(Mrs. Choosri Kietkajornkul)
Deputy Governor finance and Accounting

The notes to the consolidated and separate financial statements are on integral part of these financial statements.

Electricity Generating Authority of Thailand
Statement of Financial Position
As at 31 December 2020

	Notes	Consolidated financial statements			Separate financial statements		
		31 December 2020 Million Baht	31 December 2019 (Restated) Million Baht	1 January 2019 (Restated) Million Baht	31 December 2020 Million Baht	31 December 2019 (Restated) Million Baht	1 January 2019 (Restated) Million Baht
Liabilities and equity							
Current liabilities							
Short-term loans from financial institutions	24	60	603	-	-	-	-
Trade payables		62,608	76,399	78,989	63,954	77,819	79,796
Other payables		9,434	10,399	14,851	8,465	8,927	13,653
Surplus revenue from electric energy sales according to automatic tariff adjustment (Ft)	27.1	3,366	-	2,704	3,366	-	2,704
Accrued interest expenses		1,334	1,387	1,674	1,008	1,084	1,341
Accrued remittance to the Ministry of Finance	37	5,247	10,318	11,073	5,247	10,318	11,073
Accrued expenses		3,947	4,786	5,162	3,909	4,757	5,124
Current portion of long-term loans from financial institutions, net	25	10,424	10,129	13,906	8,938	9,038	9,495
Current portion of loan from infrastructure fund	26	723	929	650	723	929	650
Current portion of lease liabilities under Power Purchase Agreement, net	29	12,763	12,508	15,233	15,339	15,776	16,496
Current portion of other lease liabilities, net		466	330	281	347	329	280
Derivative liabilities		226	140	15	-	-	-
Other current liabilities		4,173	1,128	229	4,148	1,108	185
Total current liabilities		114,771	129,056	144,767	115,444	130,085	140,797
Non-current liabilities							
Long-term loans, net	25	109,054	104,373	100,943	68,948	73,932	72,202
Loan from infrastructure fund, net	26	17,183	17,638	18,639	17,183	17,638	18,640
Derivative liabilities		1,052	748	358	-	-	-
Deferred tax liabilities, net	22	1,831	1,710	1,479	-	-	-
Provisions for employee benefits	28	16,784	17,407	15,078	16,539	17,191	14,891
Deferred revenue for electricity compensation	27.3	791	865	5,599	791	865	5,599
Finance lease liabilities from Power Purchase Agreement, net	29	214,774	227,935	250,608	225,336	241,075	267,016
Other lease liabilities, net		1,739	506	666	372	504	663
Provision for mine rehabilitation	30	4,087	3,927	3,437	4,087	3,927	3,437
Other payables from related parties	36.4	4,878	4,899	5,267	-	-	-
Other non-current liabilities	31	19,678	20,234	21,540	19,526	20,096	21,416
Total non-current liabilities		391,851	400,242	423,614	352,782	375,228	403,864
Total liabilities		506,622	529,298	568,381	468,226	505,313	544,661

(Mr. Boonyanit Wongrukmit)
 Director and Governor

(Mrs. Choosri Kietkajornkul)
 Deputy Governor finance and Accounting

The notes to the consolidated and separate financial statements are on integral part of these financial statements.

Electricity Generating Authority of Thailand
Statement of Financial Position
As at 31 December 2020

	Notes	Consolidated financial statements			Separate financial statements		
		31 December 2020	31 December 2019 (Restated)	1 January 2019 (Restated)	31 December 2020	31 December 2019 (Restated)	1 January 2019 (Restated)
		Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
Liabilities and equity (continued)							
Equity							
Contribution from the government	2.1	10,872	10,872	10,872	10,872	10,872	10,872
Surplus from royalty on state property service	2.1	475	475	475	475	475	475
Surplus from the change in the ownership interests in subsidiaries	2.1	689	689	689	-	-	-
Retained earnings							
Appropriated							
- Capital expenditure appropriation		80,186	80,186	80,186	80,186	80,186	80,186
Unappropriated	2.1	370,659	354,742	330,113	316,124	303,701	282,141
Other components of equity	2.1	(8,208)	(5,353)	(2,938)	1,138	1,398	773
Total equity attributable to EGAT		454,673	441,611	419,397	408,795	396,632	374,447
Non-controlling interests		33,468	33,042	33,225	-	-	-
Total equity		488,141	474,653	452,622	408,795	396,632	374,447
Total liabilities and equity		994,763	1,003,951	1,021,003	877,021	901,945	919,108

(Mr. Boonyanit Wongrukmit)
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Electricity Generating Authority of Thailand
Statement of Income
For the year ended 31 December 2020

	Notes	Consolidated financial statements		Separate financial statements	
		2020	2019	2020	2019
		Million Baht	(Restated) Million Baht	Million Baht	(Restated) Million Baht
Revenue from electric energy sales		507,254	557,099	504,488	554,223
Revenue from sales of other goods and services	32	3,453	3,347	3,858	4,418
Cost of electric energy sales		(440,013)	(476,451)	(438,855)	(476,603)
Cost of sales of other goods and services	32	(1,945)	(1,719)	(2,418)	(2,419)
Gross profit		68,749	82,276	67,073	79,619
Dividend income and other income		3,506	4,462	5,514	6,165
Gain (loss) on exchange rates, net		160	11,478	(85)	11,600
Loss from measurement of financial instruments, net		(130)	-	-	-
Selling expenses		(144)	(188)	(144)	(188)
Administrative expenses		(13,726)	(16,916)	(11,953)	(15,165)
Other expenses		(306)	(490)	(288)	(448)
Finance costs		(33,783)	(35,093)	(34,637)	(36,469)
Share of profit from investments in associates, net		2,638	3,039	-	-
Share of profit from investments in joint ventures, net		4,452	3,884	-	-
Profit before income tax		31,416	52,452	25,480	45,114
Income tax expenses	34	(105)	(956)	-	-
Profit for the year		31,311	51,496	25,480	45,114
Profit attributable to					
Owners of EGAT		28,031	48,209	25,480	45,114
Non-controlling interests		3,280	3,287	-	-
Profit for the year		31,311	51,496	25,480	45,114

(Mr. Boonyanit Wongrukmit)
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Deputy Governor finance and Accounting

The notes to the consolidated and separate financial statements are on integral part of these financial statements.

Electricity Generating Authority of Thailand
Statement of Comprehensive income
For the year ended 31 December 2020

	Consolidated financial statements		Separate financial statements	
	2020 Million Baht	2019 (Restated) Million Baht	2020 Million Baht	2019 (Restated) Million Baht
Profit for the year	31,311	51,496	25,480	45,114
Other comprehensive income (expense) :				
Items that will not be reclassified subsequently to profit or loss, net of tax				
- Changes in fair value of financial assets at fair value through other comprehensive income	(926)	-	(260)	-
- Remeasurement of post-employment benefit obligations	(24)	(14)	-	(8)
- Share of other comprehensive expense of investments in associates	(2)	(18)	-	-
- Share of other comprehensive expense of investments in joint ventures	(2)	(12)	-	-
Total items that will not be reclassified subsequently to profit or loss, net of tax	(954)	(44)	(260)	(8)
Items that will be reclassified subsequently to profit or loss				
- Change in value of available-for-sale investment	-	105	-	625
- Loss on cash flow hedges reserves at fair value through other comprehensive income, net of tax	(142)	(476)	-	-
- Share of other comprehensive expense of associates, net of tax	(1,693)	(1,470)	-	-
- Share of other comprehensive expense of joint ventures, net of tax	(438)	(561)	-	-
- Currency translation differences	312	(1,555)	-	-
Total items that will not be reclassified subsequently to profit or loss, net of tax	(1,961)	(3,957)	-	625
Other comprehensive expense for the year, net of tax	(2,915)	(4,001)	(260)	617
Total comprehensive income for the year	28,396	47,495	25,220	45,731
Total comprehensive profit attributable to				
Owners of EGAT	26,038	45,759	25,220	45,731
Non-controlling interests	2,358	1,736	-	-
Total comprehensive income for the year	28,396	47,495	25,220	45,731

(Mr. Boonyanit Wongrukmit)
Director and Governor

(Mrs. Choosri Kietkajornkul)
Deputy Governor finance and Accounting

The notes to the consolidated and separate financial statements are on integral part of these financial statements.

Electricity Generating Authority of Thailand
Statement of Changes in Equity
For the year ended 31 December 2020

	Separate financial statements									
	Retained earnings					Other components of equity				
	Contribution from the government Million Baht	Surplus from royalty on state property service Million Baht	Appropriated - Capital expenditure appropriation Million Baht	Unappropriated Million Baht	Measurement of available-for-sale investment Million Baht	Measurement of fair value through other comprehensive income Million Baht	Total other components of equity Million Baht	Total equity Million Baht		
Opening balance as at 1 January 2019										
- As previously reported	8,690	189	80,186	284,609	773	-	773	374,447		
Retrospective adjustments from changes in accounting policy	2,182	286	-	(2,468)	-	-	-	-		
Opening balance as at 1 January 2019 - As restated	10,872	475	80,186	282,141	773	-	773	374,447		
Changes in equity for the year										
Reserve for remittance to the Ministry of Finance	-	-	-	(23,546)	-	-	-	(23,546)		
Total comprehensive income for the year	-	-	-	45,106	625	-	625	45,731		
Closing balance as at 31 December 2019	10,872	475	80,186	303,701	1,398	-	1,398	396,632		
Opening balance as at 1 January 2020										
- As previously reported	8,628	182	80,186	306,238	1,398	-	1,398	396,632		
Retrospective adjustments from changes in accounting policy and adoption of new financial reporting standards	2,244	293	-	(2,609)	(1,398)	1,398	-	(72)		
Opening balance as at 1 January 2020 - As restated	10,872	475	80,186	303,629	-	1,398	1,398	396,560		
Changes in equity for the year										
Reserve for remittance	-	-	-	(12,985)	-	-	-	(12,985)		
Total comprehensive income (expense) for the year	-	-	-	25,480	-	(260)	(260)	25,220		
Closing balance as at 31 December 2020	10,872	475	80,186	316,124	-	1,138	1,138	408,795		

The notes to the consolidated and separate financial statements are on integral part of these financial statements.

Electricity Generating Authority of Thailand
Statement of Cash Flows
For the year ended 31 December 2020

	Consolidated		Separate	
	financial statements		financial statements	
	2020	2019	2020	2019
		(Restated)		(Restated)
Notes	Million Baht	Million Baht	Million Baht	Million Baht
Cash flows from operating activities				
Profit before income tax for the year	31,416	52,452	25,480	45,114
Adjustments to reconcile profit before				
income tax to net cash from operating activities				
- Depreciation	33	28,226	26,683	24,832
- Depreciation of right-of-use-assets - power plants	33	17,825	17,825	18,130
- Amortisation of intangible assets	20,33	443	112	88
- Amortisation of deferred charges of the lignite mine	23	7,110	7,110	7,216
- Gain from changes in the fair value of financial asset		(10)	-	-
- Gain from sale of financial asset		(4)	-	-
- Fair value loss on financial instruments, net		130	-	-
- Impairment losses on trade receivables				
and other receivables		198	198	61
- Impairment loss on financial assets		22	-	-
- Allowance for obsolescence of fuel and spare parts		344	205	258
- Allowance for impairment of building and equipment		-	-	55
- Allowance for impairment of goodwill		-	-	-
- Allowance for impairment of land for development project		-	-	743
- Interest income		(679)	(366)	(970)
- Dividend income		(496)	(2,972)	(2,902)
- Finance costs		4,876	3,325	3,126
- Finance costs from lease liabilities from				
Power Purchase Agreement	29	28,907	31,312	33,343
- Gain on bargain purchase		-	-	-
- Loss on disposal of subsidiaries		17	-	-
- Gain on discontinued operation in joint ventures		-	-	-
- Loss on write-off of assets		72	69	220
- (Gain) loss on disposal of asset		16	19	(4)
- Revenue from contribution income		(596)	(596)	(603)
- (Gain) loss on unrealised exchange rates		(53)	122	(301)
- (Gain) loss on unrealised exchange rates from				
finance lease liabilities from				
Power Purchase Agreement	29	836	836	(9,348)
- Share of profit from investments in associates				
and joint ventures using equity method		(7,090)	-	-
- Provisions for employee benefits		1,133	1,102	4,002
Cash flows before changes in working capital		112,643	110,464	123,060

The notes to the consolidated and separate financial statements are on integral part of these financial statements.

Electricity Generating Authority of Thailand
Statement of Cash Flows
For the year ended 31 December 2020

	Consolidated		Separate	
	financial statements		financial statements	
	2020	2019	2020	2019
	(Restated)		(Restated)	
Notes	Million Baht	Million Baht	Million Baht	Million Baht
Cash flows from operating activities (Continued)				
Changes in working capital				
- Trade receivables	6,697	677	6,423	61
- Other receivables	331	(2,051)	53	(1,845)
- Fuel and spare parts	765	(1,361)	804	(1,438)
- Other current assets	(26)	(84)	46	(117)
- Deposit for deferred revenue for electricity compensation	30	4,810	30	4,810
- Other non-current assets	(8,844)	(7,355)	(8,324)	(7,048)
- Trade payables	(10,402)	(5,515)	(10,493)	(4,659)
- Other payables	200	(899)	55	(1,265)
- Accrued expenses	(824)	(368)	(847)	(366)
- Other current liabilities	3,046	787	3,040	812
- Retirement benefit paid	28.1,28.2	(1,943)	(1,926)	(1,886)
- Deferred revenue for electricity compensation	(74)	(4,734)	(74)	(4,734)
- Provision for mine rehabilitation	64	394	64	394
- Other non-current liabilities	458	(226)	720	68
Cash generated from operating activities	102,121	107,802	100,050	105,847
- Interest received	467	882	399	849
- Income tax paid	(463)	(842)	-	-
Net cash generated from operating activities	2.2	102,125	107,842	106,696

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Electricity Generating Authority of Thailand
Statement of Cash Flows
For the year ended 31 December 2020

	Consolidated		Separate		
	financial statements		financial statements		
	2020	2019	2020	2019	
	(Restated)		(Restated)		
Notes	Million Baht	Million Baht	Million Baht	Million Baht	
Cash flows from investing activities					
Cash received from financial assets measured at amortised cost		7,896	38,280	2,805	35,521
Cash paid for financial assets measured at amortised cost		(7,806)	(28,547)	(2,542)	(20,837)
Cash received from financial assets measured at fair value through profit or loss		1,142	619	-	-
Cash paid for financial assets measured at fair value through profit or loss		(1,470)	(617)	-	-
Cash paid for financial assets measured at fair value through other comprehensive income		(185)	-	-	-
Advanced received from share subscription		-	195	-	-
Cash paid for purchase of property, plant and equipment and intangible assets		(43,309)	(52,051)	(38,644)	(49,597)
Cash paid for borrowing cost of property and equipment		(1,041)	(1,589)	(1,041)	(1,589)
Cash received for purchase of land for development project		19	-	-	-
Cash received from disposal of property and equipment		56	56	54	56
Cash paid for purchase of land for development project		-	(18)	-	-
Cash received from short-term loans to related parties		25	-	-	-
Cash paid for short-term loans to related parties		(5)	-	-	-
Cash paid for long-term loans to related parties		-	(508)	-	-
Cash paid for long-term loans to other parties		(2,501)	-	-	-
Cash paid for disposal of investments in subsidiary		(2)	-	-	-
Cash paid for investments in subsidiaries		-	(1,977)	-	-
Cash paid for investments in associates	15.1	(1,484)	(1,757)	-	-
Cash paid for investments in joint ventures	15.1	(4,512)	(583)	-	-
Cash received from disposal of investments in joint ventures		-	2	-	-
Cash paid for project development cost for collection		(17)	(23)	-	-
Dividends received		4,097	5,455	2,972	2,902
Interest received		234	445	9	174
Net cash used in investing activities	2.2	(48,863)	(42,618)	(36,387)	(33,370)

The notes to the consolidated and separate financial statements are on integral part of these financial statements.

Electricity Generating Authority of Thailand
Statement of Cash Flows
For the year ended 31 December 2020

	Notes	Consolidated financial statements		Separate financial statements	
		2020 Million Baht	2019 (Restated) Million Baht	2020 Million Baht	2019 (Restated) Million Baht
Cash flows from financing activities					
Remittance to the Ministry of Finance		(18,056)	(24,301)	(18,056)	(24,301)
Cash received from short-term loans from financial institutions	24	11,406	2,377	-	1,000
Cash paid for repayments of short-term loans from financial institutions	24	(11,947)	(1,755)	-	(1,000)
Cash received from long-term loans	25	14,202	12,017	3,963	10,816
Cash paid for repayments of long-term loans	25	(10,589)	(13,911)	(9,038)	(9,538)
Cash paid for repayments of long-term loans infrastructure fund	26	(661)	(722)	(661)	(722)
Cash received early unwinding of derivatives		228	-	-	-
Cash paid for principle elements of lease liabilities from Power Purchase Agreement	29	(13,742)	(16,004)	(17,012)	(17,313)
Cash paid for principle elements of other lease liabilities (2019: Finance lease payment)		(468)	(293)	(407)	(292)
Cash received from unearned revenue		1,150	550	1,150	550
Dividend paid		(1,919)	(1,919)	-	-
Cash paid for finance costs		(4,621)	(4,411)	(3,213)	(3,009)
Cash paid for finance costs of lease liabilities from Power Purchase Agreement	29	(28,907)	(30,537)	(31,312)	(33,343)
Net cash used in financing activities	2.2	(63,924)	(78,909)	(74,586)	(77,152)
Net decrease in cash and cash equivalents		(10,662)	(13,685)	(10,524)	(3,826)
Beginning balance		80,005	93,643	74,397	78,227
Effect on exchange rate on changes		10	47	12	(4)
Ending balance		69,353	80,005	63,885	74,397
Supplementary information					
- Payable for property, plant and equipment		1,685	2,207	1,685	2,207
- Increase in property, plant and equipment from other lease liabilities		1,286	183	292	183
- Payable for project development cost for allocation		1	3	-	-

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Electricity Generating Authority of Thailand
Notes to the Consolidated and Separate Financial Statements
For the year ended 31 December 2020

1 General information

Electricity Generating Authority of Thailand (EGAT), which is a juristic person, was established by Electricity Generating Authority of Thailand Act, B.E. 2511 (1968) and subsequent amendments. EGAT's main business objectives are generating, acquiring, transmission or distribution electric energy, the operation of electric energy business and energy sources deriving from natural resources and undertaking business concerning electric energy and other businesses concerning or related to the activities of EGAT, or collaborate with other persons. Besides, its businesses include production and selling lignite or any chemicals derived from lignite. The head office of EGAT is located at 53 Moo 2, Charansanitwong Road, Bang Kruai, Nonthaburi.

For reporting purposes, EGAT and its subsidiaries are referred to as the Group.

The denominated currency of these consolidated and separate financial statements is Thai Baht and these statements are reported in million Baht unless specified otherwise.

These consolidated and separate financial statements were authorised for issue by the Governor on 19 March 2021.

2 Basis of preparation

The consolidated and separate financial statements have been prepared in accordance with Thai Financial Reporting Standards (TFRS).

The consolidated and separate financial statements have been prepared under the historical cost convention except as disclosed in the below accounting policies.

The preparation of financial statements in conformity with TFRS requires management to use certain critical accounting estimates and to exercise its judgement in applying the Group's accounting policies. The areas involving a higher degree of judgement or complexity, or areas that are more likely to be materially adjusted due to changes in estimates and assumptions are disclosed in Note 9.

An English version of the consolidated and separate financial statements has been prepared from the statutory financial statements that are in the Thai language. In the event of a conflict or a difference in interpretation between the two languages, the Thai language statutory financial statements shall prevail.

2.1 Reclassification and adjustments that affected statements of financial position as at 1 January 2019 and 31 December 2019 and statement of income for the year ended 31 December 2019

- a) The Group has reclassified Baht 2,887 million for the surplus on subsidiaries and associates using the equity method, to be presented as a surplus from the change in ownership interests in subsidiaries of Baht 689 million separated in equity and a surplus from the change in ownership interests in associates of Baht 2,198 million included in retained earnings as at 1 January 2019.
- b) EGAT has adjusted government contributions, royalty surplus from the state property service, retained earnings and costs of electrical energy sales to be presented at cost on the initial recognition date. The adjustments and impacts are as follows:
 - Adjusted government contributions of Baht 2,182 million as at 1 January 2019 and Baht 2,244 million as at 31 December 2019.
 - Adjusted royalty surplus on state property service of Baht 286 million as at 1 January 2019, and Baht 293 million as at 31 December 2019.
 - Adjusted retained earnings of Baht 2,468 million as at 1 January 2019 and Baht 2,537 million as at 31 December 2019.
 - Adjusted costs of electric energy sales of Baht 62 million baht on the statement of income for the year ended 31 December 2019.

