



PEA
PROVINCIAL ELECTRICITY AUTHORITY

SMART ENERGY FOR BETTER LIFE AND SUSTAINABILITY

Annual Report **2022**
Provincial Electricity Authority



Vision

Smart Energy for Better Life and Sustainability

Mission

PEA is responsible for the provision of standardized electricity services and related businesses to attain the customer's satisfaction with products and services through PEA's continual corporate development plan with the recognition of social and environmental responsibility.

Core Value

Modernization Excellent Service

Good Governance



SMART & GREEN GRID

TOWARDS FUTURE ENERGY



DIGITAL SERVICE & INNOVATION

TOWARDS REGIONAL LEADER



CARBON NEUTRALITY ROADMAP

TOWARDS SUSTAINABILITY



PEA has developed and expanded environmentally friendly smart grid, promoted the use of renewable energy, and improved power systems in response to people's needs, new lifestyles, and electric vehicles. Also, PEA has pursued future power technologies and laid down Microgrid & Solar PV systems outside main grid zones to serve electricity users across Thailand.



Integrating modern digital technology and innovations, **PEA** has upgraded its power grid excellence. Just as it reaches out to customers at all levels with comprehensive power services and related businesses, it seeks to respond to their needs and achieve customer satisfaction in terms of both product quality and services. Its constant organizational development and social and environmental responsibility also pave the way for it to become the region's leading modern organization.



PEA has now kept pace with global trends by attaching importance to the environment and sustainability. It has identified clear targets and guidelines to achieve Carbon Neutrality and sustainable environmental management both inside and outside its organization by 2037. PEA is ready to contribute to efforts to make the world more livable and sustainable for...everyone.



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10-Year Profile



Message from the Chairman

On behalf of the PEA Board of Directors, I would like to declare the aspiration to ensure that PEA operations proceed in accordance with its mission of providing reliable and stable energy services based on good governance, fairness, and equality.

In 2022, several factors multidimensionally affected PEA operations. Just as COVID-19 changed people's lifestyles, disruptive technology, the promotion of green energy, and the restructuring of Thailand's power industry towards sustainable energy also intensified. The fast changes affected stakeholders across all sectors, including PEA. Therefore, PEA developed plans and improved work processes to deal with the situation, setting its sight on timely response. Moreover, PEA accorded importance to its planned transformation into a digital utility for the ultimate goal of upgrading the power distribution system. To ensure its quality, standard, security, and reliability, PEA integrated digital technology to increase the efficiency of existing work systems. In other words, PEA sought to provide comprehensive energy services over a digital platform and leveraged the system in developing new customer-centric businesses. It placed an emphasis on building and managing relationships to respond best to customers' expectations.

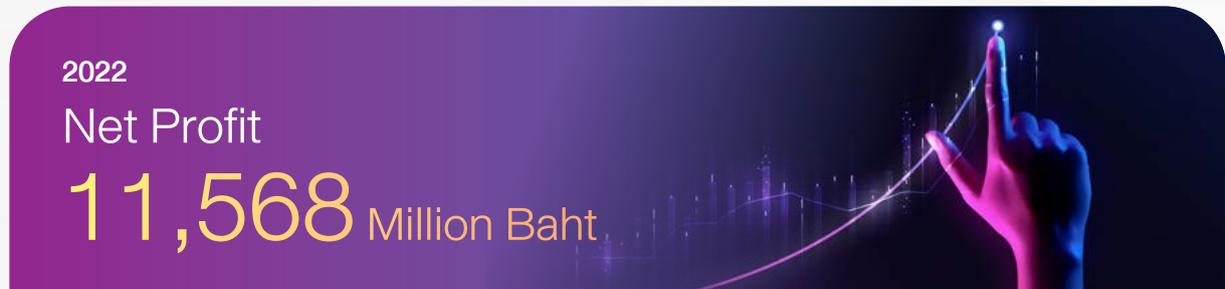
With its performance in 2022, PEA continued to enjoy recognition at both national and international levels. It thus proudly won several awards, including five Outstanding State-Owned Enterprise (SOE) Awards 2022 from the State Enterprise Policy Office, as well as the ITA Awards 2022 together with a certificate of honor from the Office of the National Anti-Corruption Commission. For three consecutive years, PEA has won the AA rating. Of all state enterprises in the energy field, it ranked first. Of all state enterprises assessed, it ranked sixth. Moreover, PEA earned the Sustainability Disclosure Award 2022, the Digital Government Awards 2022, the 2022 Japan Design Idea and Invention Expo (JDIE 2022) Award, the INNOVERSE Invention & Innovation Expo 2022 Award, the International Trade Fair — Ideas, the Invention and New Products (IENA 2022) Award, and many more. All these accolades are testaments of PEA's efficiency, which is achieved through its determined personnel. With determination, they have continuously improved their work in terms of digital technology, innovations, and management transparency, with a sustainable focus on stakeholders.

On behalf of the PEA's Board of Directors, we pledge to supervise and ensure PEA operates in line with its core mission of providing stable and reliable electricity services through good governance, fairness, and equal treatment of all stakeholder groups on a sustainable basis. Lastly, we would like to thank the executives, employees, and workers of PEA for their dedication and for working to the fullest of their abilities. Our thanks also go to all groups of stakeholders for supporting PEA all along, paving the way for its operations to thrive.

Ansit Samphantharat
Chairman of the Board of Directors
Provincial Electricity Authority

Summary of Key Financial Information

Financial Information



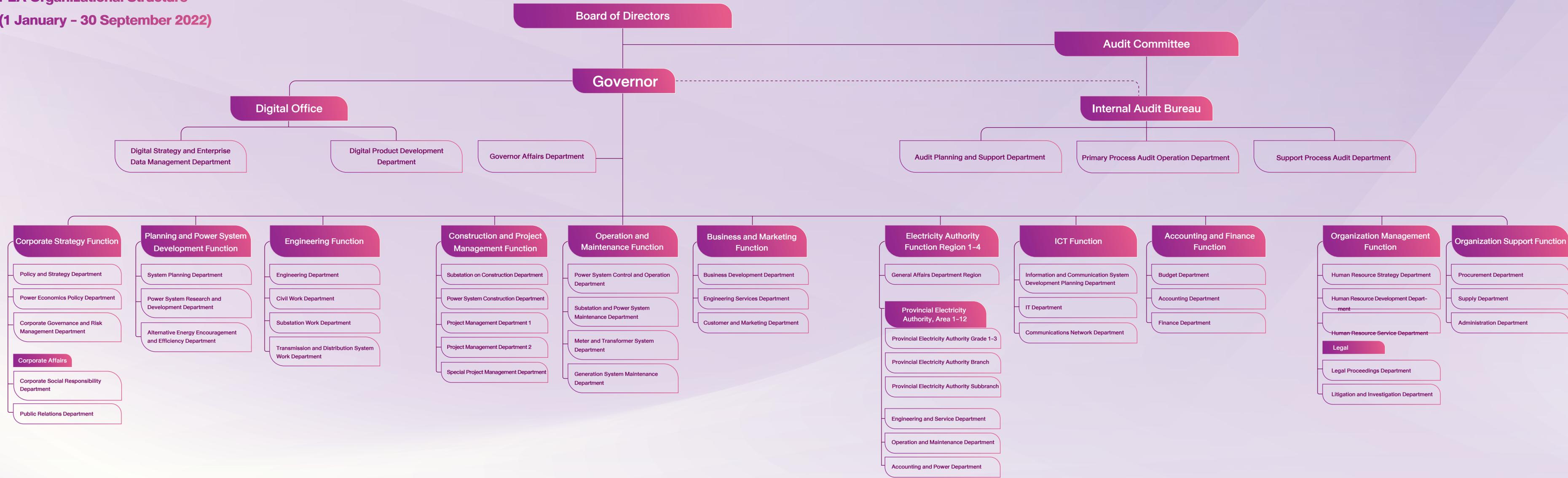
(Unit: Million Baht)

Item	2022	2021	2020
Total Revenues	606,600	509,487	490,110
Total Expenses	595,032	495,466	480,165
Net Profit	11,568	14,021	9,945
Total Assets	523,006	484,478	455,639
Total Liabilities	334,595	299,242	282,248
Equity	188,411	185,236	173,391

Financial Ratios

Item	2022	2021	2020
Current Ratio (Times)	1.22	1.46	1.31
Liquidity Ratio (Times)	1.21	1.43	1.28
Debt-to-Equity Ratio (D/E Ratio) (Times)	0.77	0.70	0.63
Return on Assets (ROA) (Percent)	2.30	2.98	2.26
Debt Service Coverage Ratio (Times)	2.94	1.87	3.56

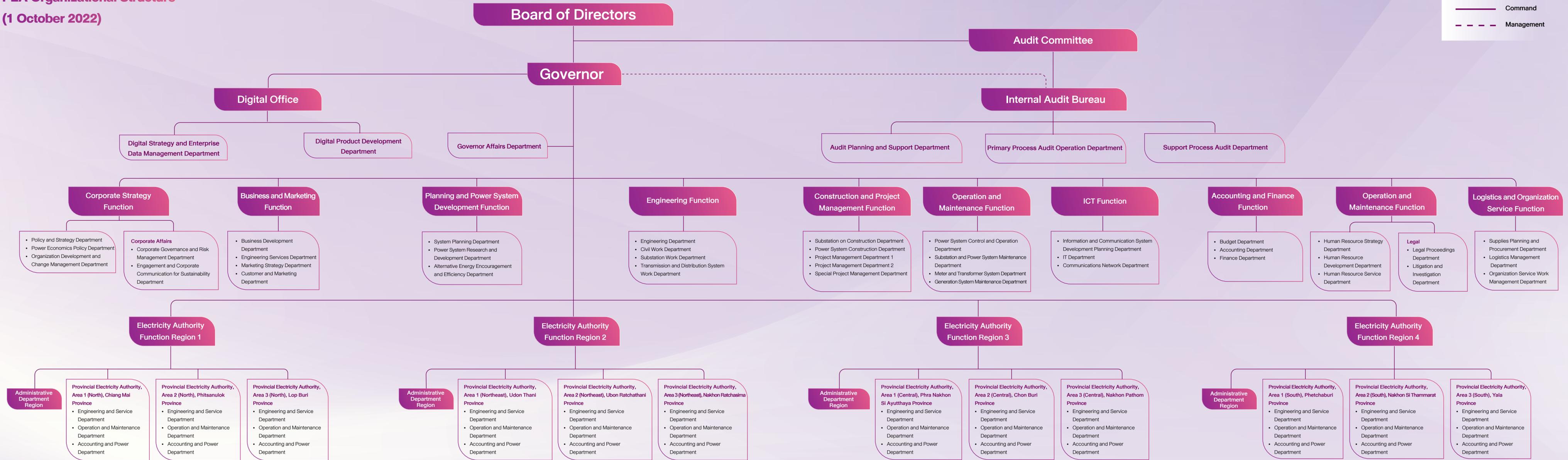
PEA Organizational Structure (1 January - 30 September 2022)



— Command
- - - Management

According to PEA Board of Directors' resolution (No. 3/2020) on 18 March 2020.

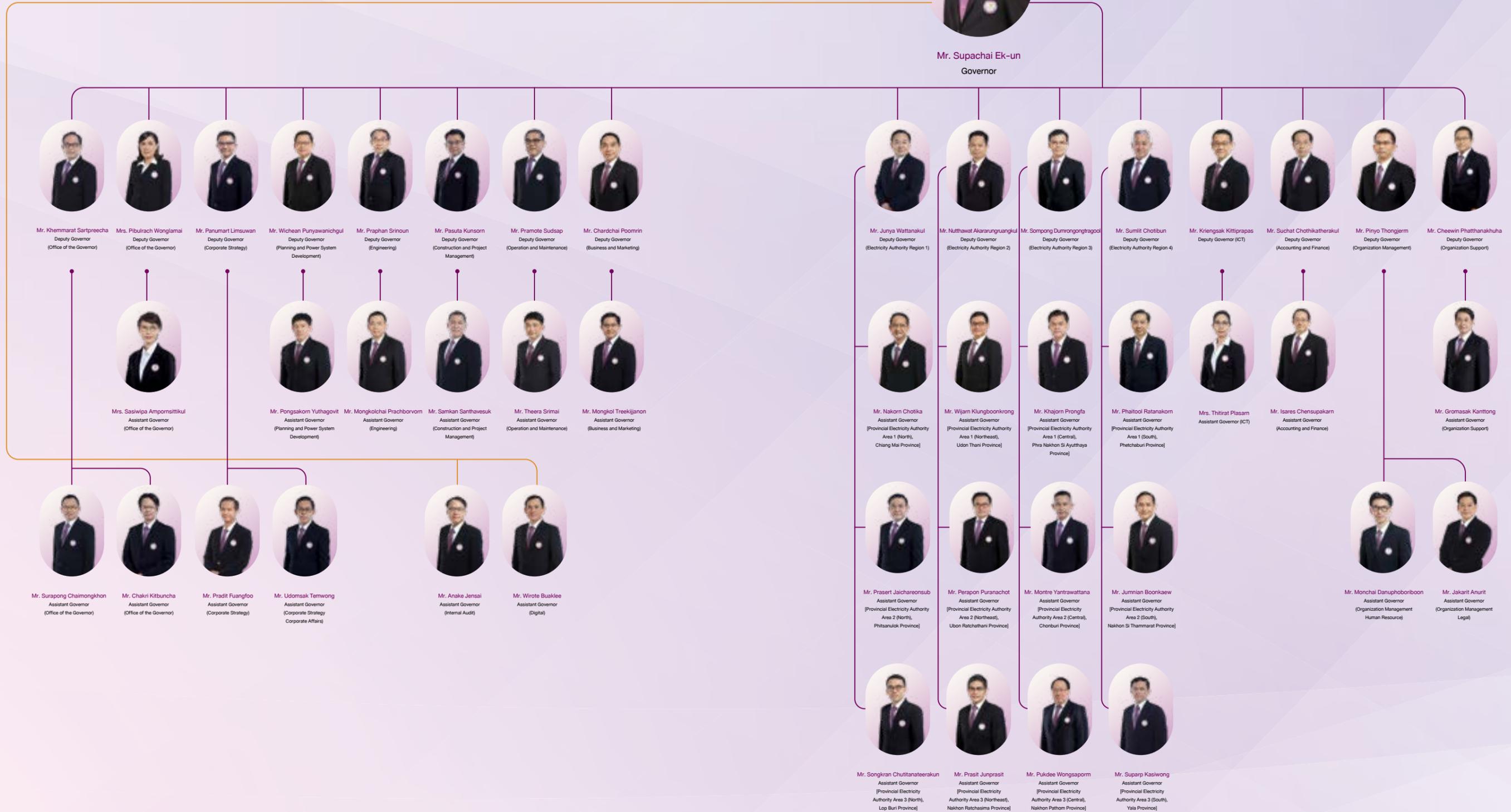
PEA Organizational Structure (1 October 2022)



According to PEA Board of Directors' resolution (No. 3/2022) on 21 February 2022.

PEA Executives 2022

(1 January – 30 September 2022)



PEA Executives 2022 (1 October 2022)



Business Directions



Overall State Enterprise Strategic Plan

In its strategy development, the Provincial Electricity Authority (PEA) has adopted as frameworks the Philosophy of Sufficiency Economy, core principles of the 20-Year National Strategy, 13th National Economic and Social Development Plan, Sustainable Development Goals (SDGs), Thailand 4.0, Digital Economy and Society Development Plan (Digital Economy), as well as other circumstances related to PEA's operations.

Energy Strategy

Enhance national energy security, develop infrastructure to cover all customers and support economic growth, promote business competition and fair price structures, and promote energy efficiency as well as green alternative energy.

Vision

Smart Energy for Better Life and Sustainability

Mission

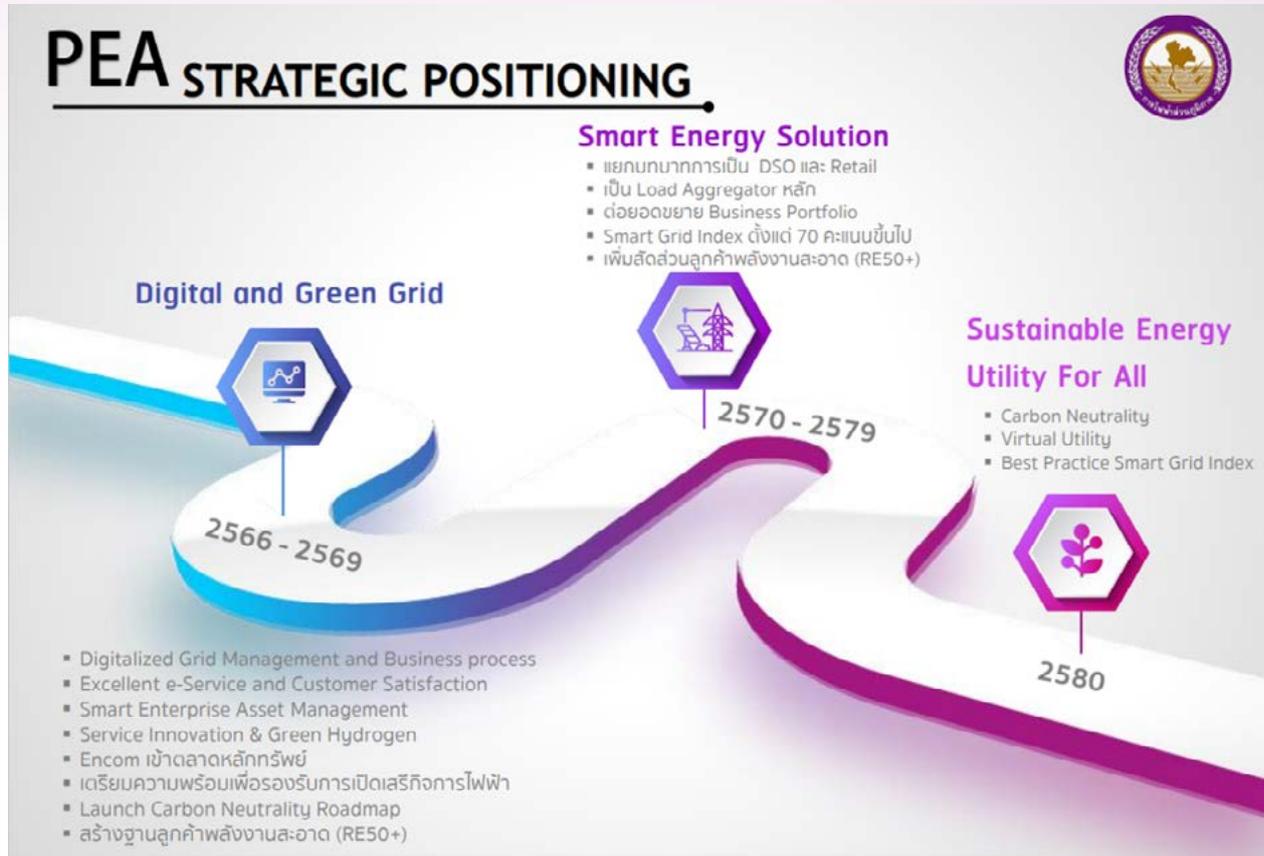
PEA is responsible for the provision of standardized electricity services and related businesses to attain customers' satisfaction with products and services through PEA's continual corporate development plans with the recognition of social and environmental responsibility.

Core Value

Modernization, Excellent Service, Good Governance

Strategic Objectives and Operational Strategies

Strategic Positioning



Strategic Objectives: SO

Strategic Objective	Goal
1. To upgrade management to international standards with the help of digital technology and innovations, and with human resources as driving force.	<ol style="list-style-type: none"> To bring management to par with international standards. To enhance skills in line with changing business conditions, technologies, and competition. To improve work processes and integrate databases with digital technology and innovations. To set standards of good governance and information technology management.
2. To develop efficient and reliable distribution systems, and upgrade them to smart grid, paving the way for PEA to be a power-system leader that satisfies customers and stakeholders.	<ol style="list-style-type: none"> To operate the region's leading distribution systems. To successfully manage low-voltage power systems. To achieve customer/stakeholder satisfaction. To make the Smart Grid project a success.
3. To enhance operating results and gear toward new businesses in the direction of power-industry liberalization.	<ol style="list-style-type: none"> To uphold financial security and raise the percentage of revenue from non-power businesses. To carry out operations based on subsidiaries' portfolio selection. To completely digitalize work processes and acquire business foresight from customer data. To successfully complete a pilot project for power-industry liberalization.
4. To be a leading power utility that efficiently addresses Thailand's challenges for social and environmental sustainability.	<ol style="list-style-type: none"> To answer Thailand's energy and energy-security policies. To reduce social and environmental impacts, carbon emissions from operations. To successfully implement Thailand's Energy Platform project.

Strategy

Strategy 1

Upgrading organizational and human resource management

This strategy places an emphasis on Human Resource Management 4.0 (HRM 4.0), which seeks to develop human resource management system for the effective and efficient fulfillment of PEA's goals. This strategy attaches importance to the development of management systems and workforce to ensure they proceed in line with future direction in terms of competition and digitalization, which promises to reduce workload. An emphasis is also placed on the upcoming liberalization of the power industry so that digital technology is well integrated in support of enhanced organizational and human resource management.

In addition, this strategy focuses on improving human resource management and development with the help of digital technology. Under this strategy, screening and selection of staff are carefully made to create a quality talent pool for PEA. This strategy empowers employees by putting the right person in the right job and promoting collaborations. Employees, moreover, are prepared to deal with changing contexts and disruptive technologies.

This strategy upskills and boosts the potential of personnel in accordance with the industry's changing circumstances. With constant development in place, employees' capabilities rise to meet PEA's expectations. Employees serve as key mechanisms that support the development of PEA in all dimensions. Under this strategy, PEA develops mechanisms to facilitate its new-generation staff's career advancement in accordance with its business direction and succession plan for key positions. Talents are groomed as successors to holders of important positions and for the role of fulfilling business needs in the future. These talents must be able to retain knowledge and consistently implement PEA's policies, as many executives of PEA will gradually retire in the next 5 to 10 years.

Human resource planning and development includes the identification of Digital Competency, personnel upskilling, Big Data Analytics, Data Analytics, and competency-based human resource development. In addition, this strategy focuses on developing personnel in line with the fast-changing technology and power industry. Under this strategy, PEA's staff are expected to have technological/innovation knowledge and skills and readily adjust to emerging changes. Furthermore, this strategy places an emphasis on knowledge management across the whole process, including the distribution or sharing of knowledge among PEA's units/departments so as to pave the way for PEA's improvements in pursuit of greater efficiency and effectiveness.

Strategy 2

Promoting/developing capabilities with stable and secure digital technology to efficiently drive digital transformation

This strategy aims to enhance PEA's digital technology for the purpose of strengthening its operations and developing its data-driven execution. Importance is attached to the improvement of work and data systems, which cover databases, unstructured data, Big Data & Analytics, and data integration and synchronization so that PEA can improve its service and management quality, move ahead with efficiency, and uphold security, safety, and trust for stakeholders across all sectors with the help of digital technology. The move is crucial to its transformation into a digital utility, as it covers standard, data privacy, as well as cyber security. This strategy places a strong emphasis on information and communication system's security to boost confidence in online communications and transactions, with service users being protected under the Personal Data Protection Act (PDPA). Critical infrastructure such as SCADA (supervisory control and data acquisition) receives special emphasis too because it must be stable and secure for PEA to operate. Under this strategy, PEA also promotes networking whereby anti-cyberthreat information is shared.

Strategy 3

Development of corporate innovation system (CIS)

This strategy aims to develop systems for innovation creation. The systems cover the formulation of direction/policy on innovation management and the roles of leaders, staff, and innovation-related units, as well as the formulation of innovation strategy and process, including innovation structure, process, management and utilization, the management of knowledge for innovations, corporate culture and personnel behaviors, the provision of resources, and outcome from innovation process. The outcome may be in the form of innovative products, innovative services, innovative processes, business-model innovations, and other innovations that are designed to increase operational efficiency and sustain the profitability of PEA's core businesses or to respond better to customers' needs as PEA pursues opportunities in related businesses.

Strategy 4

Development of the region's leading distribution systems based on Grid Modernization Roadmap

This strategy accords importance to increasing the capacity of efficient and inclusive power distribution systems, which involve the development of power systems and power-plant constructions to ensure adequate, stable, and reliable supply even in the face of growing demand for power, reduce operational and maintenance problems, lower loss in the distribution system, improve and link power distribution systems in commercial districts, industrial zones, industrial estates, and key areas, and also to accommodate the growth of economic and strategic areas with the provision of inclusive, adequate, and stable power distribution systems that not only meet standards but are also recognized regionally. The key guideline of this strategy is the quality of PEA's power distribution systems. PEA thus sets its power-distribution security score and operational plans in accordance with the 13th National Economic and Social Development Plan. Improvement has been made to increase the quality, security, and consistency of power distribution; reduce the problem of frequent or long blackouts, especially in industrial and urban zones; as well as to enhance the efficiency and security of power systems in special economic zones and the country's strategic zones. This strategy prescribes the development of infrastructure for new power systems that support the imminent rise of renewable energy and technology for energy efficiency management.

Under this strategy, PEA focuses on improving the quality of low-voltage distribution systems to support the shift of power industry. The improvement is done with efforts to monitor and tackle power interruptions in areas covered by low-voltage distribution systems. PEA has laid down the guidelines to, in events of blackouts, quickly and efficiently restore power services. SAIFI (System Average Interruption Frequency Index) & SAIDI (System Average Interruption Duration Index) of low-voltage distribution systems have been evaluated and reported. Analyses have identified not just the causes of power interruptions but also their solution so that maintenance can be done in a way that will efficiently prevent blackouts.

PEA has also digitally integrated its data to enable the exchange and shared use of data in the long run, especially in regard to power distribution networks and power distribution assets. Data integration mainly aims to reduce redundancy and the cost of data input, as well as to increase the efficiency of work done based on data. However, implementation has met with many problems and obstacles. PEA's key project is Grid Model Data Management, which seeks to bring data quality to ISO/IEC 25012 standard as an assurance that data utilization will be able to fulfill users' expectations. In this project, Grid Analytics has utmost importance in regard to network expansion and management in response to power demand and Distributed Energy Resources Integration or DERs Integration.

PEA has developed Smart Grid, which is a power network managed by information and communications technology, to control power production, transmissions, and distribution. Connecting with Distributed Energy Resources (DERs), Smart Grid promises to serve smart-meter users with efficiency, security, safety, reliability, and quality that meets international standards. For example, Voltage Control applies to voltage management in support of electric vehicles and the liberalization of power industry.

Strategy 5

Upgrading customer/stakeholder engagement and satisfaction

PEA has accorded importance to developing good relationships with all groups of stakeholders as a foundation for its sustainable growth by mainly answering internal and external stakeholders' needs so as to raise the satisfaction and engagement of all stakeholder groups. PEA has 9 key groups of stakeholders, namely regulators and the public sector; customers and power users; communities, society, and the environment; media; business partners; the Board of Directors; employees and internal units; affiliates; and peers and competitors. Under this strategy, PEA focuses on creating good customer experience, customer satisfaction, and good impressions from the stage of searching for product/service information to purchase decision-making and after-sales services. Studies have been conducted to determine customers' needs and customer experience for the design of products, services, and customer-engagement activities as well as the procurement of new facilities that will respond better to customers' needs or enhance customer experience. In the New Normal age, customer behaviors have changed significantly. Therefore, it is necessary to develop Smart Customer Services (SCS) to deliver and promote online services. For example, power users should be encouraged to subscribe for e-Bill and PEA Smart Plus. Not only that the online services will give convenience to customers, but they will also ease PEA branches' workload. These online services are also in line with the growing popularity of online payment services among consumers. This trend lowers PEA's customer service cost and contributes to sustainable environmental care.

Under this strategy, PEA has maintained key accounts with risks by developing a customer relationship system with the help of digital technology for the goal of increasing customer service efficiency and customer satisfaction in pursuit of the integration of PEA's customer data related to their needs and expectations so as to better design strategies for each type of customers and key accounts, formulate strategies to retain customers who otherwise may switch to small power producers (SPPs), and to prepare marketing strategies for upgrading and expanding PEA's businesses and creating added value to PEA.

The development of customer relationships with Customer Relationship Management (CRM) system is a proactive strategy that significantly retains customers for PEA and systematically upgrades its customer service standard. Backed by CRM system, customer data are up-to-date and well-integrated enough to prevent customer service waste. PEA becomes lean, as workloads on customer service staff reduce. Existing staff, therefore, can serve customers faster, increasing customers' convenience and impressing them more. CRM usage is important to the development of customer services throughout Customer Journey. It also supports the expansion of Smart Meter Installation Pilot Project and the commercialization of customer data, customers' power consumption data, and power payment data in the form of new businesses. CRM, moreover, helps with the management of power load and improves debt management.

Strategy 6

Formulating strategic direction of PEA and affiliates

PEA has accorded importance to the formulation of its investment policies and the design of its Potential Portfolio Strategies to manage its investments on the overall via PEA as well as its affiliates for maximum shareholder value and sustainable development. The ultimate goal is to list PEA ENCOM International Company Limited in the stock market. Key works include:

The review of the overall investment policies of PEA and affiliates covered investment directions that will benefit PEA and align with changing contexts and business models. Also reviewed were investment goals (business portfolio and expected return), which resonate with major shareholders, and organizational management goals. The focus is on clearly formulating the roles and direction of PEA ENCOM Company Limited both in the short and long runs, as well as its operational strategies, strategic positioning, and clear and concrete targets so as to improve operating management efficiency and operating results, including revenue, operating profit, and cash flow. PEA will later formulate an appropriate business model framework that resonates with the direction and



corporate rating of the company so as to create opportunities to raise funds for businesses both in Thailand and overseas as well as to present a good image to key stakeholders.

Strategy 7

Implementing plans for related businesses and product portfolio

Under this strategy, key guidelines are as follows:

1. PEA has developed the same standard and format for conducting feasibility studies on business projects covering business, marketing, technical, legal and regulatory aspects, etc., to ensure executives can appropriately consider and compare them.

2. PEA has designed a business model by clearly designing and improving work processes and operating models, has prepared Proof of Concept to test with a pilot project, and has conducted preliminary evaluations mainly to determine market feasibility and breakeven points. Resources are then prepared for the commercialization of planned products/services, covering financial plans and marketing plans that suit market conditions and competition of each business sector for the purposes of securing competitive edge.

3. PEA has properly networked with partners both in Thailand and overseas, and developed relationships with them. Key partners include: 1) Government agencies or organizations (government-to-government relationships); 2) Technology, innovation, and platform developers such as the creators of software for energy management, energy sales/purchases, and customer analytics to enhance portfolio; 3) Equipment manufacturers such as manufacturers of smart-home devices and smart meters; 4) Interesting project developers in both public and private sectors. PEA and affiliates may invest in these partners' projects because they can strengthen PEA in the aspects of businesses and marketing, as well as technology/innovation learning.

In the face of the power industry's changing structure, PEA needs to explore investment opportunities and develop related businesses. PEA therefore should categorize its businesses into Regulated Business, which is operated under a state enterprise, and Non-regulated Business. Also, it should develop businesses with its existing resources that have not been used at maximum efficiency such as fiber optics. Non-regulated Business should be driven via affiliates or companies that function more in the style of a private company or through collaboration with partners. This strategy prescribes the clear formulation of ends, ways, and means, which will pave the way for the work processes that support operations and related businesses. Under this strategy, separate financial statements are also underlined to make clear which are regulated businesses. This factor counts in power tariff structure. PEA must also focus on non-regulated businesses to support its overall profitability. Under this strategy, PEA will use its advantage of vast customer database. Not only that its customers cover the whole Thailand, but they also cover households, large industrial users, small industrial users, commercial users, and government users. With a huge amount of customer data in its hands, PEA just needs Data Analytics to gain Business Intelligence and leverage data for value creation. Data Analytics helps present data in a ready-for-processing format. Processing can be done by technology, command, or models, giving output for usage and interpretation by trained persons. Analyses of data in PEA's hands offer overall area-based or industry-based insights, which lead to proper marketing. Preliminary analyses are based on population statistics and demographic data to support the making of decisions on customer base expansion and customers' needs, which leads to the development of related businesses in response to customers' needs. Data Analytics promises to enhance productivity, efficiency, and effectiveness; streamline work processes; lower costs; and enable multidimensional risk management.





Strategy 8

Improving relevant regulations for enhanced agility and competitiveness

Under this strategy, PEA seeks to review, prepare, or join the process of improving acts, laws, regulations, rules, and orders that are related to its businesses. Moreover, this strategy promotes compliance with laws, rules, regulations, policies, and standards both in Thailand and overseas, as well as the improvement of processes, regulations, guidelines, and operations for efficiency and transparency. This strategy aims to ensure that if PEA sets up affiliates/joint ventures in the future, it will be able to comply with relevant laws. Moreover, this strategy seeks to ensure there are proper policies and guidelines to govern PEA and affiliates, for example, in relation to the development of online payment platforms that suit changing customer behaviors.

Strategy 9

Promoting PEA's role in the policy on power-industry liberalization

This strategy recognizes the fact that power production and distribution methods have been changing. Today, some consumers have become prosumers — those who both use and sell power via peer-to-peer (P2P) methods. The Energy Regulatory Commission therefore needs to study formats and methods used in various countries to find what can apply to the regulatory structure of Thailand's power industry. Under the Energy Business Act B.E. 2550, new formats of power selling and buying are not yet allowed. The Energy Regulatory Commission has thus implemented the ERC Sandbox to test such formats in the EEC zone as a pilot initiative that will help determine their suitability before their expansion to other areas. The ERC Sandbox is scheduled for implementation between 2021 and 2023. In this situation, PEA needs to look ahead and think about its role in the future. As the liberalization of power distribution will happen at the national level, PEA will have to prepare itself for the role of Distribution System Operator (DSO).

Strategy 10

Growing sustainably with eco-efficiency boost

This strategy seeks to promote PEA's sustainable growth in economic, social, and environmental aspects. The balance in all these aspects is crucial for PEA to conduct sustainable development practices that comply with international standards, including ISO 26000 (International Guidance on Social Responsibility) and Sustainable Development Goals (SDGs) (Balanced development that resonates with three sustainability pillars) and Dow Jones Sustainability Index (DJSI that lists "world-class sustainability stocks" of companies demonstrating outstanding business performance and a strong focus on sustainability). This strategy aligns with the 20-year national strategy on energy, government policies, and the United Nations' goals of enhanced living standards and human well-being too. PEA's jurisdiction covers 74 provinces across Thailand. It therefore should serve as a key mechanism in driving and promoting energy efficiency across all sectors, by controlling and curbing energy losses during economic activities as well as drawing up the most efficient energy usage plans.

PEA can support greenhouse gas emission reduction and the pursuit of carbon neutrality by first preparing the Sustainability Report, which helps the reorganization of data and processing in a way that reflects continuous development and leads to the generation of sustainable value for its organization.

Strategy 11

Raising percentage of renewable energy power

The Energy Regulatory Commission has the policy for PEA to buy 5 megawatts of power from Solar PV Rooftops per year from 2022 at the rate of 2.20 baht per unit for a period of 10 years. The scheduled commercial operation date (SCOD) must be within 270 days from the day of signing the contract to sell and buy power. Currently, PEA has not yet been able to meet the target because 1) The number of registered power sellers is not high enough; and 2) Some power sellers fail to meet all criteria resulting in the cancellation of their contracts. In the face of this situation, PEA will implement guidelines that promote the pursuit of the target and offer the people's sector opportunities to use power produced by renewable energy.

Currently, power users have expressed more interest in installing solar cells at home because of growing prosumer trend and lower installation cost, which is made possible by increasingly advanced technologies. Many power producers have produced more than enough for their own consumption and have hoped to sell the surplus through a distribution system, as the move will lower their costs and boost their household income. PEA considers the improvement of the process to buy power from the people's sector one of its key projects to support the Energy Regulatory Commission's policy and to give people opportunities to use power produced by clean energy. Such move will also enable Thailand to progress on the front of laying down the renewable-energy foundation for energy security.



Nature of Business

Background

The Provincial Electricity Authority (PEA) was founded as an individual organization under the Royal Decree issued on 6 March 1954, announced in the Royal Thai Government Gazette on 16 March 1954. The Board of Directors was appointed to steer business management under the oversight of the Department of Public and Municipal Works, the Ministry of Interior, and the government, with the Minister of Interior holding general governing authority. The Provincial Electricity Organization boasted an initial capital of 5 million baht, with 117 electricity authorities within its purview. Subsequently, PEA was established under the Provincial Electricity Authority Act, B.E. 2503 (1960) on 28 September 1960 and inherited ongoing mission from the Provincial Electricity Organization.

Objectives

PEA's objectives were set out by Section 6 of the Provincial Electricity Authority Act, B.E. 2503 (1960) as follows:

- Generate, procure, distribute, and sell electricity;
- Operate an electricity business and related businesses or those that supplement PEA.

Products and Services

- **The core business** is supply and distribution of electricity to customers in 74 provinces except Bangkok, Nonthaburi, and Samut Prakan.

- **Related Businesses** refer to businesses or operations that are related to power distribution, which are downstream businesses. Some of the Related Businesses are regulated businesses, while some others are non-regulated businesses pursuant to the Energy Regulatory Commission. The Related Businesses are additional services or optional services on top of power distribution, provided by PEA based on its resources and expertise as well as national or global trends. It can also be said that the Related Businesses have leveraged PEA or subsidiaries' competitive advantages and their or their partners' resources. Some of the Related Businesses represent the New S-Curve, which is rooted in innovations.

- **Electrical Power System Construction and Installation:** Electrical power system construction and installation contribute to better service integration. The business, directly aimed at customer satisfaction, comprises construction, installation of communication tools, and connection of power grids.
- **Electrical Power System Inspection Repair and Maintenance:** PEA provides six types of service on electrical power system inspection repair and maintenance, namely hotline and high-voltage cable connection; transformer inspection and maintenance; transformer installation, removal, and repair; power system installation, inspection, and maintenance; integrated services for power system maintenance; and inspection and maintenance of underground cables.
- **Expertise Service** With support of its own experts and their extensive experience, PEA applies know-how, technology, as well as modern tools and equipment to four types of service, namely electrical equipment testing, engineering, training, and concrete product testing services.
- **Electrical Appliance/Equipment Sale and Rental:** PEA offers electrical appliance/equipment sale and rental service in nine areas of work, namely transformer rental; transformer installation, decommissioning, and repair; power generator rental; transformer sale; sale of other electrical equipment; power meter sale; capacitor sale; power pole sale; and product distribution/sale.
- **Energy Management:** PEA provides energy management services to third parties, such as the energy efficiency enhancement project in the public sector and solar rooftop installation service for residences.

- **Asset Management:** PEA provides efficient asset management to increase revenue. The services include power pole rental service, fiber optic rental service, rental or use of other assets, and real-estate rental.

- **New Businesses:**

PEA has created New Businesses to respond to customers' needs and global trends in a more comprehensive manner. At present, PEA has operated EV charging stations via PEA VOLTA Platform that in the future will be able to provide more types of services. In addition, PEA has distributed innovative products that were developed by its employees. A digital platform is now being developed to expand its distribution across Thailand.

• **Affiliates** Following the Cabinet resolution of 3 June 2009, PEA ENCOM International Company Limited was established as a PEA's wholly owned subsidiary, intended for making energy investments and providing training concerning the power system for public and private sectors, both in Thailand and abroad.

Wholly owned by PEA, PEA ENCOM was registered as a juristic person on 14 October 2009 and it is situated 200 Ngam Wong Wan Road, Lat Yao, Chatuchak, Bangkok. As of 31 December 2022, it commanded paid-up capital of 4,010,621,250 baht from 401,062,125 shares, priced at 10 baht per share.

- **Vision**

An energy management organization with innovation that is recognized in the region.

- **Mission**

1. Invest in and develop a fully integrated domestic electric power and energy conservation business.
2. It is the government's mechanism for promoting investment and a market reference for renewable energy and energy conservation of the state.
3. Expand investment in electric power and related businesses in the region.



Capital and Shareholding Structure

PEA is wholly owned by the Ministry of Finance with the shareholding structure shown below.

(Unit: Million Baht)

Item	As of 31 December 2022	As of 31 December 2021	As of 31 December 2020
Initial capital	87	87	87
Fiscal budget	4,803	4,803	4,803

PEA's responsible areas and offices



Responsible for

74

provinces

Responsible areas covering

99%

of Thailand

21.6

million customers

- **Responsible Areas**

PEA takes responsibility for power distribution in 74 provinces except Bangkok, Nonthaburi, and Samut Prakan (which are under the responsibility of the Metropolitan Electricity Authority). These areas cover 99% of the country, or around 510,000 sq.km., serving 21,670,057 customers.

- **PEA Head Office**

Located in Bangkok, PEA Head Office takes charge of devising policies and plans while providing advice and securing equipment and supplies for regional offices.

• PEA Regional Offices

Categories	Number of Offices in Year 2022			
	Provincial Electricity Authority Grade 1-3	Provincial Electricity Authority Branch	Provincial Electricity Authority Subbranch	Total
Provincial Electricity Authority Area 1 (North), Chiang Mai Province	17	31	44	92
Provincial Electricity Authority Area 2 (North), Phitsanulok Province	12	30	45	87
Provincial Electricity Authority Area 3 (North), Lop Buri Province	13	25	31	69
Northern Region	42	86	120	248
Provincial Electricity Authority Area 1 (Northeast), Udon Thani Province	16	27	73	116
Provincial Electricity Authority Area 2 (Northeast), Ubon Ratchathani Province	14	28	77	119
Provincial Electricity Authority Area 3 (Northeast), Nakhon Ratchasima Province	15	32	39	86
Northeastern Region	45	87	189	321
Provincial Electricity Authority Area 1 (Central), Phra Nakhon Si Ayutthaya Province	26	18	25	69
Provincial Electricity Authority Area 2 (Central), Chon Buri Province	23	15	24	62
Provincial Electricity Authority Area 3 (Central), Nakhon Pathom Province	18	16	15	49
Central Region	67	49	64	180
Provincial Electricity Authority Area 1 (South), Phetchaburi Province	14	15	23	52
Provincial Electricity Authority Area 2 (South), Nakhon Si Thammarat Province	17	26	36	79
Provincial Electricity Authority Area 3 (South), Yala Province	13	21	34	68
Southern Region	44	62	93	199
Total	198	284	466	948

Note: The number does not include PEA Head Office and 12 PEA Regional Offices.

PEA Regional Offices

Bangkok

- **Provincial Electricity Authority Head Office**
200 Ngam Wong Wan Road, Lat Yao Subdistrict,
Chatuchak District, Bangkok 10900

Northern Region

- **Provincial Electricity Authority Area 1 (North), Chiang Mai Province**
208 Chiang Mai-Lamphun Road, Wat Ket Subdistrict,
Mueang Chiang Mai District, Chiang Mai 50000
Supervises electricity operations in six provinces, namely Chiang Mai, Mae Hong Son, Lamphun, Lampang, Chiang Rai, and Phayao
- **Provincial Electricity Authority Area 2 (North), Phitsanulok Province**
350/9 Moo 7, Mittraphap Road, Samo Khae Subdistrict,
Mueang Phitsanulok District, Phitsanulok 65000
Supervises electricity operations in eight provinces, namely Phitsanulok, Phichit, Tak, Kamphaeng Phet, Sukhothai, Phrae, Nan, and Uttaradit
- **Provincial Electricity Authority Area 3 (North), Lop Buri Province**
13 Phahon Yothin Road, Thale Chup Son Subdistrict, Mueang Lop Buri District, Lop Buri 15000
Supervises electricity operations in six provinces, namely Lop Buri, Sing Buri, Phetchabun, Nakhon Sawan, Uthai Thani and Chai Nat

Northeastern Region

- **Provincial Electricity Authority Area 1 (Northeast), Udon Thani Province**
123 Moo 5, Ban Nong Hua Mu, Na Di Subdistrict, Mueang Udon Thani District, Udon Thani 41000
Supervises electricity operations in eight provinces, namely Udon Thani, Nong Khai, Khon Kaen, Loei, Sakon Nakhon, Nakhon Phanom, Nong Bua Lam Phu, and Bueng Kan
- **Provincial Electricity Authority Area 2 (Northeast), Ubon Ratchathani Province**
195 Moo 7, Liang Mueang Road, Chaeramae Subdistrict,
Mueang Ubon Ratchathani District, Ubon Ratchathani 34000
Supervises electricity operations in eight provinces, namely Ubon Ratchathani, Yasothon, Roi Et, Kalasin, Maha Sarakham, Si Sa Ket, Mukdahan, and Amnat Charoen
- **Provincial Electricity Authority Area 3 (Northeast), Nakhon Ratchasima Province**
3 Moo 2, Mittraphap Road, Ban Mai Subdistrict, Mueang Nakhon Ratchasima District, Nakhon Ratchasima 30000

Supervises electricity operations in four provinces, namely Nakhon Ratchasima, Chaiyaphum, Buri Ram, and Surin

Central Region

- **Provincial Electricity Authority Area 1 (Central), Phra Nakhon Si Ayutthaya Province**
46 Moo 6, Asian Highway, Hantra Subdistrict, Phra Nakhon Si Ayutthaya District, Phra Nakhon Si Ayutthaya 13000
Supervises electricity operations in seven provinces, namely Phra Nakhon Si Ayutthaya, Ang Thong, Pathum Thani, Saraburi, Nakhon Nayok, Prachin Buri, and Sa Kaeo
- **Provincial Electricity Authority Area 2 (Central), Chon Buri Province**
47/1 Moo 3, Samet Subdistrict, Mueang Chon Buri District, Chon Buri 20000
Supervises electricity operations in five provinces, namely Chon Buri, Chachoengsao, Rayong, Chanthaburi, and Trat
- **Provincial Electricity Authority Area 3 (Central), Nakhon Pathom Province**
9/1 Moo 1, Thaiyawat Subdistrict, Nakhon Chai Si District, Nakhon Pathom 73120
Supervises electricity operations in four provinces, namely Nakhon Pathom, Samut Sakhon, Suphan Buri, Kanchanaburi, and Ratchaburi (covering only Ban Pong District of Ratchaburi Province)

Southern Region

- **Provincial Electricity Authority Area 1 (South), Phetchaburi Province**
86 Moo 5, Phetchaburi-Hat Chao Samran Road, Pho Rai Wan Subdistrict, Mueang Phetchaburi District, Phetchaburi 76000
Supervises electricity operations in six provinces, namely Phetchaburi, Prachuap Khiri Khan, Ratchaburi, Samut Songkhram, Chumphon, and Ranong
- **Provincial Electricity Authority Area 2 (South), Nakhon Si Thammarat Province**
167 Moo 3, Asian Highway, Na San Subdistrict, Phra Phrom District, Nakhon Si Thammarat 80000
Supervises electricity operations in six provinces, namely Nakhon Si Thammarat, Trang, Krabi, Surat Thani, Phuket, and Phang-nga
- **Provincial Electricity Authority Area 3 (South), Yala Province**
59/27 Yala-Pattani Road, Khao Tum Subdistrict, Yarang District, Pattani 94160
Supervises electricity operations in six provinces, namely Yala, Pattani, Narathiwat, Songkhla, Satun, and Phatthalung.

Business Overview

Influencing factors

Megatrends have now affected both the power industry and the energy industry. They look set to perpetuate significant changes both in medium and long terms across various dimensions as follows:



1. Disruptive Technology: Small power plants, which are fueled by renewable energy, are now located across Thailand. The use of electric vehicles (EVs) is growing while the costs of batteries and Energy Storage System (ESS), which are also becoming increasingly efficient, are getting lower. Sensors and smart meters are becoming smaller in size and consuming just little energy too. Enabled by the Internet of Things (IoT), online systems enjoy rising capabilities and capacity to deal with Big Data. Blockchain technology has been increasingly integrated into electronic financial transactions too just as cybersecurity has established a growing presence.

2. Global Demographic Shift and Migration to Secondary Cities: In the face of fast urban expansion, big cities other than capitals become densely populated. As a result, cities in provincial areas have invested in big and stable utility systems. They have also presented eco-friendly energy choices, for example, by developing Smart City projects, green buildings, and district cooling and heating systems.

3. Clean Energy Power: This energy choice is to help reduce power production's environmental impacts. As the manufacturing sector raises global temperature and causes the shortage of natural resources, the power industry has the challenging missions of prioritizing clean energy in the production process, ensuring the stability of power systems that now connect with alternative-energy lines, and handling the growing demand from the growing population. As the population rises, opportunities for renewable-energy businesses will emerge but so will the number of competitors. The production of power with alternative energy and renewable energy will increase as well.

4. Carbon Credit Market: Used as a tool to curb greenhouse gas emissions, carbon credit also offers opportunities to companies that have used technologies for carbon emission reduction. Carbon credit, after all, can generate income for private firms.

5. COVID-19 Impacts: Although the pandemic has just had moderate impacts on the power industry in terms of workforce size, it has spurred investments in smart technology and transition to smart grids, and the integration of automation systems. As more work procedures are unmanned, PEA must urgently prepare its personnel, work process, and technologies in line with changes.

Industry Outlook and Trends

Thailand's power industry has been changing with the shift towards the use of various fuels and a stronger focus on energy security. The Thai government has already announced the goal of raising renewable energy power to 30 percent of the country's total power production capacity by 2036. In pursuit of this goal, the government has urgently promoted power plants that use renewable energy such as solar energy, wind energy, biomass energy, and bioenergy. As the fast-ongoing transformation will affect stakeholders within the country's power industry, the following 4Ds will apply.

Decarbonization: In response to global warming, decarbonization emerged for the goal of achieving Net Zero Carbon Emission. Thailand has planned to promote the production of renewable energy. However, as such production can be volatile and variable, the country has promoted Battery Energy Storage systems and the use of electric vehicles. As such trend has also caught on in other parts of the world, decarbonization can also help protect stakeholders from trade barriers.

Decentralization: This element is about the fast-growing percentage of distributed energy resources (DER) in power distribution systems. The increase owes significantly to renewable-energy power sources. Decentralization is the opposite of the centralized system, which had been the norm in the past. With the centralized system, large power plants were mainly in charge of power transmission. With increasing decentralization, power network management becomes more complicated. DER sizes and locations in the network have huge impacts on the system, causing two-way flows. Because of excess power, reverse power flow has occurred. Decentralization may lead to problems related to power-flow consistency and overcrowded power networks. It should also be noted that Independent Power Supply (IPS) has been growing. Power charging by electric vehicles has also peaked during some hours. PEA has to address all these issues efficiently.

Digitalization: In response to digital transformation in the power industry, Thailand has prepared several supportive policies, such as Advanced Metering Infrastructure, Smart Grid, Energy Management System, Big Data Management, Information Sharing, Digital Platforms, and Customer Service Platform. All these systems must be integrated for synchronization. PEA will also deploy digital technology to achieve a lean process. As remote controls are often targeted by cyberattacks, PEA will have to prepare systems for cybersecurity as well. In addition, it will seriously use artificial intelligence in support of power-system planning, power-network operation system, and power-system maintenance for increased reliability and stability in power-system services.

Deregulation: Thailand has already introduced policies to restructure its power industry for the purposes of encouraging transparent and fair competition and discouraging nepotism. These policies have pushed for unbundling, which is about separating regulated wire businesses such as the businesses of transmission system operators (TSOs) and distribution system operators (DSOs) from supply businesses in sectors where competition is possible. In the supply businesses are power generators, wholesalers, retailers, and aggregators. Trends suggest that an agency shall be established to serve as a market operator and take up the mission of managing power sales/purchases in advance. Pursuant to the National Energy Policy Council and the Energy Regulatory Commission, all three electricity authorities shall need to prepare Third Party Access Code (TPA Code) for third parties to sign bilateral contracts or peer-to-peer agreements — which may be done directly or via management agents — and enter their power networks by 2022. Therefore, PEA needed to urgently carry out several tasks including the formulation of TPA Code, the design of work process to facilitate TPA system, the formulation of criteria and proposed service rate/fines, the development of information infrastructure for sharing key information with service users, coordination with transmission system operators and service users, and the processing of output and the collection of service fees. It is likely that some mechanisms will be tested in pilot areas during their first phase.

Performance Results

2022 Performance

Performance Analysis

Management Discussion and Analysis (MD & A)

PEA is committed to becoming a digital utility agency in pursuit of higher quality, standard, stability, and reliability of its distribution system under customer-centric management. To this end, our focus is on nurturing and managing customer relationships to satisfy expectations. Integrated power service is offered on the digital platform leveraging digital technology not only to excel at present operations but to also embark on new ventures.

Currently, the global power industry is constantly transforming itself in both structure and business operations. Numerous new players have emerged amid the liberalized electricity market and higher customers' expectations for supply stability and services, mainly due to disruptive technology, which brings about three key changes:

1. **Electrification:** A shift in energy consumption in the transport sector and heat production from fossil fuels to electricity, such as electric vehicles (EVs) and heat pumps;
2. **Decentralization:** Power generation becoming more decentralized, such as distributed generation, microgrids, and prosumers;
3. **Digitalization:** More application of digital technology to the power system, such as real-time communication and operation systems, smart meters, smart sensors, and automation systems.

In Thailand, PEA is also affected by such transformation, which set off driving forces on operation, for example, a desire for higher system quality and reliability, an increase in alternative/renewable energy and its connection to PEA's grid, the emergence of community power plants, energy-saving technology, and energy efficiency. Also, a consequence of the transformation is the development of electric vehicles (EVs), which entails demand for charging stations and energy storage devices. The power industry structure is being reshaped, turning purchasers into prosumers (who act as both purchasers and sellers) while energy trading between customers, known as peer-to-peer commerce, is becoming common. In addition, artificial intelligence (AI), machine learning, as well as Big Data and data analytics will take part in service improvement in various aspects. Gearing PEA toward a digital utility agency is therefore vital.

These factors imply both opportunities and challenges for PEA to make organizational changes, management efficiency, business development, and innovative services to grow further in a sustainable manner and intelligently respond to the new face of the power industry as well as customers' demands and expectations which will be totally transformed.

Based on the current investment plans and those for the next three years, PEA has aligned its work plans with the predicted rise in power demand. The plans also correspond with the evolving power industry, which requires management and development in the following key areas:

1. Power System Management

1.1 Transmission and Distribution Development Project – 2nd Stage: The project develops the power system and construction of new substations to achieve substation automation systems under IEC 61850 to ensure sufficient and reliable power distribution against rising demands, minimize operation and maintenance problems, and cut loss units in the distribution systems. At the same time, the project will see the installation of power transformers and equipment of higher quality and standards so that PEA may improve and connect distribution systems in business and industrial areas, industrial estates, and other key areas for higher system security.

1.2 Major Cities Power System Development Project - 2nd Stage: The project constructs and improves power systems along with the installation of additional equipment in project areas to enhance system stability and reliability while reducing problems and obstacles to operation, maintenance, and safety to sustain modern technological applications and Smart Cities.

1.3 Agriculture Electrification Project - 2nd Stage: The project underlines power supply extension to agricultural areas, integrated farming plots, and agricultural gardens. By supporting farmers' livelihood, the grassroots economy is strengthened.

1.4 New Rural Household Electrification Project - 2nd Stage: The project involves the expansion of power supply to all households, as stipulated by government policy.

2. Digital Technology Management

2.1 Upgrading power systems with digital technology: Smart Grid

- The Project to Study and Develop DERs Model on PEA Power Distribution System via Virtual Power Plant (VPP):** It studies guidelines on DER (distributed energy resource) management within PEA's distribution system based on Virtual Power Plant (VPP) concept for grid flexibility and stability. The target area is Chon Buri's Pattaya City because the project can be built based on the already-implemented smart city project. Under this project, Cloud-based VPP-PEA Solution Platform will be implemented in support of renewable energy power production systems, which use solar rooftops alongside battery energy storage. PEA will use the results of this study project in developing guidelines for its enhanced grid flexibility and stability, as its distribution system must be linked to several DERs. The project is also expected to help PEA improve power quality, service efficiency, and reliability. Moreover, PEA looks set to be able to defer investments in the power distribution system's key infrastructure in the target area while getting new business models from DER management in a way that benefits power systems, power users, and prosumers the most.
- Project on Automated Demand Response Management System:** It designs and develops Load Aggregator Management System based on PEA's sub-architecture, recognizing PEA as the first Load Aggregator. The system must align with all elements of Demand Response process. The Automated Demand Response Management System comprises Demand Response Control Center, Load Aggregators, and Demand Response Resources. Under the project, the system's efficiency in curbing load responses by high-cost power plants without compromising the ability to respond to actual power demand will be assessed as Thailand pursues smart grid. The automated demand response is expected to reduce the role of power plants where the production cost is high. The Power Development Plan (PDP) then should be able to set a proper load.
- Long-Term Battery Energy Storage System (BESS) Plan for Surat Thani's Samui Island:** Designed to boost power security and solve power shortages on Surat Thani's Samui, Pha-ngan, and Tao islands where power systems are linked; as well as to ease burden on and risks from the Samui Power Plant 2's underground cable circuit that is the only one for Samui, this project focuses on the rental, control, and maintenance of BESS on Samui Island. Under this plan, the BESS switching endurance is 25 megawatts (MW) and its total capacity will be no less than 50 megawatt hours (MWh). Each day, it will be able to distribute more than 50,000 power units. This project, in all, will lay down guidance on how to promote an energy storage system and set a model for increased power stability and adequate energy supply in remote areas. Also, it is expected to inspire learning and development of smart BESS that will be able to fast respond to demand and support islanding, of automated demand response system, and of the Energy Storage - Renewable Energy utilization. Moreover, this project promises to solve future problems about power systems and foster the commercial potential of its study subjects.

- **Micro Grid Improvement Plan for Mae Hong Son's Mueang Mae Hong Son District:** Designed to develop micro grid controller for Mae Hong Son's Mueang Mae Hong Son District, it focuses on planning and operating micro power sources for maximum efficiency. This plan will enhance the security, reliability, and quality of the overall power system; reduce maintenance time and expenses; curb loss units in long-distance production and distribution systems; and support government policies on Smart Grid, renewable-energy power production, and greenhouse gas emission reduction that will help lower environmental impacts.
- **Geographic Information System Development Plan Phase 3 (GIS 3) for Power Systems:** Designed to raise the efficiency of power systems' geographic information system (GIS), this plan expands service scope to accommodate growing demand from an increasing number of power systems. Under the plan, data are centralized to facilitate overall analyses of nationwide power systems. Data Recovery Centers (DRC) were also set up to uphold the system's security. If a main site goes down, a DRC will swing into action instead. Old applications have been improved while new mobile applications have been created. Up-to-date aerial images are collected and compiled to enhance the efficiency of analytics, operations, and integration of power systems' GIS, which applies to field works, supports users nationwide, and facilitates the operations of PEA, namely:
 - Power system planning, design, and construction
 - Power interruption fixing
 - Power system maintenance
 - Analyses of power systems in electrical engineering aspect
 - Customer services

Not only that PEA GIS increases power systems' stability, but it also upgrades PEA's customer services. Paving the way for new customer services, it helps PEA create customer satisfaction, reduce costs, and save time. On the overall, the costs of power system planning have also been reduced.

2.2 Digital technology-enabled customer connection

- **Developing digital customer service channels:** PEA has now operated several digital channels to serve customers based on Omni Channel concept. For example, there are PEA Website (e-Service) and PEA Smart Plus Application — both of which offer one-stop service. Customers can use either of these channels to submit requests, report a power outage, pay electricity bills, and receive electricity bills, receipts, or e-tax invoices via the app or email. These channels have even enabled users to check the status of their complaints or the progress of ongoing constructions on the website. Moreover, PEA has operated 1129 PEA Contact Center as well as Live Chat features to handle enquiries and receive reports on power interruption. PEA, in addition, has provided information to the public via SMS and social media, including LINE OA: PEA Thailand.

To ensure the efficiency of these service-delivery channels, PEA has also prepared Service Level Agreements (SLA) and conducted customer satisfaction surveys. In 2022, the efficiency of each channel was assessed for further improvement, which promises to enhance PEA's corporate image and strengthen its ties with power users.

2.3 Organizational Modernization

- **Work-D Super App (Platform for Frontline Staff and Capital Project Management or CPM):** Designed for frontline staff, this app seeks to enable users to work with speed, convenience, and efficiency. Work-D Super App functions like a center for PEA frontline staff. In 2022, this app also integrated CPM to enhance the efficiency and agility of

survey process, design, estimation of construction costs, project management, and other relevant tasks. With the integration, staff can access information electronically and work anytime, anywhere. Engineering documents related to the estimation of construction costs can be managed and integrated via the app to other work systems fast and conveniently. Work-D Super App was already launched for use. PEA is also in the process of improving its capabilities further. The improvement is expected to be completed in 2023.

- **Development of Enterprise Performance Management (EPM):** The EPM has been developed to enable the fast and efficient monitoring of key tasks' status, including the progress of corporate strategies' implementation. Also available on EPM are key corporate information and key performance indicators of PEA. Currently, PEA has already completed the upload of key information on EPM. More information will be integrated into EPM in the future.
- **Data-driven Organization Development:** PEA has laid down data-utilization strategy and fostered relevant values for its transformation into a data-driven organization. It seeks to integrate information that has been scattered across various units in a systematic manner, and supervise data collection to ensure data quality and availability for data analytics, which will lead to the upgrade of its service quality and management. Such efforts, moreover, will support data visualization, making it easier for the management to make decisions based on the provided information. In 2022, PEA selected four use cases for its data analytics. They were:
 1. Analysis for the categorization of power users' behaviors
 2. Analysis for PEA customer recommendations
 3. Analysis of competency talents and successors
 4. Analysis for improved outage management
- **Employee Self-Service Development:** With the aim of enabling employees to manage their welfare with greater efficiency, PEA has developed PEA Life system. This mobile application is a center of employee information, management, and welfare. In 2022, this application had additional features. For example, it was linked to PEA's corporate news system, welfare/field-trip allowance disbursement system, and employees'/their family members' health information system.
- **Development of Robotic Process Automation Center of Excellence (RPA COE):** To drive digital transformation, it is necessary that PEA embrace automation for faster work speed, enhanced efficiency, and greater accuracy. Routines, in particular, should be automated. For the goal of fast-driving its businesses, PEA has already pursued Robotic Process Automation (RPA). In 2022, PEA surveyed RPA demand among its units. It also established the Robotic Process Automation Center of Excellence (RPA COE), which will formulate RPA usage criteria and supervision to ensure the most efficient RPA usage within PEA.

2.4 Digital Infrastructure

- **IT Infrastructure Design and Consolidation for PEA (ITIDC), Virtual Desktop Infrastructure and Disaster Recovery Center (DRC):** To ensure business agility, PEA needs to secure scalability and accommodate demand in the future with fast speed, efficiency, and safety while lowering capital expenditure and maintenance costs in regard to both hardware and software. PEA therefore has developed Cloud Infrastructure or Infrastructure as a Service (IaaS), which was launched in April 2021. With the aim of ensuring secure and more efficient application development on Cloud Infrastructure, PEA has also laid down development, security, and operations (DevSecOps) guidance for software delivery. In addition, it has studied the guidelines for Platform As A Service (PaaS) in hopes of increasing PEA's Cloud Infrastructure capabilities further.

Moreover, PEA has striven to enable employees to access and work with PEA's specific applications and software anytime, anywhere, via various devices such as computers, smartphones, and tablets. To increase its access security, PEA has developed Virtual Desktop Infrastructure (VDI). Launched in late 2022, VDI has now had 4,000 concurrent users. For Big Data management, IT services, and safe and secure Cloud Infrastructure, PEA has curbed the risks of IT-system inoperability by setting up a disaster recovery site (DR Site). The establishment promises to curb impacts from the events in which Data Center suffers damages. The DR site will be able to function in place of the main site if the latter becomes inoperable. At present, the DR site has already opened. It is now in the process of backing up data on Cloud Infrastructure.

- **Cyber Security Enhancement:** PEA's continuous digital development comes with an unprecedented risk of cyber threats. To deal efficiently with such threats and increase its digital security, PEA has established the PEA Security Operations Center (PEA SOC). Operating 24 hours a day and seven days a week, PEA SOC has monitored the operations of PEA's information and operational technologies. It has also supported compliance with strategies and standards. In addition, it has conducted penetration tests to strengthen PEA's cyber security. Presently, PEA has complied with ISO/IEC 27001:2013 standard on digital security that applies nationwide (all 12 areas of PEA) and core systems. Moreover, it has implemented the Security Awareness Program to ensure employees' knowledge and understanding of how to protect PEA from cyber threats.
- **Enterprise Architecture Governance & Development for IT and IT Services:** PEA's IT Governance has been in line with the COBIT (Control Objectives for Information and Related Technologies) framework. In 2022, its "IT governance and digital technology governance" also successfully passed the 1st Surveillance Audit. This achievement proved that PEA has complied with the internationally recognized ISO/IEC38500:2015 standard. Moreover, it has developed ICT services that are certified based on ISO 20000-1:2018 standard. These services include PEA Service Desk, which handles incident reports, and electronic data services (DDOC).

In addition, for the purpose of ensuring PEA's efficient analyses and planning especially in regard to digital technology development, PEA has embraced Enterprise Architecture (EA) as a tool for organizational adjustments. Through the approach, PEA can see the work of its whole organization, from business processes to applications, data, and technologies, paving the way for systematic and sustainable management. EA has reflected PEA's As-Is architecture as well as its To-Be architecture. Therefore, it is possible to conduct analyses for streamlining work processes and integrating digital technology for higher efficiency.

2.5 Digital Businesses

PEA has already started new businesses that mainly leverage digital platforms. These businesses, namely PEA VOLTA Platform and PEA Care and Services Application, can be summarized as follows:

PEA VOLTA Platform: PEA has developed PEA Volta platform from the research undertaken under its grant by King Mongkut's Institute of Technology Ladkrabang. This business aims to provide convenient, fast, and easy-to-use EV charging stations. Customers can turn to a navigation system to get to the nearest station and check the status of active chargers, charging status, and the units of power in kilowatt hour (kWh) and kilowatt (kW). Service users therefore can manage charging time on their own and pay for the services through PEA Volta Application. At present, 123 PEA Volta stations have already conducted commercial operations in 52 provinces across Thailand. Offering quick charges, they are located on main highways, secondary roads, as well as at major tourist attractions. In 2023, PEA will open 190 more such stations.

PEA Care and Services Application: Designed as One Stop Service Platform, this Mobile Application is preparing to offer power system installations, improvements, repairs, and checks for houses/offices. Also available are air-conditioner cleaning services. Using standard equipment, the services are to be provided by PEA-certified technicians. The services from PEA Care and Services Application aim to give convenience to people, businesses, and industrial operators. Providers of the services are holders of the Skill Development Department's indoor electrician licenses.



Currently, PEA is reviewing work done for PEA Care and Services Project by contractors and testing it in the trial period. Relevant units have already prepared business strategies for this project. The full official launch of the services is expected to take place in the second quarter of 2023.

3. Human Resource Management and Development

3.1 Workforce Management

PEA follows the “recruit, replace, reskill, upskill” approach in managing its human resources to ensure suitable manpower for its drive toward a digital business operator. Analysis is made into manpower demand, recruitment, and selection to get the right person matching business needs. Consideration is made of future business needs of job positions to support most efficient power system management and downstream businesses to grow customer service.

Manpower Structure and Human Resources Expenditure (as of 31 December 2022)

(Unit: Person)

No.	Function/Office	Employee	Contractor	Total
1	Office of the Governor	77	17	94
2	Internal Audit Bureau	134	-	134
3	Digital Office	115	1	116
4	Planning and Power System Development	249	3	252
5	Corporate Strategy	327	7	334
6	Business and Marketing	263	5	268
7	Electricity Authority Region 1	5,538	1,217	6,755
8	Electricity Authority Region 2	6,600	1,466	8,066
9	Electricity Authority Region 3	6,843	1,668	8,511
10	Electricity Authority Region 4	5,300	1,128	6,428
11	Engineering	297	7	304
12	ICT	275	4	279
13	Construction and Project Management	476	64	540
14	Operation and Maintenance	464	36	500
15	Logistic and Organization Support	276	41	317
16	Accounting and Finance	324	14	338
17	Organization Management	532	7	539
	Total	28,090	5,685	33,775

Personnel Expenditure

(Unit: Million Baht)

Description	2022	2021	2020
Employees	19,275	18,456	19,058
Contractors	1,768	1,718	1,653
Total	21,043	20,174	20,711

3.2 Organizational Restructuring

PEA has dynamically restructured its organization in response to both internal and external factors, including government policies, power industry's structure, business trends, digital technology, innovations, changing customer behaviors, and stakeholders' needs and expectations.