	Million Baht			
	As previously reported	Adjustments	Reclassification	As restated
Consolidated statement of financial position as at 1 January 2019				
Equity				
Contribution from the government	8,690	2,182	-	10,872
Surplus from royalty on state property service	189	286	-	475
Surplus from the change in ownership interests in subsidiaries	-	-	689	689
Retained earnings - Unappropriated	330,383	(2,468)	2,198	330,113
Other components of equity	(51)	-	(2,887)	(2,938)
Consolidated statement of financial position as at 31 December 2019				
Equity				
Contribution from the government	8,628	2,244	-	10,872
Surplus from royalty on state property service	182	293	-	475
Surplus from the change in ownership interests in subsidiaries	-	-	689	689
Retained earnings - Unappropriated	355,081	(2,537)	2,198	354,742
Other components of equity	(2,466)	-	(2,887)	(5,353)
Consolidated statement of income for the year ended 31 December 2019				
Cost of electric energy sales	(476,389)	(62)	-	(476,451)

	Million Baht			
	As previously reported	Adjustments	Reclassification	As restated
Separate statement of financial position as at 1 January 2019				
Equity				
Contribution from the government	8,690	2,182	-	10,872
Surplus from royalty on state property service	189	286	-	475
Retained earnings - Unappropriated	284,609	(2,468)	-	282,141
Separate statement of financial position as at 31 December 2019				
Equity				
Contribution from the government	8,628	2,244	-	10,872
Surplus from royalty on state property service	182	293	-	475
Retained earnings - Unappropriated	306,238	(2,537)	-	303,701
Consolidated statement of income for the year ended 31 December 2019				
Cost of electric energy sales	(476,541)	(62)	-	(476,603)

2.2 Reclassification and adjustment that affected statement of financial position as at 31 December 2019, statement of income and statement of cash flow for the year ended 31 December 2019

The Group has also reclassified other items on financial statements apart from items listed in 2.1 to ensure that the comparative balances have been presented to conform with the current year's presentation. The impacts of reclassification are as follows:

	Million Baht		
	As previously reported	Reclassification	As restated
Consolidated statement of financial position as at 31 December 2019			
Current assets			
Trade receivables-other parties, net	58,897	(58,897)	-
Trade receivables-related parties, net	104	(104)	-
Trade receivables, net	-	59,001	59,001
Non-current assets			
Property, plant and equipment, net	314,126	105,294	419,420
Construction in progress	104,382	(104,382)	-
Intangible assets, net	43,222	163	43,385
Other non-current assets	5,986	(1,075)	4,911
Current liabilities			
Trade payables-other parties	66,422	(66,422)	-
Trade payables-related parties	9,977	(9,977)	-
Trade payables	-	76,399	76,399
Consolidated statement of income for the year ended 31 December 2019			
Dividend income and other income	15,940	(11,478)	4,462
Gain on exchange rates, net	-	11,478	11,478
Consolidated statement of cash flow for the year ended 31 December 2019			
Net cash generated from operating activities	106,726	1,115	107,841
Net cash used in investing activities	(41,916)	(702)	(42,618)
Net cash used in financing activities	(78,496)	(413)	(78,909)

**Separate statement of financial position
as at 31 December 2019**

Current assets

Trade receivables-other parties, net	58,089	(58,089)	-
Trade receivables-related parties, net	691	(691)	-
Trade receivables, net	-	58,780	58,780

Non-current assets

Property, plant and equipment, net	292,006	103,023	395,029
Construction in progress	102,110	(102,110)	-
Intangible assets, net	39,591	162	39,753
Other non-current assets	4,066	(1,075)	2,991

Current liabilities

Trade payables-other parties	62,580	(62,580)	-
Trade payables-related parties	15,239	(15,239)	-
Trade payables	-	77,819	77,819

Million Baht

As previously reported Reclassification As restated

**Separate statement of income
for the year ended 31 December 2019**

Dividend income and other income	17,765	(11,600)	6,165
Gain on exchange rates, net	-	11,600	11,600

**Separate statement of cash flow
for the year ended 31 December 2019**

Net cash generated from operating activities	105,502	1,194	106,696
Net cash used in investing activities	(32,668)	(702)	(33,370)
Net cash used in financing activities	(76,660)	(492)	(77,152)

Million Baht

As previously reported Reclassification As restated

3 New and amended financial reporting standards

3.1 New and amended financial reporting standards that are effective for accounting period beginning on or after 1 January 2020 and have significant impacts to the Group.

a) Financial instruments

The new financial reporting standards related to financial instruments are as follows:

TAS 32	Financial instruments: Presentation
TFRS 7	Financial Instruments: Disclosures
TFRS 9	Financial Instruments
TFRIC 16	Hedges of a Net Investment in a Foreign Operation
TFRIC 19	Extinguishing Financial Liabilities with Equity Instruments

The new financial reporting standards related to financial instruments introduce new classification and measurement requirements for financial instruments as well as provide derecognition guidance on financial assets and financial liabilities. The new guidance also provides an option for the Group to apply hedge accounting to reduce accounting mismatch between hedged item and hedging instrument. In addition, the new rule provides detailed guidance on financial instruments issued by the Group whether it is a liability or an equity. Among other things, they require extensive disclosure on financial instruments and related risks.

The new classification requirements of financial assets require the Group to assess both i) business model for holding the financial assets; and ii) cash flow characteristics of the asset whether the contractual cash flows represent solely payments of principal and interest (SPPI). The classification affects the financial assets' measurement. The new guidance requires assessment of impairment of financial assets as well as contract assets and recognition of expected credit loss from initial recognition.

On 1 January 2020, the Group has adopted the financial reporting standards related to financial instruments in its financial statements. The impact from the first-time adoption has been disclosed in Note 4.

b) TFRS 16, Leases

Where the Group is a lessee, TFRS 16, Leases will result in almost all leases being recognised on the statement of financial position as the distinction between operating and finance leases is removed. A right-of-use asset and a lease liability will be recognised, with exception on short-term and low-value leases.

On 1 January 2020, the Group has adopted the new lease standard in its financial statements. The impact from the first-time adoption has been disclosed in Note 4.

3.2 New and amended financial reporting standards that are effective for accounting period beginning on or after 1 January 2021 and the Group has not yet adopted these standards.

a) **Revised Conceptual Framework for Financial Reporting** added the following key principals and guidance:

- Measurement basis, including factors in considering difference measurement basis
- Presentation and disclosure, including classification of income and expenses in other comprehensive income
- Definition of a reporting entity, which maybe a legal entity, or a portion of an entity; and
- Derecognition of assets and liabilities

The amendment also includes the revision to the definition of an asset and liability in the financial statements, and clarification to the prominence of stewardship in the objective of financial reporting.

b) **Amendment to TFRS 3, Business combinations** amended the definition of a business which requires an acquisition to include an input and a substantive process that together significantly contribute to the ability to create outputs. The definition of the term 'outputs' is amended to focus on goods and services provided to customers and to exclude returns in the form of lower costs and other economic benefits.

c) **Amendment to TFRS 9, Financial instruments and TFRS 7, Financial instruments: disclosures** amended to provide relief from applying specific hedge accounting requirements to the uncertainty arising from interest rate benchmark reform such as IBOR. The amendment also requires disclosure of hedging relationships directly affected by the uncertainty.

d) **Amendment to TAS 1, Presentation of financial statements and TAS 8, Accounting policies, changes in accounting estimates and errors** amended to definition of materiality. The amendment allows for a consistent definition of materiality throughout the Thai Financial Reporting Standards and the Conceptual Framework for Financial Reporting. It also clarified when information is material and incorporates some of the guidance in TAS 1 about immaterial information.

e) **Amendment to TAS 16, Leases** amended to provide a practical expedient where lessees are exempted from having to consider individual lease contracts to determine whether rent concessions occurring as a direct consequence of the COVID-19 pandemic are lease modifications. It applies to rent concessions that reduce lease payments due from 1 June 2020 to 30 June 2021. The amendment is effective for the annual accounting period beginning on or after 1 June 2020 where early application is permitted.

The Group's management is currently assessing the impact of adoption of these standards.

3.3 Amended financial reporting standards that are effective for accounting period beginning or after 1 January 2022 and the Group has not yet adopted this standard.

a) **Amendment to TFRS 16, Leases** amended to include a practical expedient for leases that are modified as a direct consequence of IBOR reform (e.g. replacement of THBFIX as a benchmark interest rate due to the cancellation of LIBOR) for lessee to remeasure the lease liability by discounting the revised lease payments using a discount rate that reflects the change in the interest rate. An early application of the amendment is permitted.

The Group's management is currently assessing the impact of adoption of these standards.

4 Impacts from the first-time adoption of the new financial reporting standards

The Group and EGAT has adopted financial reporting standards related to financial instruments (TAS 32, TFRS 7 and TFRS 9) and lease standard (TFRS 16). The new accounting policies applied from 1 January 2020 were disclosed in Note 5.

The Group and EGAT have adopted those accounting policies from 1 January 2020 by applying the modified retrospective approach. The comparative figures have not been restated. The reclassifications and the adjustments arising from the changes in accounting policies were therefore recognised in the statement of financial position as of 1 January 2020.

The impact of first-time adoption of new financial reporting standards on the consolidated and separate statements of financial position are as follows:

	Notes	Consolidated financial statements			As at 1 January 2020 Restated Million Baht
		As at 31 December 2019 Restated Million Baht	TAS 32 and TFRS 9 Million Baht	TFRS 16 Million Baht	
Assets					
Current assets					
Short-term investments	4.1.1	9,686	(9,686)	-	-
Trade receivables, net	4.1.2	59,001	(9)	-	58,992
Other receivables, net	4.1.2	9,966	(63)	-	9,903
Financial assets measured at amortised cost	4.1.1	-	9,182	-	9,182
Financial assets measured at fair value through profit or loss	4.1.1	-	504	-	504
Total current assets		78,653	(72)	-	78,581
Non-current assets					
Available-for-sale investments	4.1.3	8,408	(8,408)	-	-
Financial assets measured at amortised cost	4.1.3	-	53	-	53
Financial assets measured at fair value through other comprehensive income	4.1.3	-	10,850	-	10,850
	4.1.2,	39,622	90	-	39,712
Investments in associates	4.1.3	-	-	-	-
Other long-term investments	4.1.3	2,495	(2,495)	-	-
Long-term loans to and interest receivables from related parties, net	4.1.2	541	(13)	-	528
Property, plant and equipment, net	4.2	419,420	-	1,062	420,482
Deferred tax assets, net (*)	4.1.2	40	7	-	47
Other non-current assets, net		4,911	(16)	(549)	4,346
Total non-current assets		475,437	68	513	476,018
Total restated assets		554,090	(4)	513	554,599

(*) The effect from the first-time adoption of new financial reporting standards.

Consolidated financial statements					
	As at 31 December 2019 Restated Million Baht	TAS 32 and TFRS 9 Million Baht	TFRS 16 Million Baht	As at 1 January 2020 Restated Million Baht	
Notes					
Liabilities and equity					
Current liabilities					
Current portion of other lease liabilities, net	4.2	330	-	64	394
Total current liabilities		330	-	64	394
Non-current liabilities					
Other lease liabilities	4.2	506	-	449	955
Total non-current liabilities		506	-	449	955
Total restated liabilities		836	-	513	1,349
Equity					
Retained earnings - Unappropriated		354,742	-	-	354,742
- Impairment loss on financial assets	4.1.2	-	(81)	-	(81)
- Share of profit from associates and joint ventures	4.1.4	-	966	-	966
Total retained earnings - Unappropriated		354,742	885	-	355,627
Other components of equity		(5,353)	-	-	(5,353)
- Share of other comprehensive expense from associates	4.1.4	-	(876)	-	(876)
Total other components of equity		(5,353)	(876)	-	(6,229)
Total ownership of EGAT		349,389	9	-	349,398
Non-controlling equity		33,042	(13)	-	33,029
Total restated equity		382,431	(4)	-	382,427
Total restated liabilities and equity		383,267	(4)	513	383,776

	Notes	Separate financial statements			
		As at 31 December 2019 Restated Million Baht	TAS 32 and TFRS 9 Million Baht	TFRS 16 Million Baht	As at 1 January 2020 Restated Million Baht
Assets					
Current asset					
Short-term investments	4.1.1	321	(321)	-	-
Financial assets measured at amortised cost	4.1.1	-	321	-	321
Trade receivables, net	4.1.2	58,780	(9)	-	58,771
Other receivables, net	4.1.2	9,105	(63)	-	9,042
Total current asset		68,206	(72)	-	68,134
Non - current asset					
Financial assets measured at fair value through other comprehensive income	4.1.3	-	6,465	-	6,465
Available-for-sale investments	4.1.3	6,465	(6,465)	-	-
Property, plant and equipment, net	4.2	395,029	-	58	395,087
Total non - current asset		401,494	-	58	401,552
Total restated assets		469,700	(72)	58	469,686
Liabilities and equity					
Current liabilities					
Current portion of other lease liabilities	4.2	329	-	27	356
Total current liabilities		329	-	27	356
Non-current liabilities					
Other lease liabilities	4.2	504	-	31	535
Total non-current liabilities		504	-	31	535
Total restated liabilities		833	-	58	891
Equity					
Retained earnings - Unappropriated	4.1.2	303,701	(72)	-	303,629
Total restated equity		303,701	(72)	-	303,629
Total restated liabilities and equity		304,534	(72)	58	304,520

The adoption of financial reporting standards and the change in accounting policies have no impact on the disclosure of group segment information.

4.1 Financial instruments

The first-time adoption of the new financial reporting standards related to financial instruments has made a significant impact on the Group's accounting practices in the following areas.

4.1.1 Classifications of financial instruments

On 1 January 2020 (the date of initial application), the measurement categories and carrying amounts of financial assets and financial liabilities were as follows;

	Measurement categories		Consolidated financial statements		
			Carrying amounts		
	Previously reported (TAS 105 and other TAS)	Restated (IFRS 9)	Previously reported Million Baht	Restated Million Baht	Difference Million Baht
Financial assets					
Cash and cash equivalents	Amortised cost	Amortised cost	80,000	80,000	-
	Amortised cost	FVPL	5	5	-
Financial assets					
- Short-term investment	Amortised cost	Amortised cost	9,182	9,182	-
- Held-for-sales debt instruments	Amortised cost	FVPL	504	504	-
- Held-to-maturity debt instruments	Held-to-maturity	Amortised cost	53	53	-
- Available-for-sales investments	Available-for-sales	FVOCI	8,408	8,408	-
- Other long-term investments	Amortised cost	FVOCI	2,442	2,442	-
	Amortised cost	Amortised cost	53	53	-
Trade receivables, net	Amortised cost	Amortised cost	59,001	58,992	(9)
Other receivables, net	Amortised cost	Amortised cost	9,966	9,903	(63)
Derivative assets	FVPL	FVPL	266	266	-
Long-term loans to related parties	Amortised cost	Amortised cost	541	528	(13)
Financial liabilities					
Short-term loans from financial institutions	Amortised cost	Amortised cost	603	603	-
Trade payables, net	Amortised cost	Amortised cost	76,399	76,399	-
Other payables, net	Amortised cost	Amortised cost	10,399	10,399	-
Accrued interest expenses	Amortised cost	Amortised cost	1,387	1,387	-
Accrued remittance to Ministry of Finance	Amortised cost	Amortised cost	10,318	10,318	-
Other payables-related parties	Amortised cost	Amortised cost	4,899	4,899	-
Long-term loans	Amortised cost	Amortised cost	114,502	114,502	-
Loans from infrastructure fund	Amortised cost	Amortised cost	18,567	18,567	-
Derivative liabilities	FVPL	FVPL	128	128	-
	FVOCI	FVOCI	760	760	-

Note: FVOCI = Fair value through other comprehensive income

FVPL = Fair value through profit or loss

	Measurement categories		Separate financial statements		
			Carrying amounts		
	Previously reported (TAS 105 and other TAS)	Restated (TFRS 9)	Previously reported Million Baht	Restated Million Baht	Difference Million Baht
Financial assets					
Cash and cash equivalents	Amortised cost	Amortised cost	74,397	74,397	-
Financial assets					
- Short-term investment	Amortised cost	Amortised cost	321	321	-
- Available-for-sales investments	Available-for-sales	FVOCI	6,465	6,465	-
Trade receivables, net	Amortised cost	Amortised cost	58,780	58,771	(9)
Other receivables, net	Amortised cost	Amortised cost	9,105	9,042	(63)
Financial liabilities					
Trade payables, net	Amortised cost	Amortised cost	77,819	77,819	-
Other payables, net	Amortised cost	Amortised cost	8,927	8,927	-
Loan interest payables	Amortised cost	Amortised cost	1,084	1,084	-
Accrued remittance to Ministry of Finance	Amortised cost	Amortised cost	10,318	10,318	-
Long-term loans	Amortised cost	Amortised cost	82,970	82,970	-
Loans from infrastructure fund	Amortised cost	Amortised cost	18,567	18,567	-

Note: FVOCI = Fair value through other comprehensive income
 FVPL = Fair value through profit or loss

4.1.2 Impairment of financial assets

The Group has following financial assets that are subject to the expected credit loss model:

- Cash and cash equivalents
- Trade and other receivables
- Debt investments carried at amortised cost
- Loans to related parties
- Loans to other parties

As at 1 January 2020, the Group was required to revise its impairment methodology of financial asset according to TFRS 9. The management determined that the loss on impairment of items above are immaterial.

4.1.3 Classification and measurement of investments in equity instruments (previously called other long-term investments)

The Group had equity instruments presented as other long-term investments and measured at cost of Baht 2,442 million in the consolidated statement of financial position and these investments were reclassified and measured at fair value through other comprehensive income.

4.1.4 Derivatives and hedging activities of associate

Derivative contracts are made to reduce uncertainty over future cash flows. Such uncertainty arises from change of interest and exchange rates, as well as electricity price fluctuations. These derivative contracts comprise interest rate swaps, cross currency interest rate swaps, foreign currency forwards and Electricity swaption contract. On 1 January 2020, the Group recognised the cumulative adjustment of Baht 876 million from the first-time adoption of hedge accounting to other components of equity under shares of other comprehensive expense of associate.

4.2 Leases

On adoption of TFRS 16, the Group recognised lease liabilities in relation to leases which had previously been classified as “operating leases” under the principles of TAS 17 Leases. These liabilities were measured at the present value of the remaining lease payments, discounted using the lessee’s incremental borrowing rate as at 1 January 2020. The weighted average lessee’s incremental borrowing rates applied to the lease liabilities on 1 January 2020 were 1.68% to 7.00%.

The Group recognised right-of-use assets at the amount equal to the lease liabilities, adjusted by the amount of any prepaid or accrued lease payments relating to that lease that was recognised in the statements of financial position as at 31 December 2019.

	Consolidated financial statements Million Baht	Separate financial statements Million Baht
Operating lease commitments disclosed as at 31 December 2019	1,166	86
(Less): Adjustments of obligations under operating lease agreements	(18)	(18)
(Less): Discounted using the lessee’s incremental borrowing rate at the date of initial application	(613)	-
Add: Finance lease liabilities recognising as at 31 December 2019	836	834
(Less): Short-term leases recognised on a straight-line basis as expense	(3)	(3)
(Less): Low-value leases recognised on a straight-line basis as expense	(11)	-
(Less): Adjustments of service contracts / part of the service fee that is included in the rental fee.	(8)	(8)
Lease liabilities recognised as at 1 January 2020	1,349	891
Lease liabilities - Current portion	394	356
Lease liabilities - Non-current portion	955	535
	1,349	891

For leases previously classified as finance leases, the Group recognised the carrying amount of the lease asset and lease liability immediately before transition as the carrying amount of the right-of-use asset and the lease liability at the date of initial application. The measurement principles of TFRS 16 are only applied after that date.

Practical expedients applied

In applying TFRS 16 for the first time for the leases before 1 January 2020, the Group has used the following practical expedients permitted by the standard:

- the use of a single discount rate to a portfolio of leases with reasonably similar characteristics
- reliance on previous assessments on whether leases are onerous
- the accounting for operating leases with a remaining lease term of less than 12 months as at 1 January 2020 as short-term leases
- the exclusion of initial direct costs for the measurement of the right-of-use asset at the date of initial application
- the use of hindsight in determining the lease term where the contract contains options to extend or terminate the lease, and
- elect not to reassess whether a contract is, or contains a lease as defined under TFRS 16 at the date of initial application but relied on its assessment made applying TAS 17 and TFRIC 4 Determining whether an Arrangement contains a Lease.

5.1 Principles of consolidation and equity accounting

a) Subsidiaries

Subsidiaries are all entities over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Subsidiaries are consolidated from the date on which control is transferred to the Group until the date that control ceases.

In the separate financial statements, investments in subsidiaries are accounted for using cost method.

b) Associates

Associates are all entities over which the Group has significant influence but not control or joint control. Investments in associates are accounted for using the equity method of accounting.

In the separate financial statements, investments in associates are accounted for using cost method.

c) Joint arrangements

Investments in joint arrangements are classified as either joint operations or joint ventures depending on the contractual rights and obligations of each investor, rather than the legal structure of the joint arrangements.

Joint ventures

A joint venture is a joint arrangement whereby the Group has rights to the net assets of the arrangement. Interests in joint ventures are accounted for using the equity method.

In the separate financial statements, investments in joint ventures are accounted for using cost method.

d) Equity method

The investment is initially recognised at cost which is consideration paid and directly attributable costs.

The Group's subsequently recognises shares of its associates and joint ventures' profits or losses and other comprehensive income in the profit or loss and other comprehensive income, respectively. The subsequent cumulative movements are adjusted against the carrying amount of the investment.

When the Group's share of losses in associates and joint ventures equals or exceeds its interest in the associates and joint ventures, the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the associates and joint ventures.

e) Changes in ownership interests

The Group treats transactions with non-controlling interests that do not result in a loss of control as transactions with equity owners of the Group. A difference between the amount of the adjustment to non-controlling interests to reflect their relative interest in the subsidiary and any consideration paid or received is recognised within equity.

If the ownership interest in associates and joint ventures is reduced but significant influence and joint control is retained, only a proportionate share of the amounts previously recognised in other comprehensive income is reclassified to profit or loss where appropriate. Profit or loss from reduce of the ownership interest in associates and joint ventures is recognise in profit or loss.