The principles for PEA's organizational restructuring are:

1. Lean Organization
2. Response to Energy Disruption
3. Enhancement

In the organizational structure, job descriptions have been changing in accordance with changing organizational context, corporate strategies, and overall work systems. The changes have been made through the participation of executives, employees, and relevant parties in all sectors. In addition, change management has been conducted to ensure employees not only know but also accept work-system changes. Moreover, PEA has developed its personnel to ensure they can keep pace with new technologies and tasks.

Recognizing the importance of good governance, sustainable development, organizational development across its value chain, reliable smart grid, increased competitiveness, and efficient customer services in its pursuit of sustainable growth and in response to stakeholders' needs, PEA has embraced both downsizing and decentralization. PEA has restructured and redefined job descriptions of Governance, Risk Management, and Compliance (GRC) Function, Sustainability Function, Stakeholder Engagement Function, Digital Technology Function, Related Businesses & Affiliates Management Function, Marketing & Customer Service Function, and Power System Assets Management Function to better respond to changing context.

3.3 Performance Management

PEA's staff performance assessment (appraisal) system has been established, under which procedures and key performance indicators (KPIs) were set for fairness and employee engagement. The outcomes of the assessment go into reviewing compensation, appointment, selection of high-caliber staff, and staff development.

3.4 Raising Employee Satisfaction and Engagement

PEA undertakes a survey each year on employee satisfaction and engagement. Survey results shape strategy formulation and improvement so that PEA may become an organization where employees are motivated and determined to leverage their full potential. Work quality will thus be continuously achieved and delivered to customers.

3.5 Personnel Promotion and Development

Recognizing its workforce as a valuable asset and vital to its sustainable growth, PEA laid down policies and approaches for a system for managing and developing human capital to optimize personnel capability. In place are systematic upskilling and reskilling of all personnel in all jobs to close gaps in keeping with digital-age needs, including technical skills, regarded as PEA's core competency, and competencies for various job aspects, management skills, development of the quality of life, ethics, and morality. An aspired PEA Competency Model for all employees has been defined.

PEA commands various ways of promoting personnel development, focusing on continuous learning and promoting personnel's participation in and responsibility for their own development via individual development plans (IDPs) for all executives and employees. To this end, the 70:20:10 development model is applied. At the same time, PEA focuses on nurturing specialized experts (in engineering and management), including power quality, system reliability, system protection, system maintenance, alternative energy, and hotlines. Skill development is also achieved through online curricula, digital mindset, and digital skill development, among others. It is crucial to groom these personnel with competencies and skills to cope with tomorrow's operations. Equally important, PEA promotes innovation research and development (R&D) by staging technical conferences, contests, and seminars, including PEACON & Innovation 2021, an innovation and invention contest, and a selection of outstanding PEA offices. PEA also supports lifelong learning by providing scholarships for the pursuit of postgraduate studies or training courses both in Thailand and abroad. It encourages staff to present their academic articles in international arenas to raise their readiness and potential in support of business growth and transformation.

3.6 Cultivation of Learning Culture

PEA recognizes the value of a mechanism that unlocks staff's potential to optimize the organization. Knowledge and experience, the intellectual capital, are to be employed for productivity enhancement while innovation is to be fostered. PEA takes it most seriously to promote learning at both personal and organizational levels by supporting learning and knowledge sharing, which drives knowledge and innovation management processes. The process begins with the definition of key organizational knowledge, taking into consideration the voice of customers, challenges and strategic advantages, management's policies, key work plans, and organization expertise, among others. The compiled knowledge is compiled into electronic documents and hard copies and passed on through coaching, training, seminars, and an information system for knowledge management, found at km-si.pea.co.th. PEA also advocates knowledge management system integration (KMSi) based on the existing know-how, which will lead to innovation development and higher operating process efficiency. PEA also promotes staff learning in various forms, including organizing the PEACON & Innovation Seminar 2022, an event for presenting innovation and knowledge management, and outstanding PEA office competition. Learning and knowledge sharing is continuously encouraged between PEA and other agencies as well as the public through the establishment of a PEA Learning Center, visits to customers, seminars among customers, 1129 Contact Center, education of community residents, technical seminars, seminars with other agencies, cooperation among ASEAN electricity agencies, production of a manual to spread the knowledge, and several routine technical cooperation projects. As a result, PEA already has in place the required knowledge ready for application to scale up innovation in a sustainable way.

4. Supply Management

COVID-19 impacts on PEA's supply procurements have eased. In the middle of 2022, PEA ended measures that were earlier introduced to help contractors affected by the COVID-19 outbreak. However, the COVID-19 outbreak continued to affect PEA's procurements. There were occasional complaints about the shortage of key supplies, such as power meters and power transformers, during some periods of 2022. To ease the problems, PEA allowed units that must use the items to procure the necessary supplies in the volume needed.

Because PEA faced procurement problems, its procurement units have urgently integrated information technologies into their work process so as to increase procurement efficiency as well as to lower time, costs, and expenses of procurement right from planning to implementation, contract signing, supply delivery, and the acceptance of supplies. For example, they have developed PEA e-Procurement and Material Planning system and conducted Data Cleansing. The system will apply to PEA's procurements before the end of 2023.

5. Services

5.1 Electricity-Related Services

PEA has developed comprehensive service channels catering to the needs of all customer groups. This year, due to their shifting needs, specifically for more digital services, PEA has developed the PEA Smart Plus Application and the PEA e-Service system, which offer customers identical transaction services as those for personal interaction at PEA's offices. Finally, the 1129 PEA Contact Center is in place for notification of power interruptions as well as for news and information around the clock.

PEA focuses on speedy and efficient services with a relentlessly improving quality standard. An example is the One Touch Service process, developed on cutting-edge technology to enhance power system inspection, assist in identifying meter installation coordinates using the GIS mapping system, and better fix power interruptions. Improvement was also made to the OMS system, GIS mapping system, and weather forecast for coordination with the SCADA (Supervisory Control and Data Acquisition) system so that the power interruption repairs may be closely monitored, thus resulting in faster work. Moreover, electricity billing was improved with a barcode system developed to enable customers to make payment via ATM as another payment channel. PEA has also developed the e-Tax invoice/e-Receipt system. Using a smart-card reader, customers' complaints can be lodged in the system

connected to the Department of Provincial Administration's database, resulting in a shorter process, cost-saving, and shorter waiting time. Customers' needs can thus be promptly responded. In 2022, PEA operated the "PEA Speedy Meter Installation Project", serving low-voltage (less than 30 amperes) meter installation to upgrade the standard of meter installation in communities, within one day (against two days previously) and meter installation outside communities, within three days (against five days previously). This move has helped customers access power more readily.

PEA also relieved the public's, entrepreneurs', and farmers' expenditure for access to electricity by waiving the expenses for the construction of power systems for the first 140 meters and implementing the New Rural Household Electrification Project along with a plan to speed up electrification for agricultural areas as previously defined.

PEA catered to the public policy of promoting electric vehicles (EVs) by launching 123 charging stations in 52 provinces under the PEA VOLTA brand; amended its rules for installing a second meter for EV users to lower their costs for enlarging electrical wiring into homes; and catered to customers' needs for charging stations by allowing them to use the power rates for EV charging stations under the ERC's low-priority management condition. For this matter, customers can monitor news and PEA's announcements through social media at:

Facebook: <http://www.facebook.com/Provincial.Electricity.Authority>

Twitter: https://twitter.com/pea_thailand

5.2 Downstream Business Services

PEA has set up supplementary and new businesses to support customers and enhance its power services both in and outside Thailand. Scaled up from developed capacity for resource consumption and expertise, these include construction and installation of power systems and repair and maintenance service, expertise service, electrical equipment sale and rental service, energy management, asset management, and new businesses, with more information available at www.pea.co.th. In 2022 PEA posted a total of 7,604.55 million baht in revenue from these.

5.3 Affiliates

1. Supply generation business

To date, PEA ENCOM has jointly invested in this business in 10 projects:

- Solar farm — with Solar Power Co., Ltd. at four sites, namely Surin 1, Surin 2, Loei 2, and Khon Kaen 10, each with an installed capacity of 7.5 MW. Commercial transmission to the grid has already started.
- Bacho Biogas — with Thai Serm Suk Energy Co., Ltd. at Khok Khian Subdistrict, Mueang Narathiwat District, Narathiwat, with an installed capacity of 2 MW. Wastewater and organic matters discharged from a palm oil extraction process fuel power generation. Commercial power link-up was done on 16 July 2019.
- A joint investment with Encom Waste-to-Energy (Phra Nakhon Si Ayutthaya) Co., Ltd. in using waste power generation.
- Pracharath (civil-state) power plants for three southernmost provinces under a biomass community power plant plan involving two projects, one in Mae Lan (Pattani) and another in Bannang Sata (Yala).
- A joint venture in the IPS power plant in R E N Korat Energy Co., Ltd. with Ratch Group Plc and Navanakorn Plc to supply electricity and steam to plants in the Navanakorn Industrial Zone in Nakhon Ratchasima.
- Investment in B.Grimm Power (AIE-MTP) (an SPP) with B.Grimm Power Service (Laem Chabang) Co., Ltd, and Asia Industrial Estate Co., Ltd. Rayong, with an installed capacity of 280 MW. The SPP lies in the Rayong industrial estate.

2. Customer solutions businesses

Over the years, PEA ENCOM has jointly invested in 6 projects with business partners:

- A venture with Siam Electrail Co., Ltd. for the development of a stable, integrated power system to support rail transport with uninterrupted power supply.
- A venture with Thai Digital Energy Development Co., Ltd. for a digital energy platform business involving alternative/renewable energy and other energy management businesses.

- A venture with Solar Finland Investment Co., Ltd. and Finnish Fund for Industrial Cooperation (Finnfund) for the manufacturing of solar panels.
- A venture in PEA Intelligent Technology Co., Ltd. to run the behind-meter business.
- A venture in PEA ENCOM Smart Solutions Co., Ltd. for the solar energy business: installing people-sector and retail businesses solar cells, organizing training on solar-cell systems, and installing solar farms, solar floating panels, and smart-home equipment.
- Project to Co-Invest in ENCOM Sharge Utility Services Company Limited: This joint venture was established to commercially distribute EV chargers and offer installation services at houses and condo projects outside Greater Bangkok. Also, it presents total EV charging solutions that combine software and hardware, as well as Behind Meter services for housing units that seek to upgrade their clean/renewable energy capabilities.

For 2022, PEA ENCOM's performance on the part of customer solutions is listed below.

- Five-year (2017-2021) investment plan for power generation systems from solar rooftops: The investment goal is 200 MW with a budget of 8 billion baht (2 billion baht from PEA ENCOM and 6 billion baht from loans). The work done from 2017 to 2022 saw the completion of construction and power link-up of about 36.59 MW, together with 77.78 MW of service contracts signed.
- Engineering and Power Management Consultancy Services: PEA has provided energy-saving equipment for industrial plants, office buildings, and homes. In 2022, PEA delivered its engineering and power management consultancy services through many projects. Among them were the PEA Clean Energy for Community Project on solar power for Ban Mae Long Tai in Chiang Rai Province; the Solar Long-tailed Boat Model Development Project Phase 2, which seeks to promote sustainable tourism along a canal in Samut Songkhram's Damnoen Saduak District; the PEA Clean Energy for Community Project on solar water pump installations at an agricultural learning center on the occasion of H.M. Queen Sirikit the Queen Mother's 90th Anniversary; the Procurement of PEA IHAPM (Intelligent Home Appliances Power Monitoring) for PEA Office Buildings; and PEA Clean Energy for Community Project on Pa Dong Yai Wang Or Moral Development Center in Ubon Ratchathani Province.
- Constructions and Improvements of Power Stations/Transmission Systems: PEA ENCOM has constructed 115KV transmission systems to link the B.Grimm Power (AIE-MTP) Company Limited's power station to GSPP1 station. Also, it constructed the 115/22KV (REN KORAT ENERGY) power station. It, in addition, constructed the 115KV transmission systems to link the B.Grimm Power (Angthong) 2-3 power stations with the Electricity Generating Authority of Thailand's Angthong High-Voltage Power Station 1. Also, it constructed a 115 kV Terminal Substation for linkage to the Electricity Generating Authority of Thailand's Angthong High-Voltage Power Station 1.

3. Support PEA Businesses

In 2022, PEA ENCOM conducted the following Support PEA businesses:

- Training services: Designed to enrich interested organizations' theoretical and practical knowledge of power and energy systems, training courses had specialized engineers from PEA and relevant organizations as trainers. In 2022, PEA ENCOM conducted seven courses: "Underground Cable Construction Supervisor" Course; "Expert in EV Chargers/Charging Station Installation, Testing, and Maintenance" Course; "Solar-System Technician" Course; "Standards on 22KV Installations and Practices" Course; "Work Safety Related to Current Transformer (CT) & Voltage Transformer (VT) for PEA's Operational Staff" Course; "IT Application In Production & Business and GIS Deployment & Exploitation in Thailand" Course for the Electricity of Vietnam Northern Power Corporation (EVN NPC); and "Work with External Organizations' Cables on PEA Poles" Course.

Awards of Pride

National Awards

1. Outstanding State-Owned Enterprise (SOE) Awards 2022, which was conferred by the State Enterprise Policy Office (SEPO). In total, PEA won 5 SOE awards as follows:



1) Outstanding SOE Board of Directors Award, which was granted in recognition of the PEA Board of Directors' outstanding performance in governing PEA and promoting its Management's efficiency and transparency in accordance with good corporate governance principles.

2) Sustainable SOE Development Award, which was granted in recognition of PEA's commitment, determination to, and focus on developing its organization for sustainability based on "Smart Energy for Better Life and Sustainability" corporate vision.

3) Outstanding Corporate Social and Environmental Responsibility Award (for six consecutive years), which was granted most recently in recognition of PEA's Clean Energy Project for the Sustainability of Remote Communities in Chiang Rai's Mae Suai District. Under the project, check dams and a water-storage system were built on a highland with solar-rooftop installation to generate power for sustainable communities.

4) Outstanding Creativity and Innovation Award: Outstanding Innovation Category (for five consecutive years), which was granted most recently for PEA's "Suspension Cradle Tool". This innovation is designed to easily lift insulators and assemble them with pre-forms and strain camps. With this innovative suspension cradle tool, it is easy to organize insulators and complete assembly. This tool is important and necessary for PEA's power distribution systems.

5) Outstanding Creativity and Innovation Award — Special Mention, which was granted in recognition of PEA's "Wire Stripper". This tool can peel high-voltage cables without the need to cut off power. It can also be remotely controlled.





2. ITA Awards 2022: Granted by the Office of the National Anti-Corruption Commission, this award came to PEA after it scored 97.37 points in the latest Integrity and Transparency Assessment for the public sector. For three consecutive years, PEA’s scores have been high enough to get into the AA level. Of all state enterprises in the energy sector, PEA ranked first. Of all state enterprises under the Ministry’s of Interior supervision, PEA ranked fourth. Of all state enterprises assessed, PEA ranked sixth.



3. “DIGITAL GOVERNMENT AWARDS 2022”: The Digital Government Development Agency (Public Organization) honored PEA for its “Digital Workforce Quality”.



4. Lertrat Awards 2022 – Public Services (Good Level):

PEA received 2 Lertrat awards from the Office of the Public Sector Development Commission as follows:

- Service Innovation category: “Large Customer Monitoring and Inspection System” (LCIM)
- Service Development category: PEA “Meter Installation is just ONE CLICK away”



5. Sampao-Navathong Awards 2022: PEA won this accolade as a department-level organization from the Thai Chamber of Commerce and the Board of Trade of Thailand for its efficient facilitation for business sector.



6. SUSTAINABILITY DISCLOSURE AWARD 2022: PEA received this award from the Thaipat Institute at the Sustainability Disclosure Award 2022.



7. Plaques and Badges of Government Easy Contact Center (GECC) 2022: The Office of the Public Sector Development Commission and the Office of the Prime Minister granted these accolades to PEA via the state-enterprise category. As many as 124 electricity offices of PEA met GECC standards. Of them, 23 were in advanced level and 101 in basic level.



8. Nation G-Green Plaques 2022: PEA received these plaques from the Department of Environmental Quality Promotion, the Ministry of Natural Resources and Environment. A total of PEA's 68 provincial branches received G Gold plaques along with SCADA command. With 2 other branches receiving the G Silver plaques, PEA earned 71 plaques in total.



9. Excellent Booth at Red Cross Fair 2022 Award in state enterprise/ independent organization category: PEA booth was organized under the “Brightness under Royal Prestige” theme.



10. Model Organization for Human Rights Award 2022: PEA won this award in the state-enterprise category from the Rights and Liberties Protection Department.



11. Promotion of Virtuous, Capable, and Brave People Award: PEA received this accolade from the Senate committee on higher education, science, research, and innovation.



12. Moral Award 2021: PEA received this award in individual category (Mr. Supachai Ek-un) from the Center for Morality Promotion (Public Organization).



13. Plaque of Organization with Outstanding Anti-Corruption Practices 2022: PEA earned this accolade from the Anti-Corruption Foundation.

International Awards



1. HR Asia Best Companies to Work for in Asia 2022 (Thailand Edition): PEA received this accolade from Singapore-based Business Media International, which focused on Total Engagement Assessment Model (TEAM).



2. Asia Responsible Enterprise Awards 2022 (AREA 2022) – Social Empowerment: PEA won this award from Enterprise Asia, a leading non-governmental organization that empowers Asia’s responsible enterprises, for its Promotion of Alternative Energy for Sustainable Communities Project (Ban Hi Tak).

3. Innovation Awards from “The 2022 Japan Design Idea and Invention Expo (JDIE 2022)” in Kyoto, Japan

- 1) Gold Medal for PEA’s Cable Termination Steel Support for 115 kV Riser Pole
- 2) Gold Medal for PEA’s Transformer Tester
- 3) Silver Medal for PEA’s High Voltage Cable Guide Pulley



4. Innovation Awards from “THE INNOVERSE INVENTION & INNOVATION EXPO 2022” in Georgia, the United States

- 1) Gold Medal for PEA’s Mini AVR (device to maintain voltage consistency)
- 2) Gold Medal for PEA’s DNP3.0 Protocol (DNP3.0 Protocol Line Monitor and Test Set)
- 3) Gold Medal for PEA’s Cable Pusher with Auto Lubricant



5. Innovation Awards from TAIWAN INNOTECH EXPO 2022 (TIE 2022) in Taipei, Taiwan

- 1) Gold Medal for PEA’s Density Switch and Pressure Gauge Tester Kit
- 2) Silver Medal for PEA’s Tampering Tester
- 3) Bronze Medal and Special Award from the World Invention Intellectual Property Associations (WIPA) for PEA’s Automatic Steel Wire Straightening and Cutting Machine
- 4) Bronze Medal and Special Award from the Indonesian Invention and Innovation Promotion Association (INNOPA) for PEA Come Along (device for suspension insulator replacement)



6. Innovation Awards from International Quality and Productivity Convention (IQPC) 2022 in Indonesia

- 1) Excellent Award for PEA's Power System 4.0 Monitoring and Inspection Expansion
- 2) Excellent Award for PEA's Analytical Kids Initiative
- 3) Excellent Award for PEA's Power Interruption Response (Customer Service)
- 4) Outstanding Award for PEA's Big Data Monitoring and Analytics



7. Innovation Awards from “THE INTERNATIONAL TRADE FAIR - IDEAS, INVENTIONS AND NEW PRODUCTS” (IENA 2022) in Nuremberg, Germany

- 1) Gold Medal from Germany and Special Prize on Stage for Excellent Efforts in Creating Invention with a plaque and a certificate of honor from South Korea's Korea Invention Promotion Association (KIPA), which were granted in recognition of PEA's P-MAC: Power Meter and Current Transformer Tester
- 2) Gold Medal from Germany and Special Prize for Excellent Efforts in Creating Invention with a plaque and a certificate of honor from South Korea's Korea Invention Promotion Association (KIPA), which were granted in recognition of PEA's Busbar Cleaner
- 3) Gold Medal from Germany and the Certificate for the Excellent Invention from Vietnam's Research Institute of Creative Education (RICE), which were granted in recognition of PEA's Multipurpose Gear Driven Set
- 4) Gold Medal from Germany and the Certificate for the Excellent Invention from Vietnam's Research Institute of Creative Education (RICE), which were granted in recognition of PEA's Automatic Transfer Voltage (ATV)
- 5) Silver Medal from Germany and Certificate for the Excellent Invention from Vietnam's Research Institute of Creative Education (RICE) for PEA's Tools for Changing High-voltage Insulators with Curve (TCHIC)
- 6) Bronze Medal from Germany and the Certificate for the Excellent Invention from Portugal's Association of Portuguese Inventors, Innovators & Creatives (APIICIS) for PEA's Transformer Tester



8. Innovation Awards from “Seoul International Invention Fair 2022 (SIIF 2022)”, which were conferred by the Korea Invention Promotion Association (KIPA) at COEX Convention & Exhibition Center in South Korea’s Seoul:

- 1) Gold Prize and Special Award together with a certificate of honor from Indonesia’s Indonesian Invention and Innovation Promotion Association (INNOPIA) for PEA Communication Network Test Tool (INSPECTOR)
- 2) Gold Prize and Special Award with Distinction Double Gold with a certificate of honor from Malaysia’s Malaysia Innovation Association (MIA) for PEA’s Online Power System Analysis (OPSA), which calculates power flow and proposes solutions.
- 3) Bronze Prize for PEA’s RS232 Serial Communication to Wireless Converter Module Based on LoRa radio (BBLoraX)
- 4) Vifotec Special Award with a certificate of honor from Vietnam’s Vietnam Fund for Supporting Technological Creations (VIFOTEC) for PEA’s DNP3.0 Protocol (DNP3.0 Protocol Line Monitor and Test Set)



9. Innovation Awards from “2022 KAOHSIUNG INTERNATIONAL INVENTION & DESIGN EXPO” (KIDE 2022), which were granted by the World Invention Intellectual Property Associations (WIIPA) and Taiwan Invention Products Promotion Association (TIPPA) at the International Convention Center Kaohsiung, Taiwan:

- 1) Gold Medal and the Canadian Special Award of Excellence with a certificate from Canada’s Innovator Circles for PEA’s Route Survey System by Application
- 2) Gold Medal and Special Award with a certificate from Cambodia’s Norton University for PEA’s High Voltage Cable Guide Pulley
- 3) Gold Medal for PEA’s 22 kV Expansion Module for 46BC Function (EMU46BC)
- 4) Silver Medal for PEA’s Meter Wire Stripping Tool

Analysis of Financial Position

For the year 2022, the Provincial Electricity Authority (PEA) grossed 606,600 million baht in revenue, of which 578,468 million baht was derived from power distribution. It posted 595,032 million baht in expenditure, the bulk of which (524,524 million baht) went into electricity purchase, and posted 11,568 million baht in net profit, about 2,453 million baht lower than the previous year.

PEA's assets totaled 523,006 million baht, a surge of 38,528 million baht (8.0 percent) from the previous year. This consisted of 115,871 million baht in current assets and 407,135 million baht in non-current assets, most of which (15,152 million baht or 4.8 percent) were gains in property, plant, and equipment. Total liabilities amounted to 334,595 million baht, an increase of 35,352 million baht (11.8 percent) from 2021. This total consisted of 94,806 million baht in current liabilities and 239,789 million baht in non-current liabilities. Finally, equity this year amounted to 188,411 million baht, a rise of 3,176 million baht (1.7 percent).

PEA borrowed from domestic sources for investment in various plans/projects to sustain rising power demand, raise efficiency and security of power systems, cut losses in such systems, and preserve the surroundings and aesthetic scenery under government policy. Its approach was to primarily borrow from domestic sources in baht through bond issuance, which resulted in its foreign loans and domestic loans as of 31 December 2022, of 36 million baht (0.1 percent) and 141,628 million baht (99.9 percent).



Non-Financial Performance Analysis

Provincial Electricity Authority (PEA) strives to serve its customers extensively and speedily, with quality and modernity through service expansion and satisfaction of customers' demand through various projects, enabling itself to distribute power to 74,295 rural households at the village level, or 99.97 percent of the villages nationwide, and 21.46 million households, or 99.76 percent of the households nationwide. This achievement exceeded PEA's goals and represented remarkable responses to the public policy of infrastructural development to upgrade the quality of life and sharpen national competitiveness.

PEA's extensive grid systems covered extensive areas of the country except for Bangkok, Nonthaburi, and Samut Prakan. Besides providing electricity, it purchased power derived from alternative energy from very small power producers (VSPPs) and for its grid, notably solar PV rooftops and solar farms under the government's policy. PEA therefore needed to plan system development for areas under its responsibility to distribute power and serve those connected to its grid in an efficient and secure manner on a par with international standards. The efforts called for the application of information and communication technology (ICT) in managing and controlling power distribution under system planning criteria while aligning with the national development strategies under the Power Development Plan of the 13th National Economic and Social Development Plan period (2023-2027). PEA's affiliate (PEA ENCOM International Company Limited, PEA ENCOM) was formed to run domestic and international power investment businesses, serves as a mentor for engineering and energy management, and provides training to interested parties.

PEA relentlessly developed and improved its power distribution systems to sustain rising demand so as to enhance system security and reliability, resulting in superior SAIFI (System Average Interruption Frequency Index) and SAIDI (System Average Interruption Duration Index) to the previous year. To elaborate, SAIFI this year equaled 1.76 times/customer/year, or 0.43 times/customer/year down from the previous year; SAIDI equaled 34.98 minutes/customer/year, or 9.53 minutes/customer/year down from the previous year.

PEA has accorded importance to the continuity of human resource development. It therefore has issued a policy to develop staff at all levels and basically all staff. Its human resource development seeks to ensure staff have skills to continue working in the future. Using individual development plans (IDPs), its human resource development is rooted on 70:20:10 model. On-the-Job Training (OJT) and Coaching are key tools. In-class training has reduced in favor of online-training growth. PEA is also committed to fostering a learning culture in its organization because such culture is crucial to innovation development.

Personnel Development Performance

Item	2022	2021	Percent of Increment/ (Reduction)
Training expenses (million baht)	178.96	124.37	43.89
Development time/person/year (hours)	35.04	57.84	(39.41)
Knowledge issues gathered (items)	2,881	282	921.63

Note: The number of knowledge topics has migrated from KMs (Knowledge Management System) to KM-SI (Knowledge Management System Intelligent) in response to the knowledge management master plan, which prescribes the IT system development for knowledge management.

Analysis of PEA's Power Distribution in 2022

Power Supply

For the year 2022, Provincial Electricity Authority (PEA) purchased and produced electricity totaling 152,518.49 million units, a 3.24 percent increase from the previous year. Roughly 140,684.42 million units (92.24 percent) were purchased from the Department of Alternative Energy Development and Efficiency; 86.62 million units (0.06 percent) from VSPPs; 11,554.05 million units (7.57 percent) from solar PV rooftops; and 92.22 million units (0.06 percent) from self-generation at dams and on islands; 101.17 million units (0.07 percent).

Power Distribution

In 2022, PEA sold 144,578.63 million power units. The sales grew by 3.50%, lower than the target of 3.51% (made on 20 October 2022). The growth mainly stemmed from the growing number of Thai and foreign tourists, which spurred the expansion of service industry and the private sector's consumption. The country's export sector also attracted orders from key trade partners, including the United States, China, and Japan. In addition, the government continuously implemented economic-stimulus measures to spur the spending of household sector and promote tourism while urgently investing in projects that could attract foreign investors.

Distribution by Region

Four regions are described below:

- The North accounted for 14.77% of total power sales. The region recorded a sales growth of 2.27% in 2022 when compared with the previous year. The PEA Area 1 (North) Office in Chiang Mai Province had the highest growth rate in the region, with its total sales growth reaching 2.94%.
- The Northeast accounted for 16.77% of total power sales. The region's sales grew by 0.81% in 2022 from the previous year. The PEA Area 1 (Northeast) Office in Udon Thani Province had the highest growth rate in the region, with its total sales growth reaching 1.79%.
- The Central region accounted for 52.21% of total power sales. The region recorded a sales growth of 4.27% in 2022 when compared with the year earlier. The PEA Area 1 (Central) Office in Phra Nakhon Si Ayutthaya Province had the highest growth rate in the region, with its total sales growth reaching 6.71%.
- The South accounted for 16.25% of total power sales. The region recorded a sales growth of 5.06% in 2022 when compared with the previous year. The PEA Area 2 (South) Office in Surat Thani Province had the highest growth rate, with its total sales growth reaching 8.30%.

Distribution by Voltage

Four voltage levels are described below:

- 230 kV accounted for 0.19 percent of the total distribution (55.98 percent growth from the previous year).
- 115 kV accounted for 18.84 percent of the total distribution (6.20 percent growth from the previous year).
- 22-33 kV accounted for 47.47 percent of the total distribution (4.83 percent growth from the previous year).
- Less than 22-33 kV accounted for 33.50 percent of the total distribution (0.09 percent growth from the previous year).

Distribution by Tariff

It was across-the-board reduction for distribution units by type of tariff this year. Small General Service growth 3.92 percent; Medium General Service, 3.45 percent; Large General Service, 3.30 percent; Specific Business Service, 38.61 percent; Non-Profit Organization, 9.48 percent; Temporary Service, 3.05 percent; Standby Rate, 342.69 percent; Interruptible Rate, 13.64 percent; Growth of 1,944.61% (Remark: Power sales for EVs in 2021 totaled 24,685 units. In 2022, sales reached 504,711 units. Free-of-charge electricity grew by 8.72%. Power consumption by some sectors shrunk, though. Households' power consumption, for example, was reduced by 0.66% and power consumption for agricultural water pumping plunged by 15.81%.

Power Distribution by Customer Category, with customers divided into 3 main categories:

- Large Accounts accounted for 55.72% of total power sales. For this category, sales growth was 5.22%. Sales to industrial customers grew by 3.08% thanks to growing purchase orders. The United States, India, Malaysia, and Australia, for example, placed more orders for rice, para rubber, and automobiles from Thailand. As for large commercial customers, sales grew by 14.92% because the COVID-19 outbreak significantly eased in a way that benefited the tourism industry. Thai and foreign tourists distributed income to relevant businesses including hotels, tour operators, and transport service providers.
- Small Accounts accounted for 35.57% of total power sales. For this category, sales growth was 0.54%. Power sales to households dropped by 0.66% due to lower temperature when compared with the previous year. Between the third and fourth quarters and especially in October 2022, heavy downpours and flooding spread over several parts of Thailand. However, sales to small commercial customers increased by 4.19% as household spending grew in line with economy, tourism and crop prices that grew in late 2022. In 2022, the government implemented policies to spur people's spending via "half-half copayment scheme" and "project to give higher purchasing power to welfare cardholders" too. Power consumption of retail and wholesale businesses also increased in late 2022.
- Government accounts accounted for 8.71% of total power sales. For this category, sales growth was 5.17% because of soaring power consumption in educational and government sectors. Provincial and local administrations also had higher power consumption.

Distribution by Economic Activity

Ten sectors of large-scale customers are classified by PEA according to Thailand Standard Industrial Classification (TSIC). The year was topped by the manufacturing sector at 65.47 percent of power consumption, followed by the sales and hotel sector (13.99 percent), social services sector (7.09 percent), and agriculture sector (4.98 percent). Note, however, that the total consumption of all 10 sectors posted a 5.13 percent drop from the previous year due to the demand posted by high-consumption sectors as described below:

Manufacturing sector: Sales grew by 2.61% from the previous year. Top five industries in this sector were:

- Food industry: Power sales to this industry rose by 1.80% as sales to ice manufacturers grew by 1.04%. Food-related businesses such as restaurants, eateries, and entertainment venues also consumed more power, especially in late 2022 during which a World Cup was held. Sales to rice mills, in particular, soared by 6.12% thanks to higher exports to Iraq and the United States.
- Electronics industry: Power sales to this industry shrank by 2.39% because hard disk drive exports to Hong Kong and the Netherlands fell in the face of the growing popularity of solid-state drives that have been replacing hard disk drives, especially in personal computers.
- Steel and basic metal industry: Power sales to this industry increased by 2.90% in response to higher demand from India, Malaysia, and the Philippines. Metal sheet exports to Vietnam and Belgium soared as well. The industry, moreover, received aluminum purchase orders from the United States, Japan, and India. Domestic consumption of steel was also solid thanks to various government projects.
- Automotive industry: Power sales to this industry soared by 3.61% in line with growing exports of cars to Australia, Vietnam, and the Philippines and purchase orders of motorcycles from Belgium, China, and Japan. Domestic demand for cars also grew because of promotions by distributors. In 2022, a total of 849,388 were sold in Thailand. The figure marked an increase of 11.89% from the year before.
- Plastic industry: Power sales to this industry shrank by 0.01% because of the world's volatile oil prices. Plastic consumption also dropped because some enterprises scrapped the use of difficult-to-recycle packaging. As more people resumed eating out at restaurants and department stores, food deliveries reduced, affecting the plastic industry.

Distribution and hospitality sector: Power sales to this industry jumped by 15.85% in line with the growing volume of trips made by Thai and foreign tourists. The number of tourists from Malaysia, India, and Russia was significantly higher. Each tourist destination in Thailand also conducted campaigns to attract visitors, while the government continuously implemented policies to promote tourism. When these factors were coupled with special holidays to create long holiday periods, power consumption grew.

Public services industry: Power sales to this industry grew by 8.92% because of higher power consumption in the educational and public sectors, which included local and provincial administrations.

Agricultural industry: Power sales to this industry dropped by 1.12% because of lower consumption in livestock operations, agricultural water pumping and other water pumping, ocean fisheries, coastal fisheries, as well as fruits/vegetables orchards.

Loss Unit

In 2022, the loss units in PEA's distribution system numbered 7,939.86 million or accounted for 5.21% of the system's total units. The percentage dropped by 0.24% from 5.45% in 2021 thanks to the strict and continuous implementation of measures to cut loss units, Thailand's growing export industry, which boosted power consumption in the industrial sector, as well as the country's thriving tourism that paved the way for the relatively good Thai economy. Details of loss units in 2022 were as follows:

- The North: Loss-unit percentage was 6.94, down by 0.22 from the previous year.
- The Northeast: Loss-unit percentage was 6.77, down by 0.20 from the previous year.
- The Central Region: Loss-unit percentage was 3.77, down by 0.17 from the previous year.
- The South: Loss-unit percentage was 6.48, down by 0.46 from the previous year.

Number of Customers

The year saw a total of 21.67 million customers, a 0.41 million (1.94 percent) increment, with the Central Region posting the highest (2.24 percent) growth rate, followed by the Northeast (1.96 percent), South (1.87 percent), and the North (1.68 percent). The customer profile by group appears below:

- Large-scale customers: 4.37 percent growth, accounting for 0.42 percent of all customers.
- Small-scale customers: 1.92 percent growth, accounting for 96.77 percent of all customers.
- Government sector and others: 2.24 percent growth, accounting for 2.81 percent of all customers.

Electricity Sale Forecast in 2023

The growth of 3.50 percent in power distribution this year exceeded the forecast issued by the task force forecasting PEA's power demand, which had predicted a 3.51 percent growth (forecast made on 20 October 2022) due to the tourism sector.

The same task force projected that in 2023, PEA's power distribution would grow 3.61 percent. Nonetheless, positive and negative factors affecting power distribution are described below:

Positive Factors

• Tourism

Tourism is a key driving force for Thai economy, as Thailand attracts tourists from both its neighbors and faraway countries, including European Union state members. International visitors come to Thailand mainly because of lower leisure-trip costs. Thai tourism also grows on the ride of China's reopening because Chinese tourists have high purchasing power. Indian tourists, meanwhile, usually travel with their families to Thailand's natural attractions in search of new experiences. Thai tourists planned more domestic trips too, especially during the implementation of the government policy on "We Travel Together Phase 5". All these factors have benefited the tourism industry's supply chain, which covers hotels, airlines, tour operators, car-rental companies, spas, wellness centers, and even hospitals. The Tourism Authority of Thailand has forecast that Thailand will attract 25 million visitors in 2023.

• Exports

In the face of global recession, Thailand has sought new markets for its exports. For example, its new targets include Middle Eastern countries, namely Saudi Arabia, the United Arab Emirates, and Qatar. For these markets, key products for exports are foods, auto parts, air conditioners and construction materials. For South Asian countries namely India, Bangladesh, and Nepal, key products for export are chemical products, plastic pellets, automobiles, and auto parts. As for the CLMV region that covers Cambodia, Laos, Myanmar, and Vietnam, key products for exports are construction materials, electrical appliances, plastic pellets, textiles, and garments.

- **China's Easing of Zero-COVID Policy**

Thanks to the easing of China's Zero-COVID policy, China's tourism, consumption, manufacturing, and government investments have rebounded. Foreigners' businesses in China have also resumed normal operations. These factors have contributed significantly to Thailand's tourism and exports because China is its second-biggest-trade partners. The positive climate in China has also boosted confidence in the world, raising economic activities worldwide.

- **Household and Private-Sector Spending**

The household sector has higher income thanks to growing tourism, soaring crop prices, and the resumption of normal business activities. Private-sector investments also benefited from the government's investments in key projects.

- **Government Investments in Mega Infrastructure Projects**

These projects include the Eastern Economic Corridor (EEC) Phase 2 (2023 - 2027), the High-Speed Rail Linking 3 Airports, the Development of U-Tapao Airport and Eastern Airport City, the Laem Chabang Port Phase 3, and the Map Ta Phut Port Phase 3. These mega infrastructure projects create investment opportunities in the eastern region, especially for electric vehicle industry, smart electronics industry, digital and next-generation medicine industry. Moreover, the government has planned the Land Bridge project to support Thailand's status as a marine logistics hub. With the Land Bridge project, logistics operations will smoothly connect the EEC region with the Southern Economic Corridor (SEC).

- **Inflation Rate**

The Inflation rate will likely start heading downward from the middle of 2023 because of the central bank's policy to raise interest rates and the downward trend of oil prices.

Negative Factors

- **Global Recession**

Due to their conflict, the United States and China have taken several retaliatory measures against each other. Among them are US measures to control exports, to support and develop semiconductors, and to seek allies' cooperation on the control of high-technology export to China.

Because of the China-Taiwan conflict, China has refused to supply raw materials for the world's major semiconductor chip manufacturer TSMC. The company's operations are thus affected. In the global market, TSMC is the second largest exporter of semiconductor chips.

In the face of prolonged geographical disputes between Russia and Ukraine, Western nations, including the United States and European Union state members, have imposed sanctions on Russia. For example, they have banned tech-product exports to Russia. They have also barred Russian state enterprises and companies from seeking loans or accessing foreign currencies. The assets of figures connected to the Russian government have also been confiscated. Moreover, they have controlled financial transactions of Russia and curbed energy imports from the country.

- **Trade Barriers**

Trade barriers have intensified in response to growing protectionism, which was spurred by not just the COVID-19 outbreak but also conflicts among superpowers. Trade barriers include carbon barrier to trade. For example, the European Union has rolled out the European Green Deal. Under this deal, carbon border adjustment mechanisms (CBAM) will apply to certain products (full implementation will take place in 2027). Some products from Thailand will be affected. Among them are iron, aluminum, and plastic pellets. The United States has also drafted the Clean Competition Act (CCA) to tax products from the manufacturing process that emits high amounts of carbon. Fossil fuels, petroleum products, petrochemicals, fertilizers, iron, steel, and coal will likely fall under the jurisdiction of this planned law. The Thai government and enterprises therefore must leverage technology to reduce their manufacturing's carbon emissions. BCG model, which involves Bioeconomy and Circular Economy, should be promoted in pursuit of Net Zero Emissions. With these efforts, Thailand's industrial sector will go in line with the global trend for industrial operations.

- **Adjustment of Interest Rates**

Local interest rates have faced the pressure of inflation and the US Federal Reserve's signals to push for higher interest rates. Thailand's policy interest rates will likely peak at between 1.75 and 2.00%. Such rate will affect all businesses that have cash-flow issues as well as low-income families that have borrowed from legal and illegal moneylenders.

- **Minimum Daily Wage**

The National Wage Committee approved the minimum daily wage of between 328 and 354 baht, depending on where workers are based. Valid from 1 October 2022 across 77 provinces, the approval raised the minimum daily wage, which in turn increased the costs of business doing and industrial operations.

- **Climate Variability**

In 2023, Thailand may face prolonged drought as “La Nina influence” is now weakening and approaching the equator, suggesting that “El Nino” is coming. With El Nino, the temperature will rise while rainfall will drop below average. In other words, rain may not fall even during the rainy season. Thailand, especially areas outside irrigation zones, is thus at risk of facing water shortage.

- **Political Uncertainty**

After the general election was held in early 2023, the government may issue comprehensive policies on living-cost subsidization in a way that may cause fiscal burdens.

Measures to help power users in the face of higher energy prices in 2022

As energy prices continued to soar over conflicts in Europe and drove up fuel prices, electricity tariffs went up. As power was a basic utility, the Cabinet and the National Energy Policy Council issued the resolutions to help the affected power users in the household and small business categories (excluding government agencies and state enterprises). The resolutions aimed to reduce adverse impacts on power users and risks to their businesses. In response to the resolutions, PEA implemented the following measures to help power users under its jurisdiction.

Electricity Tariff Measures

1. Urgent measures to ease impacts on people from high energy prices, which were triggered by conflicts in Europe. It was valid to households and small businesses (excluding government agencies and state enterprises) that used no more than 300 power units a month. Implementation Period: May to August 2022

Power User Category	Discount on Fuel Adjustment Cost (Ft) (satang per unit)	Amount (Excluding VAT) (Million Baht)
Category 1: Households	23.38	1,419.39
Category 2: Small Businesses (excluding government agencies and state enterprises)		65.75
Total		1,485.14

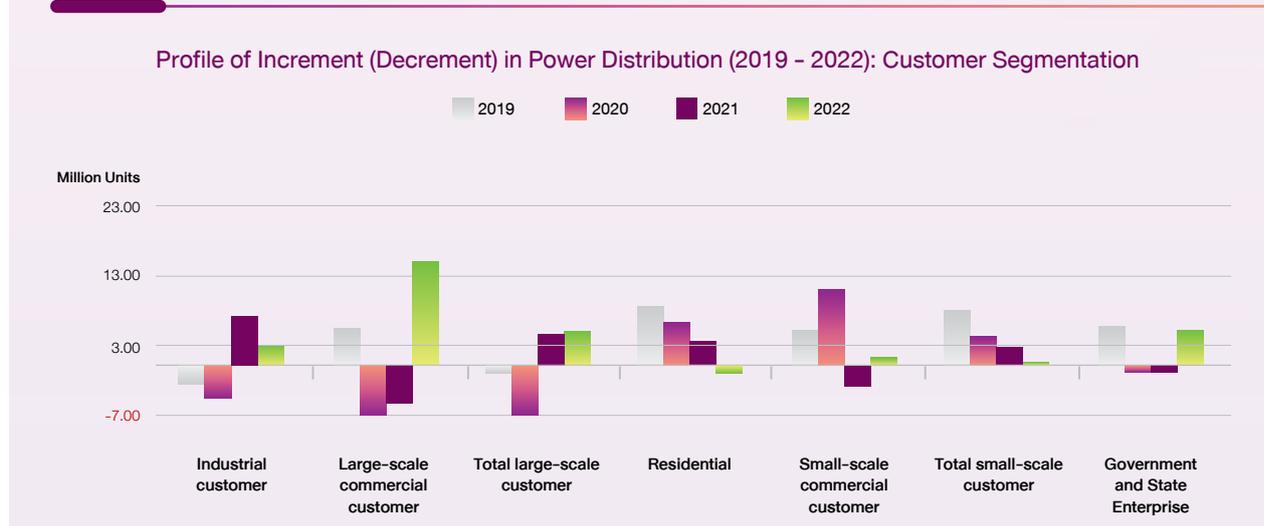
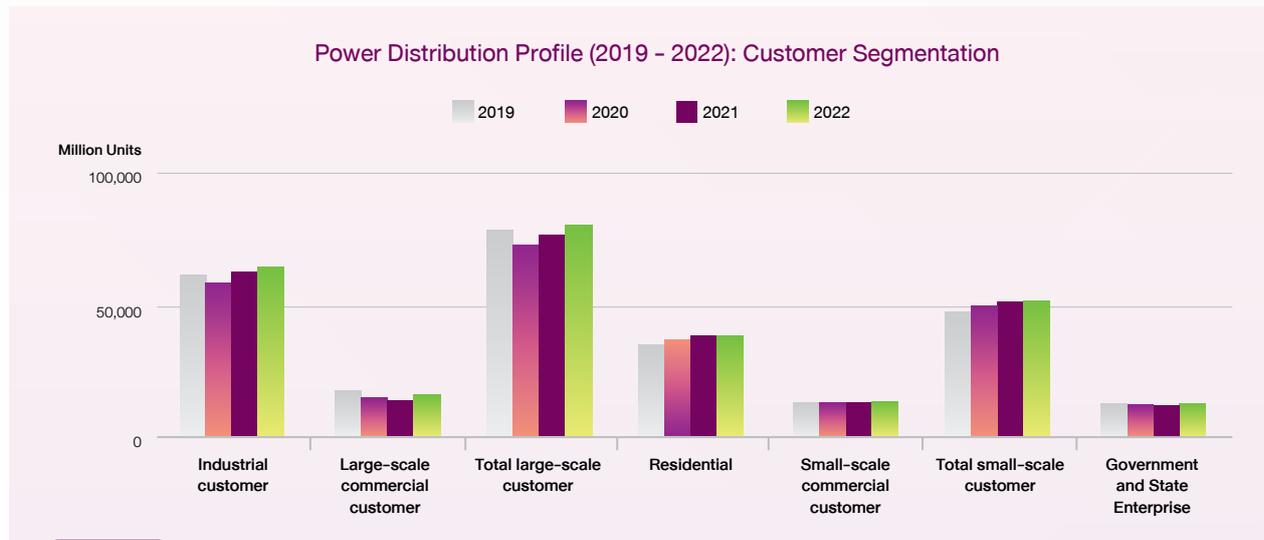
Electricity Tariff Measures

2. Measure to ease impacts on people from high energy prices. It was valid to households that used no more than 500 power units a month. Implementation Period: September to December 2022

Power Consumption	Discount Detail	Discount on Fuel Adjustment Cost (Ft) (satang per unit)	Amount (Excluding VAT) (Million Baht)
≤300 units	100% on Ft Increase from May to August and from September to December 2022 or 23.38 and 68.66 satang per unit respectively	92.04	5,640.46
301 - 350 units	75% on Ft increase from September to December 2022 or 68.66 satang per unit	51.50	402.93
351 - 400 units	45% on Ft increase from September to December 2022 or 68.66 satang per unit	30.90	200.60
401 - 500 units	15% on Ft increase from September to December 2022 or 68.66 satang per unit	10.30	101.87
Total			6,345.86

Power Distribution Profile (2019 - 2022): Customer Segmentation

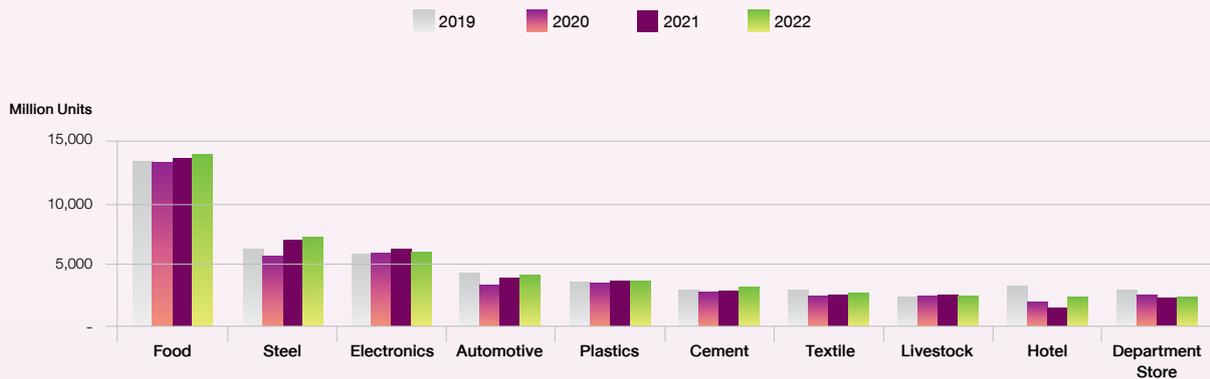
Customer Segmentation		Energy Sales (Million Units)				Increment/Decrement (Percent)			
		2019	2020	2021	2022	2019	2020	2021	2022
Large-scale customer	Industrial customer	61,252.94	58,472.68	62,706.21	64,638.41	-2.50	-4.54	7.24	3.08
	Large-scale commercial customer	17,098.62	14,587.93	13,849.98	15,915.88	5.52	-14.68	-5.06	14.92
	Total large-scale commercial customer	78,351.56	73,060.61	76,556.20	80,554.29	-0.86	-6.75	4.78	5.22
Small-scale customer	Residential	34,905.54	37,166.63	38,518.99	38,263.76	8.81	6.48	3.64	-0.66
	Small-scale commercial customer	12,759.90	12,563.01	12,632.73	13,162.52	5.73	-1.54	0.55	4.19
	Total small-scale commercial customer	47,665.44	49,729.64	51,151.73	51,426.28	7.97	4.33	2.86	0.54
Government and State Enterprise		12,161.13	12,076.88	11,979.31	12,598.05	5.77	-0.69	-0.81	5.17
Total		138,178.13	134,867.12	139,687.23	144,578.63	2.60	-2.40	3.57	3.50



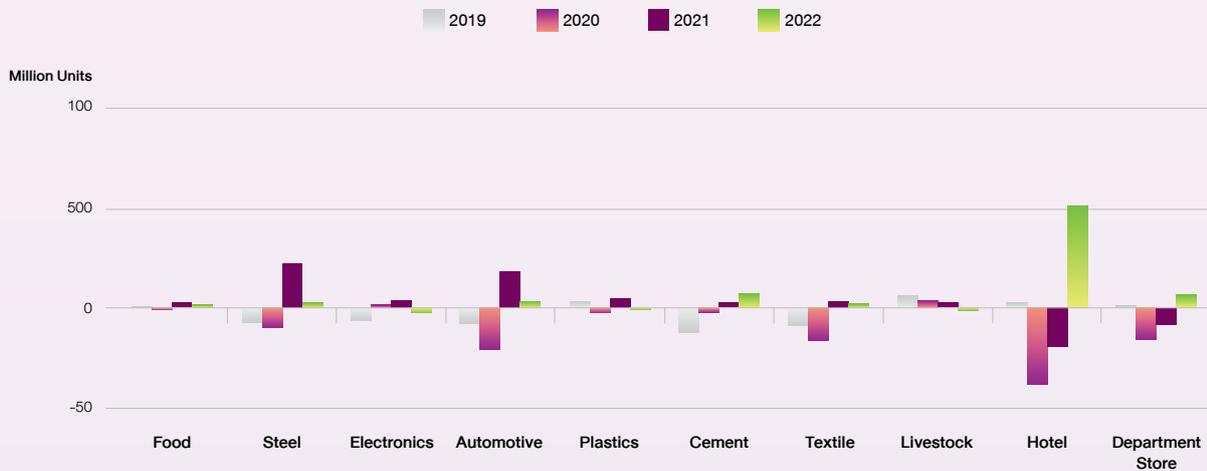
Power Distribution Profile (2019 - 2022): Top 10 Activities

Activity	Energy Sales (Million Units)				Increment/Decrement (Percent)			
	2019	2020	2021	2022	2019	2020	2021	2022
Food	13,335.84	13,307.12	13,648.32	13,894.57	0.57	-0.22	2.56	1.80
Steel	6,266.31	5,669.56	6,973.43	7,175.49	-6.98	-9.52	23.00	2.90
Electronics	5,887.87	5,982.20	6,237.63	6,088.43	-5.82	1.60	4.27	-2.39
Automotive	4,282.94	3,393.39	4,017.07	4,162.05	-7.45	-20.77	18.38	3.61
Plastics	3,608.26	3,513.84	3,693.46	3,693.19	3.19	-2.62	5.11	-0.01
Cement	2,882.73	2,825.74	2,912.90	3,131.11	-12.23	-1.98	3.08	7.49
Textile	3,003.65	2,517.25	2,603.89	2,658.73	-8.79	-16.19	3.44	2.11
Livestock	2,393.29	2,493.96	2,562.43	2,550.62	6.15	4.21	2.75	-0.46
Hotel	3,244.79	2,007.15	1,610.63	2,443.55	3.03	-38.14	-19.76	51.71
Department Store	2,952.20	2,477.89	2,277.26	2,432.03	0.88	-16.07	-8.10	6.80

Power Distribution Profile (2019 - 2022): Top 10 Activities



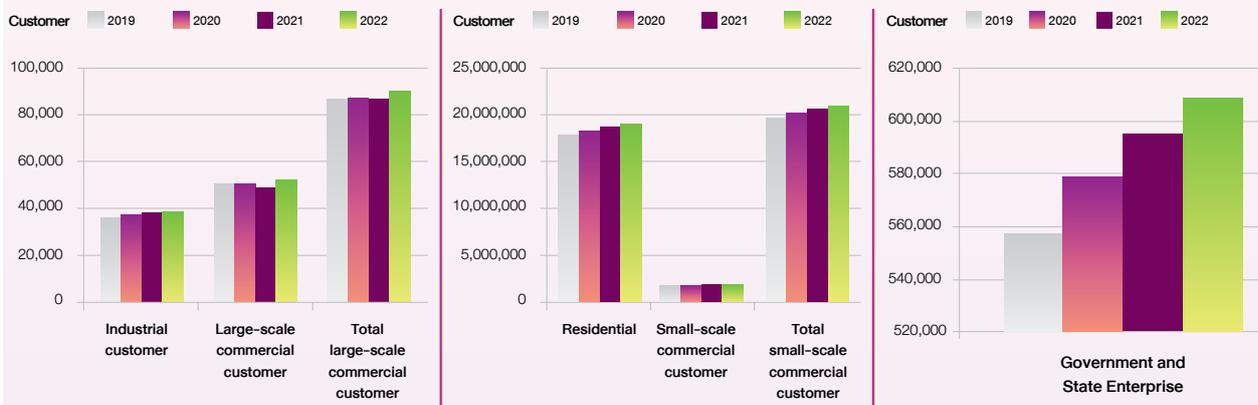
Profile of Increment (Decrement) in units of Power Distribution (2019 - 2022): Top 10 Activities



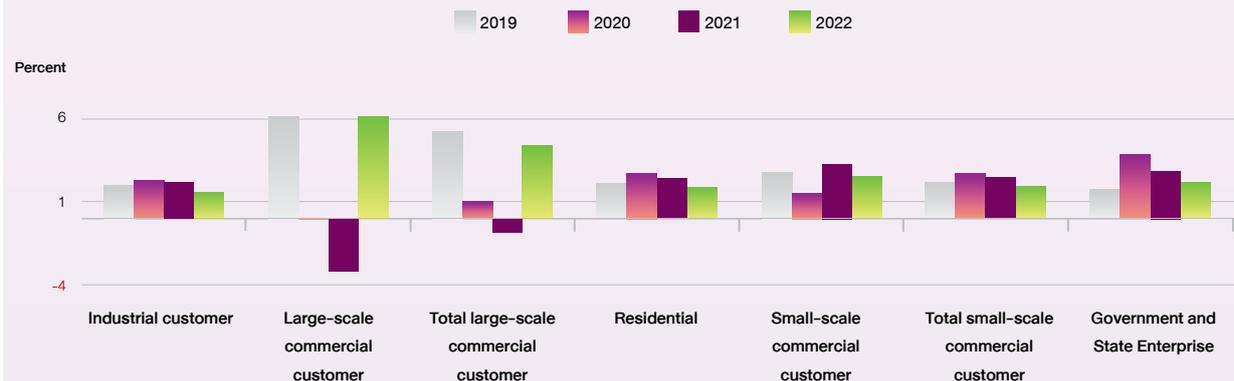
Customer Profile (2019 - 2022): Customer Segmentation

Customer Segmentation		Customer				Increment/Decrement (Percent)			
		2019	2020	2021	2022	2019	2020	2021	2022
Large-scale customer	Industrial customer	36,213	37,066	37,856	38,456	1.96	2.36	2.13	1.58
	Large-scale commercial customer	50,408	50,394	48,810	51,993	7.77	-0.03	-3.14	6.52
	Total large-scale commercial customer	86,621	87,460	86,666	90,449	5.26	0.97	-0.91	4.37
Small-scale customer	Residential	17,816,406	18,308,892	18,757,812	19,107,386	2.10	2.76	2.45	1.86
	Small-scale commercial customer	1,733,449	1,759,639	1,817,650	1,863,496	2.71	1.51	3.30	2.52
	Total small-scale commercial customer	19,549,855	20,068,531	20,575,462	20,970,882	2.15	2.65	2.53	1.92
Government and State Enterprise		557,389	578,726	595,404	608,726	1.67	3.83	2.88	2.24
Total		20,193,865	20,734,717	21,257,532	21,670,057	2.15	2.68	2.52	1.94

Customer Profile (2019 - 2022): Customer Segmentation



Profile of Increment in Units of Power Distribution (2019 - 2022): Customer Segmentation



Key Current and Future Investments

Power System Development

Due to the lower cost of power generation from alternative/renewable energy, the higher capacity of digital technology, such as Cloud, Big Data, Blockchain, IoT, Storage, Artificial Intelligence, and disruptive innovation, as well as customers' shifted behavioral changes that prompt speedier access to data and service, electricity demand in the household and transport sectors is on the rise. Simultaneously, the market as well as energy and power generation industrial structure has shifted from "centralized generation" by electricity authorities or major producers to "distributed generation" from alternative/renewable energy. More and more retail customers have emerged. Power consumers, meanwhile, have changed their roles to "prosumers", who act as power producers and consumers alike. Therefore, accurate data and prompt response have become vital for efficient power management.

PEA has therefore mapped out a customer-centric business investment plan. Digital technology and advanced innovation have transformed it into a "Digital Utility" agency with a more intelligent distribution network. PEA must be capable of rapidly receiving and dispatching information, while sources of power distribution and loading must be well managed to rapidly maintain the balance of electricity load and supply. The organization must also be able to process Big Data.

To mobilize PEA's development of power systems in line with its own vision and policies as well as those of the government, the Ministry of Interior, the Ministry of Energy, and related power agencies, PEA has defined three aspects of power systems:

- Full coverage of services with stable and reliable power systems
- Upgraded, sophisticated power grids
- Sustainable and environmentally friendly growth.

Power System Investment Planning

In view of the visions and policies of PEA, the government, the Ministry of Interior, the Ministry of Energy, and other agencies involving electrical power, and with due regard for PEA's financial status, an investment plan based on the power system development scope was mapped out. There were a total of 26 projects and 7 work plans, both already accomplished and in progress during 2022 and those scheduled for the next three years, under a total investment budget of 312,287.01 million baht.

1. 16 projects and 4 work plans, in progress and accomplished, in 2022

Project/Work Plan	Investment Budget (Million Baht)	Status
1. Transmission System and Substation Development Project - 9 th Stage (Phase 1)	7,060	92.91% completed
2. Transmission System and Substation Development Project - 9 th Stage (Phase 2)	4,540	87.64% completed
3. Transmission System and Substation Development Project - 9 th Stage (Phase 3)	15,085	92.75% completed
4. Transmission System and Substation Development Project - 9 th Stage (Phase 4)	4,485	81.21% completed
5. Distribution System Reliability Enhancement Project - 3 rd Stage	15,155	99.90% completed
6. Distribution System Dispatching Center Improvement Project	4,530	79.06% completed
7. Smart Grid in Pattaya City, Chon Buri Province, Project	1,069	100.00% completed
8. Transmission and Distribution Development Project - 1 st Stage	62,678.71	53.87% completed
9. Power System Development for Special Economic Zone Project - 1 st Stage: Tak, Sa Kaeo, Trat, Mukdahan, Songkhla, and Nong Khai provinces	3,140	51.37% completed

Project/Work Plan	Investment Budget (Million Baht)	Status
10. Agriculture Electrification Project - 2 nd Stage	2,030	100% completed
11. Major Cities Power System Development Project - 1 st Stage	11,668.56	64.30% completed
12. Power System Development for Special Economic Zone Project - 2 nd Stage: Chiang Rai, Narathiwat, Nakhon Phanom, and Kanchanaburi provinces	4,000	57.75% completed
13. New Rural Household Electrification Project - 2 nd Stage	6,565	94.80% completed
14. 115-kV Submarine Cable for Ko Samui, Surat Thani Province	2,130	27.32% completed
15. Transmission and Distribution System Development Project - 2 nd Stage	77,334	15.47% completed
16. Microgrid Development Project at Ko Pha-Luai Island, Surat Thani Province	172	The site was already handed over to the constructor for construction.
17. Geographic Information System Plan - 3 rd Stage	2,090	99.80% completed
18. A Long-Term Plan for Construction of Underground Cable	1,350	16.29% completed
19. Development Plan for Power Interruption Analysis and Solution Center	22.44 128.30 705.00	1 st Stage (12 centers) accomplished 2 nd Stage (24 centers) accomplished 3 rd Stage (133 out of 134 centers), Constructions at another site are scheduled for completion in the first quarter of 2023.
20. One Province, One Road Underground Power Cable System Improvement Plan to Commemorate H.M. the King	4,300	76.40% completed
Total investment budget for projects and plans, in progress and accomplished, during 2022	230,238.01	

2. Investment Projects/Plans in the next three years: 10 projects and 3 plans

Projects/Plans	Investment Budget (Million Baht)	Status
1. Power System Security Upgrade to Smart Grid Phase 1	18,952	Feasibility study (FS) is ongoing.
2. Project to improve low-voltage power distribution system Phase 1 in preparation for power-industry change	25,000	Framework is being drafted.
3. Project to improve power system in big cities Phase 2	4,073	Cost-benefit analysis is ongoing.
4. Project to expand power services to agricultural zones Phase 3	2,500	Framework is being drafted.
5. Project to expand power services to new households Phase 3	6,500	Framework is being drafted.
6. Project to develop power systems on (12) islands	6,630	Feasibility study (FS) and initial environmental examination (IEE) are now ongoing.
7. Project to increase power capacity for (4) islands via underwater cables	1,891	Feasibility study (FS) and initial environmental examination (IEE) are now ongoing.
8. Smart Grid Development Project	7,355	Framework is being drafted.
9. Project to expand power services through alternative energy to households without prior access	3,280	Feasibility study (FS) is ongoing.
10. Microgrid Project for Ko Samui, Surat Thani Province	2,200	Framework is being drafted.
11. Long-term plan on underground cables Phase 2	2,050	In the process of survey, design, and construction
12. Plan to increase power systems' geoinformation efficiency	1,340	Framework is being drafted.
13. Plan to improve microgrid in Mae Hong Son's Mueang Mae Hong Son District	278	Framework is being drafted.
Total investment budget over the next three years	82,049	

Expected outcomes

Below are the expected benefits from these development plans:

1. Complete electrification of all service areas with system stability and reliability

PEA envisions its power supply system expanded across all service areas. Electrification with full coverage would lead to people's higher quality of life, rural people's access to power supply and basic services required for raising their quality of life, access to education, and economic development on a par with other countries. PEA has now expanded its power system to cover 99.90% of all service areas.

2. Power grid modernization

PEA expects to see efficient power supply service by leveraging modern technology to enhance power system stability and reliability for customer satisfaction. The power industry has continually transformed in structure and operations, prompted by the growing number of power producers, disruptive technology, consumers turning into prosumers, and adoption of digital technology.

3. Sustainable and green growth

With modern technology, PEA expects to keep developing its power system (its core mission) and expand system coverage to all service areas. Moreover, it recognizes the need for service quality improvement as well as standard and sustainable power distribution. In sustainably implementing projects, one needs to give due regard to the environment, society, and economy. These elements must evolve in balance so that the country may achieve "sustainable development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations, 1987).

Application of modern technology, digital technology, and other supporting technology to the power supply system would affect the life-cycle assessment of various products in the grid. Equipment maintenance plans can be made fast and accurate, while operating efficiency can be raised, thus reducing repair work and increasing equipment durability. Various technologies would also support the establishment of a digital platform for devising customers' power consumption plans and making efficient connections between retail power producers using alternative/renewable energy and the grid on a par with connection with major power plants. This would lower the need to construct massive power generation plants.

Allocated Budget and Remittance to the State

Allocated Budget

For 2020 - 2022, Provincial Electricity Authority (PEA)'s approved annual budget consisted of the operating budget and investment budget as shown below:

(Unit: Million Baht)

Approved Budget	2022	2021	2020
Operating budget	535,827	503,651	508,765
Investment budget	135,608	158,500	157,296
Total	671,435	662,151	666,061

Remittance to the State

For 2020 - 2022, PEA remitted to the State through the Ministry of Finance the money allocated from the profit incurred at the rate prescribed by the ministry as seen below:

(Unit: Million Baht)

Item	2022	2021	2020
Remittance	9,355	7,854	7,300

Key Information Report

Item		2022	2021	Increment (Decrement) 2022 – 2021	
				Amount	Percent
Sales and Rendering of services	(Million Baht, MB)	592,766	497,247	95,519	19.21
Other income	(MB)	13,834	12,240	1,594	13.02
Operating expenses	(MB)	590,709	491,565	99,144	20.17
Other expenses	(MB)	4,323	3,901	422	10.82
Net profit	(MB)	11,568	14,021	(2,453)	(17.50)
Investment in property	(MB)	53,578	50,132	3,446	6.87
Loans	(MB)	141,664	127,221	14,443	11.35
Net assets	(MB)	523,006	484,478	38,528	7.95
Number of customers		21,670,057	21,257,532	412,525	1.94
Total electricity sales units, incl. free-of-charge electricity	(Million units)	144,579	139,687	4,892	3.50
Average distribution unit	(Units/customer)	6,672	6,571	101	1.54
Peak demand of electrical power	(MW)	22,714	21,282	1,432	6.73
Electricity purchase	(Million units)	152,518	147,737	4,781	3.24
- Purchase		152,417	147,650	4,767	3.23
- Self-generation		101	87	14	16.09
Transmission system	(Circuit-km)	15,282	14,719	563	3.82
High-voltage distribution system	(Circuit-km)	336,868	331,889	4,979	1.50
Low-voltage distribution system	(Circuit-km)	519,347	507,211	12,136	2.39
PEA offices		948	946	2	0.21
PEA employees		28,090	28,168	(78)	(0.28)
PEA hired workers		5,685	5,669	16	0.28
Number of villages nationwide		74,317	74,317	0	0.00
Number of electrified villages		74,245	74,295	(50)	(0.07)
Percentage of electrified villages		99.90	99.98	0	0.00

Electricity Customers

(Unit: Cases)

Category	2022	2021	2020	2019	2018
Residential (<150 kWh)	9,841,277	9,510,131	9,821,425	9,992,167	10,073,417
Residential (>150 kWh)	9,266,109	9,247,681	8,487,467	7,824,239	7,377,065
Small General Service	1,746,341	1,720,379	1,681,395	1,665,138	1,639,386
Medium General Service	85,768	83,111	82,605	80,928	77,285
Large General Service	7,635	7,511	7,351	7,043	6,812
Specific Business Service	13,034	11,941	13,688	14,152	12,896
Non-Profit Organization	1,042	1,000	1,063	1,076	1,131
Agricultural Pumping	5,618	5,627	5,871	5,879	5,484
Temporary Service	423,012	397,788	371,422	352,046	331,913
Standby Rate	103	99	98	95	82
Interruptible Rate	4	4	4	4	4
EV Low Priority	-	-	-	-	-
EV	36	11	1	-	-
Free-of-charge electricity*	280,078	272,249	262,327	251,098	243,279
Total	21,670,057	21,257,532	20,734,717	20,193,865	19,768,754
Customer increment (%)	1.94	2.52	2.68	2.15	2.11
Increment index (2018 = 100%)	109.62	107.53	104.89	102.15	100.00

Remarks: *Free-of-charge electricity consists of electricity for 1) PEA's office buildings and power stations, 2) highways and public utilization, 3) veteran affairs' utilization, 4) guesthouses, and 5) others, including sports grounds, security and safety purposes, disaster relief, and royal events.