When the Group losses control, joint control or significant influence over investments, any retained interest in the investment is remeasured to its fair value, with the change in carrying amount recognised in profit or loss. The fair value becomes the initial carrying amount of the retained interest which is reclassified to investment in an associate, or a joint venture or a financial asset accordingly.

f) Intercompany transactions on consolidation

Intra-group transactions, balances and unrealised gains on transactions are eliminated. Unrealised gains on transactions between the Group and its associates and joint ventures are eliminated to the extent of the Group's interest in the associates and joint ventures. Unrealised losses are also eliminated in the same manner unless the transaction provides evidence of an impairment of the asset transferred.

5.2 Business combination

The Group applies the acquisition method to account for business combinations with an exception on business combination under common control. The consideration transferred for the acquisition of a subsidiary comprises.

- fair value of the assets transferred,
- liabilities incurred to the former owners of the acquiree
- equity interests issued by the Group

Identifiable assets and liabilities acquired and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date.

On an acquisition-by-acquisition basis, the Group initially recognises any non-controlling interest in the acquiree either at fair value or at the non-controlling interest's proportionate share of the acquiree's net assets.

The excess of the consideration transferred, the amount of any non-controlling interest recognised and the acquisition-date fair value of any previous equity interest in the acquiree (for business combination achieved in stages) over the fair value of the identifiable net assets acquired is recorded as goodwill. In the case of a bargain purchase, the difference is recognised directly in profit or loss.

Acquisition-related cost

Acquisition-related cost are recognised as expenses in consolidated financial statements

Step-up acquisition

If the business combination is achieved in stages, the acquisition date carrying value of the acquirer's previously held equity interest in the acquiree is re-measured to fair value at the acquisition date; any gains or losses arising from such re-measured are recognised in profit or loss.

Changes in fair value of contingent consideration paid/received

Subsequent changes to the fair value of the contingent consideration that is an asset or liability is recognised in profit or loss. Contingent consideration that is classified as equity is not re-measured.

Business combination under common control

The Group accounts for business combination under common control by measuring acquired assets and liabilities of the acquiree at their carrying values presented in the highest level of the consolidation. The Group retrospectively adjusted the business combination under common control transactions as if the combination had occurred on the later of the beginning of the preceding comparative period and the date the acquiree has become under common control.

Consideration of business combination under common control are the aggregated amount of fair value of assets transferred, liabilities incurred and equity instruments issued by the acquirer at the date of which the exchange in control occurs.

The difference between consideration under business combination under common control and the acquirer's interests in the carrying value of the acquiree is presented as "surplus arising from business combination under common control" in equity and is derecognised when the investment is disposed.

5.3 Foreign currency translation

5.3.1 Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates (the functional currency). The financial statements are presented in Thai Baht, which is the functional currency of entity and the presentation currency of the Group and EGAT.

5.3.2 Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuation where items are re-measured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the profit or loss.

When a gain or loss on a non-monetary item is recognised in other comprehensive income, any exchange component of that gain or loss is recognised in other comprehensive income. Conversely, when a gain or loss on a non-monetary item is recognised in profit and loss, any exchange component of that gain or loss is recognised in profit and loss.

5.3.3 Group companies

The results and financial position of all of the Group's entities (none of which has the currency of a hyper-inflationary economy) that have a functional currency different from the presentation currency are translated into the presentation currency as follows:

- Assets and liabilities for each statement of financial position presented are translated at the closing rate at the date of that statement of financial position;
- Income and expenses for each statement of income and statement of comprehensive income are translated at average exchange rates; and
- All resulting exchange differences are recognised in other comprehensive income.

5.3.4 Goodwill

Goodwill and fair value measurement are from oversea business acquisition, which are assets and liabilities of those businesses, are revalued by closing rate.

5.4 Cash and cash equivalents

In the statements of cash flows, cash and cash equivalents include cash on hand, deposits held at call, short-term highly liquid investments with maturities of three months or less from acquisition date.

5.5 Trade receivables

Trade receivables are amounts due from customers for goods sold or services performed in the ordinary course of business. They are generally due for settlement within 30 days and therefore are all classified as current.

Trade receivables are recognised initially at the amount of consideration that is unconditional unless they contain significant financing components, they are recognised at fair value. The Group holds the trade receivables with the objective to collect the contractual cash flows and therefore measures them subsequently at amortised cost

5.6 Fuel and spare parts

Cost of fuel is determined by the moving average method.

Cost of spare parts are determined by the moving average method less allowance for obsolescence.

Fuel contains fuel in each power plant and lignite. Spare parts consist of spare parts used in the maintenance of each power plant, spare parts used in the maintenance of mining machinery, general use materials and other equipment for important spare parts and devices and expected to be used for more than one year are shown under the heading of property, plant and equipment

The cost of purchase comprises both the purchase price and costs directly attributable to the acquisition of the fuel and spare parts, such as import duties and transportation charges, less all attributable discounts.

The Group has estimated allowance for obsolescence of spare parts is made on an aging analysis.

- Spare parts for each power plants and mine machinery is calculated by straight-line method based on useful life of the asset.
- General materials which has not moved for 6 months and above. The allowance for obsolescence of stocks are stated as follows:

<u>No movement within</u>	<u>Percentage of allowance for obsolescence</u>
6 - 18 months	10
Over 18 - 30 months	30
Over 30 - 48 months	50
Over 48 - 60 months	75
Over 60 months	100

5.7 Financial asset

For the year ended 31 December 2020

5.7.1 Classification

From 1 January 2020, the Group classifies its debt instrument financial assets in the following measurement categories depending on i) business model for managing the asset and ii) the cash flow characteristics of the asset whether they represent solely payments of principal and interest (SPPI).

- those to be measured subsequently at fair value through profit or loss (FVPL) or at fair value through other comprehensive income (FVOCI) and
- those to be measured at amortised cost.

The Group reclassifies debt investments when and only when its business model for managing those assets changes.

For investments in equity instruments, the Group has an irrevocable election at the time of initial recognition to account for the equity investment at fair value through profit or loss (FVPL) or at fair value through other comprehensive income (FVOCI) except those that are held for trading, they are measured at FVPL.

5.7.2 Recognition and derecognition

Regular way purchases, acquires and sales of financial assets are recognised on trade-date, the date on which the Group commits to purchase or sell the asset. Financial assets are derecognised when the rights to receive cash flows from the financial assets have expired or have been transferred and the Group has transferred substantially all the risks and rewards of ownership.

5.7.3 Measurement

At initial recognition, the Group measures a financial asset at its fair value plus, in the case of a financial asset not at FVPL, transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at FVPL are expensed in profit or loss.

Financial assets with embedded derivatives are considered in their entirety when determining whether the cash flows are solely payment of principal and interest.

5.7.4 Debt instruments

Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and the cash flow characteristics of the financial assets. There are three measurement categories into which the Group classifies its debt instruments:

- Amortised cost: Financial assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortised cost. Interest income from these financial assets is included in [finance income / other income] using the effective interest rate method. Any gain or loss arising on derecognition is recognised directly in profit or loss and presented in other gains/(losses) together with foreign exchange gains and losses. Impairment losses are presented as a separate line item in [the statement of profit or loss / the statement of comprehensive income].

- FVOCI: Financial assets that are held for i) collection of contractual cash flows; and ii) for selling the financial assets, where the assets' cash flows represent solely payments of principal and interest, are measured at FVOCI. Movements in the carrying amount are taken through other comprehensive income (OCI), except for the recognition of impairment gains or losses, interest income using the effective interest method, and foreign exchange gains and losses which are recognised in profit or loss. When the financial assets is derecognised, the cumulative gain or loss previously recognised in OCI is reclassified from equity to profit or loss and recognised in other gains (losses). Interest income is included in other income. Impairment expenses are presented separately in the Administrative expenses.
- FVPL: Financial assets that do not meet the criteria for amortised cost or FVOCI are measured at FVPL. A gain or loss on a debt investment that is subsequently measured at FVPL is recognised in profit or loss and presented net within other gains (losses) in the period in which it arises.

5.7.5 Equity instruments

The Group measures all equity investments at fair value. Where the Group has elected to present fair value gains and losses on equity instruments in OCI, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividends from such investments continue to be recognised in profit or loss as dividend income when the right to receive payments is established.

Changes in the fair value of financial assets at FVPL are recognised in other gains (losses) in the statement of profit or loss.

Impairment losses and reversal of impairment losses on equity investments are reported together with changes in fair value.

5.7.6 Impairment

From 1 January 2020, the Group applies the simplified approach from TFRS9 in recognition of impairment of trade receivables, which applies lifetime expected credit loss, from initial recognition, for all trade receivables.

To measure the expected credit losses by using simplified approach, the management grouped the receivables based on shared credit risk characteristics and the days past due. The expected credit loss rates are based on payment profiles, historical credit losses as well as forward-looking information and factors that may affect the ability of the customers to settle the outstanding balances. In addition to the simplified approach, the management applies the general approach, which is to consider the individual assessments by using the discounted cashflow method. For this, management uses an estimate debtor's future cash flows based on the original effective interest rate.

For other financial assets carried at amortised cost and FVOCI, the Group applies TFRS 9 general approach in measuring the expected credit loss of those financial assets. Under the general approach, the 12-month or the lifetime expected credit loss is applied depending on whether there has been a significant increase in credit risk since the initial recognition.

The significant increase in credit risk (from initial recognition) assessment is performed every end of reporting period by comparing i) expected risk of default as of the reporting date and ii) estimated risk of default on the date of initial recognition.

The Group assesses expected credit loss by taking into consideration forward-looking information and past experiences. The expected credit loss is a probability-weighted estimate of credit losses (probability-weighted present value of estimated cash shortfall). The cash shortfall is the difference between all contractual cash flows that are due to the Group and all cash flows expected to receive, discounted at the original effective interest rate.

When measuring expected credit losses, the Group reflects the following:

- probability-weighted estimated uncollectible amounts
- time value of money; and
- supportable and reasonable information as of the reporting date about past experience, current conditions and forecasts of future situations.

Impairment and reversal of impairment losses are recognised in profit or loss and included in administrative expenses.

For the year ended 31 December 2019

Investments other than investments in subsidiaries, associates and joint ventures are classified as trading investments; held-to-maturity investments; available-for-sale investments; and general investments. The classification is dependent on the purpose for which the investments were acquired. Management determines the appropriate classification of its investments at the time of the purchase and re-evaluates such designation on a regular basis.

- Trading investments are primarily intended to profit from short-term price fluctuations including for current assets.
- Held-to-maturity investments have fixed maturity and management has the intent and ability to hold them to maturity.
- Available-for-sale investments are intended to be held for an indefinite period and may be sold to enhance liquidity or when interest rates change.
- General investments are in non-marketable equity instruments.

All four investment types are initially measured at cost, which is the fair value of the consideration paid to acquire the investment plus transaction expenses.

Trading and available-for-sale investments are subsequently measured at fair value. The unrealised gain/loss is recognised in profit or loss for trading investments, and other comprehensive income for available-for-sale investments.

Held-to-maturity investments are measured after acquisition using the amortised cost method based on the effective interest rate less allowance for impairment.

General investments are stated at cost less allowance for impairment.

A test for impairment is carried out when there is a factor indicating that an investment might be impaired. If the carrying value of investment is higher than its recoverable amount, impairment loss is charged to profit or loss.

On disposal of an investment, the difference between the net disposal proceeds and the carrying amount is charged or credited to profit or loss. When partially disposing part of an investment held in debt or equity instruments, the carrying amount of the disposed investment is determined using the weighted average method of the total amount held.

5.8 Property, plant and equipment

Property, plant and equipment are initially stated at historical cost. All plant and equipment are subsequently stated at historical cost less accumulated depreciation and allowance for impairment (if any). Initial cost includes expenditure that is directly attributable to the acquisition of the items. These can include the initial estimate of costs of dismantling and removing the item, and restoring the site on which it is located, the obligation for which the Group incurs either when the item is acquired or as a consequence of having used the item during a particular period.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognised. All other repairs and maintenance are charged to profit or loss during the financial period in which they are incurred.

Depreciation is calculated using the straight-line method to allocate their cost to their residual values over their estimated useful lives, except land, which is considered to have an indefinite life, as follows:

	Years
Buildings and building improvements	3 to 40
Dam and reservoir	5 to 75
Power plant, machinery and equipment	3 to 30
Electrical control system	3 to 25
Electric power transmission system	3 to 45
Communication system	5 to 25
Lignite conveyor belt system and mine machinery spare parts	8 to 25
Vehicles	5 to 12
Supplies	3 to 10

The asset's residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

The asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount.

Gains or losses on disposals of property, plant and equipment are determined by comparing the proceeds with the carrying amount. The net gains or losses are recognised in profit or loss.

5.9 Intangible assets

Intangible assets with limited life are initially recognised at historical cost and subsequently stated at historical cost less accumulated amortisation and allowance for impairment losses (if any). The amortisation is calculated using the straight-line method over their estimated useful lives as follows:

	Years
Computer software	3 to 10
Rights to use royal state properties	59
Right of power purchase and project development agreements	20 to 25
Research and Development	3 to 10

Rights to use royal state properties

EGAT receives rights to utilise land and buildings around the Sirikit Dam, which is the state property without cost with the approval of the Ministry of Finance and EGAT recognised the cost value of the Sirikit Dam as a state property utilisation right. Only the parts that are used to generate electricity coupled with the surplus from the right to utilise in the state properties will be recognised as an expense amortised from the right to use state properties within 59 years according to the remaining useful life of the Sirikit Dam.

Project development rights

Project development costs are recognised as an asset only when the development costs can be reliably measured, when that project is technically and commercially likely to bring economic benefits in the future and when the Group intends to utilise the assets or sell them. Borrowing costs can be included as part of the asset's cost price. Project development rights will be amortised upon commencement of commercial operations.

Land rights

Land rights under transmission line have infinite useful life.

5.10 Goodwill

Goodwill represents the excess of the consideration transferred over the fair value of the Group's share of the net identifiable assets, liabilities and contingent liabilities of the acquired subsidiary undertaking or associate or joint venture at the date of acquisition.

Goodwill on acquisitions of subsidiaries is separately reported in the consolidated statement of financial position. Goodwill on acquisition of joint ventures or associates is included in investments in joint ventures or associates and is tested for impairment as part of the overall balance.

Goodwill is tested annually for impairment and carried at cost less accumulated impairment losses. Impairment losses on goodwill are not reversed. Gains and losses on the disposal of an entity include the carrying amount of goodwill relating to the entity sold.

Goodwill is allocated to cash generating units for the purpose of impairment testing. The allocation is made to those cash generating units or groups of cash generating units that are expected to benefit from the business combination in which the goodwill arose, identified according to operating segment.

5.11 Deferred development cost

Deferred development cost of subsidiary will record as an asset when the Ministry of energy approved the principle of investment project. In any case, if Board of Directors of the Group consider and approve the termination of the project, the entity will write off the deferred development cost which was recognized as an asset and recognize it immediately as an expense in that period.

5.12 Land for development projects

Land for development projects is recognised initially at cost, including directly attributable costs. Subsequently stated at historical cost less allowance for impairment losses.

5.13 Impairment of assets

Assets that have an indefinite useful life are tested annually for impairment, or more frequently if events or changes in circumstances indicate that it might be impaired. Assets that are subject to amortisation are reviewed for impairment whenever there is an indication of impairment. An impairment loss is recognised for the amount by which the carrying amount of the assets exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal and value in use.

Where the reasons for previously recognised impairments no longer exist, the impairment losses on the assets concerned other than goodwill is reversed.

5.14 Leases

For the year ended 31 December 2020

Leases - where the Group is the lessee

Leases are recognised as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Group. Each lease payment is allocated between the liability and finance cost. The finance cost is charged to profit or loss over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis.

Contracts may contain both lease and non-lease components. The Group allocates the consideration in the contract to the lease and non-lease components based on their relative stand-alone prices. However, for leases of real estate for which the group is a lessee, it has elected not to separate lease and non-lease components and instead accounts for these as a single lease component.

Assets and liabilities arising from a lease are initially measured on at fair value which includes the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable
- variable lease payment that are based on an index or a rate
- amounts expected to be payable by the lessee under residual value guarantees
- the exercise price of a purchase option if the lessee is reasonably certain to exercise that option, and
- payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

Lease payments to be made under reasonably certain extension options are also included in the measurement of the liability.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the lessee's incremental borrowing rate is used, being the rate that the lessee would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions.

The group is exposed to potential future increases in variable lease payments based on an index or rate, which are not included in the lease liability until they take effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is reassessed and adjusted against the right-of-use asset.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability
- any lease payments made at or before the commencement date less any lease incentives received
- any initial direct costs, and
- restoration costs.

Payments associated with short-term leases and leases of low-value assets are recognised on a straight-line basis as an expense in profit or loss. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise of office furniture.

For the year ended 31 December 2019

Leases where the Group is the lessee

Leases in which a significant portion of the risks and rewards of ownership are retained by the lessor are classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) are charged to profit or loss on a straight-line basis over the period of the lease.

Leases of assets where the lessee has substantially all the risks and rewards of ownership are classified as finance leases. Finance leases are capitalised at the inception of the lease at the lower of the fair value of the leased assets and the present value of the minimum lease payments. Each lease payment is allocated between the liability and finance charges so as to achieve a constant rate on the liabilities balance outstanding. The corresponding rental obligations, net of finance charges, are included in other long-term payables. The interest element of the finance cost is charged to profit or loss over the lease period so as to achieve a constant periodic rate of interest on the remaining balance of the liability for each period. The asset acquired under finance leases is depreciated over the shorter period of the useful life of the asset and the lease term.

5.15 Deferred costs of lignite mining

5.15.1 Stripping costs

Deferred stripping costs are calculated by multiplying the amount of lignite mined in each period by 7.55 (the stripping ratio of 7.55 : 1 is a ratio of soil quantity to total usable lignite) and multiplied by the average cost of surface stripping incurred per cubic metre of stripping load. In case the actual stripping ratio in each period is greater than 7.55, the surplus is recognised as deferred costs. However, these deferred stripping costs must not exceed the actual costs incurred.

5.15.2 Mineral exploration and preliminary development costs

Mineral exploration and preliminary development costs are recognised as expenses in which they are incurred. Unless there is a plan to build a power plant on the survey site according to the power development plan, or the site is a mine expansion area, costs are recognised as deferred costs and amortised as expenses. The amortisation is calculated based on the ratio of deferred costs to total usable lignite multiplied by the amount of lignite mined in the incurred period.

5.15.3 Resettlement costs

Resettlement costs are recognised as expenses, which calculated based on the total actual resettlement costs divided by the amount of lignite that is expected to be mined over the useful lives of the power plants, and multiplied by the amount of lignite that can be mine in each period. The resettlement costs for areas not used for coal mining are recognised as expenses in the incurred period.

5.15.4 Mineral patent costs

Mineral patent costs are a special benefit to be paid to the government at a rate of 0.1% of the total mineral value in the mining concession plots in excess of Baht 50 million. (Mineral deposits where their value is less than or equal to Baht 50 million are exempted from such patent costs).

Each patent is granted for a period of 25 years, recognised as deferred costs and amortised as expenses over the period.

5.16 Financial liabilities

For the year ended 31 December 2020

5.16.1 Classification

Financial instruments issued by the Group are classified as either financial liabilities or equity securities by considering contractual obligations.

- Where the Group has an unconditional contractual obligation to deliver cash or another financial asset to another entity, it is considered a financial liability unless there is a predetermined or possible settlement for a fixed amount of cash in exchange of a fixed number of the Group's own equity instruments.
- Where the Group has no contractual obligation or has an unconditional right to avoid delivering cash or another financial asset in settlement of the obligation, it is considered an equity instrument.

Borrowings are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least 12 months after the reporting date.

5.16.2 Measurement

Financial liabilities are initially recognised at fair value and are subsequently measured at amortised cost.

5.16.3 Derecognition and modification

Financial liabilities are derecognised when the obligation specified in the contract is discharged, cancelled, or expired.

Where the terms of a financial liability are renegotiated/modified, the Group assesses whether the renegotiation / modification results in the derecognition of that financial liability. Where the modification results in an extinguishment, the new financial liability is recognised based on fair value of its obligation. The remaining carrying amount of financial liability is derecognised. The difference as well as proceed paid is recognised as administrative expense.

Where the modification does not result in the derecognition of the financial liability, the carrying amount of the financial liability is recalculated as the present value of the renegotiated / modified contractual cash flows discounted at its original effective interest rate. The difference is recognised in other gains/(losses).

For the year ended 31 December 2019

Borrowings

Borrowings are recognised initially at the fair value, net of transaction costs incurred. Borrowings are subsequently stated at amortised cost; any difference between proceeds (net of transaction costs) and the redemption value is recognised in profit and loss over the period of the borrowings.

Fees paid on the establishment of loan facilities are recognised as transaction costs of the loan to the extent that it is probable that some or all of the facility will be drawn down. In this case, the fee is deferred until the draw-down occurs. To the extent that there is no evidence that it is probable that some or all of the facility will be drawn down, the fee is capitalised as a pre-payment for liquidity services and amortised over the period of the facility to which it relates.

Borrowings are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least 12 months after the end of reporting date.

5.17 Borrowing costs

General and specific borrowing costs directly attributable to the acquisition or construction of qualifying assets (assets that take several times to get ready for its intended use) are added to the cost of those assets less investment income earned from those specific borrowings. The capitalisation of borrowing costs is ceased when substantially all the activities necessary to prepare the qualifying asset for its intended use or sale are complete.

Other borrowing costs are expensed in the period in which they are incurred.

5.18 Current and deferred income taxes

The tax expense for the period comprises current and deferred tax. Tax is recognised in profit or loss, except to the extent that it relates to items recognised in other comprehensive income or directly in equity.

Current tax

The current income tax is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. The Group establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred income tax

Deferred income tax is recognised on temporary differences arising from differences between the tax base of assets and liabilities and their carrying amounts in the financial statements. However, deferred income tax is not recognised for temporary differences arise from:

- initial recognition of an asset or liability in a transaction other than a business combination that affects neither accounting nor taxable profit or loss is not recognised.
- investments in subsidiaries, associates and joint arrangements where the timing of the reversal of the temporary difference is controlled by the Group and it is probable that the temporary difference will not reverse in the foreseeable future.