Distribution Units

Distribution units by customer type:

(Unit: Million Units)

Category	2022	2021	2020	2019	2018
Residential (<150 kWh)	7,738	8,104	8,942	8,088	8,110
Residential (>150 kWh)	30,526	30,415	28,225	26,817	23,969
Small General Service	14,512	13,964	13,911	14,075	13,347
Medium General Service	22,456	21,708	21,554	22,409	21,756
Large General Service	58,389	56,522	53,115	56,151	57,018
Specific Business Service	3,507	2,530	3,094	4,533	4,309
Non-Profit Organization	77	71	71	77	71
Agricultural Pumping	335	398	417	468	365
Temporary Service	923	896	925	976	942
Standby Rate	679	153	109	176	112
Interruptible Rate	1,858	1,635	1,487	1,540	1,936
EV Low Priority	-	-	-	-	-
EV	1	0	0	-	-
Free-of-charge electricity*	3,578	3,291	3,018	2,869	2,739
Total	144,579	139,687	134,868	138,179	134,674
Customer increment (%)	3.50	3.57	(2.40)	2.60	1.72
Increment index (2018 = 100%)	107.35	103.72	100.14	102.60	100.00

Remarks: *Free-of-charge electricity consists of electricity for 1) PEA's office buildings and power stations, 2) highways and public utilization, 3) veteran affairs' utilization, 4) guesthouses, and 5) others, including sports grounds, security and safety purposes, disaster relief, and royal events.

Distribution Units by Type (Excluding Free-of-Charge Electricity)

(Unit: Million Units)

Type	2022	2021	2020	2019	2018
Commercial and industrial	101,402	96,512	93,270	98,884	98,478
Residential and other tariff rates	39,599	39,884	38,580	36,426	33,457
Total	141,001	136,396	131,850	135,310	131,935
Increment (%)	3.38	3.45	(2.56)	2.56	1.66
Increment index (2018 = 100%)	106.87	103.38	99.94	102.56	100.00

(Unit: Million Units)

Fiscal Year	Commercial and Industrial		Residential and other tariff rates		Total	
	Million Units	%	Million Units	%	Million Units	%
2018	98,478	74.64	33,457	25.36	131,935	100.00
2019	98,884	73.08	36,426	26.92	135,310	100.00
2020	93,270	70.74	38,580	29.26	131,850	100.00
2021	96,512	70.76	39,884	29.24	136,396	100.00
2022	101,402	71.92	39,599	28.08	141,001	100.00

Remarks: Commercial and industrial customers include small, medium, and large general services, specific business service, standby rates, and interruptible rates. Residential and other tariff rates include residential (<150 kWh), residential (>150 kWh), government sector and non-profit organizations, electricity for agricultural pumping, and temporary service.

Purchase Unit and Self-Generation

Power Generation and Purchase

(Unit: Million Units)

Source	2022	2021	2020	2019	2018
PEA-generated	101	87	90	85	105
Power purchased from EGAT	140,684	136,255	131,558	134,602	131,861
Power purchased from Department of Alternative Energy Development and Efficiency (DEDE)	87	71	47	73	103
Power purchased from Very Small Power Producers (VSPPs)	11,554	11,232	10,887	11,159	10,131
Power purchased from Solar PV Rooftops	92	92	94	98	96
Total	152,518	147,737	142,676	146,017	142,296

Employees by Educational Accomplishment

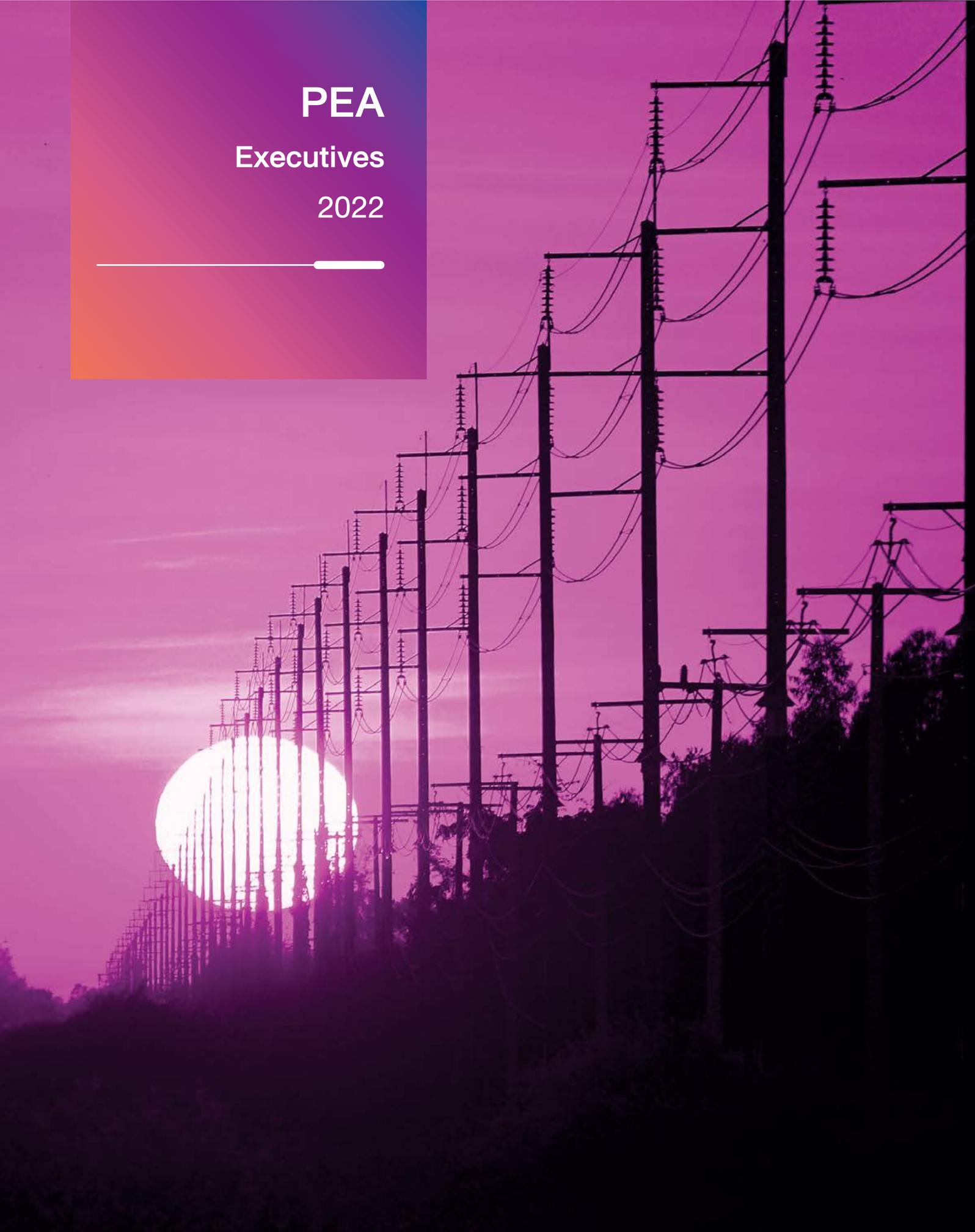
(Unit: Persons)

Degree	2022	2021	2020	2019	2018
Bachelor and higher degrees	9,485	9,232	9,219	9,190	9,148
Diploma - high vocational certificate	16,232	16,238	15,939	16,006	15,785
Vocational certificate - Grade 12	2,038	2,286	2,687	3,232	3,933
Others	335	412	527	657	793
Total	28,090	28,168	28,372	29,085	29,659

PEA

Executives

2022



PEA Executives 2022



Supachai Ek-un

Position Governor

Age 57

Educational Institute

- Kasetsart University: Master of Engineering (Safety Engineering)
- Khon Kaen University: Master of Business Administration
- King Mongkut's Institute of Technology North Bangkok: Bachelor of Science in Technical Education (Electrical Engineering)

Work Experience

- 17 Aug. 21 - Governor
- 1 Oct. 20 - Deputy Governor (Engineering)
- 1 Oct. 19 - Deputy Governor (Electricity Authority Region 3)
- 12 Nov. 18 - Executive Director, PEA Area 1 (Phra Nakhon Si Ayutthaya Province), Region 3

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Nutthawat Akararungruengkul

Position Deputy Governor

Age 59

Educational Institute

- Ramkhamhaeng University: Master of Business Administration
- College of Technology and Vocational Education:
Bachelor of Industrial Education (Electrical Engineering)

Work Experience

- 1 Oct. 22 - Deputy Governor (Office of the Governor)
- 1 Oct. 20 - Deputy Governor (Electricity Authority Region 2)
- 1 Oct. 19 - Executive Director, PEA Area 3
(Nakhon Ratchasima Province), Region 2
- 12 Nov. 18 - Executive Director, PEA Area 2 (Ubon Ratchathani
Province), Region 2

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Chakri Kitbuncha

Position Deputy Governor

Age 55

Educational Institute

- Ramkhamhaeng University: Master of Business Administration (Executive Management)
- Sripatum University: Bachelor of Industrial Education (Electrical Engineering)

Work Experience

- 1 Oct. 22 - Deputy Governor (Office of the Governor)
- 1 Oct. 21 - Assistant Governor (Office of the Governor)
- 1 Oct. 20 - Director, Transmission and Distribution System Work
Department
- 1 Oct. 19 - Director, Generation System Maintenance Department

Directorship of other organizations: Acting President, PEA ENCOM International Co., Ltd.

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Panumart Limsuwan

Position Deputy Governor (Planning and Power System Development)

Age 58

Educational Institute

- Ramkhamhaeng University: Master of Business Administration
- Rajamangala University of Technology: Bachelor of Engineering (Electrical Power)

Work Experience

- | | |
|------------|---|
| 1 Oct. 22 | - Deputy Governor (Planning and Power System Development) |
| 1 Oct. 20 | - Deputy Governor (Corporate Strategy) |
| 1 Oct. 19 | - Deputy Governor (General Service) |
| 12 Nov. 18 | - Deputy Governor (Corporate Social Responsibility) |

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Wichean Punyawanichgul

Position Deputy Governor (Corporate Strategy)

Age 59

Educational Institute

- King Mongkut's Institute of Technology North Bangkok: Master of Engineering (Industrial Management), Bachelor of Engineering (Electrical Engineering)

Work Experience

- | | |
|-----------|---|
| 1 Oct. 22 | - Deputy Governor (Corporate Strategy) |
| 1 Oct. 21 | - Deputy Governor (Planning and Power System Development) |
| 1 Oct. 20 | - Deputy Governor (Electricity Authority Region 3) |
| 1 Oct. 19 | - Executive Director, PEA Area 2 (Chon Buri Province), Region 3 |

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Sompong Dumrongtragool

Position Deputy Governor (Business and Marketing)

Age 59

Educational Institute

- Chiang Mai University: Master of Business Administration
- College of Technology and Vocational Education Thewet Campus: Bachelor of Engineering (Electrical)

Work Experience

- 1 Oct. 22 - Deputy Governor (Business and Marketing)
- 1 Oct. 21 - Deputy Governor (Electricity Authority Region 3)
- 1 Oct. 20 - Assistant Governor, PEA Area 2 (Central), Chon Buri Province
- 1 Oct. 19 - Executive Director, PEA Area 3 (Nakhon Pathom Province), Region 3

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Cheewin Phattanakhuha

Position Deputy Governor (Electricity Authority Area 1)

Age 60

Educational Institute

- National Institute of Development Administration, Yonok University: Master of Public Administration (Public Administration)
- Chiang Mai University: Bachelor of Engineering (Electrical)

Work Experience

- 1 Oct. 22 - Deputy Governor (Electricity Authority Area 1)
- 1 Oct. 20 - Deputy Governor (Organization Support)
- 1 Oct. 19 - Deputy Governor (Business Development)
- 12 Nov. 18 - Executive Director, PEA Area 1 (Chiang Mai Province), Region 1

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Junya Wattanakul

Position Deputy Governor (Electricity Authority Region 2)

Age 59

Educational Institute

- Burapha University: Master of Public Administration (Public Policy)
- King Mongkut's Institute of Technology Ladkrabang: Bachelor of Industrial Technology (Industrial Instrumentation Technology)

Work Experience

- 1 Oct. 22 - Deputy Governor (Electricity Authority Region 2)
- 1 Oct. 20 - Deputy Governor (Electricity Authority Region 1)
- 12 Nov. 18 - Executive Director, PEA Area 3 (Lop Buri Province), Region 1
- 1 Oct. 15 - Director, Operation and Maintenance Department, PEA Area 3 (Nakhon Pathom Province), Region 3

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Chardchai Poomrin

Position Deputy Governor (Electricity Authority Region 3)

Age 58

Educational Institute

- National Institute of Development Administration: Master of Public Administration (Public Administration)
- King Mongkut's Institute of Technology North Bangkok: Bachelor of Science in Technical Education (Electrical Engineering)

Work Experience

- 1 Oct. 22 - Deputy Governor (Electricity Authority Region 3)
- 1 Oct. 20 - Deputy Governor (Business and Marketing)
- 1 Oct. 19 - Deputy Governor (Corporate Strategy)
- 1 Oct. 17 - Executive Director, PEA Area 2 (Chon Buri Province), Region 3

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Sumlit Chotibun

Position Deputy Governor (Electricity Authority Region 4)

Age 59

Educational Institute

- College of Technology and Vocational Education: Bachelor of Industrial Education (Electrical Engineering)

Work Experience

- 1 Oct. 20 - Deputy Governor (Electricity Authority Region 4)
- 12 Nov. 18 - Executive Director, PEA Area 3 (Yala Province), Region 4
- 1 Oct. 16 - Director, Engineering and Service, PEA Area 3 (Yala Province), Region 4
- 18 Mar. 15 - Director, Operations and Maintenance Department, PEA Area 3 (Yala Province), Region 4

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Praphan Srinoun

Position Deputy Governor (Engineering)

Age 59

Educational Institute

- Chiang Mai University: Master of Economics, Bachelor of Engineering (Electrical)

Work Experience

- 1 Oct. 21 - Deputy Governor (Engineering)
- 1 Oct. 20 - Assistant Governor, PEA Area 1 (North), Chiang Mai Province
- 1 Oct. 19 - Executive Director, PEA Area 1 (Chiang Mai Province), Region 1
- 1 Oct. 17 - Director, Operation and Maintenance Department, PEA Area 1 (Chiang Mai Province), Region 1

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Kriengsak Kittiprapas

Position Deputy Governor (ICT)

Age 59

Educational Institute

- Kasetsart University: Master of Business Administration
- College of Technology and Vocational Education: Bachelor of Business Administration (Information System)

Work Experience

- 1 Oct. 21 - Deputy Governor (ICT)
- 1 Oct. 20 - Assistant Governor (ICT)
- 1 Oct. 19 - Expert Level 13, Office of the Deputy Governor (ICT)
- 1 Oct. 17 - Director, Information System Development and Support Department

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Pasuta Kunsorn

Position Deputy Governor (Construction and Project Management)

Age 59

Educational Institute

- Ramkhamhaeng University: Master of Business Administration
- Sukhothai Thammathirat Open University: Bachelor of Public Administration (Public Administration)
- Ratchathani College of Technology: Bachelor of Industrial Technology (Electrical Engineering)

Work Experience

- 1 Oct. 21 - Deputy Governor (Construction and Project Management)
- 1 Oct. 20 - Assistant Governor (Office of the Governor), Acting Executive Vice President, PEA ENCOM International Co., Ltd.
- 20 Mar. 18 - Director Substation Construction Department
- 1 Oct. 15 - Deputy Director, Substation Construction Department

Directorship of other organizations: Executive Director, PEA ENCOM International Co., Ltd.

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Pramote Sudsap

Position Deputy Governor (Operation and Maintenance)

Age 59

Educational Institute

- College of Technology and Vocational Education: Bachelor of Engineering (Electrical)

Work Experience

- 1 Oct. 21 - Deputy Governor (Operation and Maintenance)
- 1 Oct. 20 - Assistant Governor (Office of the Governor), Acting Executive Vice President, PEA ENCOM International Co., Ltd.
- 1 Oct. 17 - Assistant Governor (Operation and Maintenance)
- 18 Mar. 15 - Director, Power System Control and Operation Department

Directorship of other organizations: Executive Director, PEA ENCOM International Co., Ltd.

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Mongkol Treekijanon

Position Deputy Governor (Logistic and Organization Support)

Age 55

Educational Institute

- Suranaree University of Technology: Doctor of Engineering (Energy Management), Master of Engineering (Environmental)
- Institute of Technology and Vocational Education: Bachelor of Science in Technical Education (Electrical Engineering)

Work Experience

- 1 Oct. 22 - Deputy Governor (Logistic and Organization Support)
- 1 Oct. 21 - Assistant Governor (Business and Marketing)
- 1 Oct. 20 - Assistant Governor, PEA Area 2 (Northeast), Ubon Ratchathani Province
- 1 Oct. 19 - Director, PEA Area 2 (Ubon Ratchathani Province), Region 2

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Isaes Chensupakarn

Position Deputy Governor (Accounting and Finance)

Age 59

Educational Institute

- Ramkhamhaeng University: Master of Business Administration (Accounting), Bachelor of Business Administration (Accounting)

Work Experience

- 1 Oct. 22 – Deputy Governor (Accounting and Finance)
- 1 Oct. 19 – Assistant Governor (Accounting and Finance)
- 1 Oct. 16 – Director, Accounting Department
- 1 Jan. 14 – Deputy Director, Accounting Department

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Pinyo Thongjerm

Position Deputy Governor (Organization Management)

Age 60

Educational Institute

- Walailak University: Master of Business Administration
- King Mongkut's Institute of Technology North Bangkok: Bachelor of Industrial Education (Electrical Engineering)

Work Experience

- 1 Oct. 21 – Deputy Governor (Organization Management)
- 1 Oct. 20 – Assistant Governor, PEA Area 2 (South), Nakhon Si Thammarat Province
- 12 Nov. 18 – Executive Director, PEA Area 2 (Nakhon Si Thammarat Province), Region 4
- 23 Jan. 18 – Director, Engineering and Service Department, PEA Area 2 (Nakhon Si Thammarat Province), Region 4

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Sasiwipa Ampornsittikul

Position Assistant Governor (Office of the Governor)

Age 57

Educational Institute

- Kasetsart University: Bachelor of Science (Accounting)

Work Experience

- 1 Oct. 20 – Assistant Governor (Office of the Governor)
- 1 Oct. 19 – Director, Office of the Governor
- 1 Oct. 17 – Director, Governor Affairs Department
- 1 Oct. 16 – Deputy Director, Governor's Affairs Department

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Thiraphan Chanchinda

Position Assistant Governor

Age 53

Educational Institute

- National Institute of Development Administration: Master of Business Administration
- Rajamangala Institute of Technology Lanna's Payap Campus: Bachelor of Science in Technical Education/Electrical (Communication) Engineering

Work Experience

- 1 Oct. 22 – Assistant Governor (Office of the Governor)
- 1 Oct. 20 – Director, Customer and Marketing Department
- 1 Oct. 19 – Director, Social and Environment Department
- 1 Oct. 15 – Deputy Director, Business Planning Department, Region 3

Directorship of other organizations: Acting Deputy Managing Director, PEA ENCOM International Co., Ltd.

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Anake Jensai

Position Assistant Governor (Internal Audit)

Age 60

Educational Institute

- Ramkhamhaeng University: Bachelor of Business Administration (Finance and Banking)

Work Experience

- 1 Oct. 21 - Assistant Governor (Internal Audit)
- 12 Nov. 18 - Director, Support Process Audit Department
- 1 Oct. 16 - Deputy Director, Support Process Audit Department

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Wirote Buaklee

Position Assistant Governor (Digital)

Age 50

Educational Institute

- Kasetsart University: Doctor of Engineering (Electrical)
- Chulalongkorn University: Master of Engineering (Electrical)
- King Mongkut's Institute of Technology Thonburi: Bachelor of Engineering (Electrical)

Work Experience

- 1 Oct. 20 - Assistant Governor (Digital)
- 1 Oct. 19 - Assistant Governor (Corporate Strategy)
- 12 Nov. 18 - Director, Power System Research and Development Department
- 1 Apr. 15 - Deputy Director, System Planning Department

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Pongsakorn Yuthagovit

Position Assistant Governor (Planning and Power System Development)

Age 47

Educational Institute

- Sasin Graduate Institute of Business Administration, Chulalongkorn University: Master of Business Administration/Executive
- Chulalongkorn University: Master of Engineering (Electrical)

Work Experience

- | | |
|-----------|--|
| 1 Oct. 19 | - Assistant Governor (Planning and Power System Development) |
| 1 Oct. 17 | - Director, System Planning Department |
| 1 Apr. 15 | - Deputy Director, System Planning Department |

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Pradit Fuangfoo

Position Assistant Governor (Corporate Strategy)

Age 50

Educational Institute

- University of Texas at Arlington: Doctor of Philosophy (Electrical Engineering)
- Chulalongkorn University: Master of Engineering (Electrical)
- Kasetsart University: Bachelor of Engineering (Electrical)

Work Experience

- | | |
|------------|---|
| 1 Oct. 20 | - Assistant Governor (Corporate Strategy) |
| 1 Oct. 19 | - Assistant Governor (Human Resources) |
| 23 Jan. 18 | - Director, Human Resource Development |
| 1 Apr. 15 | - Deputy Director, Human Resource Development |

Directorship of other organizations: Committee, Center of Excellence in Electrical Power Technology

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Udomsak Temwong

Position Assistant Governor (Corporate Strategy - Corporate Affairs)

Age 55

Educational Institute

- Thepsatri Rajabhat University: Master of Business Administration (General Management)
- King Mongkut's Institute of Technology North Bangkok: Bachelor of Industrial Education (Electrical Engineering)

Work Experience

- | | |
|------------|--|
| 1 Oct. 21 | - Assistant Governor (Corporate Strategy - Corporate Affairs) |
| 12 Nov. 18 | - Director, Operations and Maintenance Department, PEA Area 3 (Lop Buri Province), Region 1 |
| 1 Oct. 15 | - Deputy Director, Operations and Maintenance Department, PEA Area 3 (Lop Buri Province), Region 1 |

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Surapong Chaimongkol

Position Assistant Governor (Business and Marketing)

Age 59

Educational Institute

- National Institute of Development Administration: Master of Public Administration (Public Administration)
- King Mongkut's Institute of Technology North Bangkok: Bachelor of Industrial Education (Electrical Engineering)

Work Experience

- | | |
|------------|--|
| 1 Oct. 22 | - Assistant Governor (Business and Marketing) |
| 1 Oct. 21 | - Assistant Governor (Office of the Governor) |
| 1 Oct. 20 | - Director, Engineering and Service Department, PEA Area 1 (Chiang Mai Province), Region 1 |
| 12 Nov. 18 | - Director, Engineering and Service Department, PEA Area 3 (Lop Buri Province), Region 1 |

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Dusit Witaporn

Position Assistant Governor [Provincial Electricity Authority Area 1 (North) Chiang Mai Province]

Age 60

Educational Institute

- Saint John's University: Bachelor of Industrial Technology/ Electrical Engineering
- Southeast Asia College: High Vocational Certificate/Power Electrics

Work Experience

- 1 Oct. 22 - Assistant Governor, PEA Area 1 (North), Chiang Mai Province
- 12 Nov. 18 - Director, Operation and Maintenance Department, PEA Area 2 (Phitsanulok Province), Region 1
- 1 Oct. 17 - Director, Operation and Maintenance Department, PEA Area 3 (Lop Buri Province), Region 1

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Prasert Jaicharoensub

Position Assistant Governor [Provincial Electricity Authority Area 2 (North) Phitsanulok Province]

Age 59

Educational Institute

- National Institute of Development Administration: Master of Public Administration
- King Mongkut's Institute of Technology North Bangkok: Bachelor of Industrial Education (Electrical Engineering)

Work Experience

- 1 Oct. 20 - Assistant Governor, PEA Area 2 (North), Phitsanulok Province
- 1 Oct. 19 - Executive Director, PEA Area 2 (Phitsanulok Province), Region 1
- 12 Nov. 18 - Expert Level 13, Office of the Deputy Governor (Electricity Authority Region 1)

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Songkran Chutitanateerakun

Position Assistant Governor [Provincial Electricity Authority Area 3 (North) Lop Buri Province]

Age 59

Educational Institute

- Khon Kaen University: Bachelor of Engineering (Electrical)

Work Experience

- 1 Oct. 21 - Assistant Governor, PEA Area 3 (North), Lop Buri Province
- 1 Oct. 16 - Director, Engineering and Service Department, PEA Area 2 (Phitsanulok Province), Region 2
- 1 Oct. 15 - Director, Engineering and Service Department, PEA Area 3 (Lop Buri Province), Region 1

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Wijarn Klungboonkrong

Position Assistant Governor [Provincial Electricity Authority Area 1 (Northeast) Udon Thani Province]

Age 58

Educational Institute

- Khon Kaen University: Bachelor of Engineering (Electrical)

Work Experience

- 1 Oct. 20 - Assistant Governor, PEA Area 1 (Northeast), Udon Thani Province
- 1 Oct. 15 - Director, Engineering and Service Department, PEA Area 3 (Nakhon Ratchasima Province), Region 2
- 1 Mar. 13 - Deputy Director, Network Operation, PEA Area 3 (Nakhon Ratchasima Province)

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Perapon Puranachot

Position Assistant Governor [Provincial Electricity Authority Area 2 (Northeast) Ubon Ratchathani Province]

Age 56

Educational Institute

• College of Technology and Vocational Education: Bachelor of Industrial Education (Electrical Engineering)

Work Experience

- 1 Oct. 21 - Assistant Governor, PEA Area 2 (Northeast), Ubon Ratchathani Province
- 1 Oct. 20 - Director, Operation and Maintenance Department, PEA Area 2 (Chon Buri Province), Region 3
- 12 Nov. 18 - Director, Engineering and Service Department, PEA Area 2 (Chon Buri Province), Region 3

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Prasit Junprasit

Position Assistant Governor [Provincial Electricity Authority Area 3 (Northeast) Nakhon Ratchasima Province]

Age 57

Educational Institute

• King Mongkut's Institute of Technology North Bangkok: Bachelor of Industrial Education (Electrical Engineering)

Work Experience

- 1 Oct. 21 - Assistant Governor, PEA Area 3 (Northeast), Nakhon Ratchasima Province
- 1 Oct. 20 - Director, Engineering and Service Department, PEA Area 3 (Northeast), Nakhon Ratchasima Province
- 12 Nov. 18 - Director, Engineering and Service Department, PEA Area 1 (Udon Thani Province), Region 2

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Khajorn Prongfa

Position Assistant Governor [Provincial Electricity Authority Area 1 (Central) Phra Nakhon Si Ayutthaya Province]

Age 56

Educational Institute

- Kasetsart University: Master of Business Administration
- Mahanakorn University of Technology: Bachelor of Industry (Power Engineering)

Work Experience

- 1 Oct. 20 – Assistant Governor, PEA Area 1 (Central), Phra Nakhon Si Ayutthaya Province
- 1 Oct. 19 – Executive Director, PEA Area 1 (Phra Nakhon Si Ayutthaya Province), Region 3
- 12 Nov. 18 – Director, Operation and Maintenance Department, PEA Area 3 (Nakhon Pathom Province), Region 3

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Montre Yantrawattana

Position Assistant Governor [Provincial Electricity Authority Area 2 (Central) Chon Buri Province]

Age 58

Educational Institute

- Burapha University: Master of Public Administration (Public Policy)
- College of Technology and Vocational Education: Bachelor of Industrial Education (Electrical Engineering)

Work Experience

- 1 Oct. 21 – Assistant Governor, PEA Area 2 (Central), Chon Buri Province
- 1 Oct. 20 – Assistant Governor, PEA Area 3 (Northeast), Nakhon Ratchasima Province
- 1 Oct. 19 – Director, Operation and Maintenance Department, PEA Area 2 (Chon Buri Province), Region 3

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Pukdee Wongsaporm

Position Assistant Governor [Provincial Electricity Authority Area 3 (Central) Nakhon Pathom Province]

Age 58

Educational Institute

- Khon Kaen University: Bachelor of Engineering (Electrical)

Work Experience

- 1 Oct. 20 - Assistant Governor, PEA Area 3 (Central), Nakhon Pathom Province
- 12 Nov. 18 - Executive Director, PEA Area 1 (Udon Thani Province), Region 2
- 1 Oct. 16 - Director, Operation and Maintenance Department, PEA Area 2 (Phitsanulok Province), Region 1

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Phaitool Ratanakorn

Position Assistant Governor [Provincial Electricity Authority Area 1 (South) Phetchaburi Province]

Age 59

Educational Institute

- King Mongkut's Institute of Technology North Bangkok: Bachelor of Industrial Education (Electrical Engineering)

Work Experience

- 1 Oct. 20 - Assistant Governor, PEA Area 1 (South), Phetchaburi Province
- 1 Oct. 19 - Executive Director, PEA Area 1 (Phetchaburi Province), Region 4
- 1 Oct. 17 - Director, Engineering and Service Department, PEA Area 1 (Phetchaburi Province), Region 4

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Jumnian Boonkaew

Position Assistant Governor [Provincial Electricity Authority Area 2 (South) Nakhon Si Thammarat Province]

Age 58

Work Experience

- King Mongkut's Institute of Technology North Bangkok: Bachelor of Industrial Education (Electrical Engineering)

Work Experience

- 1 Oct. 21 - Assistant Governor, PEA Area 2 (South), Nakhon Si Thammarat Province
- 1 Oct. 20 - Director, Engineering and Service Department, PEA Area 3 (Yala Province), Region 4
- 1 Oct. 16 - Manager, PEA Hat Yai District Class 1

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Suparp Kasiwong

Position Assistant Governor [Provincial Electricity Authority Area 3 (South) Yala Province]

Age 59

Work Experience

- Prince of Songkla University: Bachelor of Engineering (Electrical)
- Sukhothai Thammarat Open University: Bachelor of Public Administration (Public Administration), Bachelor of Economics

Work Experience

- 1 Oct. 20 - Assistant Governor, PEA Area 3 (South), Yala Province
- 23 Jan. 18 - Director, Operation and Maintenance Department, PEA Area 3 (Yala Province), Region 4
- 1 Oct. 16 - Director, Engineering and Service Department, PEA Area 2 (Nakhon Si Thammarat Province), Region 4

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Mongkolchai Prachborvorn

Position Assistant Governor (Engineering)

Age 59

Educational Institute

- King Mongkut's Institute of Technology North Bangkok: Bachelor of Industrial Technology (Industrial Electricity)

Work Experience

- 1 Oct. 21 - Assistant Governor (Engineering)
- 1 Oct. 20 - Director, Substation Work Department
- 1 Oct. 19 - Director, Transmission and Distribution System Work Department

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Thitirat Plasarn

Position Assistant Governor (ICT)

Age 55

Educational Institute

- Dhurakij Pundit University: Master of Science (Telecommunication Management)
- Rangsit University: Bachelor of Business Administration (Business Computer)

Work Experience

- 1 Oct. 21 - Assistant Governor (ICT)
- 1 Oct. 19 - Director, ICT Department
- 1 Oct. 17 - Deputy Director, ICT Department

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Samkan Santhavesuk

Position Assistant Governor
(Construction and Project Management)

Age 58

Educational Institute

- Ramkhamhaeng University: Master of Business Administration
- King Mongkut's Institute of Technology Ladkrabang: Bachelor of Engineering (Electrical)

Work Experience

- | | |
|------------|--|
| 1 Oct. 21 | - Assistant Governor (Construction and Project Management) |
| 12 Nov. 18 | - Director, Power System Construction Department |
| 1 Oct. 15 | - Deputy Director, Operations and Maintenance Department, PEA Area 2 (Ubon Ratchathani Province), Region 2 |

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Theera Srimai

Position Assistant Governor
(Operation and Maintenance)

Age 54

Educational Institute

- Southeast Asia University: Bachelor of Engineering (Electronics)

Work Experience

- | | |
|-----------|--|
| 1 Oct. 20 | - Assistant Governor (Operation and Maintenance) |
| 1 Oct. 19 | - Expert Level 13, Office of the Deputy Governor (Operation and Maintenance) |
| 1 Oct. 17 | - Director, Power System Control and Operation Department |

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Gromasak Kanttong

Position Assistant Governor
(Logistic and Organization Support)

Age 56

Educational Institute

- Ramkhamhaeng University: Master of Business Administration (Logistics Management), Bachelor of Arts (Political Science)

Work Experience

- 1 Oct. 22 - Assistant Governor (Logistic and Organization Support)
- 1 Oct. 20 - Assistant Governor (Organization Support)
- 1 Oct. 19 - Assistant Governor (General Service)
- 1 Oct. 16 - Director, Administration Department

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Mom Rajawongse Siriwan Kasemsan Na Ayutthaya

Position Assistant Governor (Accounting and Finance)

Age 58

Educational Institute

- North Bangkok College: Master of Business Administration
- Chulalongkorn University: Bachelor of Political Science/ Public Administration

Work Experience

- 1 Oct. 22 - Assistant Governor (Accounting and Finance)
- 20 Mar. 18 - Director, Budget Department
- 1 Jan. 14 - Deputy Director, Budget Department
- 1 Nov. 13 - Assistant Director, Budget Department

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Monchai Danuphoboriboon

Position Assistant Governor
(Organization Management - Human Resources)

Age 55

Educational Institute

- National Institute of Development Administration: Master of Arts (Social Development)
- Prince of Songkla University: Bachelor of Arts (Social Development)

Work Experience

- | | |
|------------|--|
| 1 Oct. 20 | - Assistant Governor (Organization Management - Human Resources) |
| 12 Nov. 18 | - Director, Human Resource Strategy Department |
| 1 Oct. 17 | - Deputy Director (Organization Management - Human Resources) |

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None



Nudthaya Lumdupwong

Position Assistant Governor (Corporate Management - Laws)

Age 59

Educational Institute

- Dhurakij Pundit University: Master of Laws, Bachelor of Laws

Work Experience

- | | |
|------------|---|
| 1 Oct. 22 | - Assistant Governor (Corporate Management - Laws) |
| 1 Oct. 21 | - Director, Litigation and Investigation Department |
| 12 Nov. 18 | - Director, Legal Affairs Department |
| 1 Oct. 17 | - Deputy Director, Legal Affairs Department |

Directorship of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Procurement/hiring agreement with PEA for a starting amount of 100 million baht (including service as nominee of the company as a director or shareholder): None

Policy on and Payment of Remuneration for Senior Executives

The remuneration of the PEA Governor and its payment are determined based on the Cabinet resolution dated 13 June 2000 on Remuneration Criteria and Guidelines on Top Executives under Temporary Contracts. Pursuant to this resolution, the Ministry of Finance has taken part in the process to determine the remuneration for the PEA's top executive with the following three criteria in mind: 1) Performance Evaluation Agreement with the Ministry of Finance; 2) Implementation of the governor's policies; and 3) 360-Degree Evaluation that is approved by the PEA Board of Directors and the Ministry of Finance. Regarding the remuneration for other senior executives of PEA, namely deputy governors and assistant governors, the PEA Governor has assigned the Corporate Management Function to determine the amount of remuneration and formulate guidelines on salary adjustment and bonus. Performance is evaluated individually based on four criteria: 1) Implementation of policies given by/work assigned by supervisor; 2) Work mentioned in their job description; 3) Work delivered based on creativity; and 4) Behaviors based on corporate values. Also taken into account are the quality of their leadership, decision-making, problem-solving, the ability to foster learning atmosphere among and develop subordinates, human relation skills, and integrity.

Summary Allowance of PEA Board of Directors 2022

(Unit: Million Baht)

Allowance of PEA Board of Directors 2022	Amount
Monthly Allowance	85
Bonus	10
Meeting Allowance	8
Other Expenses	19
Total	122

Engagement in PEA's Related-Party Transactions

The Provincial Electricity Authority (PEA) requires the Board of Directors and senior management to disclose their respective related-party transactions in order to disclose their shareholding (securities or shares) in PEA-related businesses potentially leading to conflicts of interest between themselves and the common good. Below are the disclosure guidelines:

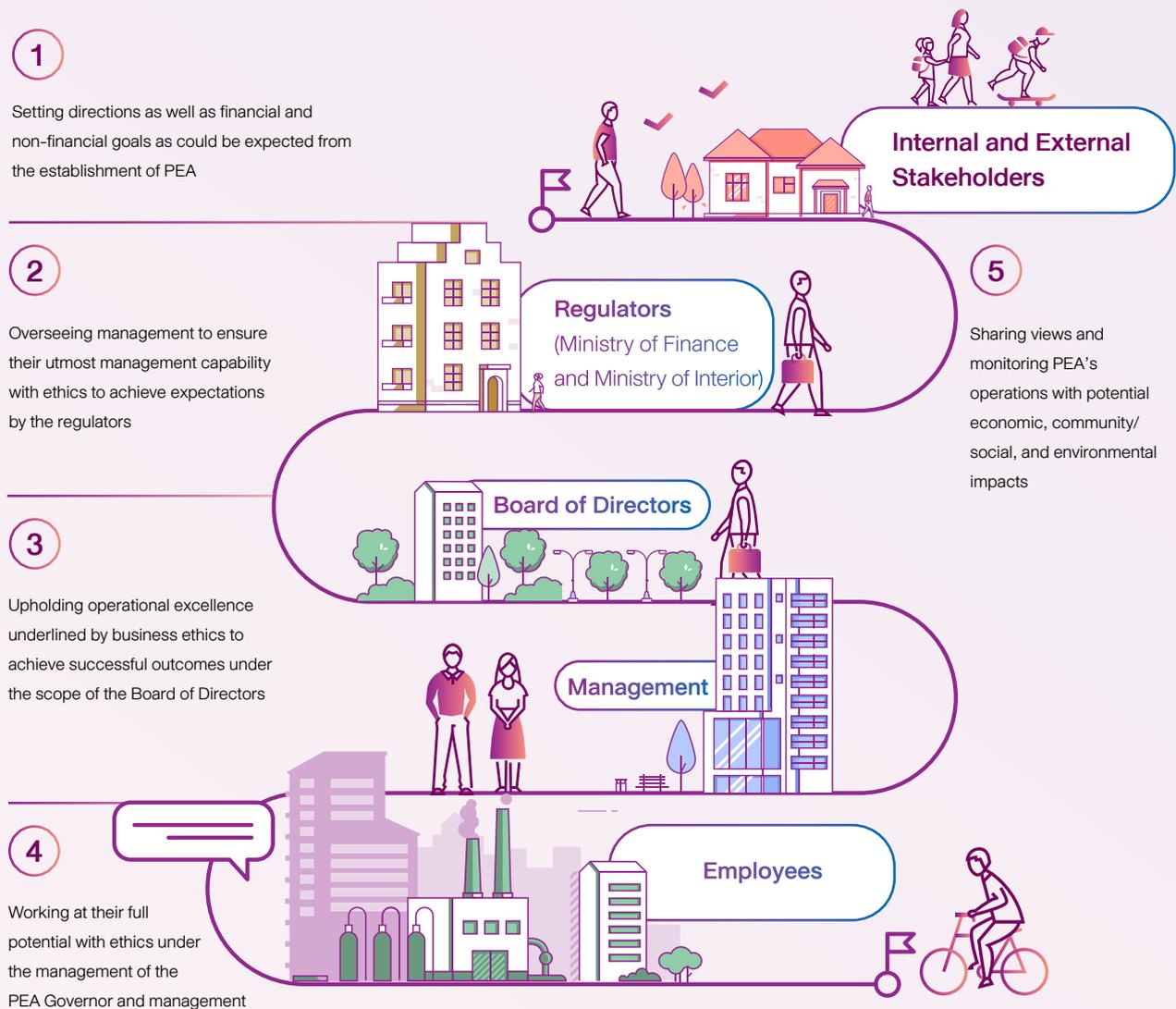
1. Holding an executive position or any other position in another organization that may affect PEA's operations
2. Holding more than five percent of voting shares in an energy-related company
3. Procurement/hiring agreement with PEA for a starting amount of 100 million baht per agreement (including service through company where he/she is an executive or shareholder)

Operational guideline is in line with the Charter and Manual of PEA Board of Directors, the PEA Regulation on Conflict of Interest Prevention B.E. 2564, and other applicable manuals or regulations.

In addition, PEA commands a review of related-party transactions by assigning its Internal Audit Bureau to examine such transactions between business partners and all employees. To this end, the bureau analyzes data under the SAP system for matching addresses and names ("address matches") between the addresses and names of vendors engaging in business with PEA against the addresses and names of employees each year. The written findings are to be reported to the Governor, the Audit Committee, and the Board by 31 March of the following year.

Corporate Governance

The Provincial Electricity Authority (PEA) satisfies the government policy that promotes public administration with good governance, transparency, and accountability by declaring a policy on administration and development titled “Good Governance: Business Conduct with Good Governance, Transparency, and Accountability”. Digital technology is to be used for establishing monitoring and assessment processes with stakeholder engagement encouraged. Integrity with systematic governance and corporate social values (CSVs) are to also be developed for sustainability in parallel throughout the entire ecosystem. PEA also focuses on business management under cooperation from all parties involved, namely the regulators, the Board of Directors, management, employees, and external stakeholders, to ensure understanding and concrete implementation of the code.



PEA is committed to developing its organization in accordance with good corporate governance framework, concepts, and guidelines that are up to international standards. Guided by the commitment, it has successfully fulfilled its objectives under the pillars of good governance, transparency, fairness, and accountability as it marches ahead towards sustainability in line with international standards, the Principles and Guidelines on Corporate Governance for State-Owned Enterprises B.E. 2562 (2019), and the State Enterprise Policy Office's guidelines. To achieve competitiveness and performance with long-term perspective, ethical and responsible business, good corporate citizenship, and corporate resilience, PEA has formulated the following 20 guidelines and 7 measures for its Board of Directors, executives, and staff at all levels to comply for transparency and corruption prevention.

1) Disclosure of information: PEA must disclose its financial and non-financial data in a transparent, accurate, complete, timely, and auditable manner. It must also value and treat all stakeholders equitably and fairly.

2) Stakeholder engagement: PEA must advocate systems, measures, or guidelines for stakeholders' monitoring and voicing views about its operations and services.

3) Advocacy of transparency: Hiring, procurement, and supply sourcing must be in strict compliance with applicable laws and regulations. Hiring and procurement details must be announced through all legally required channels.

4) Whistleblowing management: PEA must provide channels for complaints, comments, and whistleblowing for incidents suspected of fraud or breach of business ethics. It must assure whistleblowers of protection and fair treatment, keeping them from any threat or unfair act.

5) Prevention of bribery: PEA must not give or receive bribes, engage in direct or indirect conflicts of interest, or ignore any action considered a fraud. This is deemed part of the responsibilities of the Board, management, and all PEA employees.

6) Prevention of conflicts of interest between personal gain and the common good: PEA must institute regulations and guidelines as well as an IT system to prevent conflicts of interest.

7) Audit of discretionary exercise: PEA must set out guidelines to ensure employees' compliance with manuals and standards to minimize subjective decisions.

Ethics for Stakeholder Treatment

PEA values business administration with integrity, which aligns with such moral standards as righteousness, ethics, and decent custom, considered part of a set of values driving its secure growth, enhancing its corporate image, and fostering a good relationship with all stakeholders. It therefore issued guidelines for business ethics and a code of conduct for directors, executives, and all employees to abide by.

Core Values

1. Compliance with the Ethical Standard Act B.E. 2562 (2019), Section 1 (Ethical Standard and Code of Ethics) and Section 5 (Ethical Standard), which consist of:



2. Stakeholder treatment

PEA is responsible for power supply that is efficient, stable, safe, and reliable by performing its duties with honesty and efficiency with due regard to the interests of all stakeholders.

1 Guidelines on how to treat regulators and the public sector

- Managing PEA honestly in accordance with vision and the principles of good governance
- Complying strictly with applicable laws and regulations
- According importance to transparency and integrity when conducting transactions with government officials/agencies

2 Guidelines on how to treat customers and power users

- Delivering quality products and services
- Creating innovations and conducting R&D on a continuous basis
- Disclosing product/service information accurately, adequately, and completely in a timely manner without any distortion of facts
- Storing customer data and upholding their confidentiality systematically, free from data abuses

3 Guidelines on how to treat communities, society, and the environment

- Supporting proper activities/giving proper help to communities and society, especially those in PEA's operating areas, in support of sustainable community, social, and environmental development
- Promoting energy efficiency and energy conservation for public benefits and the future generations
- Engaging communities in activities/projects, and listening to their opinions, recommendations or complaints about PEA

4 Guidelines on how to treat media

- Communicating with media to ensure understanding of PEA's operations, policies, and projects so that stakeholders and the public are accurately informed
- Releasing accurate, clear, and relevant information to media in a fast, timely, and equal manner
- Maintaining good relationships with media for example, by supporting their CSR projects

5 Guidelines on how to treat partners

- Complying with power purchase agreements signed by PEA and partners in full
- Cooperating and engaging in the improvement of power distribution system in line with government policies
- Encouraging the exchange of opinions/recommendations on power transmission system development
- Determining fair and reasonable prices, taking into account price, quality, and service factors
- Not demanding or accepting any asset/benefit from partners. If any acceptance is detected, fast disclosing detail to relevant partners and tackling the issue together
- Reporting financial position to creditors with accuracy and transparency in a timely manner

6 Guidelines on how to treat PEA Board of Directors

- Ensuring that the Board is equipped with competence and skills (Skill Matrix) required for steering PEA's business toward key goals and missions
- Formulating a systematic process to select directors from SEPO's Directors' Pool properly, and completely defining the power, duties, and responsibilities of the PEA Board as well as each of its committees
- Promoting all PEA committees' compliance with PEA's regulations on PEA Board of Directors' Meetings and Operations B.E. 2554 (2011), the Charter of the PEA Board of Directors, the Manual of the PEA Board of Directors with the Board/all committees of PEA and their members subject to both individual and group performance assessments on a regular basis throughout the year

7 Guidelines on how to treat employees and internal units

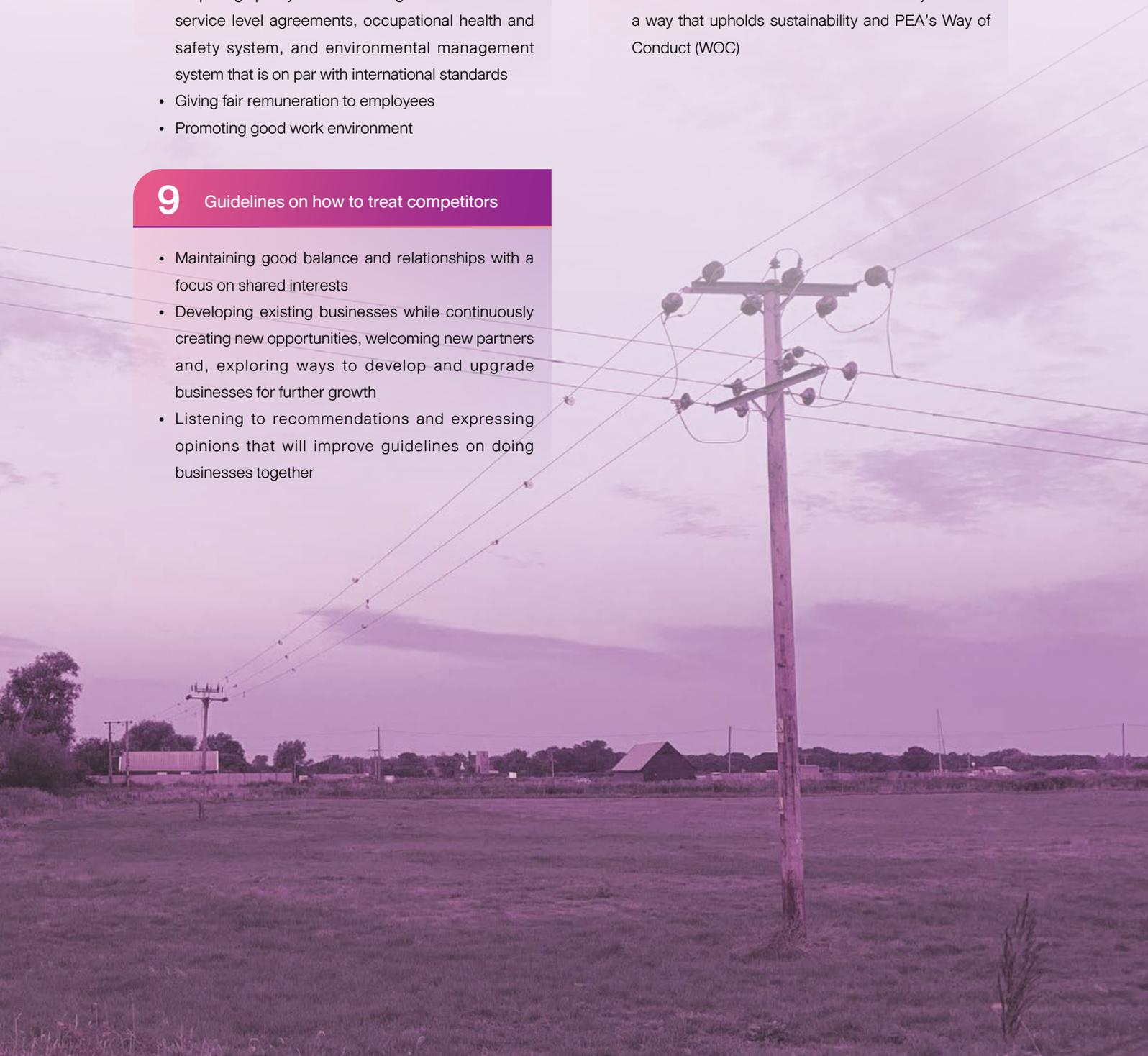
- Ensuring fair and efficient recruitment and employment conditions
- Listening to the opinions/recommendations of staff at all levels equally and inclusively, and engaging employees in the formulation of work direction and solutions to their unit's problems
- Preparing whistleblowing/complaint-receiving channels for tip-offs about ethical violations, and protecting whistleblowers from harassments or punishments
- Preparing quality service management that honors service level agreements, occupational health and safety system, and environmental management system that is on par with international standards
- Giving fair remuneration to employees
- Promoting good work environment

9 Guidelines on how to treat competitors

- Maintaining good balance and relationships with a focus on shared interests
- Developing existing businesses while continuously creating new opportunities, welcoming new partners and, exploring ways to develop and upgrade businesses for further growth
- Listening to recommendations and expressing opinions that will improve guidelines on doing businesses together

8 Guidelines on how to treat affiliates

- Defining clear business directions for affiliates, both short and long terms, as well as their financial and non-financial goals
- Ensuring that affiliates have the same operational standard and achieve business objectives in support of their and PEA's sustainability
- Supporting affiliates' compliance with PEA's Way of Conduct (WOC) and pushing for the same compliance standard in a systematic manner
- Overseeing affiliates' operations to ensure they have the same standard and fulfill business objectives in a way that upholds sustainability and PEA's Way of Conduct (WOC)



3. Compliance with laws and public policies

PEA cooperates with the government by complying with policies, laws, regulations, and ordinances.

Promotion of Corporate Governance

PEA commands a Master Plan for Corporate Governance and Prevention and Suppression of Fraud and Corruption (B.E. 2565 - 2569) (2022 - 2026), designed to scope its execution of CG work. In the master plan are defined CG strategies and execution plans for the prevention and suppression of fraud and corruption, properly analyzed for congruence with prevailing indicated scopes. The master plan consists of four strategies:



CG Performance Outcomes

Strategy 1: Heightening intention for management and leadership under CG Code

In 2022, PEA conducted training for its Board of Directors and Subcommittees to raise CG efficiency. Moreover, it expanded CG collaborations by signing a memorandum of understanding (MOU) on “Upgrading PEA’s Integrity and Transparency” with the Anti Corruption Foundation. PEA also joined hands with the Anti-Corruption Organization of Thailand in hosting a seminar on CG. Moreover, PEA implemented the “PEA’s Clean Villages” project to promote integrity. In addition, PEA promoted its high-level executives’ CG roles by continuously conducting activities for them to engage staff. PEA upgraded CG supervision over its affiliate, PEA ENCOM International Company Limited, based on Way of Conduct too.

Strategy 2: Enhancing CG knowledge, society, and culture

PEA upgraded its activities to promote CG, supportive culture, integrity, morality, ethics, transparency, and anti-corruption in its operations, known as soft control, by expanding them to the PEA Electric Vocational School’s students who would form an important foundation for PEA’s growth in the future. Speakers came from the Office of the National Anti-Corruption Commission. The Anti-Corruption Education training was conducted for students at all levels of the school. Moreover, PEA organized soft-control activities for its 46,160 executives and employees nationwide. These activities focused on Sufficiency Economy, the principles of good governance, conflict-of-interest prevention, and laws. In addition, PEA conducted CG Testing among its executives and staff to determine their awareness and application of CG, morality, ethics standards, transparency, and anti-corruption knowledge. A total of 26,525 executives and staff took part in the assessment. Response rate was 98.93 percent. Their CG awareness score was 96.95 percent.

In addition, PEA honored CG role models in its organization with recognition given to units, executives, and staff who proved exemplary based on its corporate core value of “Modernization Excellent Service Good Governance”. Such tributes aimed to promote desirable behaviors, which will give PEA a good image in the eyes of all stakeholder groups.

Strategy 3: Heightening CG standard and proactive fraud prevention system

PEA has taken part in the “Integrity and Transparency Assessment” (ITA) since 2014. In the 2022 assessment, PEA scored 97.37 percent (which meant it has got the Rating Score of AA for three consecutive years). It ranked first among agencies under the Ministry of Interior’s supervision and 6th of all state enterprises participating in the ITA. Moreover, PEA upgraded its CG e-System efficiency by investigating ways to integrate and develop a CG profile database of executives and employees. The database provides individual information about his/her CG performance. PEA, in addition, integrated GRC (Governance Risk and Compliance) work and promoted the disclosure of key information across all channels so as to upgrade public services in line with the Licensing Facilitation Act B.E. 2558 (2015).

Furthermore, PEA assessed its CG system against benchmark and the Corporate Governance Code for Listed Companies 2017, the Corporate Governance Report of Thai Listed Companies (CGR) 2021 and 2022, the ASEAN Corporate Governance Scorecard (ACGS), the principles of Environmental, Social and Governance (ESG), and more, with the aim of determining the system’s efficiency and improving it in the future. Moreover, PEA made preparations by giving training to relevant staff to upgrade itself to ISO 37001 (Anti-Bribery Management Systems) standards.

Strategy 4: Promoting participation in processes and tools for efficient prevention, suppression, vigilance, monitoring, auditing, and punishment

In 2022, PEA developed mechanisms for corruption watch and suppression with the aim to deter, monitor, and investigate corrupt practices as well as punish wrongdoers in a tangible manner. The development efforts were in the form of increasing the PEA Anti-Corruption Center’s whistleblowing management efficiency in regard to Data Analytic on its platform and PEA-VOC System.

In addition, PEA boosted its strengths against corruption from within and collaboration with others by upgrading its Transparency Network’s participation. The network had 31,093 members. Of them, 20,051 were based inside PEA while 11,042 were based outside. This network strengthened PEA’s anti-corruption monitoring, prevention, and investigations across all its units. Backed by the network and IT system for control self-assessment system (CSAS), PEA could promote its transparency standards on a sustainable basis.

Policy on Conflicts of Interest

Our regulation on Conflicts of Interest B.E. 2564 (2021) prevents internal fraud more efficiently and effectively in line with the criteria for transparency assessment of the Office of the National Anti-Corruption Commission (NACC). It requires executives, employees, and contract employees (with a two-year employment contract) to steer clear of conflicts of interest.

1. Never accept or sympathize with relatives in accepting any benefits, be they assets, gifts, discount offers, entertainment, services, training, or the likes which may influence decision-making
2. Never take part in any contract that one’s company or a company of one’s relative made with PEA
3. Never spend time otherwise designed for PEA’s causes seeking personal or others’ gain
4. Never exploit PEA’s internal information for seeking benefit through any means either by oneself or in collaboration with others
5. Never exploit PEA’s assets for personal or others’ interests
6. Never abuse one’s authority to influence decision-making by other PEA personnel, thus compromising PEA’s interests
7. Never abuse one’s position in seeking benefits for oneself or one’s relatives or associates, or accept employment as an adviser of projects involving one’s responsibility.

Guidelines for Preventing Conflicts of Interest

- Increase process efficiency to prevent conflicts of interest so as to ensure alignment with laws, regulations, and international standards while improving PEA’s regulation on Prevention of Conflicts of Interest B.E. 2564 (2021) for use as guidelines by senior

management, executives, employees, and contract employees (with a two-year employment contract). The aim is to ensure mastery and adherence to integrity, transparency, and fairness, which support reliable decision-making and behavior that values the common good rather than personal interests or those of friends and relatives.

- Apply risk management, internal control, and internal audit systems to minimize risk, while regularly monitoring issues concerning conflicts of interest every year.
- Define values and ethical behaviors that recognize organizational interests rather than personal interests, while organizing activities promoting moral awareness to avoid conflicts of interest.
- File a written report on conflicts of interest — a rule that directors of the Board, senior management, executives, employees, and contract employees (with a two-year employment contract) must adhere to and strictly follow. Such report must be complete, accurate, reliable, and timely, inclusive of oneself, spouse, and other family members.
- Regarding transactions connected to people inside PEA, the Board will closely monitor such engagement to ensure their transparency and fairness on an arm's length basis. Directors, executives, and employees in such engagement must refrain from the approval process of such transactions.
- Disclose policies, principles, guidelines, and outcomes of conflict-of-interest prevention to the public every year through various channels, such as www.pea.co.th and the annual report.

Conflicts of Interest Reporting Process

PEA's regulation on Prevention of Conflicts of Interest between Personal Interests and the Common Good B.E. 2564 (2021), dated 1 October 2021, requires senior management, executives, employees, and contract employees (with a two-year employment contract) to file a report on conflicts of interest (COI Reporting) as follows:

1) Senior management, executives, employees, and contract employees (with a two-year employment contract) are required for COI Reporting in three cases:

Case 1: Annual reporting

Case 2: With each appointment, transfer, promotion, and recruitment

Case 3: With each conflict of interest that happens during the year. An exception is made only for such reasonable causes as when the person is on a study leave, on suspension from the job, or on ordination leave.

2) Senior management is required to file a report on related transactions in addition to that concerning conflicts of interest.

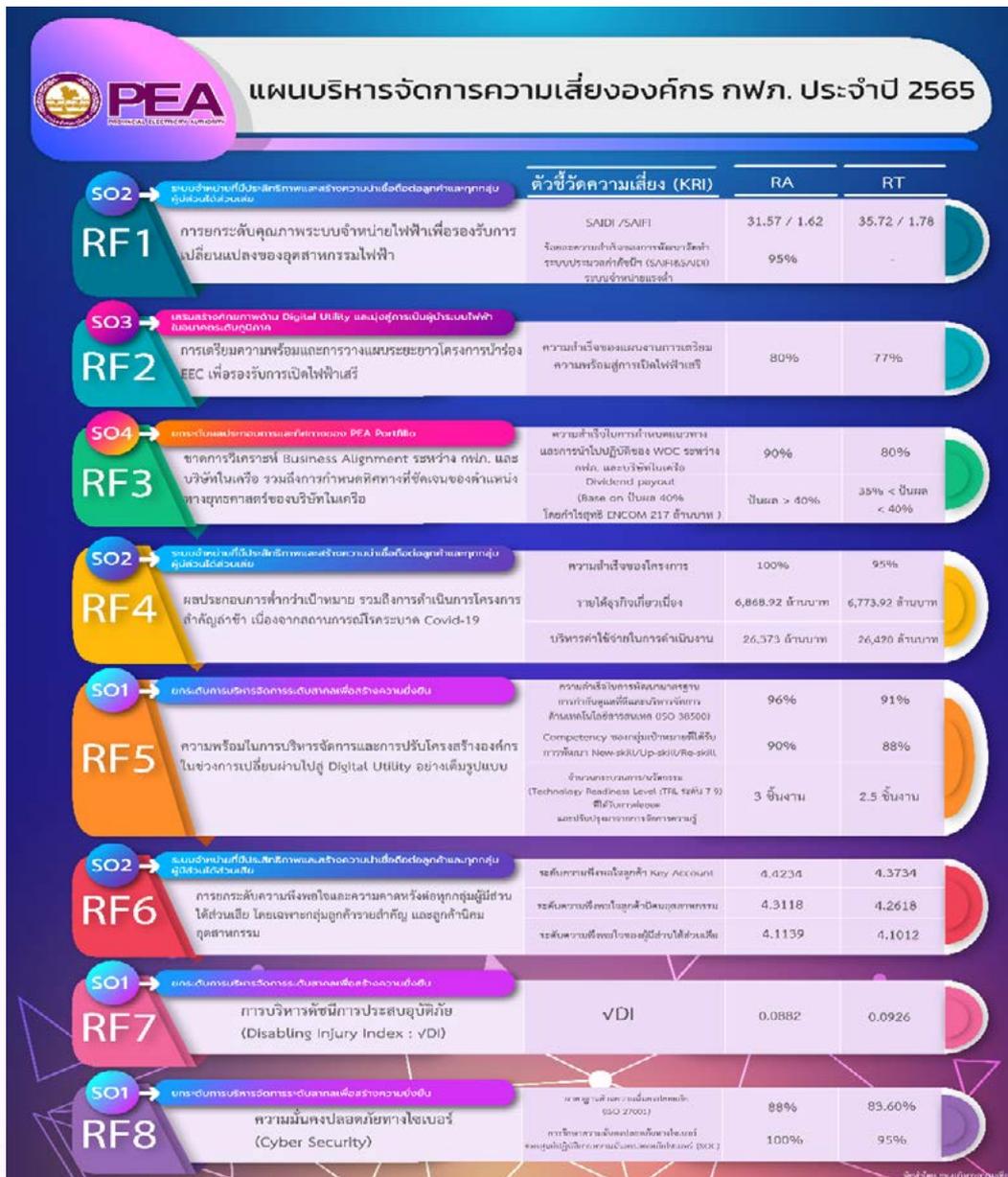
3) Senior management, executives, employees, and contract employees (with a two-year employment contract) having accepted an asset, gift, discount offer (except a sales promotion or marketing privileges equally offered to the public), entertainment, service, training (except training favoring the organizer), or the likes, worth over 3,000 baht, for which the recipient must report such advantage that can have monetary value.

4) Those involved in PEA's key processes, which means work groups with risks of fraud or conflicts of interest, are to file an additional report as required by PEA's guidelines using the specified form.

COI Reporting is a proactive measure to prevent conflicts of interest. When an employee or a contract employee (with a two-year employment contract) is found to engage in a conflict of interest, the supervisor must bar that person from the approval process or his/her involvement in the process with risk of conflicts of interest, such as the procurement process of a project or an activity of his/her own, family members, relatives and/or friends.

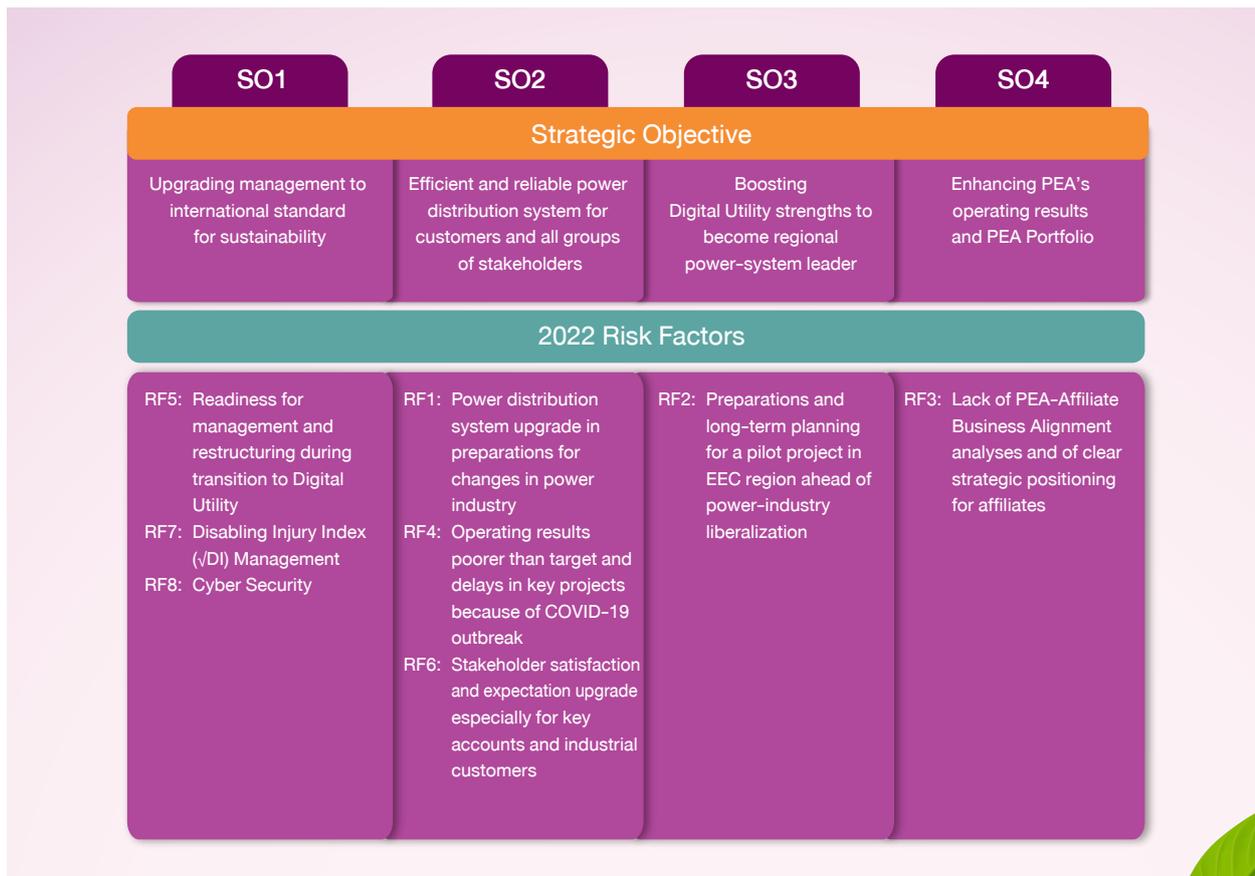
Risk Management

Our Risk Management and Internal Control Committee aligns risk management practices with COSO-ERM 2017 and the State Enterprise Policy Office (SEPO) guidelines. Such practices also conform to PEA's strategy, which identifies enterprise risk factors by considering internal and external factors that influence organizational objectives and goals. We also command an information system that supports risk analysis and impact reporting, as well as an early warning system of impending incidents or hazards that may damage the organization. In addition, each responsible party for risk management is required to assess and report risk management outcomes to the Risk Management and Internal Control Committee every quarter. Should any risk assessment outcome miss its target or should any factor cause PEA to miss its objectives, the committee is to provide suggestions and recommendations, which PEA's Risk Management function and the risk owner are to follow and adjust risk management strategies to keep foreseeable risks at an acceptable level (risk appetite).