Deferred income tax is measured using tax rates of the period in which temporary difference is expected to be reversed, based on tax rates and laws that have been enacted or substantially enacted by the end of the reporting period.

Deferred tax assets are recognised only to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and when the deferred tax balances relate to the same taxation authority. Current tax assets and tax liabilities are offset where the entity has a legally enforceable right to offset and intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously.

5.19 Employee benefits

The Group operates various post-employment benefits schemes which comprised defined benefit, defined contribution plans and other long-term benefits

5.19.1 Defined contribution

The Group provides provident fund, which is contributed by the employees and the Group, and managed by an external fund manager in accordance with the Provident Fund Act. B.E. 2530. The Group has no legal or constructive obligations to pay further contributions once the contributions have been paid even if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior periods. The contributions are recognised as employee benefit expense when they are due.

5.19.2 Retirement benefits

The Group provides for post-employment benefits, payable to employees under the labour laws applicable in Thailand and other countries in which the Group has its operations, or when the term of service is terminated according to the agreement between the Group and employees. Typically, defined benefit plans define an amount of retirement benefit that an employee will receive on retirement, usually depends on many factors such as age, years of service and compensation.

The liability in respect of employee benefits is the present value of the defined benefit obligation at the end of the reporting date which is calculated by an independent actuary using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting estimated future cash flows using yields on government bonds that matches the terms and currency of the expected cash outflows.

Remeasurement gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to equity in other comprehensive income in the period in which they arise.

Past-service costs are recognised immediately in profit or loss.

5.19.3 Other long-term benefits

The obligations are measured similar to defined benefit plans except remeasurement gains and losses that are charged to profit or loss.

5.19.4 Other short-term benefits

The obligations are recognised as expenses in statement of income of the period. The group will measure arising liabilities at the amount expected to be paid, if the group has either legal or implied commitments resulted from past services rendered by employees, and the commitment can be reliably measured.

5.20 Provisions

5.20.1 General provisions

Provisions are recognised when the Group has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources will be required to settle the obligation; and the amount has been reliably estimated.

5.20.2 Provision for mine rehabilitation

EGAT has an obligation under the Minerals Act B.E.2560 to undertake rehabilitation of mine sites during and after the completion of mining operations. The provision for mine rehabilitation are measured at the present value of the estimated rehabilitation cost and rehabilitation expense according to the amount of lignite that has been mined in each period. The estimated for mine rehabilitation is reviewed annually. The increased provisions due to passage of time is recognised in the income statement in the period in which they are incurred.

5.21 Revenue recognition

Revenue are recorded net of value added tax. They are recognised in accordance with the provision of goods or services, provided that collectability of the consideration is probable.

Multiple element arrangements involving delivery or provision of multiple products or services are Separate into distinct performance obligations. Total transaction price of the bundled contract is allocated to each performance obligation based on their relative standalone selling prices or estimated standalone selling prices. Each performance obligation is recognised as revenue on fulfilment of the obligation to the customer as details below.

Revenue under the Power Purchase Agreements (PPA)

The Group recognises Capacity Payments or Availability Payments at a point in time when the controls over the products are transferred to the customers at destinations as stated in the agreements. The revenue from Energy Payments are recognised based on transaction price net of output tax, rebates and discounts. If the Group receives consideration more than what agreed in the agreement, the Group recognises the consideration as a contract liability.

- Revenue from automatic tariff adjustment (Ft) is recognised in the period in which they arise, comprised of the actual collected Ft revenue in accordance with the approval of the Energy Regulatory Commission (ERC) and recognised the accrued or surplus Ft revenue, which came from the difference of the calculated Ft price under the formula Ft with the collected Ft price in that period.
- Deferred revenue for electricity compensation is resulted from receiving fuel costs or electricity compensation from fuel suppliers or power producers. ERC had considered allowing EGAT to separate its deposit account from cash and cash equivalents to restrict for use. In case that ERC grant an approval for compensation, EGAT will reduce electricity through Ft and presented as non-current assets.

The ERC has set financial criteria for EGAT regarding the tariff structure mandating EGAT to have sufficient revenue for investment and repayment of loans and related interests. In addition, returns from investment must be lower than Weighted Average Cost of Capital (WACC) in order to maintain fair and justified electricity price for electricity users. Therefore, the ERC will recall revenue from sales of electricity once EGAT's financial performance exceeds the threshold. On the other hands, if investments provide lower return than set criteria, the ERC will recall the revenue from electricity sales which is called "Claw back" in order to encourage EGAT to provide portions of investment to the ERC in the period when the ERC has approved to provide electricity discount to the users. The discount will be recognised as liabilities and electricity revenue deduction.

Revenue from sales of other goods and services

- (a) Revenue from sales of other goods such as revenue from fuel providing to related parties, sales of Hydrogen gas, distilled water, chemicals and by products from generating electricity. These are recognised as revenue when control of the products has transferred to customer.
- (b) Revenue from services such as revenue from operation and maintenance services for power plants, telecommunication services are recognised from contractual performance obligation.

The guarantee of operation and maintenance services for power plants is recognised as provision from guarantee to ensure customers that equipment are able to use as mentioned in contractual performance obligation.

Dividend income

Dividend income is recognised when the right to receive payment is established.

Interest income

Interest income are recognised based on the effective interest rate method.

5.22 Dividend distribution

Dividend distribution to the Company's shareholders is recognised as a liability in the financial statements in the period in which the dividends are approved by the Company's shareholders, and interim dividend are approved by the Board of Directors.

5.23 Derivatives and hedging activities

5.23.1 Embedded derivative and derivatives that do not qualify for hedge accounting

Embedded derivative that is separately accounted for and derivatives that do not qualify for hedge accounting is initially recognised at fair value. Changes in the fair value are included in gains (losses) from measurement of financial instruments, net.

Fair value of derivative is classified as a current or non-current following its remaining maturity.

5.23.2 Hedge accounting

Derivatives are initially recognised at fair value on the date a derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The Group designates certain derivatives as either:

- hedges of the fair value of i) recognised assets or liabilities or ii) unrecognised firm commitments (fair value hedges); or
- hedges of a particular risk associated with the cash flows of i) recognised assets and liabilities and ii) highly probable forecast transactions (cash flow hedges).

At inception of the hedge relationship, the Group documents i) the economic relationship between hedging instruments and hedged items including whether changes in the cash flows of the hedging instruments are expected to offset changes in the cash flows of hedged items and ii) its risk management objective and strategy for undertaking its hedge transactions.

The full fair value of a hedging derivative is classified as a current or non-current asset or liability following the maturity of related hedged item.

Cash flow hedges that qualify for hedge accounting

The effective portion of changes in the fair value of derivatives that are designated and qualified as cash flow hedges is recognised in the cash flow hedge reserve within equity. The gain or loss relating to the ineffective portion is recognised immediately in profit or loss from measurement of financial instruments, net.

The Group has entered into foreign currency forward contracts, interest rate swap contracts, cross currency and interest rate swap contracts and commodity swap agreement to hedge forecast transactions. The Group generally designates only the change in fair value related to the spot component as the hedging instrument. Gains or losses relating to the effective portion of the change in the spot component are recognised as the cash flow hedge reserve in the other comprehensive income within equity. The change in the forward element that relates to the hedged item ('aligned forward element') is recognised as the cost of hedging reserve in other comprehensive income within equity.

In some cases, the Group may designate the full change in fair value of the derivatives (including forward points) as the hedging instrument. In such cases, the gains or losses relating to the effective portion of the change in fair value of the entire contract are recognised as the cash flow hedge reserve in the other comprehensive income within equity.

Amounts accumulated in equity are reclassified in the periods when the hedged item affects profit or loss

When a hedging instrument expires, or is sold or terminated, or when a hedge no longer meets the criteria for hedge accounting, any cumulative deferred gain or loss and deferred costs of hedging in equity at that time remains in equity until the forecast transaction occurs. When the forecast transaction is no longer expected to occur, the cumulative gain or loss and deferred costs of hedging that were reported in equity are immediately reclassified to profit or loss.

5.24 Segment reporting

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision-maker. The Steering Committee has been identified as the chief operating decision-maker, who is responsible for allocating resources and assessing performance of the operating segments that makes strategic decisions.

6.1 Financial risk

The Group exposes to a variety of financial risk: market risk (including foreign exchange risk, interest rate risk and price risk), credit risk and liquidity risk. The Group's overall risk management programme focuses on the unpredictability of financial markets and seeks to minimise potential adverse effects on the Group's financial performance. The Group uses derivative financial instruments to hedge certain exposures.

Financial risk management is carried out by the Group treasury management division. The Group's policy includes areas such as foreign exchange risk, interest rate risk, price risk, credit risk and liquidity risk. The framework parameters are approved by the Board of Directors and uses as the key communication and control tools for Treasury team.

The Group's risk management is controlled by a treasury management division under policies approved by the Board of Directors. The treasury management division, evaluates and manages financial risks in close co-operation with the Group's operating units. The board provides written principles for overall risk management, as well as policies covering specific areas, such as foreign exchange risk, interest rate risk, credit risk, use of derivative and other financial instruments as well as investment of excess liquidity.

The use of derivative contracts that are speculative in nature is prohibited. All derivative contracts must be approved by the Board of Directors of each company within the Group.

Where all relevant criteria are met, hedge accounting is applied to remove the accounting mismatch between the hedging instrument and the hedged item.

6.1.1 Market risk

a) Foreign exchange risk

The Group are exposed to foreign exchange risk from future commercial transactions and net monetary assets and liabilities that are denominated in a currency that is not the entity's functional currency.

Financial instruments using for risk management

The Group uses a combination of foreign currency forwards and cross currency. Under the Group's policy, the critical terms of the forwards and options must align with the hedged items

Exposure

The Group's exposure to the risk of foreign currencies which are not a functional currency of each entity at the end of the reporting period, expressed in Baht are as follows

	Consolidated financial statements			
	31 December 2020			
	US Dollar	Japanese	Lao Kip	Others
	Million Baht	Yen	Million Baht	Million Baht
Cash and cash equivalents	1,230	29	-	15
Financial assets measured at amortised cost	4,158	-	-	-
Trade receivable, net	8	-	-	-
Other receivable, net	132	-	-	240
Financial assets measured at fair value through other comprehensive income	-	-	1,286	-
Long-term loans to related parties	539	-	-	-
Deferred development cost	42	-	-	440

	Consolidated financial statements			
	31 December 2020			
	US Dollar	Japanese	Lao Kip	Others
	Million Baht	Yen	Million Baht	Million Baht
Trade payables	1,930	15	-	18
Other payables	355	69	5	229
Current portion of lease liabilities from power purchase agreement, net	7,158	29	-	-
Long-term loans, net	-	4,357	-	-
Lease liabilities from power purchase agreement, net	113,938	72	-	-
Other payables from related parties	4,878	-	-	-
Other non-current liabilities (Retention)	1,831	1,358	-	1,078

	Consolidated financial statements			
	31 December 2019			
	US Dollar	Japanese	Lao Kip	Others
	Million Baht	Yen	Million Baht	Million Baht
Cash and cash equivalents	1,202	27	-	14
Financial assets measured at amortised cost	3,496	-	-	-
Trade receivable, net	8	-	-	-
Other receivable, net	383	-	-	223
Financial assets measured at fair value through other comprehensive income	-	-	1,943	-
Long-term loans to related parties	541	-	-	-
Deferred development cost	37	-	-	412

	Consolidated financial statements			
	31 December 2019			
	US Dollar	Japanese	Lao Kip	Others
	Million Baht	Yen	Million Baht	Million Baht
Trade payables	1,938	14	-	16
Other payables	917	66	7	245
Current portion of lease liabilities from power purchase agreement, net	7,007	28	-	-
Long-term loans, net	-	4,142	-	-
Lease liabilities from power purchase agreement, net	121,324	98	-	-
Other payables from related parties	4,899	-	-	-
Other non-current liabilities (Retention)	1,838	1,290	-	986

	Separate financial statements			
	31 December 2020			
	US Dollar	Japanese	Others	
	Million Baht	Yen	Million Baht	Million Baht
Cash and cash equivalents	1,173	29	15	
Trade receivable, net	8	-	-	
Other receivable, net	132	-	240	
Trade payables	1,930	15	17	
Other payables	118	28	192	
Current portion of Lease liabilities from power purchase agreement, net	7,158	29	-	
Lease liabilities from power purchase agreement, net	113,938	72	-	
Other non-current liabilities (Retention)	1,831	1,358	1,078	

	Separate financial statements			
	31 December 2019			
	US Dollar	Japanese	Others	
	Million Baht	Yen	Million Baht	Million Baht
Cash and cash equivalents	1,178	27	14	
Trade receivable, net	8	-	-	
Other receivable, net	133	-	223	
Trade payables	1,938	14	16	
Other payables	119	27	177	
Current portion of Lease liabilities from power purchase agreement, net	7,007	28	-	
Lease liabilities from power purchase agreement, net	121,324	98	-	
Other non-current liabilities (Retention)	1,838	1,290	986	

Sensitivity

As shown in the table above, the Group is primarily exposed to changes in Baht and US Dollar, Japanese Yen and Lao Kip exchange rates. The sensitivity of profit or loss to changes in the exchange rates arises mainly from financial assets and financial liabilities denominated in these currencies.

	Increase (decrease) in net profit	
	Consolidated financial statements	Separate financial statements
	2020 Million Baht	2020 Million Baht
US Dollar to Baht exchange rate		
- increase 5*	(6,198)	(6,183)
- decrease 5*	6,198	6,183
Baht to 100 Japanese Yen exchange rate		
- increase 5*	(305)	(74)
- decrease 5*	305	74
Baht to 100 Lao Kip exchange rate		
- increase 5*	67	-
- decrease 5*	(67)	-

* Holding all other variables constant

Interest rate risk

The Group's main interest rate risk arises from long-term borrowings with variable rates, which expose the Group to cash flow risk. Group policy is to maintain at 87%, using floating-to-fixed interest rate swaps to achieve this when necessary. Generally, the Group enters into long-term borrowings at floating rates and swaps them into fixed rates that are lower than those available if the Group borrowed at fixed rates directly. As at 31 December 2020 and 2019, the Group's borrowings at variable rate were mainly denominated in Baht, US Dollar, Australian Dollar and Japanese Yen.

The exposure of the Group's borrowings to interest rate changes at the end of the reporting period are as follows:

	Consolidated financial statements			
	2020		2019	
	Million Baht	Percentage of loan	Million Baht	Percentage of loan
Loans to				
Variable rate borrowing	2,908	100	541	100
	2,908	100	541	100
	Consolidated financial statements			
	2020		2019	
	Million Baht	Percentage of loan	Million Baht	Percentage of loan
Loans from				
Variable rate borrowing	18,254	13	16,364	13
Fixed rate borrowing	119,190	87	117,308	87
	137,444	100	133,672	100

	Separate financial statements			
	2020		2019	
	Million Baht	Percentage of loan	Million Baht	Percentage of loan
Loans from Fixed rate borrowing	95,792	100	101,537	100
	95,792	100	101,537	100

Instruments used by the Group

The Group entered into interest rate swaps covering 63% (2019: 82%) of the variable loan principal outstanding. The fixed interest rates of the interest rate swap contracts range between 2% and 5% per annum (2019: between 2% and 5% per annum).

The Group entered into interest rate swaps covering 1% (2019: 1%) of the fixed loan principal outstanding. The fixed interest rates of the interest rate swap contracts are 1% higher observable market rate of 1% per annum (2019: 1% per annum).

Effect of hedge accounting on the financial position and performance

The effects of the interest rate-related hedging instruments on the Group financial position and performance are as follows:

	Consolidated financial statements
	2020
	Million Baht
<u>Interest rate swaps</u>	
Carrying amount (liability)	(1,008)
Notional amount	11,433
Maturity date	3 Jan 2013 to 5 Jul 2030
Change in fair value of outstanding hedge instruments since 1 January	(760)
Change in value of hedged item used to determine hedge effectiveness	(141)
Weighted average strike rate for outstanding hedging instruments	(107)
SWAP rate for the year	2.85%

Sensitivity Analysis

Profit or loss is sensitive to higher or lower interest income from cash and cash equivalents, and interest expenses from borrowings as a result of changes in interest rates. Other components of equity changes as a result of an increase or decrease in the fair value of the cash flow hedges of borrowings and the fair value of debt investments at fair value through other comprehensive income.

	Consolidated financial statements	
	Net profit	Other components of equity
	2020	2020
	Million Baht	Million Baht
Interest rate - increase 1.0%	(152.77)	10.09
Interest rate - decrease 1.0%	152.77	(10.09)
* Holding all other variables constant		

6.1.2 Credit risk

a) Risk management

The Group has no material credit risks for cash and short-term investments. This is because the Group uses quality financial institutions for cash and short-term investments. The Group manages credit risk by categorising the risks for deposits at banks and financial institutions. The group selects to do transactions with financial institutions that are rated from independent credit rating agencies at least level A-. To reduce potential risks for deposits with banks and financial institutions, the Group has laid down a policy to limit the transactions to be made with a particular financial institution and to invest surplus only in low-risk investments. In its experience, the Group has never suffered any losses from cash and investments.

For trade receivables, the Group's sales are made to state-owned enterprises and industrial users under the terms and conditions of the long-term Power Purchase Agreements. The customers are reliable and have low credit risk. The management does not expect the material impacts on uncollectability.

Investments in debt securities of the Group and the Company are considered low risk investments. The Group regularly considers the credit ratings of those investments to be exposed to increased risk.

b) Impairment of financial assets

The Group and the entity have following financial assets that are subject to the expected credit loss model:

- Cash and cash equivalents
- Trade and other receivables
- Financial assets measured at amortised cost
- Loan to related parties
- Loan to other parties

Management considered the identified impairment loss on financial assets are immaterial

6.1.3 Liquidity risk

Prudent liquidity risk management implies maintaining sufficient cash and marketable securities and the availability of funding through an adequate amount of committed credit facilities to meet obligations when due and to close out market positions. Due to the dynamic nature of the underlying businesses, the Group Treasury maintains flexibility in funding by maintaining availability under committed credit lines.

a) **Financial management**

The Group has undrawn loan facilities as at 31 December as follows:

	Consolidated financial statements					
	2020			2019		
	Million Baht	Million US Dollar	Million Australian Dollar	Million Baht	Million US Dollar	Million Australian Dollar
Floating interest rate						
Expiring within one year						
- short-term loans	30,414	350	100	29,396	250	-
Expiring over one year						
- Long-term loans	-	-	106	-	-	54
	30,414	350	206	29,396	250	54
Fixed interest rate						
Expiring within one year						
- short-term loans	-	-	-	-	-	-
Expiring over one year						
- Long-term loans	-	-	55	-	-	138
	-	-	55	-	-	138
Total	30,414	350	261	29,396	250	192

b) **Maturity of financial liabilities**

The tables below analyse the maturity of financial liabilities grouping based on their contractual maturities. The amounts disclosed are the contractual undiscounted cash flows. Balances due within 12 months equal their carrying balances as the impact of discounting is not significant. For interest rate swaps, the cash flows have been estimated using forward interest rates applicable at the end of the reporting period.

	Consolidated financial statements				
	Within 1 year Million Baht	1 - 5 years Million Baht	Over 5 years Million Baht	Total Million Baht	Carrying amount Million Baht
The maturity of financial liabilities as at 31 December 2020					
Short term loans from financial institutions	60	-	-	60	60
Trade payables	62,608	-	-	62,608	62,608
Other payables	9,429	1	4	9,434	9,434
Long-term loans from financial institutions	13,222	50,982	55,978	120,182	96,140
Debentures	261	5,269	23,832	29,362	23,338
Loan from infrastructure fund	1,797	7,440	18,105	27,342	17,906
Lease liabilities under power purchase agreement	41,343	147,616	304,595	493,554	227,537
Other lease liabilities	499	820	2,564	3,883	2,205
Total financial liabilities	129,219	212,128	405,078	746,425	439,228
Derivatives					
<u>Derivatives where the hedge accounting is not applied</u>					
Trading instrument					
Interest rate swaps	24	-	-	24	24
Foreign currency forwards	-	-	242	242	242
Cross currency and interest rate swaps	4	-	-	4	4
<u>Derivatives where the hedge accounting is applied</u>					
Interest rate swaps	198	299	511	1,008	1,008
Total derivatives	226	299	753	1,278	1,278
	129,445	212,427	405,831	747,703	440,506
Separate financial statements					
	Within 1 year Million Baht	1 - 5 years Million Baht	Over 5 years Million Baht	Total Million Baht	Carrying amount Million Baht
The maturity of financial liabilities as at 31 December 2020					
Trade payables	63,954	-	-	63,954	63,954
Other payables	8,461	1	3	8,465	8,465
Long-term loans from financial institutions	11,660	35,058	53,475	100,193	77,886
Loan from infrastructure fund	1,797	7,440	18,105	27,342	17,906
Lease liabilities under power purchase agreement	43,918	155,600	307,175	506,693	240,675
Other lease liabilities	375	387	6	768	719
Total financial liabilities	130,165	198,486	378,764	707,415	409,605

6.2 Capital management

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern in order to provide returns for owners and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital

7 Derivatives and hedging activities

As at 31 December 2020, the Group had following derivative contracts.