In 2022, PEA had eight risk factors based on the evaluation of risk control efficiency. These eight risk factors were:

2022 Risk Factors	Risk Type	KRI	Risk Appetite	Risk Tolerance
1. Power distribution system upgrade in preparations for changes in power industry	S/O	SAIDI (System Average Interruption Duration Index) / SAIFI (System Average Interruption Frequency Index)	31.57 / 1.62	35.72 / 1.78
		Success rate (%) of SAIFI & SAIDI processing system for low-voltage distribution system	95%	-
2. Preparations and long-term planning for a pilot project in EEC region ahead of power-industry liberalization	S/C	Success of the plan to prepare PEA for power-industry liberalization	80%	77%
3. Lack of PEA-Affiliate Business Alignment analyses and of clear strategic positioning for affiliates	S	Success in the formulation of Way of Conduct implementation guidelines for PEA and affiliates	90%	80%
		Dividend Payout of PEA ENCOM	Dividend > 40%	35% < Dividend < 40%
4. Operating results poorer than target and delays in key projects because of COVID-19 outbreak	F	Success of projects (plans/projects assigned under operational plans of PEA's construction and project management function)	100%	95%
		Revenue from related businesses	6,868.92 Million Baht	6,773.92 Million Baht
		CPI-X management	26,373 Million Baht	26,420 Million Baht
5. Readiness for management and restructuring during transition to Digital Utility	O	Success of developing good governance and IT management standards based on ISO 38500	96%	91%
		Competency of target groups for New-skill/Up-skill/Re-skill	90%	88%
		Number of innovative processes/innovations (TRL 7-9) that were expanded and improved from knowledge management	3 Work Piece	2.5 Work Piece
6. Stakeholder satisfaction and expectation upgrade especially for key accounts and industrial customers	O	Satisfaction level of key accounts	4.4234	4.3734
		Satisfaction level of industrial customers	4.3118	4.2618
		Satisfaction level of stakeholders	4.1139	4.1012
7. Disabling Injury Index (√DI) management	O	Disabling Injury Index (√DI)	0.0882	0.0926
8. Cyber Security	O	Information security standard based on ISO 27001	88%	83.60%
		Success of Security Operation Center's (SOC) cybersecurity performance	100%	95%



Performance was as follows:

S01: Upgrading management to international standard for sustainability

Corporate Risks

- RF5: Readiness for management and restructuring during transition to Digital Utility
- RF7: Disabling Injury Index (√DI) management
- RF8: Cyber Security

2022 Performance

In 2022, PEA aimed to transform into a Digital Utility. It thus accorded importance to corporate management improvement that covered Human Resource Management (HRM), restructuring, workforce, recruitment of talents, succession plans, preparations for power industry's restructuring and the growth of new and related businesses, digital technology development, and innovation management in pursuit of its upgrade into a Digital Utility. The upgrade had three dimensions: Digital Service for higher customer-service efficiency; Digital Operational Excellence for higher operational efficiency and productivity; and Digital Business for more efficient products, services, and new businesses. Moreover, PEA placed an emphasis on cybersecurity to boost stakeholders' confidence in its online operations. Cybersecurity operations set standards on privacy and personal data protection, focusing on the security of information and communication systems, so that relevant parties could have confidence in communicating and conducting transactions online. The moves also raised the efficiency of existing products and services, paving the way for the development of new products, services, and businesses that could well support PEA's transformation into a Digital Utility in line with its strategy.

To upgrade its management to international standards for sustainable occupational safety and health, PEA formulated guidelines to prevent safety issues. However, the outcomes had not met targets throughout the past three years. In 2022, PEA thus declared 2022 as "Year of Safety, Stringency, Sustainability, and Continuity" based on "PEA Safety for All" concept. In line with the declaration, PEA placed an emphasis on safety promotion and awareness continuously.

SO2: Efficient and reliable power distribution system for customers and all groups of stakeholders

Corporate Risks

- RF1: Power distribution system upgrade in preparations for changes in power industry
- RF4: Operating results poorer than target and delays in key projects because of COVID-19 outbreak
- RF6: Stakeholder satisfaction and expectation upgrade especially for key accounts and industrial customers

2022 Performance

PEA focused on upgrading its power distribution system quality for both low voltage and high voltage. The upgrade placed an emphasis on raising the capacity, efficiency, and inclusiveness of the system. Included were the development of power systems and the constructions of power stations to accommodate growing demand, curb operational and maintenance issues, reduce loss units in the distribution system, and enhance as well as integrate power distribution systems in commercial zones, industrial zones, industrial estates, and important areas. These moves accommodated the expansion of Thailand's economic and strategic areas by equipping them with adequate and reliable power infrastructure as well as access to regionally recognized power distribution system.

Moreover, PEA accorded importance to responding to the expectations of all stakeholder groups. Data was integrated to improve service processes and standards for all categories of customers. Not only that service standards were maintained, but they were also enhanced with the help of digital technology. Service processes and standards improved based on service level agreements. Backed by digital technology, customer relationship management could become more efficient for each category of customers. In addition, PEA drew up an integrated plan to respond better to stakeholders' expectations, paving the way for its better operations. Planning started by surveying stakeholders' needs, expectations, confidence, and satisfaction. Findings were used to formulate guidelines on stakeholder treatment in a systematic manner towards the same directions.

The COVID-19 situation could affect PEA's liquidity and operations, especially its constructions and imports of materials given that the government imposed various policies and measures, including lockdowns, bans on some activities, and measures to ease adverse impacts on people. In accordance with those measures, PEA offered discounts on electricity tariffs and extended payment deadlines. Revenue of PEA's related businesses could also be affected. Therefore, PEA closely monitored and managed risks to its operations and liquidity in its bid to ensure that risk management proceeded in line with plans and enabled it to respond to the needs of internal and external stakeholders.

SO3: Boosting Digital Utility strengths to become regional power-system leader

Corporate Risks

- RF2: Preparations and long-term planning for a pilot project in EEC region ahead of power-industry liberalization

2022 Performance

As the government has the policy to liberalize the power industry by separating the duties of the Distribution System Operator (DSO) and that of retailers and implementing perfect-competition mechanisms, PEA planned preparations for the liberalization of power industry. According to the plan, PEA will clearly play the role of leading DSO with a pilot project in the EEC region. Details were as follows:

- In collaboration with the Metropolitan Electricity Authority and the Electricity Generating Authority of Thailand, PEA has prepared a forward market in the EEC region;
- PEA has drawn up TPA (Third Party Access) Regime, TPA Code, guidelines, and Wheeling Charge rate for the Energy Regulatory Commission to consider;
- PEA has separated the duties of DSO and power production and distribution systems;
- PEA has prepared Market Operator Platform;
- PEA has prepared its personnel, structures, affiliates, and separate financial statements, as well as studied laws in preparations for the separate roles of DSO and traders; and
- PEA has fostered the roles of key traders in the EEC region.

SO4: Enhancing PEA's operating results and PEA Portfolio

Corporate Risk

RF3: Lack of PEA-Affiliate Business Alignment analyses and of clear strategic positioning for affiliates

2022 Performance

For sustainable business growth, PEA needed to adapt and adjust to the changing power-industry landscape. Currently, technology and structure of the industry have been changing fast. PEA's core business is about power distribution. The ongoing changes have seriously affected PEA's liquidity. Therefore, PEA looked for business opportunities based on its core competencies and existing resources. For example, it has provided power-system services to industrial customers, energy management services in the forms of solar rooftops, and counseling services related to power-system designs. All these related businesses will play a big role in increasing PEA's revenue generation ability in the future. The operations of affiliates also laid key guidelines for PEA in exploring new business opportunities. As a result, PEA needed to formulate its direction in collaboration with its affiliates while upholding good governance to ensure proper returns and cost efficiency.



Internal Control

Principles/Guidelines

The Provincial Electricity Authority (PEA) has instituted an internal-control system under the Ministry of Finance's Criteria on the Standards and Internal Control Practice for Government Agencies B.E. 2561 (2018), announced on 5 October 2018, and SEPO's criteria/guidelines for risk management and internal control of 2012; both are observed throughout PEA. The objective is to ensure adequate and suitable internal control. In assessing corporate internal control, a given internal department/function reviews documents about control self-assessment for accuracy, completeness, and objective achievement in:

- Efficiency and effectiveness of operation: O
- Credibility of financial and non-financial reporting: R
- Compliance: C

PEA therefore prepares an annual report on internal control along with a report reviewing assessment outcomes prepared by the Internal Audit Bureau, fled to the Ministry of Interior, PEA Board of Directors, and Audit Committee.

The 2022 Report on PEA's Internal-Control System

PEA's policy is to develop an internal-control system and assess it against the above-mentioned Ministry of Finance's criteria of 2018. Internal control enables sensible confidence that PEA indeed complies with laws, ordinances, regulations, and directives of management to promote efficient, economical, effective, and successful operation in fulfilling goals for operation, reporting, and compliance. Stewardship of resources from fraud, damage, waste, or mismanagement must be in place, as must financial data and credible, as well as timely management. Below are the five aspects of assessment outcomes of PEA's internal control.

1. Control Environment

PEA has put in place an internal-control process underlined by righteousness and ethics. An Audit Committee reviews the adequacy and efficiency of controls by monitoring and reviewing financial and non-financial reports monthly. Authority and responsibility are assigned in writing. Corporate governance under a good governance code is firmly observed so that business may efficiently, transparently, fairly, and accountably achieve objectives. In place is the promotion of PEA's core values in support of its becoming an entity with robust values and culture. PEA has a project designed to stimulate, drive, and promote everyone's conformity to corporate values and integrate them with other processes; it also requires personnel to be bound by responsibility to their performance outcomes under the internal-control system so as to achieve PEA's objectives.

2. Risk Assessment

Under COSO ERM's guidelines, risk management proceeds under a singular standard. The Risk Management and Internal Control Committee provides oversight, defines policies, and defines risk appetite as well as risk tolerance. Analysis of internal and external factors is connected to strategies, with quarterly monitoring and assessment.

3. Control Activities

In place are defined policies and work procedures. A key manual/handbook is reviewed and updated periodically. Segregation of duties, including approval and stewardship of properties, is defined in writing complete with responsibility. The Internal Audit Bureau reviews both financial and non-financial reports and then reports to the Audit Committee and the PEA Board of Directors monthly. PEA has defined its vision and goals that it wishes to become a leading, modern, and regional entity, committed to providing integrated power and downstream services that are efficient and reliable for sustainable development of the quality of life, economy, and society. To achieve this goal, PEA has formulated a human resource development plan through innovation, work development through technology in pursuit of a futuristic electricity authority. Its policy is also to become an entity of transparency, which is bound to result in sustainable performance.

4. Information and Communication

PEA commands a readily accessible information system that manages both financial and non-financial databases for efficient and up-to-date application. The Digital Technology Committee provides oversight, assigns policies to manage the system, and maps out a security standard master plan. Management has access to the information system to support decision-making. An ICT system is in place during normal times and during crises, with several channels to promptly reach related parties. The IT system is secure and can serve continually even during periods of threats or crises. Communication/clarification is in place to ensure widespread awareness of information application security. Communication enables PEA personnel to appreciate their responsibility and the significance of the internal control for the achievement of objectives.

5. Monitoring

PEA continually and regularly monitors and assesses outcomes in the course of job performance, with individual assessment done through Control Self-Assessment (CSA) for all departments/functions, integrated with risk management, the outcomes of which are monitored quarterly apart from Independent Assessment (IA), conducted by the Internal Audit Bureau, the State Audit Office of the Kingdom of Thailand. Also, annual assessment is continually undertaken by a third party (State Enterprise Assessment Model: SE-AM). Nonetheless, PEA strives to assess CSA and IA that is focused on job performance while valuing relentless development of the internal-control system.

Assessment Outcomes of Internal Control

In summary, PEA commands systematic actions on internal control covering all five components under a single standard throughout the authority that is adequately effective and suitable, thus helping it achieve the objectives of internal control. It also prepares an internal-control report for the Ministry of Finance, PEA Board of Directors, and Audit Committee within the specified period as required by the Ministry of Finance's Criteria on the Standards and Internal Control Practice for Government Agencies B.E. 2561 (2018).

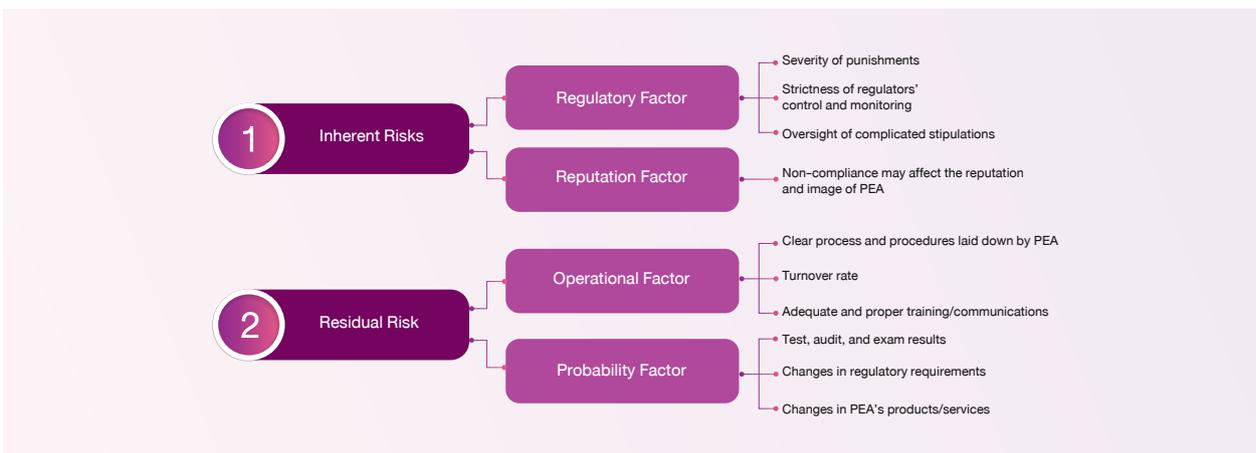


Compliance

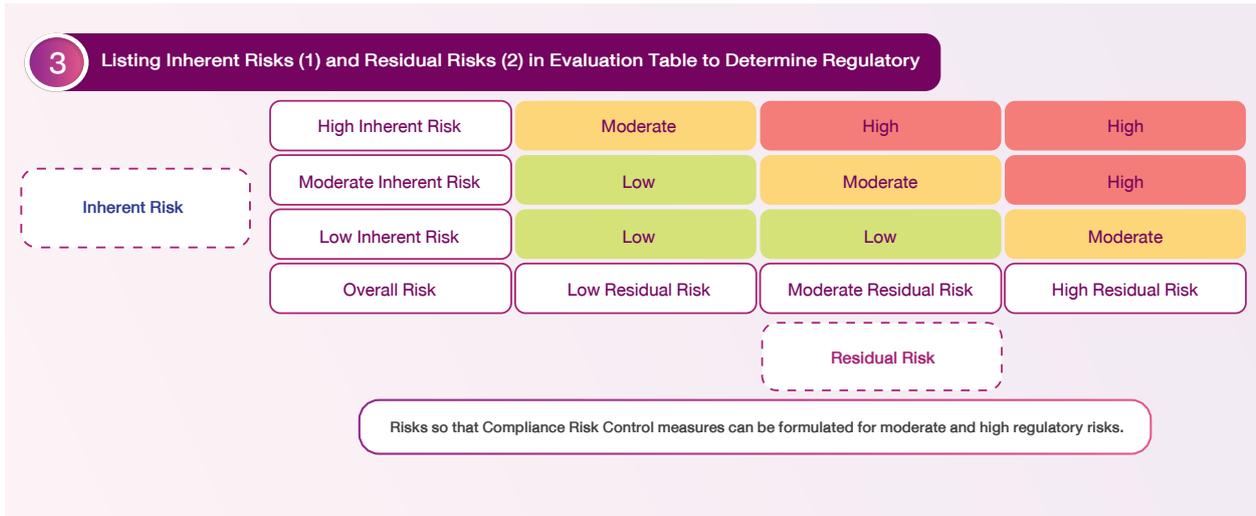
Compliance Operations

PEA is committed to operating and serving customers with integrity, transparency, and fairness. It has fought corruption and strictly ensured its compliance with applicable laws, rules, regulations, as well as internal and external announcements too. Also, it has continuously promoted compliance culture by conducting training, providing knowledge, giving advice, and introducing campaigns that boost staff's understanding, knowledge, and awareness of compliance issues through its corporate communications channels. PEA also established the Compliance Division (CPD) to increase the efficiency of compliance risk analyses and regulatory analyses related to laws and regulations set by external agencies, as well as internal rules. CPD curbed problems from stipulations that failed to keep pace with the current situation too. PEA, as a result, could correctly and continuously uphold compliance, increase the value of its businesses, control and monitor compliance, as well as drive regulatory improvement.

Compliance Risk Assessment Compliance Risk Assessment Method



Inherent Risks				
Factor	Perspectives	High (3)	Moderate (2)	Low (1)
Regulatory Factor	Severity of punishments/ Strictness of regulators' control and monitoring/ Oversight of complicated stipulations	<ul style="list-style-type: none"> Harsh punishments Constant monitoring and control by regulators 	<ul style="list-style-type: none"> Harsh punishments Occasional monitoring and control by regulators Complicated and difficult-to-comply regulations 	<ul style="list-style-type: none"> No punishment Monitoring & oversight in place Complicated but possible-to-comply regulations
Reputation Factor	Reputation	Non-compliance threatens to seriously hurt PEA's reputation and image with stakeholders losing trust in PEA.	Non-compliance threatens to hurt PEA's reputation and image to an extent.	No impact on reputation
Residual Risk				
Factor	Perspectives	High (3)	Moderate (2)	Low (1)
Operational Factor	Control	<ul style="list-style-type: none"> Lacking control or having just soft control (most processes and procedures were unclear.) High turnover rate Inadequate training and communications 	<ul style="list-style-type: none"> Control good to an extent but with flaws in certain processes or procedures Partial decentralization Moderate turnover rate Little training and communications 	<ul style="list-style-type: none"> Control good to an extent with clear processes and procedures Central unit in place for centralized supervision Using automatic IT system to reduce errors Low turnover rate Proper and adequate training
Probability Factor	Test, Audit, Exam Results/ Change in regulatory requirements/ Change in PEA's products /services	<ul style="list-style-type: none"> Significant Errors detected in tests, audits, or exams Significant changes in regulatory requirements Significant changes in products/services 	<ul style="list-style-type: none"> Minor Errors detected in tests, audits or exams Changes in some regulatory requirements (just moderate impacts) Changes in some of PEA's products/ services 	<ul style="list-style-type: none"> Minor Errors detected in tests, audits or exams Changes to regulations governing PEA's products/services



PEA has developed the Compliance Management System (CMS) based on ISO 19600:2014 and ISO 37301:2021 standard. It, moreover, has continuously complied with the Control Objectives for Information and Related Technology's (COBIT) Managed Compliance with External Requirements.



At its meeting No. 3/2021 on 11 August 2021, the PEA's Risk Management and Internal Control Committee approved the three-year Compliance Roadmap (2021 - 2023) and the Compliance Management System Plan (CMS Plan) to ensure PEA's compliance is appropriate and supports its corporate strategies.

Phase	Period	Focus	Details
1	2021	Enhancement	Formulating guidelines and upgrading Compliance Management System (CMS), and creating compliance readiness
2	2021 - 2022	Operational Supporting	Developing or supporting Compliance Risk Control process at operational level, improving compliance communications, and developing CMS efficiency evaluation process
3	2023	Sustainably	Implementing CMS in accordance with standards, reviewing/improving essential processes in a systematic manner and comprehensively supporting compliance operations



Integrated Governance Risk and Compliance (GRC) Policy

The Integrated Governance Risk and Compliance (GRC) Policy requires PEA's executives, employees, and workers to honor compliance. Strategy implementation and work-plan formulation must be completely in line with existing resources, laws, and regulations. The policy aims to prevent non-compliance risks and set up anti-corruption process. PEA has communicated this policy organization-wide for full compliance.

นโยบายบูรณาการ GRC
Governance Risk and Compliance

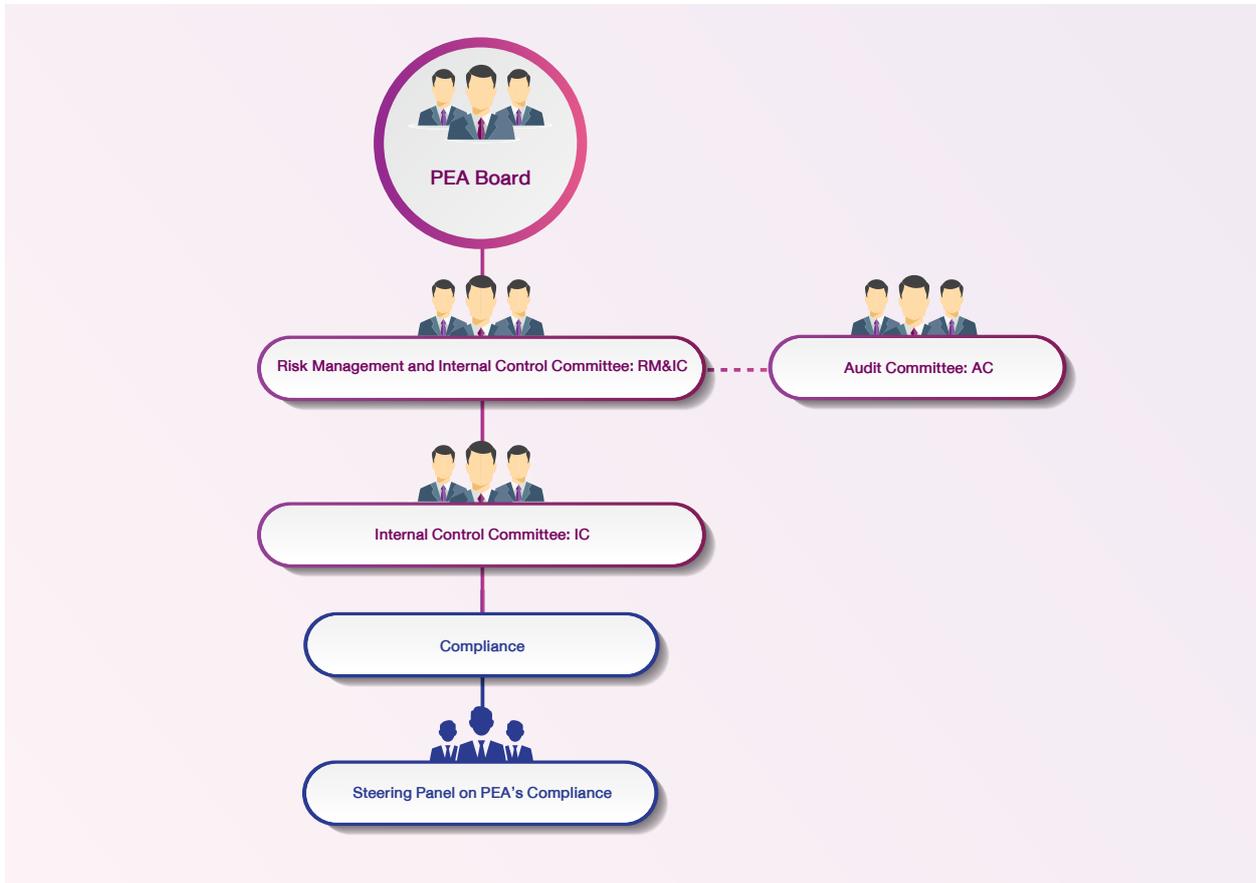
- 1 หลักการ**
 เป้าหมายที่ชัดเจน มีทิศทางที่ชัดเจนและสอดคล้องกับวิสัยทัศน์ และค่านิยมของ ความเสี่ยง ความปลอดภัย และผู้มีส่วนได้ส่วนเสีย จึงมีคำจำกัดความ **Governance Risk Management and Compliance (GRC)** ตามมาตรฐานสากลในระดับสากล และบูรณาการระหว่าง การกำกับดูแลกิจการที่ดี (Governance) การบริหารความเสี่ยง (Risk Management) และการปฏิบัติตามกฎหมาย และกฎระเบียบ (Compliance) เพื่อสนับสนุนให้กระบวนการจัดการองค์กรที่มีประสิทธิภาพ ภายในที่สอดคล้องกับวิสัยทัศน์ มีวินัยไม่ขัดแย้งกับกฎหมาย และสามารถปฏิบัติตามกฎหมาย และกฎระเบียบได้อย่างมีประสิทธิภาพ ซึ่งมีความสอดคล้องกันกับวิสัยทัศน์ และค่านิยมขององค์กร
- 2 นิยาม**
 GRC คือ การจัดการความเสี่ยงที่ครอบคลุมทั้งในทางตรง (Direct) และในทางอ้อม (Indirect) ซึ่งมีความเสี่ยงที่อาจส่งผลกระทบต่อความสำเร็จขององค์กร (Performance) การบริหารความเสี่ยง (Risk Management) และการปฏิบัติตามกฎหมาย (Compliance) เพื่อเป็นการบูรณาการที่สอดคล้องกันกับวิสัยทัศน์ และค่านิยมขององค์กร
- 3 โครงสร้างและบทบาทหน้าที่**
 3.1 คณะกรรมการ GRC มีหน้าที่กำหนดนโยบายและแผนการดำเนินงานที่สอดคล้องกับวิสัยทัศน์และค่านิยมขององค์กร และสนับสนุนการปฏิบัติตามกฎหมาย และกฎระเบียบ
 3.2 คณะกรรมการบริหารความเสี่ยงและแผนการดำเนินงานที่สอดคล้องกับวิสัยทัศน์ และค่านิยมขององค์กร มีหน้าที่กำหนดนโยบายและแผนการดำเนินงานที่สอดคล้องกับวิสัยทัศน์ และค่านิยมขององค์กร
 3.3 คณะกรรมการบริหารความเสี่ยงและแผนการดำเนินงานที่สอดคล้องกับวิสัยทัศน์ และค่านิยมขององค์กร มีหน้าที่กำหนดนโยบายและแผนการดำเนินงานที่สอดคล้องกับวิสัยทัศน์ และค่านิยมขององค์กร
 3.4 คณะกรรมการบริหารความเสี่ยงและแผนการดำเนินงานที่สอดคล้องกับวิสัยทัศน์ และค่านิยมขององค์กร มีหน้าที่กำหนดนโยบายและแผนการดำเนินงานที่สอดคล้องกับวิสัยทัศน์ และค่านิยมขององค์กร
 3.5 ผู้บริหาร พนักงาน และผู้ปฏิบัติงาน มีหน้าที่ปฏิบัติตามกฎหมาย และกฎระเบียบ
- 4 การบูรณาการ GRC**
 4.1 กำหนดวิสัยทัศน์ที่ชัดเจน และเป้าหมายที่ชัดเจน ทั้งในระดับองค์กร และในระดับหน่วยงาน
 4.2 กำหนดวิสัยทัศน์ที่ชัดเจน และเป้าหมายที่ชัดเจน ทั้งในระดับองค์กร และในระดับหน่วยงาน
 4.3 กำหนดวิสัยทัศน์ที่ชัดเจน และเป้าหมายที่ชัดเจน ทั้งในระดับองค์กร และในระดับหน่วยงาน
 4.4 กำหนดวิสัยทัศน์ที่ชัดเจน และเป้าหมายที่ชัดเจน ทั้งในระดับองค์กร และในระดับหน่วยงาน
 4.5 กำหนดวิสัยทัศน์ที่ชัดเจน และเป้าหมายที่ชัดเจน ทั้งในระดับองค์กร และในระดับหน่วยงาน
 4.6 กำหนดวิสัยทัศน์ที่ชัดเจน และเป้าหมายที่ชัดเจน ทั้งในระดับองค์กร และในระดับหน่วยงาน
- 5 กงทวนนโยบายการบูรณาการ GRC**
 5.1 กำหนดวิสัยทัศน์ที่ชัดเจน และเป้าหมายที่ชัดเจน ทั้งในระดับองค์กร และในระดับหน่วยงาน
 5.2 กำหนดวิสัยทัศน์ที่ชัดเจน และเป้าหมายที่ชัดเจน ทั้งในระดับองค์กร และในระดับหน่วยงาน
 5.3 กำหนดวิสัยทัศน์ที่ชัดเจน และเป้าหมายที่ชัดเจน ทั้งในระดับองค์กร และในระดับหน่วยงาน
 5.4 กำหนดวิสัยทัศน์ที่ชัดเจน และเป้าหมายที่ชัดเจน ทั้งในระดับองค์กร และในระดับหน่วยงาน
 5.5 กำหนดวิสัยทัศน์ที่ชัดเจน และเป้าหมายที่ชัดเจน ทั้งในระดับองค์กร และในระดับหน่วยงาน

ที่นี้ นโยบายการบูรณาการ GRC
กรรมการ ก.ล.ล. ผู้บริหาร พนักงาน และผู้ปฏิบัติงาน
ประกาศ ณ วันที่ ๒๐ มิถุนายน พ.ศ. ๒๕๖๕

นายชัชวาลย์ สัมพันธ์รัตน์
ประธานคณะกรรมการกำกับดูแลกิจการที่ดี

PEA’s Compliance Structure

PEA has prescribed the following Compliance Management Level:



Board/Committee	Details
1. PEA Board of Directors	The Board formulates policies for PEA; govern its operations; and ensure its compliance with policies on good corporate governance/risk management, as well as other regulations.
2. PEA Risk Management and Internal Control Committee	The committee considers and approves Compliance Plans; ensures PEA's compliance with laws, rules, regulations, and operational standards through Compliance Unit; and oversees the integration of Corporate Governance, Risk and Compliance (GRC) work so as to drive the pursuit of PEA's goals; and recommend GRC policies, strategies, and goals in line with international practices through perspectives that address PEA's future business needs.
3. Audit Committee	This committee oversees the compliance monitoring process, regulatory issues that may affect PEA's financial statements, as well as the process to monitor compliance with PEA Code of Conduct. Also, it ensures the integration of GRC.
4. Supervisory Panel on PEA's Internal Control	This panel facilitates operations; formulates framework/guidance; considers work plans; coordinates for follow-ups; and summarizes operations related to PEA's compliance.
5. Steering Panel on PEA's Compliance	This panel reviews PEA's compliance with international standards on compliance management, oversight, reviews, policy and framework improvement, as well as PEA's analyses, monitoring and assessments of compliance risks. In addition, it promotes compliance awareness and the development of IT systems for compliance monitoring and supervision.

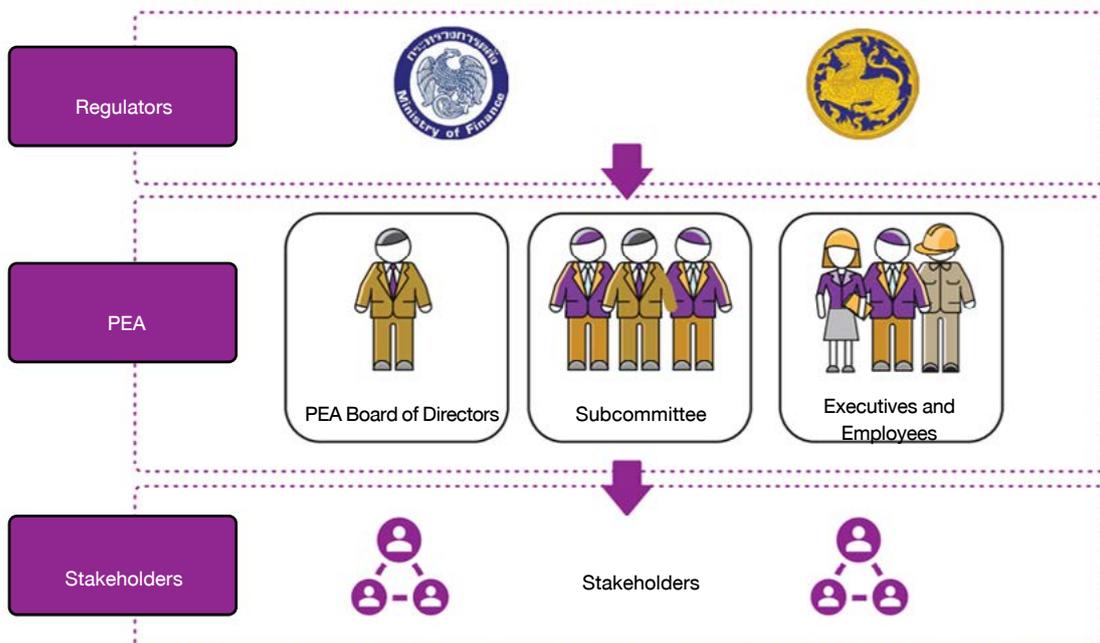
Stakeholder Management

Policy on how to treat stakeholders

PEA is determined to grow alongside communities and society on a sustainable basis. Therefore, it has accorded importance to the management of stakeholders in all sectors. The management aims at systematically responding to the needs and expectations of stakeholders; making efficient communications; respecting stakeholders' rights; and engaging stakeholders in every work step to minimize any undesirable impacts, boost stakeholders' confidence, and properly develop good ties with stakeholders, paving the way for PEA to grow sustainably. Stakeholder management is based on AA1000 Stakeholder Engagement Standard (AA1000SES).

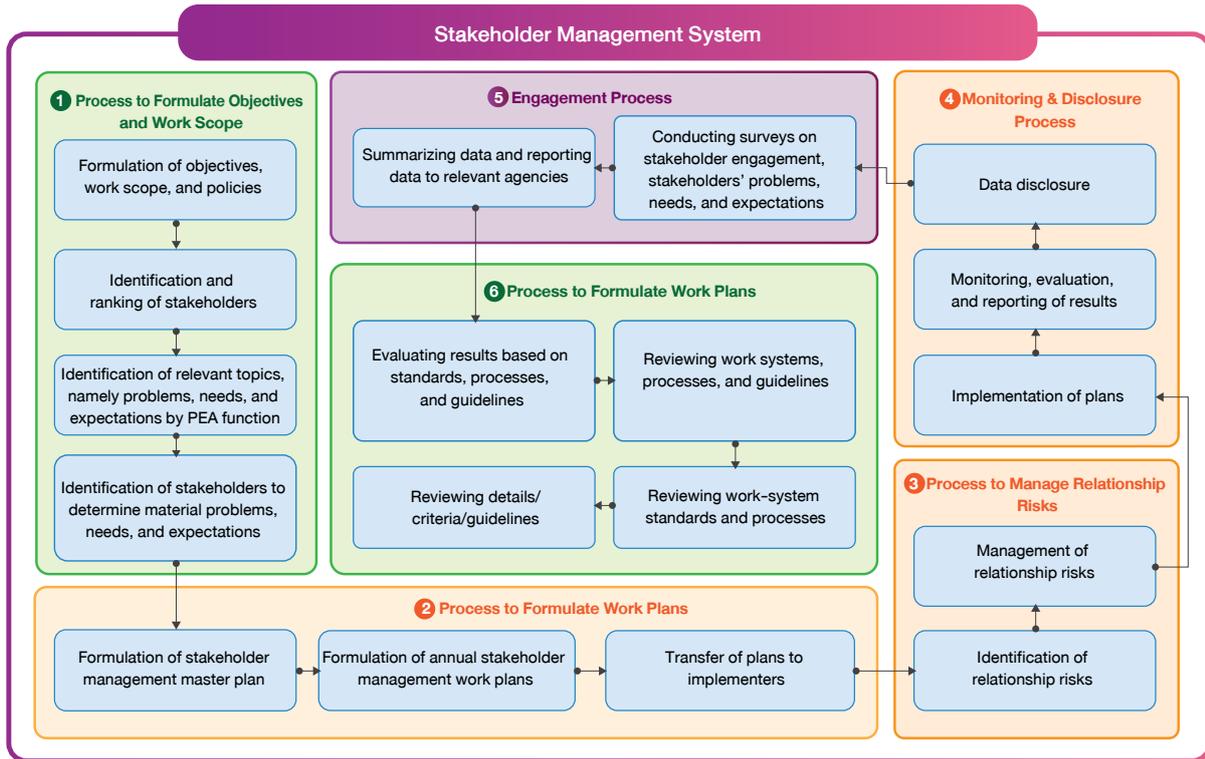
Principles

Stakeholders must be identified, analyzed, and ranked based on their importance. Identification, analyses, and ranking must also apply systematically to topics relevant to them and PEA based on direct or indirect business relationships between the two so as to clearly and completely determine risks to and impacts on stakeholders. Backed by such process, PEA has identified nine groups of stakeholders:



Stakeholder Engagement

PEA has created opportunities for stakeholders to express their opinions, file complaints, or make recommendations via various channels so that they can make their voice heard on topics that may affect them. Such engagement ensures the exchanges of opinions, enabling PEA to understand stakeholders' needs and expectations before, during and after their work with PEA, during their interactions with PEA, or during PEA's stakeholder relations activities. Moreover, PEA has conducted stakeholder surveys quantitatively and qualitatively so as to develop guidelines on how to foster cooperation and mutual benefits in a fair manner.