	Consolidated financial statements Million Baht
Non-current derivative assets	
Derivative contracts not qualifying as hedge accounting	
- Interest rate swaps	6
Total non-current derivative assets	6
Current derivative liabilities	
Derivative contracts not qualifying as hedge accounting	
- Foreign currency forwards	4
- Interest rate swaps	24
Derivative contracts qualifying as hedge accounting	
- Interest rate swaps	198
Total current derivative liabilities	226
Non-current derivative liabilities	
Derivative contracts not qualifying as hedge accounting	
- Cross currency and interest rate swaps	242
Derivative contracts qualifying as hedges accounting	
- Interest rate swaps	810
Total non-current derivative liabilities	1,052

7.1 Classification of derivatives

Derivatives are for the purpose of hedging against economic risks, not for investment for profit. The Group applies hedge accounting for some derivatives. This qualifies as a cash flow hedge instrument with a hedge ratio of 1:1 based on the relationship of the underlying risk variables between the hedged item and the hedging instrument. However, if a derivative contract doesn't meet the criteria for hedge accounting, it's classified as trading and measured at fair value through profit or loss.

The Group presents fair value of derivative contracts as current and non-current based on each maturity of hedged items.

7.2 Hedge effectiveness

Hedge effectiveness is determined at the inception of the hedge relationship, and through periodic prospective effectiveness assessments, to ensure that an economic relationship exists between the hedged item and hedging instrument.

Interest rate risk

The Group enters into interest rate swaps that have similar critical terms as the hedged item, such as reference rate, reset dates, payment dates, maturities and notional amount. The Group does not hedge 100% of its loans, therefore the hedged item is identified as a proportion of the outstanding loans up to the notional amount of the swaps. As all critical terms matched during the year, there is an economic relationship.

Hedge ineffectiveness for interest rate swaps is assessed using the same principles as for hedges of foreign currency purchases. It may occur due to the credit value/debit value adjustment on the interest rate swaps which is not matched by the loan and differences in critical terms between the interest rate swaps and loans.

7.3 Hedging reserves

Hedging reserves comprise hedging costs and cash flow hedge reserves. The cash flow hedge reserve is used to recognise gain/loss relating to the effective portion of the change in fair value of the derivatives for which hedge accounting is applied.

Hedging reserves are listed in other components of equity, which consists of the following hedging instruments.

	Consolidated financial statements
	Cash flow hedging reserves
	Interest rate swaps
	Million Baht
Opening balance as at 1 January 2020	(358)
Add: Change in fair value of hedging instruments recognised in OCI	(63)
Closing balance as at 31 December 2020	(421)

7.4 Amounts recognised in profit or loss

In addition to the amounts disclosed in the reconciliation of hedging reserves above, the following amounts were recognised in profit or loss in relation to derivatives presented in note 7.3.

	Consolidated financial statements
	2020
	Million Baht
Closing balance as at 31 December	
Net gain/(loss) on derivatives not qualifying as hedges included in net gains/(losses) from measurement of financial instruments, net	(130)

8 Fair value

The following table presents financial assets and liabilities that are measured at fair values in each level including fair value of financial assets and financial liabilities. The table excludes financial assets and liabilities measured at amortised cost where their carrying value approximated fair value.

Consolidated financial statements						
As at 31 December 2020	Fair value level	FVPL		FVOCI		Fair value Million Baht
		Million Baht	Million Baht	Million Baht	Million Baht	
				Amortised cost Million Baht	Total carrying value Million Baht	
Assets						
Derivatives						
- Interest rate swaps	2	6	-	-	6	6
Investments in debt securities	2	843	-	2,565	3,408	3,424
Investments in infrastructure mutual funds	1	-	6,204	-	6,204	6,204
Investments in equity	1	-	1,286	-	1,286	1,286
Investments in other parties	3	-	185	-	185	185
Total assets		849	7,675	2,565	11,089	11,105
Liabilities						
Long-term loans	2	-	-	119,478	119,478	126,512
Derivatives qualifying as hedge accounting						
- Interest rate swaps	2	1,008	-	-	1,008	1,008
Derivatives not qualifying as hedge accounting						
- Interest rate swaps	2	24	-	-	24	24
- Foreign currency forwards	2	4	-	-	4	4
- Cross currency and interest rate swaps	2	242	-	-	242	242
Total liabilities		1,278	-	119,478	120,756	127,790

Separate financial statements

As at 31 December 2020		FVPL	FVOCI	Amortised	Total	Total
Fair value	Million Baht	Million Baht	Million Baht	cost	carrying value	fair value
level				Million Baht	Million Baht	Million Baht
Assets						
	1	-	6,204	-	6,204	6,204
Investments in infrastructure mutual funds						
Total assets		-	6,204	-	6,204	6,204
Liabilities	2	-	-	77,886	77,886	80,519
Long-term loans						
Total liabilities		-	-	77,886	77,886	80,519

Consolidated financial statements						
As at 31 December 2019						
	Fair value level	FVPL		FVOCI		Total fair value Million Baht
		Million Baht	Million Baht	Million Baht	Million Baht	
				Amortised cost Million Baht	carrying value Million Baht	
Assets						
Derivatives						
- Interest rate swaps	2	-	-	-	10	10
- Foreign currency options	2	-	-	-	256	256
Debt securities held for trading	2	-	-	-	504	504
Investments in infrastructure mutual funds	1	-	-	-	6,465	6,465
Available-for-sales investment	1	-	-	-	1,943	1,943
Total assets		-	-	-	9,178	9,178
Liabilities						
Long-term loans	2	-	-	-	114,502	123,987
Derivatives qualifying as hedge accounting	2	-	-	-	760	760
- Interest rate swap	2	-	-	-	8	8
Derivatives not qualifying as hedge accounting	2	-	-	-	34	34
- Foreign currency forwards	2	-	-	-	87	87
- Interest rate swaps	2	-	-	-	-	-
- Cross currency and interest rate swaps	2	-	-	-	115,391	124,876
Total liabilities		-	-	-	115,391	124,876

The Group did not reclassify and recognise financial assets and financial liabilities in accordance with the new financial reporting standards relating to financial instruments in the financial statements as at 31 December 2019.

		Separate financial statements				
		FVPL	FVOCI	Amortised	Total	Total
		Million Baht	Million Baht	cost	carrying value	fair value
		Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
		Fair value level				
As at 31 December 2019						
Assets						
	Investments in infrastructure mutual funds	1	-	-	6,465	6,465
Total assets					6,465	6,465
Liabilities						
	Long-term loans	2	-	-	82,970	90,924
Total liabilities					82,970	90,924

The Group did not reclassify and recognise financial assets and financial liabilities in accordance with the new financial reporting standards relating to financial instruments in the financial statements as at 31 December 2019.

Fair value of following financial assets and financial liabilities measured at amortised cost where their carrying value approximated fair value are as follows:

Consolidated financial statements	Separate financial statements
<p>Financial assets</p> <ul style="list-style-type: none"> - Cash and cash equivalents - Financial assets measured at amortised cost (short-term investments) - Trade receivables - Other receivables - Other current assets (Deposits with specific purpose) - Long-term loans to and interest receivables from related parties - Deposit for electricity compensation awaiting recognition - Other non-current assets (Deposit for compensation) <p>Financial liabilities</p> <ul style="list-style-type: none"> - Short-term loans from financial institutions - Trade payables - Other payables - Loans from Infrastructure Fund - Lease liabilities - Other payables from related parties 	<p>Financial assets</p> <ul style="list-style-type: none"> - Cash and cash equivalents - Financial assets measured at amortised cost (short-term investments) - Trade receivables - Other receivables - Other current assets (Deposits with specific purpose) - Deposit for electricity compensation awaiting recognition - Other non-current assets (Deposits for compensation) <p>Financial liabilities</p> <ul style="list-style-type: none"> - Short-term loans from financial institutions - Trade payables - Other payables - Loans from Infrastructure Fund - Lease liabilities

Fair values are categorised into hierarchy based on inputs used as follows:

- Level 1: Fair value of financial instruments refer to quoted prices in active markets for identical assets or liabilities
- Level 2: Fair value of financial instruments assess from valuation techniques which use information that are observable, either directly or indirectly, for the asset or liability.
- Level 3: The fair value of financial instruments from valuation techniques that are not based on observable market data.

Valuation techniques used to measure fair value level 2

Valuation techniques used to measure fair value level 2 for derivatives are as follows:

Derivatives

- Fair values of foreign currency forward contracts are determined using forward exchange rates that are quoted in an active market.
- Fair values of interest rate swap contracts are determined using forward interests extracted from observable yield curves.
- Fair values of cross currency and interest rate swap contracts are determined using forward interests extracted from observable yield curves and using forward exchange rates that are quoted in an active market.

Investments in debt securities

Fair value of debt instruments is determined from discounted contractual cash flows where discount rate extracted from price of counterparty's debt instruments.

9 Critical accounting estimates and judgements

During the year 2020, the Group makes estimates and assumptions concerning the future. Estimates, assumptions and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. Therefore, the result of accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are outlined below.

Fair value of certain financial assets and derivatives

The fair value of financial instruments that are not traded in an active market is determined using valuation techniques. The Group uses judgement to select a variety of methods and make assumptions that are mainly based on market conditions existing at the end of each reporting period. Details of key assumptions used are included in Note 8.

10 Segment information - consolidated financial statements

The Group has only one reportable operating segment that is the production, procurement or distribution of electricity and other businesses related to EGAT's core business or joint venture with other people to do so. The information contained in the consolidated financial statements is reported in the same manner as internal reports presented to the chief operating decision maker, EGAT's Board of Directors.

11 Cash and cash equivalents

As at 31 December	Consolidated		Separate	
	financial statements		financial statements	
	2020	2019	2020	2019
	Million Baht	Million Baht	Million Baht	Million Baht
Cash on hand and deposits at financial institutions	63,807	63,100	60,285	59,199
- maturities within three months				
Government bonds	-	8,998	-	8,998
- maturities within three months				
Fixed deposit receipts	5,546	7,907	3,600	6,200
Total cash and cash equivalents	69,353	80,005	63,885	74,397

As at 31 December 2020, the interest rates on deposits at financial institutions with maturities within three months were 0.01% to 0.07% per annum (as at 31 December 2019: 0.20% to 1.45% per annum).

12 Financial assets measured at amortised cost

As at 1 January 2020, the Group reclassified short-term investments amounting to Baht 9,686 million to be financial assets measured at amortised cost amounting to Baht 9,182 million and financial assets measured at fair value through profit or loss amounting to Baht 504 million, following the requirement of new financial reporting standards as described in Note 4.

As at 31 December	Consolidated financial statements		Separate financial statements	
	2020	2019	2020	2019
	Million Baht	Million Baht	Million Baht	Million Baht
Current assets				
Fixed bank deposits aged 3 - 12 months.	4,217	3,987	59	321
Fixed deposit receipts	2,330	5,135	-	-
Debt securities to be held until maturity	2,022	60	-	-
	8,569	9,182	59	321
Non - current asset				
Debenture	543	53	-	-
	543	53	-	-
Financial assets measured at amortised cost	9,112	9,235	59	321

13 Trade receivables, net

As at 31 December	Consolidated financial statements		Separate financial statements	
	2020	2019	2020	2019
	Million Baht	Million Baht	Million Baht	Million Baht
Electricity sales receivables	53,725	57,793	53,752	57,825
Other receivables	504	1,254	528	1,001
	54,229	59,047	54,280	58,826
<u>Less</u> Allowance for impairment	(50)	(46)	(50)	(46)
Total trade receivables, net	54,179	59,001	54,230	58,780

14 Fuel and spare parts, net

As at 31 December	Consolidated financial statements		Separate financial statements	
	2020	2019	2020	2019
	Million Baht	Million Baht	Million Baht	Million Baht
Power plant fuel	4,815	5,633	3,676	4,461
Lignite coal	1,911	1,916	1,911	1,916
Spare parts and supplies	12,839	12,824	11,156	11,089
	19,565	20,373	16,743	17,466
<u>Less</u> Allowance for obsolescence	(7,605)	(7,410)	(6,636)	(6,431)
Fuel and spare parts, net	11,960	12,963	10,107	11,035

15 Investments in subsidiaries, associates and joint ventures

As at 31 December	Notes	Consolidated financial statements		Separate financial statements	
		2020	2019	2020	2019
		Million Baht	Million Baht	Million Baht	Million Baht
Investments in subsidiaries	15.2	-	-	19,003	19,003
Investments in associates	15.3	43,346	39,622	1,588	1,588
Investments in joint ventures	15.4	35,491	29,292	585	585
Total investments in subsidiaries, associates and joint ventures		78,837	68,914	21,176	21,176

15.1 Changes in investments in subsidiaries, associates and joint ventures can be analysed as follows:

	Consolidated financial statements Million Baht	Separate financial statements Million Baht
For the year ended 31 December 2020		
Opening Net book value - as previously reported.	68,914	21,176
Impact of the first-time adoption of the new financial reporting standard	90	-
Opening Net book value – as restated	69,004	21,176
Increasing investment in associates	1,484	-
Increasing investment in joint ventures	4,512	-
Reclassification	2,380	-
Changes in the interests of investments in joint ventures	2	-
Share of profit from investments in associates	2,638	-
Share of profit from investments in joint ventures	4,452	-
Share of other comprehensive expense of investments in associates	(1,525)	-
Share of other comprehensive expense of investments in joint ventures	(759)	-
Dividend income from associates	(1,343)	-
Dividend income from joint ventures	(2,008)	-
Closing net book value	78,837	21,176

Changes in investments in associates and joint ventures for the year ended 31 December 2020 as follows:

Indirect holding in associates by EGAT

Yandin WF Holdings Pty Ltd

For the year ended 31 December 2020, Yandin WF Holdings Pty Ltd called for increase the share capital and the Group paid for the additional paid-up share capital in the same portion as its original investment, amounting to Baht 66 Australian dollar, equivalent to Baht 1,484 million.

Northern Bangkok Monorail Company Limited and Eastern Bangkok Monorail Company Limited

In 2020, the management determined that the Company had significant influence over Northern Bangkok Monorail Company Limited (“NBM”), which operated in the MRT Pink Line Project, and Eastern Bangkok Monorail Company Limited (“EBM”), which operated in the MRT Yellow Line Project. The Company’s representative acts as the committees to participate in the meeting and to share the essential technical knowledge, experiences and the expertise of energy power and also participate in financial policy to support according to project finance agreement. Therefore, the management has reclassified the investment in NBM amounting to Baht 1,180 million and EBM amounting to Baht 1,200 million from investment in other companies to investment in associates.

Indirect holding in joint ventures by EGAT

NEXIF RATCH ENERGY SINGAPORE PTE. LTD

On 12 March 2020, the Company entered into a Share Purchase Agreement to purchase ordinary shares of NER Singapore Pte. Ltd., in proportion of investment of 49% from Nexif Energy Thailand B.V., the existing shareholder, to develop the Nexif Energy Rayong SPP Power Plant Project. Subsequently on 13 April 2020, the Company paid for ordinary share capital to the existing shareholder and paid for increase in share capital, in proportion of investment of 49%, amounting to US Dollar 30 million or equivalent to Baht 984 million. The Project is a firm-cogeneration SPP Power Plant with the capacity of 92 megawatts. It is operated by Nexif Energy Rayong Company Limited, a subsidiary of NER Singapore Pte. Ltd. It has a 25-year power purchase agreement with Electricity Generating Authority of Thailand. The Project scheduled to start its commercial operation in April 2022.

On 27 April 2020, NER Singapore Pte. Ltd. has changed the company’s name to “NEXIF RATCH ENERGY SINGAPORE PTE. LTD.” and on 5 May 2020, Nexif Energy Rayong Company Limited has changed the company’s name to “Nexif Ratch Energy Rayong Company Limited”.

PT Medco Ratch Power Riau

During the year ended 31 December 2020, PT Medco Ratch Power Riau called for additional paid-up share capital and the Company paid for the additional paid-up share capital in the same portion as its original investment, amounting to Baht 231 million.

Hin Kong Power Holding Company Limited

On 3 January 2020, the Group has partially disposed of 49% of its interest in investment in Hin Kong Power Holding Company Limited, indirect subsidiary of EGAT, amounting to Baht 2 million. As a result, the Group has remaining at 51% of its interest cause changing in type of investment from indirect subsidiary become indirect joint venture. The Group has initial recognised of investment in joint venture at fair value of retained interest at the lost control date amounting to Baht 2 million. The differences from fair value and book value of net assets recognised at Baht 17 million and presented in administrative expense in consolidated statement of comprehensive income.

At the annual general meeting of the shareholders of Hin Kong Power Holding Company Limited, a direct joint venture, held on 28 April 2020, the shareholders approved to increase the authorised share capital from Baht 4 million to Baht 1,204 million by issuance of new ordinary shares totalling 120 million shares at par value of Baht 10 per share and call for paid-up of 25.1% of the additional share capital. Subsequently on 30 April 2020, the Company paid for increase in share capital amounting to Baht 153.61 million, in proportion of investment of 51%.

R E N Korat Energy Company Limited

On 27 March 2020, the Company entered into a Shareholder Agreement with two local companies to jointly develop a power plant project in Nakhon Ratchasima in proportion of investment of 40%. Subsequently on 21 April 2020, the Company together with two shareholders have registered the establishment of the joint venture company named "R E N Korat Energy Company Limited". Its registered share capital is Baht 1 million. The joint venture called for paid-up share capital in proportion of 25% of the registered share capital and the Company paid for share capital totalling Baht 100,000, in proportion of investment of 40%. The Project is a cogeneration independent power supply with the capacity of 40 megawatts located in Nava Nakorn Industrial Promotion Sone, Nakhon Ratchasima province. The generated power and steam will be sold to industrial customers. The Project scheduled to start its commercial operation in July 2023.

On 30 June 2020, at the extraordinary meeting of the shareholders of R E N Korat Energy Company Limited, a direct joint venture, the shareholders approved to increase the authorised share capital from Baht 1 million to Baht 100 million by issuance of new ordinary shares totalling 9.9 million shares at par value of Baht 10 per share. The joint venture called for paid-up of 75% of the existing share capital and called for paid-up of 25% of the additional share capital. The Company paid for the existing share capital and the additional share capital amounting to Baht 10 million, in proportion of investment of 40%.

Smart Infranet Company Limited

At the extraordinary meeting of the shareholders of Smart Infranet Company Limited, a direct joint venture, held on 2 June 2020, the shareholders approved to increase the authorised share capital from Baht 1 million (*comprising 0.1 million ordinary shares at par value of Baht 10 per share*) to Baht 550 million (*comprising 55 million ordinary shares at par value of Baht 10 per share*) by issuance of new ordinary shares totalling 54.90 million shares at par value of Baht 10 per share. Subsequently on 29 July 2020, the Company paid for increase in share capital totalling Baht 279.99 million, in proportion of investment of 51%.

Nava Nakorn Electricity Generating Company Limited

At the annual general meeting of the shareholders of Nava Nakorn Electricity Generating Company Limited, an indirect joint venture, held on 27 August 2020, the shareholders approved to increase the authorised share capital from Baht 1,550 million to Baht 2,000 million by issuance of new ordinary shares totalling 45 million shares at par value of Baht 10 per share and call for paid-up of 100% of the additional share capital. Subsequently on 8 September 2020, the Group paid for increase in share capital totalling Baht 180 million, in proportion of investment of 40%.

Power and Infrastructure projects in Vietnam

On 15 July 2020, RH International (Singapore) Corporation Pte. Ltd. ("RHIS"), an indirect subsidiary, entered into Definitive Agreements in relation to a partnership with Geleximco Group Joint Stock Company ("Geleximco"). Subject to the satisfaction of certain conditions precedent set out in the agreements, through this partnership RHIS and Geleximco would jointly invest in An Binh Energy and Infrastructure Fund ("ABEIF"), a Vietnam focused power sector fund which has potential investment consideration in the power and infrastructure projects in Vietnam. Subsequently on 18 August 2020, the subsidiary paid for share capital in proportion of 49% of the registered charter capital of ABEIF totalling US Dollar 78.50 million or equivalent to Baht 2,454 million.

Investment in Wind Power Plant Project in Vietnam

On 22 May 2020, RH International (Singapore) Corporation Pte. Ltd., (“RHIS”), an indirect subsidiary, entered into a Share Purchase Agreement of RATCH & AIDC Wind Energy Pte. Ltd. (“RATCH & AIDC”) in proportion of investment of 63.80% with Asia Investment, Development and Construction Sole Co.,Ltd., (“AIDC”), the existing shareholder, to invest in Thanh Phong Wind Power Plant Project in Vietnam which operated by Ecwin Energy Corporation (“ERC”). The project is an onshore wind farm with capacity of 29.70 megawatts. The project scheduled to start its commercial operation in September 2021.

Subsequently in November 2020, RHIS paid for existing shares, amounting to US Dollar 638 and paid for increase in share capital, in investment proportion of 63.80% of 3.90 million shares at par value of US Dollar 1 per share to RATCH & AIDC totalling US Dollar 3.90 million or equivalent to Baht 118 million.

After the transactions are completed, the shareholder’s structure of RATCH & AIDC are comprised of 63.80% hold by the Group and 36.20% hold by AIDC. The shareholder’s structure of ERC comprises of 80% hold by RATCH & AIDC. (the Group hold indirect RHIS shares and RATCH & AIDC in proportion of 51.04%) the remaining of 20% shares is hold by the minor shareholders.

Investment in production and sale in Wood Pellet Project

On 3 August 2020, RATCH-LAO Services Company Limited, a direct subsidiary, has entered into a Shareholder Agreement with two companies (local and oversea) to jointly develop in generating and selling the wood pellets in Lao PDR. Under the agreement, the sales of the wood pellets would be sold according to the contract starting in year 2022. On 18 September 2020, the subsidiary with the two shareholders had entered in establishment of a joint venture company “SIPHANDONE - RATCH LAO CO., LTD.” in issuance of the authorised share capital Kip 500 million (*comprising Kip 50,000 million ordinary shares at par value of Kip 10,000 million per share*). Subsequently, on 16 November 2020, the Company already paid for share capital totalling Kip 125 million or equivalent to Baht 0.41 million, in investment proportion of 25%.

15.2 Investments in subsidiaries

The detail of investments in direct subsidiaries are as follows:

	Portion of ordinary shares held by the EGAT				Portion of ordinary shares held by the Group				Cost method				Dividend income during the year	
	2020		2019		2020		2019		2020		2019		2020	2019
	%	Million Baht	%	Million Baht	%	Million Baht	%	Million Baht						
	Business													
Subsidiaries established in Thailand														
EGAT International Co., Ltd.	99.99	99.99	-	-	-	-	-	-	12,197	12,197	12,197	12,197	12	-
EGAT Diamond Service Co., Ltd.	45.00	45.00	55.00	55.00	55.00	55.00	55.00	55.00	281	281	281	281	5	4
RATCH Group Public Company Limited	45.00	45.00	-	-	-	-	-	-	6,525	6,525	6,525	6,525	1,566	1,566
Ratchaburi Electricity Generating Company Limited.	-	-	99.99	99.99	99.99	99.99	99.99	99.99	-	-	-	-	-	-
Ratchaburi Energy Co., LTD.	-	-	99.99	99.99	99.99	99.99	99.99	99.99	-	-	-	-	-	-
- RE Solar 1 Company Limited.	-	-	99.99	99.99	99.99	99.99	99.99	99.99	-	-	-	-	-	-
RATCH O&M Company Limited.	-	-	99.99	99.99	99.99	99.99	99.99	99.99	-	-	-	-	-	-
Ratchaburi Alliances Company Limited.	-	-	99.99	99.99	99.99	99.99	99.99	99.99	-	-	-	-	-	-
Hin Kong Power Holding Company Limited.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
- Hin Kong Power Company Limited.	-	-	99.97	99.97	99.97	99.97	99.97	99.97	-	-	-	-	-	-
RATCH Cogeneration Company Limited.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CN Biomass Company Limited.	-	-	99.99	99.99	99.99	99.99	99.99	99.99	-	-	-	-	-	-
PB Biomass Company Limited.	-	-	99.99	99.99	99.99	99.99	99.99	99.99	-	-	-	-	-	-
LP Biomass Company Limited.	-	-	99.99	99.99	99.99	99.99	99.99	99.99	-	-	-	-	-	-

Separate financial statements									
Business	Portion of ordinary shares held by the EGAT		Portion of ordinary shares held by the Group		Cost method		Dividend income during the year		
	2020	2019	2020	2019	2020	2019	2020	2019	2019
	%	%	%	%	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
RATCH-LAOS Service Company Limited. (Established in Laos)	-	-	99.99	99.99	-	-	-	-	-
RH International Corporation Limited. (Established in Thailand)	-	-	99.99	99.99	-	-	-	-	-
- RH International Company (Mauritius) Corporation Limited (Established in Mauritius)	-	-	100.00	100.00	-	-	-	-	-
- RH International Company (Singapore) Corporation Limited (Established in Singapore)	-	-	100.00	100.00	-	-	-	-	-
- RATCH-Australia Corporation Limited and its subsidiaries (Established in Australia)	-	-	100.00	100.00	-	-	-	-	-
- RATCH China Power Company Limited. (Established in Hong Kong)	-	-	100.00	100.00	-	-	-	-	-
Total investments in subsidiaries					19,003	19,003	1,583	1,570	

RATCH-LAOS Service Company Limited.
(Established in Laos)
RH International Corporation Limited.
(Established in Thailand)
- RH International Company
(Mauritius) Corporation Limited
(Established in Mauritius)
- RH International Company
(Singapore) Corporation Limited
(Established in Singapore)
- RATCH-Australia Corporation Limited and
its subsidiaries (Established in Australia)
- RATCH China Power Company Limited.
(Established in Hong Kong)

Total investments in subsidiaries

		Separate financial statements						
		Portion of ordinary shares held by EGAT			Cost method		Dividend income during the year	
		2020	2019	2020	2019	2020	2019	
		%	%	Million Baht	Million Baht	Million Baht	Million Baht	
	Business							
	Produce and distribute electric power	25.41	25.41	1,588	1,588	836	903	
	Total investments in associates			1,588	1,588	836	903	

Associates established in Thailand
 Electricity Generating Public Company Limited

Consolidated financial statements									
Business	Portion of ordinary shares held by the EGAT		Cost method		Equity method		Dividend income during the year		2019 Million Baht
	2020 %	2019 %	2020 Million Baht	2019 Million Baht	2020 Million Baht	2019 Million Baht	2020 Million Baht	2019 Million Baht	
Joint ventures established overseas									
Xe-Pian Xe Namnoy Power Company Limited (Established in Laos)	25.00	25.00	2,524	2,524	1,813	1,922	-	-	-
Hongsa Power Company Limited (Established in Laos)	40.00	40.00	12,930	12,930	14,480	12,175	362	362	2,210
Phufai Mining Co., Ltd. (Established in Laos)	37.50	37.50	1	1	140	163	218	218	223
Asia Water Supply Company Limited (Established in Laos)	40.00	40.00	179	179	182	180	-	-	-
SIPHANDONE-RATCH LAO Co., Ltd. (Established in Laos)	25.00	-	-	-	-	-	-	-	-
PT Medco Ratch Power Riau (Incorporated in the Republic of Indonesia)	49.00	49.00	871	590	1,029	799	-	-	-
Fareast Renewable Development Pte. Ltd. (Established in Singapore)	50.00	50.00	2,689	2,689	2,551	2,526	134	134	55
NEXIF RATCH ENERGY SINGAPORE .LTD. (Established in Singapore)	49.00	-	984	-	984	-	-	-	-
RATCH & AIDC Wind Energy Pte. Ltd. An Binh Energy and Infrastructure Fund (Established in Vietnam)	63.80	-	118	-	117	-	-	-	-
	49.00	-	2,505	-	2,533	-	-	-	-
Total investments in joint ventures			30,966	26,452	35,491	29,292	2,008	2,008	3,439

	Separate financial statements					
	Portion of ordinary shares held by EGAT			Cost method		Dividend income during the year
	2020	2019	2020	2019	2020	2019
	%	%	Million Baht	Million Baht	Million Baht	Million Baht
Business						
Produce and distribute electric power	35.00	35.00	585	585	117	19
Total investments in subsidiaries			585	585	117	19

Joint ventures established in Thailand
 District Cooling System and Power Plant Co., Ltd

16 Long-term loans to third party, net

The long-term loan to third party is in US Dollar amounting to US Dollar 80 million or equivalent to Baht 2,513 million, bears interest rate at London Interbank Offered Rate (LIBOR) of 6 months plus a fixed annual percentage rate. The principal repayment is due within 8 years from the date of the first drawdown. The first principal repayment is scheduled in June 2023.

17 Property, plant and equipment, net

		Consolidated financial statements											
		Land	Buildings and building improvements	Dam and reservoir	Power plant, machinery and equipment	Electrical control system	Electric power transmission system	Communication system	Lignite conveyor system and mining machinery spare parts	Vehicles	Other equipment	Construction in progress	Total
		Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
As at 1 January 2019		16,088	37,439	29,684	397,454	846	202,963	7,341	7,428	4,369	12,196	116,016	831,824
	Cost	-	(23,212)	(12,434)	(271,501)	(795)	(104,015)	(6,292)	(5,255)	(3,052)	(8,961)	-	(435,517)
	Less Accumulated depreciation	-	(1)	-	(1,034)	-	-	-	-	-	-	-	(1,035)
	Less Allowance for impairment												
	Net book value	16,088	14,226	17,250	124,919	51	98,948	1,049	2,173	1,317	3,235	116,016	395,272
For the year ended 31 December 2019		16,088	14,226	17,250	124,919	51	98,948	1,049	2,173	1,317	3,235	116,016	395,272
	Opening net book value	-	-	-	1,075	-	-	16	-	-	-	-	1,075
	Reclassification (Note 2.2)	316	103	-	681	-	628	-	-	257	620	43,283	45,904
	Additions	492	2	-	4,111	-	-	-	-	-	-	-	4,605
	Increases from business acquisition	-	(68)	(1)	(147)	(1)	(46)	(1)	(7)	(3)	(6)	-	(280)
	Disposals and write-off, net	(2)	2,978	34	43,467	13	8,210	131	65	-	31	(54,931)	(4)
	Transfers in (out)	-	(1,445)	(479)	(15,453)	(14)	(6,697)	(228)	(160)	(426)	(745)	-	(25,647)
	Depreciation	(55)	-	-	15	-	-	-	-	-	-	-	(40)
	Allowance for impairment	(16)	(7)	-	(1,293)	-	-	-	-	-	-	(149)	(1,465)
	Exchange difference on translation												
	Closing net book value	16,823	15,789	16,804	157,375	49	101,043	967	2,071	1,145	3,135	104,219	419,420
	- as restated												
As at 31 December 2019		16,878	40,116	29,714	442,522	504	211,549	7,399	7,483	4,395	12,363	104,219	877,142
	Cost	-	(24,326)	(12,910)	(284,128)	(455)	(110,506)	(6,432)	(5,412)	(3,250)	(9,228)	-	(456,647)
	Less Accumulated depreciation	(55)	(1)	-	(1,019)	-	-	-	-	-	-	-	(1,075)
	Less Allowance for impairment												
	Net book value	16,823	15,789	16,804	157,375	49	101,043	967	2,071	1,145	3,135	104,219	419,420
	- as restated												

Consolidated financial statements

	Land Million Baht	Buildings and building improvements Million Baht	Dam and reservoir Million Baht	Power plant, machinery and equipment Million Baht	Electrical control system Million Baht	Electric power transmission system Million Baht	Communicati on system Million Baht	Lignite conveyor system and mining machinery spare parts Million Baht	Vehicles Million Baht	Other equipment Million Baht	Construction in progress Million Baht	Total Million Baht
As at 1 January 2020												
Cost	16,878	40,116	29,714	442,522	504	211,549	7,399	7,483	4,395	12,363	104,219	877,142
Impacts from adoption of new reporting standard	384	-	-	-	-	562	-	-	82	34	-	1,062
Less Accumulated depreciation	-	(24,326)	(12,910)	(284,128)	(455)	(110,506)	(6,432)	(5,412)	(3,250)	(9,228)	-	(456,647)
Less Allowance for impairment	(55)	(1)	-	(1,019)	-	-	-	-	-	-	-	(1,075)
Net book value	17,207	15,789	16,804	157,375	49	101,605	967	2,071	1,227	3,169	104,219	420,482
For the year ended												
31 December 2020												
Opening net book value	17,207	15,789	16,804	157,375	49	101,605	967	2,071	1,227	3,169	104,219	420,482
Additions	188	15	-	945	-	1,001	-	-	290	506	28,679	31,624
Disposals, write-off and donation, net	-	(28)	(3)	(87)	(1)	(75)	(1)	-	(1)	(2)	-	(198)
Decrease from disposal of business	-	-	-	-	-	-	-	-	-	-	(16)	(16)
Transfers in (out)	-	1,955	35	22,759	12	26,825	180	8	(4)	20	(51,619)	171
Depreciation	(24)	(1,632)	(477)	(16,770)	(13)	(7,810)	(245)	(159)	(522)	(741)	-	(28,393)
Impairment	-	-	-	-	-	-	-	-	-	-	-	-
Exchange difference on translation	49	6	-	1,325	-	50	-	-	-	-	593	2,023
Closing net book value	17,420	16,105	16,359	165,547	47	121,596	901	1,920	990	2,952	81,856	425,693
As at 31 December 2020												
Cost	17,516	41,697	29,708	466,203	489	239,347	7,347	7,492	4,565	12,627	81,856	908,847
Less Accumulated depreciation	(41)	(25,591)	(13,349)	(299,637)	(442)	(117,751)	(6,446)	(5,572)	(3,575)	(9,675)	-	(482,079)
Less Allowance for impairment	(55)	(1)	-	(1,019)	-	-	-	-	-	-	-	(1,075)
Net book value	17,420	16,105	16,359	165,547	47	121,596	901	1,920	990	2,952	81,856	425,693

		Separate financial statements										
		Buildings and building improvements	Dam and reservoir	Power plant, machinery and equipment	Electrical control system	Electric power transmission system	Communication system	Lignite conveyor system and mining machinery spare parts	Vehicles	Other equipment	Construction in progress	Total
		Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
As at 1 January 2019												
Cost	14,727	36,691	29,684	367,138	846	202,963	7,341	7,428	4,346	11,552	113,847	796,563
Less: Accumulated depreciation	-	(22,938)	(12,434)	(258,229)	(795)	(104,015)	(6,292)	(5,255)	(3,031)	(8,375)	-	(421,364)
Less: Allowance for impairment	-	-	-	(15)	-	-	-	-	-	-	-	(15)
Net book value	14,727	13,753	17,250	108,894	51	98,948	1,049	2,173	1,315	3,177	113,847	375,184
For the year ended 31 December 2019												
Opening net book value	14,727	13,753	17,250	108,894	51	98,948	1,049	2,173	1,315	3,177	113,847	375,184
Reclassification (Note 2.2)	-	-	-	1,075	-	-	-	-	-	-	-	1,075
Additions	316	84	-	311	-	628	16	-	257	606	41,146	43,364
Disposals and write off, net	-	(68)	(1)	(147)	(1)	(46)	(1)	(7)	(2)	(5)	-	(278)
Increase from business acquisition	60	2,976	34	41,590	13	8,210	131	65	-	28	(53,046)	61
Transfers in (out)	-	(1,409)	(479)	(14,204)	(14)	(6,697)	(228)	(160)	(426)	(720)	-	(24,337)
Depreciation	(55)	-	-	15	-	-	-	-	-	-	-	(40)
Closing net book value - as restated	15,048	15,336	16,804	137,534	49	101,043	967	2,071	1,144	3,086	101,947	395,029
As at 31 December 2019												
Cost	15,103	39,358	29,714	406,917	504	211,549	7,399	7,483	4,371	11,717	101,947	836,062
Less: Accumulated depreciation	-	(24,022)	(12,910)	(269,383)	(455)	(110,506)	(6,432)	(5,412)	(3,227)	(8,631)	-	(440,978)
Less: Allowance for impairment	(55)	-	-	-	-	-	-	-	-	-	-	(55)
Net book value - as restated	15,048	15,336	16,804	137,534	49	101,043	967	2,071	1,144	3,086	101,947	395,029

		Separate financial statements											
		Land	Buildings and building improvements	Dam and reservoirs	Power plant, machinery and equipment	Electrical control system	Electric power transmission system	Communication system	Lignite conveyor system and mining machinery spare parts	Vehicles	Other equipment	Construction in progress	Total
		Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
As at 1 January 2020													
Cost		15,103	39,358	29,714	406,917	504	211,549	7,399	7,483	4,371	11,717	101,947	836,062
Impacts from adoption of new reporting standard		-	-	-	-	-	-	-	-	58	-	-	58
Less Accumulated depreciation		-	(24,022)	(12,910)	(269,383)	(455)	(110,506)	(6,432)	(5,412)	(3,227)	(8,631)	-	(440,978)
Less Allowance for impairment		(55)	-	-	-	-	-	-	-	-	-	-	(55)
Net book value		15,048	15,336	16,804	137,534	49	101,043	967	2,071	1,202	3,086	101,947	395,087
For the year ended 31 December 2020													
Opening net book value		15,048	15,336	16,804	137,534	49	101,043	967	2,071	1,202	3,086	101,947	395,087
Additions		186	10	-	715	-	-	-	-	276	496	24,135	25,818
Disposals, net		-	(26)	(3)	(35)	(1)	(75)	(1)	-	(1)	(1)	-	(143)
Transfers in (out)		-	1,956	35	22,330	12	26,825	180	8	(4)	15	(51,357)	-
Depreciation		(5)	(1,596)	(477)	(15,352)	(13)	(7,780)	(245)	(159)	(509)	(713)	-	(26,849)
Closing net book value		15,229	15,680	16,359	145,192	47	120,013	901	1,920	964	2,883	74,725	393,913
As at 31 December 2020													
Cost		15,289	40,925	29,708	427,687	489	237,708	7,347	7,492	4,504	11,953	74,725	857,827
Less Accumulated depreciation		(5)	(25,245)	(13,349)	(282,495)	(442)	(117,695)	(6,446)	(5,572)	(3,540)	(9,070)	-	(463,859)
Less Allowance for impairment		(65)	-	-	-	-	-	-	-	-	-	-	(65)
Net book value		15,229	15,680	16,359	145,192	47	120,013	901	1,920	964	2,883	74,725	393,913

Consolidated financial statements

For the year ended 31 December 2020, the borrowing cost capitalised to build power plants and expand the power plant transmission system of Baht 1,086 million (2019: Baht 1,479 million) represented the borrowing to finance the specific objectives and are included as part of 'additions' during the year.

As at 31 December 2020, the Group has mortgaged the land, buildings and power plants and pladge to bring the equipment of the power plant of the net book value of Australian dollar 1,011 million or equivalent Baht 23,276 million baht and amount Baht 4,738 million to secure long-term loans from financial institutions.

Separate financial statements

For the year ended 31 December 2020, the borrowing cost capitalised to build power plants and expand the power plant transmission system of Baht 967 million (2019: Baht 1,329 million) represented the borrowing to finance the specific objectives and are included as part of 'additions' during the year.

The Group classifies right-of-use assets (excluding power plant) in property, plant and equipment. The details are as follows;

	Consolidated financial statements				
	Land Million Baht	Vehicles Million Baht	Supplies Million Baht	Transmission line Million Baht	Total Million Baht
Balance as at 1 January 2020	-	784	-	-	784
Impacts from adoption of new reporting standard	384	82	34	562	1,062
Balance as at 1 January 2020 - Restated	384	866	34	562	1,846
Additions	28	217	4	1,001	1,250
Lease termination	-	(1)	-	-	(1)
Depreciation	(24)	(400)	(9)	(30)	(463)
Exchange difference from translation	32	-	-	50	82
Balance as at 31 December 2020	420	682	29	1,583	2,714

	Separate financial statements			
	Land Million Baht	Vehicles Million Baht	Supplies Million Baht	Total Million Baht
Balance as at 1 January 2020	-	782	-	782
Impacts from adoption of new reporting standard	-	58	-	58
Balance as at 1 January 2020 - Restated	-	840	-	840
Additions	27	203	4	234
Lease termination	-	(1)	-	(1)
Depreciation	(5)	(387)	(1)	(393)
Balance as at 31 December 2020	22	655	3	680

Expenses relating to leases that are not included in the measurement of lease liabilities and right-of-use are as follows

	Consolidated financial statements Million Baht	Separate financial statements Million Baht
For the year ended 31 December 2020		
Expense relating to leases of low-value assets	111	93
Expense relating to leases of variable payment	9	9
Total cash outflow for leases	468	405

18 Right-of-use assets - Power plants, net

	Consolidated and Separate financial statements	
	2020 Million Baht	2019 Million Baht
As at 1 January		
Cost	446,946	446,946
<u>Less</u> Accumulated amortisation	(167,960)	(149,830)
Net book value	278,986	297,116
For the year ended 31 December		
Opening net book value	278,986	297,116
Amortisation for the year	(17,825)	(18,130)
Closing net book value	261,161	278,986
As at 31 December		
Cost	446,946	446,946
<u>Less</u> Accumulated amortisation	(185,785)	(167,960)
Net book value	261,161	278,986

19 Goodwill

	Consolidated financial statements	
	2020 Million Baht	2019 Million Baht
As at 1 January		
Cost	628	645
<u>Less</u> Allowance for impairment	(458)	(416)
Net book value	170	229
For the year ended 31 December		
Opening net book value	170	229
Allowance for impairment	-	(42)
Exchange difference on translation	-	(17)
Closing net book value	170	170
As at 31 December		
Cost	628	628
<u>Less</u> Accumulated amortisation	(458)	(458)
Net book value	170	170

20 Intangible assets, net

	Consolidated financial statements						
	Land rights Million Baht	Computer software Million Baht	Rights to use in royal state properties Million Baht	Right of power purchase and project development agreements Million Baht	Research and Development Million Baht	Construction in progress Million Baht	Total Million Baht
As at 1 January 2019							
Cost	38,313	2,091	475	5,583	2	99	46,563
Less Accumulated amortisation	(3,838)	(1,802)	(286)	(2,647)	-	-	(8,573)
Net book value	34,475	289	189	2,936	2	99	37,990
For the year ended 31 December 2019							
Opening net book value	34,475	289	189	2,936	2	99	37,990
Additions	4,676	49	-	-	-	116	4,841
Increases from business acquisition, net	-	-	-	1,116	-	-	1,116
Transfers in (out)	-	42	-	-	11	(52)	1
Disposal and write-off, net	-	-	-	-	-	-	-
Amortisation	(1)	(92)	(7)	(243)	(2)	-	(345)
Exchange difference on translation	-	-	-	(218)	-	-	(218)
Closing net book value	39,150	288	182	3,591	11	163	43,385
As at 31 December 2019							
Cost	42,989	2,141	475	6,270	13	163	52,051
Less Accumulated amortisation	(3,839)	(1,853)	(293)	(2,679)	(2)	-	(8,666)
Net book value	39,150	288	182	3,591	11	163	43,385

For the year ended 31 December 2020

Opening net book value
 Additions
 Transfers in (out)
 Disposal and write-off, net
 Amortisation
 Exchange difference on translation

Closing net book value

As at 31 December 2020

Cost
 Less Accumulated amortisation

Net book value

Consolidated financial statements									
Land rights Million Baht	Computer software Million Baht	Rights to use in royal state properties Million Baht	Right of power purchase and project development agreements Million Baht		Research and Development Million Baht	Construction in progress Million Baht	Total Million Baht		
			Million Baht	Million Baht				Million Baht	Million Baht
39,150	288	182	3,591	11	163	43,385			
11,378	56	-	-	-	173	11,607			
-	68	-	(171)	3	(71)	(171)			
-	(1)	-	-	-	-	(1)			
(1)	(115)	(6)	(318)	(3)	-	(443)			
-	-	-	152	-	-	152			
50,527	296	176	3,254	11	265	54,529			
54,364	2,241	475	6,499	16	265	63,860			
(3,837)	(1,945)	(299)	(3,245)	(5)	-	(9,331)			
50,527	296	176	3,254	11	265	54,529			

As at 1 January 2019

Cost	38,313	1,940	475	2	98	40,828
Less Accumulated amortisation	(3,838)	(1,699)	(286)	-	-	(5,823)
Net book value	34,475	241	189	2	98	35,005

For the year ended 31 December 2019

Opening net book value	34,475	241	189	2	98	35,005
Additions	4,676	47	-	-	114	4,837
Transfers in (out)	-	38	-	11	(50)	(1)
Disposal and write-off, net	-	-	-	-	-	-
Amortisation	(1)	(78)	(7)	(2)	-	(88)
Closing net book value	39,150	248	182	11	162	39,753

As at 31 December 2019

Cost	42,989	1,988	475	13	162	45,627
Less Accumulated amortisation	(3,839)	(1,740)	(293)	(2)	-	(5,874)
Net book value	39,150	248	182	11	162	39,753

For the year ended 31 December 2020

Opening net book value	39,150	248	182	11	162	39,753
Additions	11,378	51	-	-	166	11,595
Transfers in (out)	-	67	-	3	(70)	-
Disposal and write-off, net	-	(1)	-	-	-	(1)
Amortisation	(1)	(102)	(6)	(3)	-	(112)
Closing net book value	50,527	263	176	11	258	51,235

As at 31 December 2020

Cost	54,364	2,078	475	16	258	57,191
Less Accumulated amortisation	(3,837)	(1,815)	(299)	(5)	-	(5,956)
Closing net book value	50,527	263	176	11	258	51,235

Separate financial statements

	Land rights Million Baht	Computer software Million Baht	Rights to use		Construction in progress Million Baht	Total Million Baht
			in royal state properties Million Baht	Research and Development Million Baht		
As at 1 January 2019	38,313 (3,838)	1,940 (1,699)	475 (286)	2	98	40,828 (5,823)
Net book value	34,475	241	189	2	98	35,005
For the year ended 31 December 2019	34,475 4,676 - - (1)	241 47 38 - (78)	189 - - - (7)	2 - 11 - (2)	98 114 (50) - -	35,005 4,837 (1) - (88)
Closing net book value	39,150	248	182	11	162	39,753
As at 31 December 2019	42,989 (3,839)	1,988 (1,740)	475 (293)	13 (2)	162	45,627 (5,874)
Net book value	39,150	248	182	11	162	39,753
For the year ended 31 December 2020	39,150 11,378 - - (1)	248 51 67 (1) (102)	182 - - - (6)	11 - 3 - (3)	162 166 (70) - -	39,753 11,595 - (1) (112)
Closing net book value	50,527	263	176	11	258	51,235
As at 31 December 2020	54,364 (3,837)	2,078 (1,815)	475 (299)	16 (5)	258	57,191 (5,956)
Closing net book value	50,527	263	176	11	258	51,235

21 Land for development projects, net

	Consolidated		Separate	
	financial statement		financial statement	
	2020	2019	2020	2019
	Million Baht	Million Baht	Million Baht	Million Baht
As at 1 January				
Cost	2,497	2,477	2,078	2,138
<u>Less</u> Allowance for impairment	(1,160)	(417)	(1,139)	(396)
Net book value	1,337	2,060	939	1,742
For the year ended 31 December				
Opening net book value	1,337	2,060	939	1,742
Additions	-	18	-	-
Transfer in (out)	-	2	-	(60)
Disposal, net	(18)	-	-	-
Allowance for impairment	-	(743)	-	(743)
Closing book value net	1,319	1,337	939	939
As at 31 December				
Cost	2,479	2,497	2,078	2,078
<u>Less</u> Allowance for impairment	(1,160)	(1,160)	(1,139)	(1,139)
Net book value	1,319	1,337	939	939

22 Deferred income taxes

	Consolidated financial statements			
	Deferred tax assets		Deferred tax liabilities	
	2020	2019	2020	2019
	Million Baht	Million Baht	Million Baht	Million Baht
Deferred income taxes	3,705	4,272	5,489	5,942
Set off of taxes	(3,659)	(4,232)	(3,658)	(4,232)
Deferred income taxes, net	46	40	1,831	1,710

The movements in deferred tax assets and liabilities during the year are as follows:

	Consolidated financial statements													
	Tax losses		Allowance for inventory obsolescence		Property, plant and equipment		Employee benefits		Allowance for asset impairment		Leases liabilities		Total	
	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
Deferred tax assets														
As at 1 January 2019	424	284	4,114	38	-	-	-	-	-	102	-	-	4,962	
Charged (credited) in profits or losses	(44)	6	(613)	6	-	-	-	-	-	4	-	-	(641)	
Charged in other comprehensive income	-	-	-	2	-	-	-	-	-	-	-	-	2	
Exchange difference from translation	(42)	(2)	(54)	-	-	-	-	-	-	(7)	-	-	(105)	
Increase from business acquisition	-	-	46	-	8	-	-	-	-	-	-	-	54	
As at 31 December 2019	338	288	3,493	46	8	-	-	-	-	99	-	-	4,272	
Adjustment from first-time adoption of new financial reporting standard (Note 4)	-	-	-	-	-	-	-	7	-	-	-	-	7	
As at 1 January 2020	338	288	3,493	46	8	7	-	-	-	99	-	-	4,279	
Charged (credited) in profits or losses	3	(62)	(624)	(2)	-	(3)	-	-	14	(3)	-	-	(676)	
Charged in other comprehensive income	-	-	-	6	-	-	-	-	-	-	-	-	6	
Exchange difference from translation	33	4	53	-	-	-	-	-	-	7	-	-	97	
As at 31 December 2020	374	230	2,922	50	8	4	-	-	14	103	-	-	3,705	

	Consolidated financial statements					
	Property, plant and equipment Million Baht	Intangible assets Million Baht	Lease receivables Million Baht	Derivatives Million Baht	Others Million Baht	Total Million Baht
Deferred tax liabilities						
As at 1 January 2019	2,385	-	3,534	2	316	6,237
Charged (credited) in profits or losses	(70)	-	(253)	-	35	(288)
Exchange difference from translation	(200)	-	-	-	(17)	(217)
Increase from business acquisition	-	210	-	-	-	210
As at 31 December 2019	2,115	210	3,281	2	334	5,942
Charged (credited) in profits or losses	(41)	(14)	(654)	(1)	41	(669)
Exchange difference from translation	157	-	-	-	59	216
As at 31 December 2020	2,231	196	2,627	1	434	5,489

Deferred tax assets are recognised for tax loss and carried forward only to the extent that realisation of the related tax benefit through future taxable profits is probable. As at 31 December 2020, the Group has net deferred tax assets of Baht 374 million from accumulated tax losses of an indirect overseas subsidiary. The entity's management is confident that it is probable for the entity to have sufficient future taxable profit, and will gain benefits from the tax losses. In addition, tax losses of the country in question have no expiration and no maximum limit. Therefore, the Group recognised them as deferred tax assets.

23 Other non-current asset

	Consolidated financial statement				
	Stripping costs Million Baht	Mineral exploration and preliminary development costs Million Baht	Resettlement costs Million Baht	Mineral patent costs Million Baht	Total Million Baht
Deferred expenses on lignite mining as at 1 January 2019					
Cost	123,550	646	2,025	356	126,577
Less Accumulated amortisation	(123,422)	(363)	(1,936)	(120)	(125,841)
Net book value	128	283	89	236	736
For the year ended 31 December 2019					
Opening net book value	128	283	89	236	736
Additions	7,041	-	-	-	7,041
Amortisation	(7,169)	(9)	(24)	(14)	(7,216)
Closing net book value	-	274	65	222	561
Deferred expenses on lignite mining as at 31 December 2019					
Cost	130,591	646	2,025	356	133,618
Less Accumulated amortisation	(130,591)	(372)	(1,960)	(134)	(133,057)
Net book value	-	274	65	222	561
Others as at 31 December 2019					4,350
Total other non-current assets					
As at 31 December 2019					4,911

	Consolidated financial statement				
	Stripping costs	Minerals exploration and preliminary development costs	Resettlement costs	Mineral patent costs	Total
	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
Deferred expenses on lignite mining as of 1 January 2020					
Cost	130,591	646	2,025	356	133,618
<u>Less</u> Accumulated amortisation	(130,591)	(372)	(1,960)	(134)	(133,057)
Net book value	-	274	65	222	561
For the year ended 31 December 2020					
Opening net book value	-	274	65	222	561
Additions	7,985	-	-	-	7,985
Amortisation	(7,065)	(8)	(23)	(14)	(7,110)
Closing net book value	920	266	42	208	1,436
Deferred expenses on lignite mining as of 31 December 2020					
Cost	138,576	646	2,025	356	141,603
<u>Less</u> Accumulated amortisation	(137,656)	(380)	(1,983)	(148)	(140,167)
Net book value	920	266	42	208	1,436
Others as at 31 December 2020					5,811
Total other non-current assets					
As at 31 December 2020					7,247

	Separate financial statement				
	Stripping costs	Minerals exploration and preliminary development costs	Resettlement costs	Mineral patent costs	Total
	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
Deferred expenses on lignite mining as of 1 January 2019					
Cost	123,550	646	2,025	356	126,577
<u>Less</u> Accumulated amortisation	(123,422)	(363)	(1,936)	(120)	(125,841)
Net book value	128	283	89	236	736
For the year ended 31 December 2019					
Opening net book value	128	283	89	236	736
Additions	7,041	-	-	-	7,041
Amortisation	(7,169)	(9)	(24)	(14)	(7,216)
Closing net book value	-	274	65	222	561
Deferred expenses on lignite mining as of 31 December 2019					
Cost	130,591	646	2,025	356	133,618
<u>Less</u> Accumulated amortisation	(130,591)	(372)	(1,960)	(134)	(133,057)
Net book value	-	274	65	222	561
Others as at 31 December 2019					2,430
Total other non-current assets					
As at 31 December 2019					2,991

	Separate financial statement				
	Stripping costs Million Baht	Minerals exploration and preliminary development costs Million Baht	Resettlement costs Million Baht	Mineral patent costs Million Baht	Total Million Baht
Deferred expenses on lignite mining as of 1 January 2020					
Cost	130,591	646	2,025	356	133,618
Less Accumulated amortisation	(130,591)	(372)	(1,960)	(134)	(133,057)
Net book value	-	274	65	222	561
For the year ended 31 December 2019					
Opening net book value	-	274	65	222	561
Additions	7,985	-	-	-	7,985
Amortisation	(7,065)	(8)	(23)	(14)	(7,110)
Closing net book value	920	266	42	208	1,436
Deferred expenses on lignite mining as of 31 December 2020					
Cost	138,576	646	2,025	356	141,603
Less Accumulated amortisation	(137,656)	(380)	(1,983)	(148)	(140,167)
Net book value	920	266	42	208	1,436
Others as at 31 December 2020					3,860
Total other non-current assets					
As at 31 December 2020					5,296

24 Short-term loans from financial institutions

The movements of short-term loans from financial institutions for the year ended 31 December 2020 can be analysed as follows:

	Consolidated financial statement Million Baht
Opening net book value	603
Cash flow	
Increase in borrowings	11,406
Repayments of short-term loans	(11,947)
Change in non-cash items	
Exchange difference on translation	(2)
Closing net book value	60

On 14 August 2020, the Group entered into a short-term loan agreement with a financial institution in Singapore amounting to US Dollar 200 million, bear interest rate at 0.83% per annum and is due for repayment in November 2020.

As of December 31, 2020, the Group has short-term loans from financial institutions in Singapore amounting to US Dollar 2 million, or equivalent to Baht 60 million which bear interest rate and due for repayment in January to March 2021 (as at 31 December 2019 US Dollar 20 million or equivalent to Baht 603 million).

25 Long-term loan - net

The movements of the long-term loan for the year ended 31 December 2020 can be analysed as follows:

	Consolidated financial statement Million Baht	Separate financial statement Million Baht
Opening net book value	114,502	82,970
Cash flow		
Additions	14,202	3,963
Repayments of long-term loans	(10,588)	(9,038)
Deferred financing fees	(14)	(1)
Changes in non-cash items		
Amortisation of deferred loan financing fees	37	-
Unrealised loss on exchange rate	240	-
Exchange differences from translation	1,107	-
Premium amortisation	(8)	(8)
Closing net book value	119,478	77,886
Current portion	10,424	8,938
Non - current portion	109,054	68,948
Total long-term loan - net	119,478	77,886

On July 1, 2020, EGAT issued 15 years bonds with an interest and holder in the name-registered certificate, totalling Baht 4,000 million for 4 million units at unit price of Baht 1,000 per unit. The objective is to invest in development transmission system project. The bond bears interest at 2.74 per annum and interest repayment in every 6 months.

Long-term loans are as follows:

	Consolidated financial statement		Separate financial statement	
	2020	2019	2020	2019
As at 31 December	Million Baht	Million Baht	Million Baht	Million Baht
Domestic secured loans by the Ministry of Finance				
EGAT bonds	-	1,000	-	1,000
	-	1,000	-	1,000
Domestic unsecured loans				
Loans from the Ministry of Finance	45	51	45	51
Loans from financial institutions	21,675	15,790	10,176	12,208
EGAT bonds	67,665	69,711	67,665	69,711
Debenture	2,000	1,999	-	-
	91,385	87,551	77,886	81,970

As at 31 December	Consolidated financial statement		Separate financial statement	
	2020	2019	2020	2019
	Million Baht	Million Baht	Million Baht	Million Baht
Foreign loans without guarantee				
Loans in Australian dollar	14,743	12,783	-	-
Debentures in Japanese Yen	4,356	4,142	-	-
Debentures in US dollar	8,994	9,026	-	-
	28,093	25,951	-	-
Total long-term loans, net	119,478	114,502	77,886	82,970
<u>Less</u> Current portion of long-term loans, net	(10,424)	(10,129)	(8,938)	(9,038)
	109,054	104,373	68,948	73,932

26 Borrowing from infrastructure funds - net

The movements of borrowing from infrastructure funds for the year ended December 31, 2020 can be analysed as follows:

	Consolidated and separate financial statement Million Baht
Opening net book value	18,567
Cash flow	
Repayments of borrowings	(661)
Closing net book value	17,906
Current portion	723
Non - current portion	17,183
Total long-term loans, net	17,906

On 27 November 2014, the Board of EGAT approved model of infrastructure fund structure for North Bangkok Combined Cycle Power Plant - Block 1 which required EGAT to quarterly remit net revenue (availability of payments (AP1) net insurance premium) of North Bangkok Combined Cycle Power Plant - Block 1 throughout the contractual period, according to the contract between EGAT and such fund. The amount of fund is not less than Baht 19,000 million, and the estimated contractual period is 20 years.

EGAT will record receipt from sale of investment units in amount of Baht 20,855 million (amount of investment units 2,085.50 million at par value of Baht 10 per unit) as liabilities. The remitted net revenue will be paid in respect of the return and repayment of investment until the maturity date of the contract. For the purpose that EGAT appointed the following:

1. Krung Thai Asset Management Public Company Limited (KTAM) as the fund manager
2. Siam Commercial Bank as the financial advisor and underwriter

EGAT hold the investment in amount of Baht 5,213.75 million (amount of investment units 521.38 million), representing 25% of the total investment units sold, which is included in financial assets measured at fair value through other comprehensive income as at 31 December 2020 in amount of Baht 6,204 million (2019: included in investment available for sale in amount of Baht 6,465 million. In 2020, EGAT received dividend income from the investment amount of 436 million (2019: Baht 410 million).

27 Accrued revenue from electric energy sales according to automatic tariff adjustment (Ft), deposit for deferred revenue for electricity compensation and deferred revenue for electricity compensation

27.1 Accrued revenue from electric energy sales according to automatic tariff adjustment (Ft)

At 31 December	Consolidated and separate financial statement	
	2020	2019
	Million Baht	Million Baht
Opening net book value	1,879	(2,704)
Excess of cost of sales and collected revenue from automatic tariff adjustment (Ft)	457	26,070
Deferred revenue for electricity compensation	(264)	(5,622)
Revenue remittance from investment claw back	-	(1,522)
Revenue remittance from underperformance	(9,567)	(14,343)
Ft management cost	4,129	-
Closing book value	(3,366)	1,879

On 4 and 25 November 2020, the ERC's committee granted an approval for accrued revenue from electric sales from automatic tariff (Ft) amounting to Baht 4,129 million which provided EGAT to use for Ft management costs to pledge against the fluctuation of global energy prices that affect to Thailand's fuel and energy costs, and the amount was recognised as other current liabilities.

27.2 Deposit for deferred revenue for electricity compensation

At 31 December	Consolidated and separate financial statement	
	2020	2019
	Million Baht	Million Baht
Opening net book value	778	5,588
Deferred revenue for electricity compensation	234	812
Received fund based on financial performance	-	198
Deferred revenue for electricity compensation	(264)	(5,622)
Revenue remittance from financial performance exceeding threshold	-	(198)
Closing book value	748	778

27.3 Deferred revenue for electricity compensation

At 31 December	Consolidated and separate financial statement	
	2020 Million Baht	2019 Million Baht
Opening net book value	865	5,599
Renumeration of electricity compensation	190	888
Paid electricity compensation	(264)	(5,622)
Closing book value	791	865

28 Provision for employee benefits

	Consolidated financial statement		Separate financial statement	
	2020 Million Baht	2019 Million Baht	2020 Million Baht	2019 Million Baht
Statement of financial position:				
Retirement benefits	10,986	11,983	10,741	11,767
Post-retirement medical benefits	5,798	5,424	5,798	5,424
Total provision for employee benefits	16,784	17,407	16,539	17,191
Expenses recognised in statement of income				
Cost of sales	671	2,435	671	2,435
Selling expenses	7	12	7	12
Administrative expenses	455	1,618	424	1,555
	1,133	4,065	1,102	4,002

	Consolidated and separate financial statement	
	2020 Million Baht	2019 Million Baht
Costs of assets/liabilities recognised in statement of financial position		
Fuel and spare parts, net	53	62
Property, plant and equipment, net	102	107
Provision for mine rehabilitation	2	6
	157	175

28.1 Retirement benefits

The plans are final salary retirement plans. The level of benefits provided depends on members' length of service and their salary in the final years leading up to retirement.

The movements in the defined benefit obligation for the years are as follows:

	Consolidated financial statement		Separate financial statement	
	2020 Million Baht	2019 Million Baht	2020 Million Baht	2019 Million Baht
At 1 January	11,983	10,051	11,767	9,865
Current service cost	500	444	477	422
Past service cost	-	3,029	-	2,993
Finance costs	362	319	354	313
	12,845	13,843	12,598	13,593
Remeasurements				
Loss from change in financial assumptions	31	16	-	9
Experience gain	(1)	-	-	-
	12,875	13,859	12,598	13,602
Exchange differences	-	(1)	-	-
Benefit payment	(1,889)	(1,875)	(1,857)	(1,835)
At 31 December	10,986	11,983	10,741	11,767

28.2 Post-employment medical benefits

EGAT operates a number of post-employment medical benefit schemes where the majority of these plans are unfunded. The method of accounting, significant assumptions and the frequency of valuations are similar to those used for defined benefit pension schemes set out above with the addition of actuarial assumptions relating to the long-term increase in healthcare costs of 8% a year (2019: 8% a year)

The movements in the defined benefit obligation for the years are as follows:

	Consolidated and separate financial statement	
	2020 Million Baht	2019 Million Baht
As at 1 January	5,424	5,026
Current service cost	290	305
Finance cost	138	144
As at 31 December	5,852	5,475
Benefit payment	(54)	(51)
As at 31 December	5,798	5,424

The significant actuarial assumptions used were as follows:

(Retirement benefits and Post-employment medical benefits)

	Consolidated financial statement		Separate financial statement	
	2020	2019	2020	2019
Discount rate	1.69% - 4.50%	2.98% - 4.50%	3.11% - 3.23%	3.11% - 3.23%
Inflation rate				
- Consumer price index	2.75%	2.75%	2.75%	2.75%
Long-term increase in healthcare costs	8%	8%	8%	8%
Turnover rate	0% - 15%	0% - 15%	0.08% - 0.92%	0.08% - 0.92%
Salary growth rate	4% - 8%	4% - 8%	5%	5%
Mortality rate (Table)	TMO17	TMO17	TMO17	TMO17

The weighted average duration of EGAT's defined benefit obligation is 11 to 24 years and 11 to 15 years, respectively (2019: 11 to 24 years and 11 to 15 years, respectively).

Sensitivity analysis for each significant assumption used is as follows:

	Consolidated financial statements					
	Impact on defined benefit obligation					
	Change in assumption		Increase in assumption		Decrease in assumption	
	2020	2019	2020	2019	2020	2019
Discount rate	1%	1%	Decrease 7.00%	Decrease 6.93	Increase 8.20%	Increase 8.08%
- Long-term increase in healthcare costs	1%	1%	Increase 2.64%	Increase 2.29%	Decrease 2.25%	Decrease 1.97%
Salary growth rate	1%	1%	Increase 5.99%	Increase 5.36%	Decrease 5.26%	Decrease 4.74%

	Separate financial statements					
	Impact on defined benefit obligation					
	Change in assumption		Increase in assumption		Decrease in assumption	
	2020	2019	2020	2019	2020	2019
Discount rate	1%	1%	Decrease 6.98%	Decrease 6.89%	Increase 8.16%	Increase 8.04%
- Long-term increase in healthcare costs	1%	1%	Increase 2.68%	Increase 2.32%	Decrease 2.28%	Decrease 1.99%
Salary growth rate	1%	1%	Increase 5.90%	Increase 5.28%	Decrease 5.19%	Decrease 4.67%

The above sensitivity analyses are based on a change in an assumption while holding all other assumptions constant. In practice, this is unlikely to occur, and changes in some of the assumptions may be correlated. When calculating the sensitivity of the defined benefit obligation to significant actuarial assumptions, the same method has been applied as when calculating the retirement benefits recognised in the statement of financial position. The methods and types of assumptions used in preparing the sensitivity analysis did not change compared to the previous period.

29 Lease liabilities under power purchase agreements, net

As at 31 December	Consolidated financial statement		Separate financial statement	
	2020	2019	2020	2019
	Million Baht	Million Baht	Million Baht	Million Baht
Lease liabilities under power purchase agreements	493,554	529,078	506,693	554,037
<u>Less</u> Deferred Interest payable	(266,017)	(288,635)	(266,018)	(297,186)
Lease liabilities under power purchase agreements, net	227,537	240,443	240,675	256,851
Current portion	12,763	12,508	15,339	15,776
Non - current portion	214,774	227,935	225,336	241,075
Lease liabilities under power purchase agreements, net	227,537	240,443	240,675	256,851

The changes in lease liabilities under the power purchase agreement can be analysed as follows:

	Consolidated financial statement Million Baht	Separate financial statement Million Baht
For the year ended 31 December 2020		
Opening net book value	240,443	256,851
Repayment during the year	(42,649)	(48,324)
Amortisation of deferred interest expenses	28,907	31,312
Unrealised loss on translation	836	836
Closing net book value	227,537	240,675

30 Provisions for mine rehabilitation

As at 31 December	Consolidated and separate financial statement	
	2020 Million Baht	2019 Million Baht
Opening net book value	3,927	3,437
<u>Add</u> Increase during the year	147	152
Historical cost adjustments	-	327
Financial cost	123	119
Less Mine rehabilitation cost	4,197	4,035
Depreciation	(84)	(92)
	(26)	(16)
Closing net book value	4,087	3,927

31 Other non-current liabilities

As at 31 December	Consolidated financial statement		Separate financial statement	
	2020 Million Baht	2019 Million Baht	2020 Million Baht	2019 Million Baht
Deferred income				
Opening net book value	8,802	8,477	8,802	8,477
Add Contribution received	893	211	893	211
Asset transferred- in	-	718	-	718
	9,695	9,406	9,695	9,406
Less Recognised to other income	(596)	(603)	(596)	(603)
Decrease in depreciation	(1)	(1)	(1)	(1)
Closing net book value	9,098	8,802	9,098	8,802
Retention	8,280	9,741	8,280	9,741
Liabilities - deferred revenue for electricity compensation	2	1	2	1
Others	2,298	1,690	2,146	1,552
Total	19,678	20,234	19,526	20,096

32 Revenue and costs from sales of other goods and services

For the years ended 31 December	Consolidated financial statement		Separate financial statement	
	2020 Million Baht	2019 Million Baht	2020 Million Baht	2019 Million Baht
Revenue from telecommunication services	185	186	185	186
Revenue from operation and maintenance services	2,591	2,353	3,342	3,948
Others	677	808	331	284
Total	3,453	3,347	3,858	4,418
Cost of telecommunication services	17	15	17	15
Cost operation and maintenance services	1,765	1,402	2,238	2,272
Other	163	302	163	132
Total	1,945	1,719	2,418	2,419

33 Expenses by nature

	Consolidated financial statement		Separate financial statement	
	2020 Million Baht	2019 (Restated) Million Baht	2020 Million Baht	2019 (Restated) Million Baht
Electric energy purchased	206,357	210,590	208,190	211,039
Raw materials and consumables used	104,140	114,884	79,400	86,843
Fuel-finance leases	61,021	82,617	84,520	110,266
Management remuneration	325	349	140	153
Employee expenses	21,566	25,762	20,888	25,097
Depreciation of property, plant and equipment	28,226	26,143	26,683	24,832
Depreciation of assets under finance lease	17,825	18,130	17,825	18,130
Amortisation of intangible assets	443	345	112	88
Hire and maintenance expenses	5,290	4,432	3,354	3,259
Other expenses	10,941	12,512	12,546	15,116
Total	456,134	495,764	453,658	494,823

34 Income tax expenses

Income tax expenses for the years are as follows:

	Consolidated financial statements	
	2020 Million Baht	2019 Million Baht
Current tax:		
Current tax on profits for the year	97	625
Adjustment in respect of the prior year	-	(22)
Total current tax	97	603
Deferred income tax		
Decrease in deferred tax assets (Note 22)	677	641
Decrease in deferred tax liabilities (Note 22)	(669)	(288)
Total deferred income tax	8	353
Income tax expense	105	956

The tax on the Group's profit before tax differs from the theoretical amount that would arise using the basic tax rate of the Parent's home country as follows:

	Consolidated financial statements	
	2020	2019
	Million Baht	Million Baht
Profit before tax	31,416	52,452
Tax calculated at a tax rate of 20% (2019: 20%)	6,283	10,491
Tax effect of:		
Tax-exempted profits	(4,959)	(9,042)
Difference on tax rates in which country the Group operates	(98)	(165)
Income not subject to tax	(11)	(21)
Expenses not deductible for tax purpose and revenue and expenses recognised in different period between accounting period and tax period	(1,287)	(375)
Tax losses for which no deferred income tax asset was recognised	168	83
Adjustment in respect of the prior year	(2)	(22)
Others	(2)	7
Income tax	105	956

In 2020, the weighted average applicable tax rate for the Group was 0.33% (2019: 1.82%).

The tax (charge)/credit relating to component of other comprehensive income is as follows:

	Consolidated financial statements					
	2020			2019		
	Before tax	Tax (charge) credit	After tax	Before tax	Tax (charge) credit	After tax
	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht	Million Baht
Loss on remeasurement of post-employment benefit obligations	(30)	6	(24)	(16)	2	(14)
Other comprehensive income	(30)	6	(24)	(16)	2	(14)
Current tax		-			-	
Deferred income tax (Note 22)		6			2	
		6			2	

35 Impacts from lease liabilities under power purchase agreements

	Consolidated financial statements		
	Balance before impacts from finance lease	Impacts from finance lease	Balance after impacts from finance lease
For the year ended 31 December 2020	Million Baht	Million Baht	Million Baht
Cost of fuel	103,187	61,021	164,208
Cost of electric energy	348,306	(141,949)	206,357
Operating expenses	45,031	24,417	69,448
Total cost of electric energy sales	496,524	(56,511)	440,013
Gain on translation	20	140	160
Finance costs	4,876	28,907	33,783

	Consolidated financial statements		
	Balance before impacts from finance lease Million Baht	Impacts from finance lease Million Baht	Balance after impacts from finance lease Million Baht
For the year ended 31 December 2019			
Cost of fuel	113,808	82,617	196,425
Cost of electric energy	380,849	(170,259)	210,590
Operating expenses	45,076	24,360	69,436
Total cost of electric energy sales	539,733	(63,282)	476,451
Gain on translation	868	10,610	11,478
Finance costs	4,556	30,537	35,093

	Separate financial statements		
	Balance before impacts from finance lease Million Baht	Impacts from finance lease Million Baht	Balance after impacts from finance lease Million Baht
For the year ended 31 December 2020			
Cost of fuel	78,711	84,520	163,231
Cost of electric energy	350,139	(141,949)	208,190
Operating expenses	39,540	27,894	67,434
Total cost of electric energy sales	468,390	(29,535)	438,855
Gain (Loss) on translation	(213)	128	(85)
Finance costs	3,325	31,312	34,637

	Consolidated financial statements		
	Balance before impacts from finance lease Million Baht	Impacts from finance lease Million Baht	Balance after impacts from finance lease Million Baht
For the year ended 31 December 2019			
Cost of fuel	86,160	110,266	196,426
Cost of electric energy	381,298	(170,259)	211,039
Operating expenses	40,377	28,761	69,138
Total cost of electric energy sales	507,835	(31,232)	476,603
Gain on translation	958	10,642	11,600
Finance costs	3,126	33,343	36,469

36 Transactions with related parties

EGAT is a state-owned energy enterprise operating under the supervision of the Ministry of Energy and the Ministry of Finance.

Details of the subsidiary, associates and joint ventures are shown in Note 15.

EGAT's related parties including the government and state enterprises of Thailand.

The following are material transactions with related parties:

36.1 Revenue from sales and services

As at 31 December	Consolidated financial statement		Separate financial statement	
	2020 Million Baht	2019 Million Baht	2020 Million Baht	2019 Million Baht
Revenue from electricity sales				
- Subsidiaries	-	-	144	160
- Associates	21	20	21	20
- Joint ventures	131	95	131	95
- Other related parties	510,821	536,434	510,732	536,434
	510,973	536,549	511,028	536,709
Revenue from sales of goods and services				
- Subsidiaries	-	-	1,049	1,599
- Associates	67	60	60	53
- Joint ventures	2,174	2,210	1,863	1,926
- Other related parties	40	37	39	37
	2,281	2,307	3,011	3,615

36.2 Cost of sales and service

As at 31 December	Consolidated financial statement		Separate financial statement	
	2020 Million Baht	2019 Million Baht	2020 Million Baht	2019 Million Baht
Electricity purchases included in the cost of electricity energy sales				
- Subsidiaries	-	-	28,651	32,360
- Associates	22,699	24,090	22,699	24,090
- Joint ventures	29,156	33,107	29,156	33,107
- Other related parties	65,701	70,958	64,365	70,623
	117,556	128,155	144,871	160,180
Cost of goods and services sold				
- Subsidiaries	-	-	639	872
- Associates	44	29	44	29
- Joint ventures	1,252	1,141	1,252	1,141
- Other related parties	10	5	10	5
	1,306	1,175	1,945	2,047

36.3 Trade and other receivables from related parties

As at 31 December	Consolidated financial statement		Separate financial statement	
	2020	2019	2020	2019
	Million Baht	Million Baht	Million Baht	Million Baht
Trade receivables				
- Subsidiaries	-	-	327	587
- Associates	110	14	109	14
- Joint ventures	290	233	290	233
- Other related parties	52,804	55,622	52,804	55,622
	53,204	55,869	53,530	56,456
Other receivables				
Current				
- Subsidiaries	-	-	-	-
- Associates	2	254	1	2
- Joint ventures	60	129	-	40
- Other related parties	2,113	1,735	2,113	1,735
	2,175	2,118	2,114	1,777
Non-current				
- Joint ventures	44	18	-	-
	44	18	-	-

36.4 Trade and other payables from related parties

As at 31 December	Consolidated financial statement		Separate financial statement	
	2020	2019	2020	2019
	Million Baht	Million Baht	Million Baht	Million Baht
Trade payable				
- Subsidiaries	-	-	4,941	5,262
- Associates	4,425	5,064	4,425	5,064
- Joint ventures	7,539	5,890	7,539	5,890
- Other related parties	4,833	12,106	4,726	12,106
	16,797	23,060	21,631	28,322
Other payable				
Current				
- Subsidiaries	-	-	1	62
- Associates	-	1	-	1
- Joint ventures	695	606	680	592
- Other related parties	82	23	82	23
	777	630	763	678
Non-current				
- Associates	4,878	4,899	-	-
	4,878	4,899	-	-

36.5 Long-term loans to related parties

As at 31 December	Consolidated financial statement	
	2020 Million Baht	2019 Million Baht
Long-term loans		
- Other related parties		
- Current	-	-
- Non-current	523	541
	523	541

The movements of long-term loans to related parties can be analysed as follows:

	Consolidated financial statement Million Baht
For the year ended 31 December 2020	
Opening net book value	541
Exchange difference from translation	(2)
Allowance for impairment	(16)
Closing net book value	523

36.6 Lease liabilities under power purchase agreements, net related parties

As at 31 December	Consolidated financial statement		Separate financial statement	
	2020 Million Baht	2019 Million Baht	2020 Million Baht	2019 Million Baht
Related parties				
Lease liabilities	245,258	258,645	258,397	283,604
Less Deferred interest	(124,750)	(130,970)	(124,752)	(139,522)
Lease liabilities under power purchase agreements, net	120,508	127,675	133,645	144,082
- Current portion	6,889	6,977	9,465	10,245
- Non-current portion	113,619	120,698	124,180	133,837
	120,508	127,675	133,645	144,082

36.7 Dividend received

For the years ended 31 December	Separate financial statement	
	2020 Million Baht	2019 Million Baht
Dividend received		
- Subsidiaries	1,583	1,570
- Associates	836	903
- Joint ventures	117	19
	<u>2,536</u>	<u>2,492</u>

36.8 Directors and Executives Remuneration

For the years ended 31 December	Consolidated financial statement		Separate financial statement	
	2020 Million Baht	2019 Million Baht	2020 Million Baht	2019 Million Baht
Directors remuneration				
- Meeting allowance, remuneration, bonus and others	44	43	11	10
	<u>44</u>	<u>43</u>	<u>11</u>	<u>10</u>
Management remuneration				
- Salary, meeting allowance, bonus and other short-term benefits	291	290	125	139
- Post-employment benefits, and other long-term benefits	7	16	4	4
	<u>298</u>	<u>306</u>	<u>129</u>	<u>143</u>
	<u>342</u>	<u>349</u>	<u>140</u>	<u>153</u>

37 Provision for remittance to the Ministry of Finance

The Ministry of Finance prescribed that EGAT has to remit the 45% of the net profit for the year before accrued bonus expense of separate financial statement, this might vary depend on the revision of the Ministry of Finance.

The movements during the year as follows:

	Consolidated and separate financial statement Million Baht
For the year ended 31 December 2020	
Opening balance	10,318
Accrued remittance to the The Ministry of Finance	12,985
Amount remitted to the The Ministry of Finance during the year	<u>(18,056)</u>
Closing balance	<u>5,247</u>

As at 31 December 2020, the Group had no significant changes in commitments and significant agreements from 31 December 2019, except for the followings:

The Group's obligations

Letters of guarantee

As at 31 December 2020, subsidiaries and joint ventures had commitments from letters of guarantee issued by financial institutions to comply with certain conditions in agreements in the amount of Baht 907 million, US Dollar 10 million and Australian Dollar 20 million, totaling Baht 1,682 million. (as at 31 December 2019: Baht 1,056 million, US Dollar 12 million, Australian Dollar 22 million and Japanese Yen 14 million, totaling Baht 1,912 million).

Standby Letters of Credit

- a) As at 31 December 2020, subsidiaries had commitments from Standby Letters of Credit issued by financial institutions for Debt Service Reserve Guarantees and equity contributions in joint ventures in the amount of Baht 1,600 million, US Dollar 22 million and Australian Dollar 30 million, totaling Baht 2,966 million (as at 31 December 2019: Baht 1,600 million, US Dollar 25 million, Australian Dollar 208 million, totaling Baht 6,804 million)
- b) A subsidiary has pledged collateral for the loan creditor of a joint venture. This is in accordance with the conditions in the Shareholder Support and Subordination Deed (SSSD) and Account Agreement (AA). As at 31 December 2020, had outstanding balance US Dollar 12 million and Baht 162 million, totaling Baht 525 million (as at 31 December 2019: US Dollar 6 million).

Unused of credit facilities

As at 31 December 2020, subsidiaries had unused of credit facilities totalling Baht 7,232 million, US Dollar 1,066 million, Australian Dollar 210 million and Euro 182 million (as at 31 December 2019: Baht 9,908 million, US Dollar 896 million, Australian Dollar 32 million and Euro 300 million).

Capital commitment

As at 31 December 2020, subsidiaries had outstanding capital commitments under Engineering Procurement & Construction Contracts for Wind Farm (Engineering Procurement & Construction Contract) and other service agreements amounting to Australian Dollar 27 million (as at 31 December 2019: Australian Dollar 217 million).

Consulting Service Agreement

As at 31 December 2020, a subsidiary had commitments under consulting contracts amount to Baht 88 million (as at 31 December 2019: Baht 82 million, US Dollar 4 million and Vietnamese Dong 10,102 million).

Operation and Maintenance Agreement

As at 31 December 2020, a subsidiary had Operation and Maintenance Agreement with a service provider for a period of 19 years from the date specified in the agreement. Under the terms of the agreement, such service provider will operate and provide maintenance services to the subsidiary. The operation and maintenance service fee is stipulated in the agreement.

Fuel Purchase Agreements

As at 31 December 2020, two subsidiaries had commitments under Gas Sales Agreement with PTT Public Company Limited ("PTT") for a period of 25 years. PTT will distribute natural gas to such subsidiary at the agreed quantity and price.

As at 31 December 2020, a subsidiary had a Diesel Purchase Agreement with PTT for a period of 3 years. PTT will distribute diesel to the subsidiary at the agreed quantity and price. The agreement is automatically extended for a period of 1 year unless a written notice is provided at least 6 months before the agreement automatically extended.

Contractual Service Agreement

As at 31 December 2020, a subsidiary had Contractual Service Agreement for Combined Cycle power plants through a Consortium with General Electric International Operations Company Inc. and GE Energy Parts, Inc. amounting US Dollar 97 million (as at 31 December 2019: US Dollar 119 million) The agreement were effective from the agreement date until the end of the gas turbine operation in 2027 according to the Power Purchase Agreement.

In addition, in accordance with the agreement, the subsidiary is required to open a letter of credit amounting US Dollar 6 million. As at 31 December 2020, the subsidiary had an outstanding unused letter of credit amounting US Dollar 6 million. (as at 31 December 2019: US Dollar 6 million)

As at 31 December 2020, a subsidiary had outstanding Contractual Service Agreement with a service provider for a period of 15 years from the date specified in the agreement amounting to US Dollar 19 million. (as at 31 December 2019: US Dollar 22 million).

Pledge of share certificate agreements

Subsidiaries and joint ventures had pledged share certificates of subsidiary, four associates and nine joint ventures as collateral for loans of the subsidiaries and joint ventures.

EGAT's obligations

- a) As at 31 December 2020, EGAT has commitments under Long-term Power Purchase Agreements from Thermal Power Plant and Combined Cycle Power Plant with electricity generators amounting to Baht 3,807,944 million (as at 31 December 2019 amounting to 4,578,170 million baht).
- b) As at 31 December 2020, EGAT has commitments under the Natural Gas Purchase Agreement for power plants with PTT Public Company Limited amounting Baht 298,053 million (as at 31 December 2019 in the amount of 155,964 million baht).
- c) As at 31 December 2020, EGAT has commitments under Power Plant Fuel Purchase Agreement with PTT Public Company Limited amounting to Baht 122 million (as at 31 December 2018: None).
- d) As at 31 December 2020, EGAT has commitments under Purchase Agreements amounting to Baht 70,270 million (as at 31 December 2019 amounting to 76,797 million baht).
- e) As of 31 December 2020, EGAT has a total outstanding balance of Letter of Credit at approximately Baht 3,457 million (as of 31 December 2019 amounting to Baht 5,535 million).

39 Litigation

In 2014, a plaintiff filed a lawsuit against a subsidiary based on the allegations that the subsidiary had breached a joint development agreement for bidding a Power Plant Project. The plaintiff demanded the subsidiary to pay for the damage. However, the management of the subsidiary is confident that all of the entity's action have not been in accordance with the allegations of the plaintiff and has much more confidence in strong defences. Therefore, the subsidiary did not recognise a contingent liability in respect of this case. On 25 October 2018, the Court of First Instance issued a judgement to dismiss the claim made by the plaintiff. Subsequently on 10 June 2020, the Court of Appeals issued a judgement to dismiss the claim made by the Plaintiff upheld the Court of First Instance

In 2019, a subsidiary was the defendant in a civil case where the plaintiff demanded the subsidiary to pay Baht 5,271 million as a compensation. The plaintiff claimed that the subsidiary infringed their trade secrets by using information of their trade secrets for seeking profits without their consent. The action reportedly caused damages to the plaintiff and prevented them from receiving income or benefits and upholding the rights over their trade secrets. Subsequently on 30 September 2020, the Central Intellectual Property and International Trade Court issued a judgement to dismiss the claim since the information claimed by the plaintiff has ceased to be recognised as trade secrets. Therefore, the Company did not recognise a contingent liability in respect of this case.

40 Events after the reporting date

Additional investment

On 19 December 2020, a subsidiary participated in the auction and was the winner of the tender for 98.98 million shares of Bangkok Aviation Fuel Services Public Company Limited ("BAFS") (representing 15.53% of all issued and paid-up shares) from Thai Airways International Public Company Limited ("Thai Airways International") at a price of 27.40 baht per share, totaling Baht 2,712 million and on 19 January 2021, the subsidiary received the transfer of such shares and completed the payment of shares to Thai Airways.

Approval of the dividend payment for the year 2020

On 15 February 2021, a meeting of the Board of Directors of a subsidiary company passed a resolution to propose to the Annual General Meeting of Shareholders to approve the payment of dividends for the year 2020 from the profit for the year 2020 as dividends at the rate of Baht 2.4 per share, totaling Baht 3,480 million, net of interim dividends at the rate of Baht 1.15 per share, totaling Baht 1,667 million. The dividend amounting to Baht 1,813 million is subject to the approval of the shareholders at annual general meeting on 5 April 2021.

Remuneration of Auditor

EGAT paid audit fees to PricewaterhouseCoopers ABAS Ltd. (PwC) for the year 2020 for a total of Baht 7,500,000.



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