Corporate Social Environmental Responsibility

PEA is committed to providing electricity services and expanding power distribution to remote areas to ensure nationwide electrification in parallel with awareness of corporate social environmental responsibility (CSR), both internal and external. In 2022, socio-environmental tasks planned by all work units were reviewed and integrated with a focus on clearer stakeholder management so that their demands and expectations could be properly responded to and aligned with the ISO 26000 standard, which comprises 7 main topics detailed below.



1. Organizational Governance

PEA has governed its social and environmental work to ensure compliance with applicable laws, rules, and regulations, as well as ethics and code of conduct. Moreover, it has embraced the 13th National Economic and Social Development Plan, the policies of the Ministry of Interior, policies of the Corporate Governance and Sustainable Development Committee, the policies of the PEA Governor, the PEA Strategic Plan, national strategies' BCG Economy Model, the United Nations' Sustainable Development Goals (SDGs), the Sufficiency Economy Philosophy (SEP), and the Systematic Inventive Thinking (SIT) as guidelines for the implementation of work plans and CSR projects, as well as the formulation of CSR projects for Year 2022.

Every year, PEA has conducted workshops on strengths, weaknesses, opportunities, and threats analysis related to CSR so that staff at all levels know and understand the principles and guidelines on corporate and social environmental responsibility in CSR in Process as well as CSR after Process. PEA, in addition, has set up foundations for charity and public causes. PEA has laid down process to prevent and reduce the undesirable impacts of its products, services, and operations on both internal and external stakeholders. Evaluations of results as well as feedback are used to improve its work process.

In 2022, PEA formulated its Master Plan on Sustainability and Stakeholder Management for Years 2022 to 2026. This master plan prescribed four strategies that aligned with SDGs and PEA Strategic Plan as follows:

- SM1 Setting up the system to oversee stakeholder management in support of sustainability;
- SM2 Improving operations to foster confidence, acceptance, and engagement with both internal and external stakeholders;
- SM3 Upgrading operational process in response to stakeholders' needs and expectations; and
- SM4 Enhancing personnel's knowledge, abilities, and attitudes about human capital.

Furthermore, PEA has used ESG (Environment, Social/Stakeholder, and Governance) as a tool in developing sustainable solutions to environmental problems via the following plans:

1) Plan to Promote the Use of Alternative Energy for Tourism and Safety via the PEA LED for Thai Cultural Attractions Project, which seeks to promote safety and energy efficiency by installing LED lights for the purposes of greenhouse-gas (CO₂) emissions reduction and environmental friendliness;

2) Plan to Promote Clean Energy among Community Enterprises in the forms of solar drying facilities, etc., to support these enterprises' operations and self-reliance, increase their income, lower their expenses, and raise the quality of their agricultural output while promoting the use of alternative energy at community level, curbing greenhouse-gas (CO₂) emissions, and fostering energy efficiency; and

3) Plan to Promote Technological Research and Development so as to create innovations for communities such as solar boats for sustainable canal tours in Ratchaburi's Damnoen Saduak district. Designed to curb global warming and noise pollution, these eco-friendly boats have contributed to social, economic, and environmental sustainability.

2. Human Rights

PEA respects human rights, thus managing its organization in accordance with the National Action Plan on Businesses and Human Rights Phase 1 (2019 - 2022). It seeks to equally treat all stakeholders across its value chain and to reduce human-right abuses related to labor, communities, land, human resources, the environment, and human-right defenders.

Recognizing the importance of human rights, PEA considers respect for human rights a fundamental virtue for any collaboration in society. Guided by such conviction, PEA has laid down policies and guidelines on human rights and communicated them to stakeholders and all other relevant parties in its value chain. There are clear guidelines and mechanisms for complaint receiving and management. PEA has also recruited staff with physical disabilities under Article 33 (of the Empowerment of Persons with Disabilities Act) since 2016. Today, the number of staff hired under Article 33 at PEA has reached 111. Of them, 90 are employees and 21 others are workers. PEA has managed its human resources in a way that gives its staff specialized skills. To motivate and retain them, PEA has offered welfare, including scholarships, maternity leave, childcare services, and medical benefits for staff and their families. They can also get free treatments at PEA's medical facilities. In addition, PEA has upheld transparency, fairness, and one same standard organization-wide. Career-advancement opportunities are available through the provision of regular training, which constantly improves staff skills. In addition, there is no sexual discrimination at PEA in both recruitment and promotion processes. Clear promotion guidelines have been laid down, with staff's abilities and potential used as key criteria.

PEA has continuously improved underprivileged people's quality of life. For example, it has enhanced its facilities to give greater convenience to the physically challenged and the elderly. Efforts include the provision of convenient parking lots, ramps for wheelchair users, connected walkways between buildings, and automatic doors. With outstanding efforts, the PEA Office in Surin's Tha Tum District won a Friendly Design Awards 2022 in the "Friendly Design Building for All" category from the Thailand Friendly Design Expo 2022: The 6th Universal Design and Health Innovations Expo. Friendly Design is an international design principle for buildings and utensils. It focuses on functionality, appeal, and friendliness to users of all ages and physical conditions, taking into account the needs of the elderly, recovering patients, the physically challenged, families with little kids, and wheelchair users. Friendly Design seeks to deliver functional, modern, safe, fair, inclusive, and world-class facilities or products. The PEA Office in Tha Tum District is the only PEA office to have won the Friendly Design Awards 2022. This award-winning office's friendly design applies to both its indoor and outdoor zones as follows:

- Indoor facilities are consisted of ramps, special services for wheelchair users, restroom, elevators, signs, and tactile surface (for the blind); and
- Outdoor facilities are consisted of walkways between buildings, entrance to buildings, doors, signs, stairways, tactile surface (for the blind), railings, ramps, and parking lots.

In addition, PEA has improved its website to ensure it is accessible and usable to the physically challenged so that they too can be well-informed. PEA has also implemented occupational promotion projects for persons with disabilities under Article 35 of the Empowerment of Persons with Disabilities Act B.E. 2550 (2007). Via this project, PEA signed 81 contracts in 2022 to provide physically disabled persons or their caretakers with some space at PEA headquarters or other offices so that they can earn a living by selling products/services.

PEA, moreover, has taken care of service users with low income. In events of floods, PEA inspects electrical systems at their home and provides repairs. It also elevates power meters for households affected by flooding so as to ensure that all can access its services safely in line with the human right to safe products and services.

Thanks to tangible work for human rights, PEA received the Human Rights Award 2022 in the state-enterprise category from the Right and Liberties Protection Department. This accolade is reserved for state organizations, state enterprises, social enterprises, and civil society organizations that have been exemplary in fostering respect for human rights in society on a sustainable basis.

3. Labor Practices

Commanding a plan for personnel with competency and skills to efficiently grow in their career paths, PEA also provides

a hygienic and safe workplace. Support and assistance are arranged for the workforce, such as welfare and benefits, as well as communication channels for them to express expectations and views to foster their satisfaction and engagement with the organization. Results of a survey showed that needs and expectations vary with the nature of work, which will be used to improve policies on welfare and benefits to better respond to their needs.

As safety, security, and occupational health is a vital issue, we seriously take improvement of the workplace to ensure a higher level of safety and hygiene. A committee on safety, occupational health, and workplace environment was set up at all worksites, currently numbering 219 committees. Committee representatives come from both employer and employee sides equally (50:50). Additionally, we have a work unit dedicated specifically to safety, occupational health, and the work environment. A proactive occupational health process is also readily available, which involves health risk assessment in areas of work where chemicals or hazardous substances are present, together with control of hazards from the operations and regular inspection and monitoring of workplace environment.

4. The Environment

PEA has integrated its environmental responsibility to all its work processes so as to prevent undesirable impacts on communities and the environment and fully complied with applicable laws including the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992). Prior to the start of any construction project, PEA conducts a study on environmental impacts. In support of the study, PEA holds public hearings to discuss with local communities and relevant authorities. Data collected are analyzed for the formulation of guidelines, control measures, and monitoring of potential environmental impacts. For a project that threatens to seriously affect the environment, PEA conducts an Environmental Impact Assessment (EIA). The EIA must receive the green light from the Cabinet as well as a relevant authority, namely the National Environment Board of the Ministry of Natural Resources and Environment, before going ahead with such project.

To foster eco-efficiency, PEA focuses on adding value to products and services while curbing the use of resources as well as environmental impacts. It thus formulates eco-efficiency improvement guidelines for internal implementation. Based on the guidelines, it has reduced the costs of operational expenses related to energy and resources usage. Moreover, PEA has prescribed the guidelines on pollution reduction. Since 2014, PEA has implemented the Green Office project. Under this initiative, PEA has chosen eco-friendlier choices of fuel such as B7, E20, E85, and Gasohol 95 for its fleet of vehicles. It has also embraced green procurement and separated waste for recycling purposes. This project has curbed tap-water and power consumption at PEA offices too. The use of diesel oil has also been lower. In 2022, PEA as a result successfully cut greenhouse-gas emissions by 4,776.81 tCO₂eq as certified by the Thailand Greenhouse Gas Management Organization (TGO) (Public Organization).

In addition, PEA has encouraged all its units to be energy efficient and environmentally friendly. Its units therefore have joined efforts to curb greenhouse gas emissions and got ready to transform into world-class green offices. Participating in the Thailand Voluntary Emission Reduction Program (T-VER), PEA is determined to promote its staff's environmental consciousness and change their behaviors in support of environmental care. For example, they are nudged to curb energy, fuel, and water consumption. PEA has also embraced the Circular Economy concept, a part of BCG Economy Model, in solving the problems of environmental degradation, waste-related pollution, and waste amount. Guided by the concept, PEA has pursued Zero Waste by making the most out of existing resources in every step from design to production. Work process focuses on minimizing waste and using alternative materials. Reuse, Refurbish, and Sharing practices, which resonate with Upcycle, add value to existing resources. Moreover, PEA has reduced or stopped the use of hazardous products/chemicals in its offices so as to reduce pollution as well as greenhouse gas emission from its operations. As of 2022, a total of 371 PEA offices have received Green Office awards from the Department of Environmental Quality Promotion. Of them, 358 have been in G Gold award level, 13 others in the G Silver award level, and one in the G Bronze award level. PEA aims to ensure all its offices become green buildings before the end of 2024.

5. Fair Operating Practices

PEA is determined to develop and promote good corporate governance based on international standards. It thus focuses

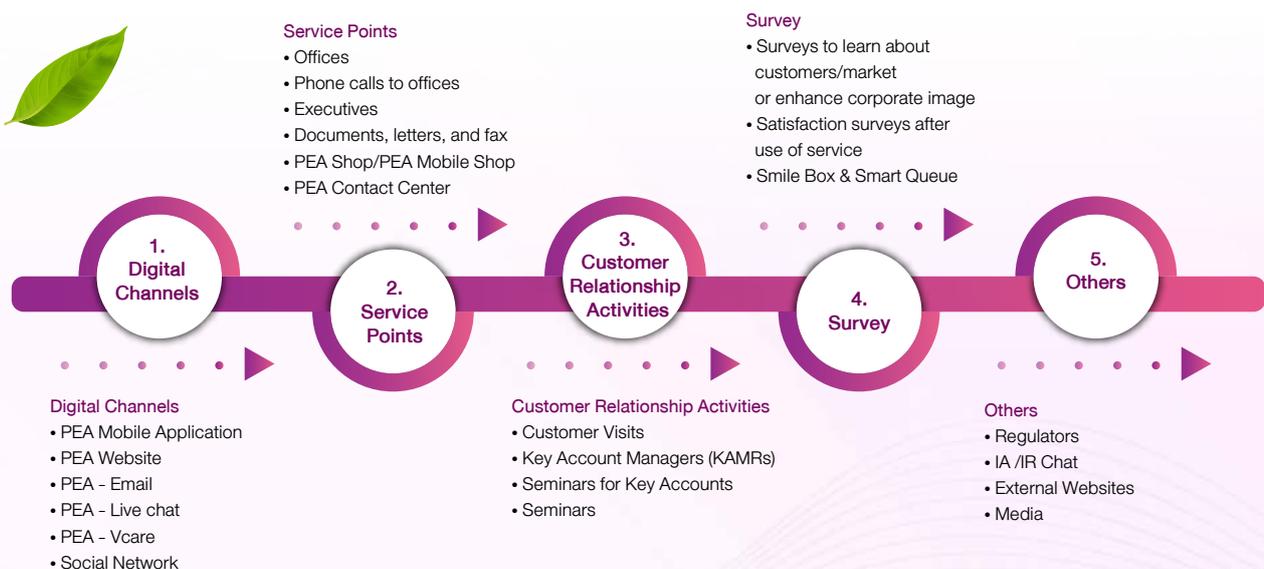
on efficient operations, fair operating practices for stakeholders, data disclosure, transparency, accountability, morality and ethics among executives and staff, anti-corruption, ethical and professional standards, and the Sufficiency Economy Philosophy as it prepares operational guidelines to foster organizational sustainability. Moreover, it has applied digital technology to governance and anti-corruption processes including through collaborations with external stakeholders.

In 2022, PEA reviewed its Corporate Governance and Anti-Corruption Master Plan (2022 - 2026). With the review, this master plan prescribes four key strategies: (1) Strengthening the determination to lead and govern PEA based on the principle of good corporate governance; (2) Enhancing knowledge, society, and culture for good corporate governance; (3) Upgrading and integrating corporate governance standard and anti-corruption system to PEA's value chain; and (4) Promoting participation in suppression, monitoring, investigation, and punishment processes to ensure their efficiency.

PEA, in addition, has continuously promoted key components of fair operating practices, especially in regard to fair procurement. These efforts are in line with its guidelines on how to treat stakeholders, such as partners, suppliers, and collaborators. To ensure fair treatments of stakeholders in its transactions, PEA has implemented various plans under its Action Plan on Good Corporate Governance such as the Procurement-Related Corruption Risk Assessment Plan, the Transparency Enhancement Plan, the Integrity Pact and Cost Project, and Centralized Procurement Transparency Upgrade Plan.

6. Consumer Issues

Guided by its focus on consumers and key stakeholders, PEA has drawn up the Customer Service and Marketing Master Plan for Years 2021 to 2025 (Revised once in 2022) as the guidelines on how to manage customer relationships. This master plan has also been an input for the process to prepare strategies, the process to prepare action plans, the process to develop/innovate products and services, the process to prescribe work system requirements, and the process to identify requirements and indicators. Moreover, information has been integrated and analyzed to identify the deep expectations of each customer group in support of PEA's goal to transform into a customer-centric organization. PEA has accorded importance to the Voice of Customer (VOC) process. Analyses of customers' expectations enable the systematic preparations of activities/plans/projects that can satisfy the needs of all customer groups, including current customers, competitors' customers, and potential customers. For VOC, PEA has prepared five channels.



These channels are categorized based on PEA's customer journey as follows:

PEA has urgently developed its online service delivery system so as to provide convenience to customers and respond well to the age of technology. It has already developed a mobile application for customers to use on their smartphones. App users can conveniently access various services. For example, "PEA Care & Service" application offers one-stop service for the checks, repairs, and maintenance of households' electrical systems and appliances. The service is convenient, safe, and in line with good standards. Air conditioner cleaning service is also provided by certified electricians. They have received indoor electrician licenses under the "One Subdistrict, One Electrician Project", which is one of PEA's CSR initiatives. "PEA Smart Plus" is another application for customers' convenience. Via this app, customers can check their electricity bills, calculate their electricity tariffs, and pay their bills online with a credit card or mobile banking. They can even submit requests for power-meter installations, power-meter downsize/upsized, and power-meter reinstallations (in events of payment delays). App users can also report power outage, give feedback, or make recommendations to PEA. This application also enables them to search for service points, releases, information on optional services (SMS alerts for payment due date), and PEA's calendar.

7. Community Involvement and Development

PEA has played a role in educating communities about how to apply alternative energy in preparations for the growing power demand. This role has resonated with PEA's vision of "Smart Energy for Better Life and Sustainability" and has covered the following CSR projects:

7.1 Environmental Conservation and Rehabilitation Project

- 1) PEA Forestation and Forest Conservation Project has planted 25,000 trees in Pa Daed subdistrict of Chiang Rai's Mae Suai district. These trees include Mahaysak-Sakayamin (*Tectona grandis*) provided by the Plant Genetic Conservation Project under Royal Initiative, as well as resin, Pod mahogany, and various other species. After planting trees in the area, the project has also maintained the green area. The project has been implemented over five years already, with trees planted over 100 rai annually. Therefore, the total size of land covered by the project has already reached 500 rai. The goal is to create a moist forest for people to use as a water and food source. It, moreover, has captured greenhouse gases or CO₂. The captured amount has already reached 237.50 tCO₂eq (tons of CO₂ equivalents) at the rate of 0.95 tCO₂eq per rai per year with 200 trees per rai on average.
- 2) PEA Water Conservation and Check-Dam Construction Project has built check-dams with scrap materials. The constructions aim to generate income for communities by providing them with water for consumption and farming activities. Thanks to the project, fish farms can also be operated to create food for communities. The project, in all, has raised communities' quality of life based on BCG Economy Model.
- 3) Eco-Efficiency Evaluations have compared economic value and the costs of resources, such as power, water, paper, and fuel in PEA's operations so as to enable efficient eco-efficiency management.

7.2 Community Economy Promotion Project

- 1) Safe Communities with PEA Power
 - PEA Shares Smiles through Merit Making and Giving Back to Society activities have made donations of learning materials and sports equipment to schools, checked and improved their electrical systems, and installed electrical appliances as well as residual current devices for them to ensure greater safety. Every year, these activities have covered four border patrol police schools across Thailand.
 - Training for students, vocational students, and local administrative bodies' staff has taught participants how to use power correctly and safely. The training was designed to upgrade public safety on power usage and to distribute useful power knowledge to the public. PEA has conducted CSR activities based on ISO 26000 standard via both CSR in Process and CSR after Process.
- 2) PEA Clean Energy for Communities Project responds to SDGs No. 7, which is about ensuring access to affordable, reliable, sustainable, and modern energy for all, by:
 - Providing solar boats to communities in Ratchaburi's Damnoen Saduak district. Between 2021 to 2022, PEA designed and produced 10 solar long-tailed boats as models for communities in the district so as to promote

sustainable tourism along a canal as well as the use of alternative energy, which promises to curb carbon-dioxide emissions. When compared with diesel-engine boats, solar boats have reduced noise level from between 85.5 and 113.0 dBA to 87 dBA. Greenhouse gas emissions, meanwhile, have dropped from 0.041 tCO₂eq to 0.003 tCO₂eq. The provision of solar boats also involves community participation in the management and development of local attractions in support of quality tourism that is friendly to both the environment and communities.

- Providing solar drying facilities from 2016 to 2022 in 10 locations to support communities' occupational opportunities, self-reliance, and ability to generate income, reduce expenses, and raise the quality of agricultural output. The provision also reduces greenhouse gas emissions by tCO₂eq per year.
 - Providing Solar Rooftops, with PEA generating solar power for communities in remote areas. Such provision promotes the use of alternative energy, upgrades quality of life, and supports youth's education in remote communities that had long had no access to power systems. The provision also curbs carbon-dioxide emissions, which cause global warming, and strengthens PEA's collaborations with communities and allies for better quality of life at the community level, paving the way for PEA to grow sustainably alongside communities, society, and the environment. In addition, it has raised the adoption of clean energy as communities are nudged to use power safely and become power-efficient.
- 3) PEA LED for Thailand's Cultural Attractions Project seeks to promote safety and energy efficiency via LED light installations. Launched in 2013, the project has already installed LED bulbs at 69 attractions. The installations have curbed power consumption by more than 770,000 units a year and saved more than 3,000,000 Baht in electricity charges each year. All at the same time, they have lowered greenhouse gas (CO₂) emissions by 470 tCO₂eq annually, thus contributing to efforts against global warming. At religious sites, this project provides energy efficiency. It also spurs cultural tourism across Thailand, bringing income to various local communities.
 - 4) One Subdistrict, One Electrician Project has continued since 2017 for the purpose of conducting vocational training or to be specific courses for would-be electricians. Thanks to the training, people can build their career and join efforts to develop their communities. Collaborations between PEA's staff and communities have also strengthened, with the expansion of collaborative networks between government agencies and communities. In 2022, PEA collaborated with the Department of Skill Development and Department of Local Administration in upskilling electricians from its previous training courses so that they could work with solar homes, solar pumps, and EV charging homes as well. Via this project, more than 7,500 people have been trained. They thus can work and generate income in their communities. The One Subdistrict, One Electrician Project aims to upgrade CSR initiatives by creating shared value based on BCG Economic Model from Circular Economy concept. Resonating with the Sufficiency Economy Philosophy, it has tangibly contributed to social and economic development as well as supported the pursuit of SDGs.

7.3 Social Support Projects

- 1) Projects to help people in times of crises deliver relief-item bags to affected people during emergencies.
- 2) Save Your Life: Pay Attention to Stroke Risks Project is conducted through PEA's collaboration with the Neurological Research Foundation under Royal Patronage to give knowledge of how to prevent stroke among PEA's executives and staff as well as power users or the public. This project seeks to raise awareness of stroke risks, danger, prevention, and treatments. It can help prevent partial paralyses/paralyses too, thus promising good quality of life.
- 3) PEA National Children's Day activities are held out of PEA's awareness of how important children and youth are. These activities aim to give happiness and gifts to children and youth in PEA's operating areas across Thailand.

PEA's CSR projects have generated value and positive impacts on natural resources, the environment, and stakeholders. These CSR projects are also in line with the principles of good corporate governance, the BCG Economy Model, the Sufficiency Economy Philosophy, Systematic Inventive Thinking (SIT), strategies for Thailand's development, and SDGs.

Internal Audit



The Internal Audit Bureau is an independent unit reporting directly to the Audit Committee and being responsible for reporting its performance to the Governor and the Audit Committee. Its missions are to give an assurance and consultation fairly and independently to add value and improve an organization's operations. It can help an organization accomplish its strategic objectives by bringing a systematic, disciplined approach to evaluate and improve the efficiency and effectiveness of risk management, control, and governance processes. Internal audit adherence international standard guidelines for the internal audit profession, the Ministry of Finance's Regulation on the Audit Committee and Internal Audit Units of State Enterprises, B.E. 2555 (2012), and the Manual of State Enterprise Internal Audit (Rev. 2021). Below are key outcomes of internal audit in 2022.

Audit Performance

The Internal Audit Bureau fully carried out its work as outlined in the Audit Plan for Year 2022, which was approved by the Audit Committee. Addressing the PEA's strategies, goals, as well as material risks, the plan covered all business processes of PEA and affiliates. Following audits, results were reported and recommendations were made. The recommendations were estimated to have generated the financial value of 1,241.65 million baht for PEA, while the costs of audits stood at just 120.10 million baht. The audits, moreover, paved the way for the improvement of key work and control processes for efficient internal control, risk management, and governance. The Internal Audit Bureau also followed up on the response to its recommendations and reported progress to the Audit Committee within the applicable timeframe.

The Internal Audit Bureau's assurances and counseling performance scored 4.89 points with the Audit Committee, which ranked at the Very Satisfied - Most Satisfied level. The performance also scored 5 points, the most satisfied level, with the PEA Governor. In the past year, PEA's score on Core Business Enablers — Internal Audit was at 3.6021.

Internal Audit Quality Assurance and Development

The Internal Audit Bureau has encouraged and supported internal auditors' participation in both internal and external training to ensure each of them receives at least 40 hours of training annually. It has implemented a project to develop its personnel's skills on internal-audit innovations, namely Data Analytics and Data Visualization to ensure that staff know how to apply digital technology. In addition, internal auditors are encouraged to seek professional licenses. Presently, two of PEA's internal auditors have been certified internal auditors and one has been a certified public accountant. In addition, seven have received Thailand's internal-auditor certificates and two have received information system auditor certifications.

In 2022, the Internal Audit Bureau carried out continuous audits via six Robotic Internal Audit Software (RIAS) programs. Therefore, it could automatically detect abnormalities and alert relevant persons, enabling timely response that prevented damage.

Board of Directors Structure and Responsibility

The structure of the Board of Directors of the Provincial Electricity Authority (PEA) is in accordance with the Provincial Electricity Authority Act, B.E. 2503 (1960), and its amended Division 2, Section 20, which requires that the Board of Directors shall consist of a Chairman, the Governor as an ex-officio director, and not less than five but not more than 13 other directors. The Standard Qualifications of State Enterprise Directors and Employees Act, B.E. 2518 (1975), and the amended Section 12/1 also require that at least one-third of a state-owned enterprise's directors who are not ex-officio directors must be listed in the Directors' Pool of the Ministry of Finance. In addition, the Rules on State Enterprise Finance and Accounting, B.E. 2520 (1977), state that all state-owned enterprises must have a representative of the Ministry of Finance as a member on the Boards of Directors.

The authority and duties of PEA Board of Directors under the Provincial Electricity Authority Act, B.E. 2503 (1960), and its amendment are summarized below:

1. Establish policies and exercise general supervision of PEA's activities, including issuing the rules on all operations and prescribing the fees for electricity, services, and employees' salary
2. Serve as competent officers under the Criminal Code
3. Define PEA's reserve
4. Set rules for the opening of PEA's bank accounts
5. Submit matters to the minister to be submitted to the Cabinet
6. Consider the appointment of the PEA Governor in accordance with qualifications, salary, and removal
7. Approve or endorse juristic acts of the Governor
8. Approve the employment, appointment, removal, promotion, demotion or salary reduction, and define terms for the service of employees serving as an advisor, an expert, and a director
9. Appoint an employee as the acting Governor if the incumbent should be unable to perform or the position becomes vacant
10. Deliberate complaints filed by owners or holders of rights to a property or other right holders about the use of the property within 15 days from the date of receipt of the complaint.



PEA Board of Directors 2022



Unsit Sampuntharat (Chairman of PEA Board of Directors)

(Directors' Pool 2020)

Age: 51

Position: Director-general, Community Development Department

Key work experience:

1. Deputy Permanent Secretary for Ministry of Interior
2. Tak Governor

Education:

1. Master of Public Administration (Government),
National Institute of Development Administration
2. Bachelor of Political Science (Government), Chulalongkorn University

Directorships of other organizations:

1. Director of the Tourism Authority of Thailand

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: He has served as the chairman of the PEA's Board of Directors through the Cabinet's appointment since 4 January 2022.



Danucha Pichayanon

(Directors' Pool 2020)

Age: 52

Position: Secretary-General, Office of the National Economic and Social Development Council

Key work experience:

1. Deputy Secretary General, Office of the National Economic and Social Development Council
2. Policy and Plan Advisor, Office of the National Economic and Social Development Council

Education:

1. Master of Science in Engineering Management, George Washington University, USA
2. Bachelor of Engineering, Chulalongkorn University

Directorships of other organizations:

1. Director, PTT Public Company Limited
2. Director, Bank of Thailand

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: Appointed by the Cabinet resolution to the PEA Board of Directors with effect from 28 October 2020



Yodphot Wongrukmit

(Directors' Pool 2020)

Age: 63

Position: Retired Government Official

Key work experience:

1. Advisor Chairman, Nakhonchai Air Company Limited
2. Senior Executive Advisor, Bangchak Corporation Public Company Limited

Education:

1. Master of Business Administration, Middle Tennessee State University, USA
2. Bachelor of Economics, University of the Thai Chamber of Commerce (2nd Class Honors)

Directorships of other organizations:

1. Chairman, PEA ENCOM International Company Limited
2. Independent Director, Bless Asset Group

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Remark: Appointed by the Cabinet resolution to the PEA Board of Directors with effect from 28 October 2020



Thongchai Chawalitpicheat

Age: 60

Position: Retired Government Official



Key work experience:

1. Director General, the Office of Industrial Economics, Ministry of Industry
2. Deputy Permanent Secretary, Ministry of Industry

Education:

Bachelor of Engineering, Chiang Mai University

Directorships of other organizations: Director, Export-Import Bank of Thailand

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: Appointed by the Cabinet resolution to the PEA Board of Directors with effect from 28 October 2020



Sak Segkhoonthod

(Directors' Pool 2018)

Age: 56

Position: Consultant on Digital Transformation,
Electronic Transactions Development Agency



Key work experience:

1. President & CEO, Digital Government Development Agency (Public Organization)
2. Executive Vice President, Government Information Technology Services (GITS), National Science and Technology Development Agency (NSTDA)

Education:

1. Doctor of Philosophy (Electronic Systems Engineering), University of Essex, UK
2. Master of Computer Studies, University of Essex, UK
3. Bachelor of Industrial Technology in Electronics, King Mongkut's Institute of Technology Ladkrabang

Directorships of other organizations:

1. Director, PEA ENCOM International Company Limited
2. Director, Payment System Committee, Bank of Thailand

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: Appointed by the Cabinet resolution to the PEA Board of Directors with effect from 28 October 2020



Pol.Maj.Gen. Wiwat Chaisangkha

(Directors' Pool 2021)

Age: 56

Position: Deputy Commander, Central Investigation Bureau, Royal Thai Police

Key work experience:

1. Commander, Natural Resources and Environmental Crime Suppression Division
2. Commander, Consumer Protection Police Division

Education:

1. Master of Public and Private Management, National Institute of Development Administration (NIDA)
2. Bachelor of Public Administration, Royal Police Cadet Academy

Directorships of other organizations: Director, Forest Industry Organization

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: Appointed by the Cabinet resolution to the PEA Board of Directors with effect from 28 October 2020



Flg.Off. Kamolnai Chaixanien

(Directors' Pool 2020)

Age: 64

Position: Deputy Managing Director, TCC Assets (Thailand) Company Limited

Key work experience:

1. Senior Vice President, Thai Beverage Public Company Limited
2. Deputy Managing Director, Asset Management for International Hotels Group, TCC Assets (Thailand) Company Limited

Education:

1. Master of Business Administration, Cornell University, USA
2. Master of Engineering (Operations Research and Industrial Engineering), Cornell University, USA
3. Bachelor of Science in Chemical Engineering, University of New Hampshire, USA

Directorships of other organizations:

1. Director, ASM International Limited
2. Director, ThaiBev Marketing Company Limited
3. Director, Amarin Corporations Public Company Limited

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: Appointed by the Cabinet resolution to the PEA Board of Directors with effect from 28 October 2020



Panit Dhirapharbwongse

(Directors' Pool 2018)

Age: 55

Position: Legal Advisor, Office of the Permanent Secretary,
Ministry of Finance

Key work experience:

1. Director, Legal Affairs Group, Office of the Permanent Secretary, Ministry of Finance
2. Head, Legal Affairs Group, Legal Bureau, the Revenue Department

Education:

1. Doctor of Philosophy (Law), Thai Government Scholarship, Queen Mary College, University of London, UK
2. Master of International Economic Law, University of Warwick, UK
3. Bachelor of Laws, Thammasat University

Directorships of other organizations:

1. Director, Islamic Bank Asset Management
2. Director, KTB Law Company Limited

Shareholding in energy-related companies and businesses of over 5%

of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: Appointed by the Cabinet resolution to the PEA Board of Directors with effect from 28 October 2020



Chavang Thaiying

(Directors' Pool 2021)

Age: 60

Position: Retired Government Official

Key work experience:

1. Director, Common Legal Information Center, Office of the Council of State
2. Director, Advanced Legal Training Institute

Education:

1. Master of Laws, Chulalongkorn University
2. - Bachelor of Laws, Ramkhamhaeng University
- Bachelor of Education, Chulalongkorn University

Directorships of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: Appointed by the Cabinet resolution to the PEA Board of Directors with effect from 28 October 2020



Assoc. Prof. Thira Jearsiripongkul
(Directors' Pool 2018)

Age: 47
Position: Dean, Faculty of Engineering,
Thammasat University

Key work experience:

1. Director, Office of the Registrar, Thammasat University
2. Assistant President, Rangsit Campus Management Development, Physical Division, Thammasat University

Education:

1. Doctor of Engineering in Applied Mechanics (Dynamics), Technische Universitat Darmstadt, Germany
2. Master of Engineering in Mechatronics, School of Advanced Technologies (Exchange Program), Asian Institute of Technology, Bangkok, Thailand, and Hamburg University of Technology, Hamburg, Germany
3. Bachelor of Mechanical Engineering, King Mongkut's University of Technology Thonburi

Directorships of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: Appointed by the Cabinet resolution to the PEA Board of Directors with effect from 20 July 2021

Assoc. Prof. Pornanong Budsaratragoon
(Directors' Pool 2022)

Age: 54
Position: Head, Department of Banking and Finance,
Faculty of Commerce and Accountancy,
Chulalongkorn University

Key work experience:

1. Working Group on Provident Fund Capability Development, the Securities and Exchange Commission (SEC)
2. Expert, Senate Commission on Economics, Finance, and Treasury

Education:

1. Doctor of Business Administration (Finance), Chulalongkorn University
2. Master of Business Administration (MIS), University of Dallas, USA
3. Bachelor of Business Administration (Quantitative Management), Chulalongkorn University

Directorships of other organizations: Director, Thai-Nichi Institute of Technology Council, Office of the Higher Education Commission

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: Appointed by the Cabinet resolution to the PEA Board of Directors with effect from 20 July 2021



Col. Saranyu Viriyavejakul

(Directors' Pool 2019)

Age: 53

Position: Vice President, Neighboring Countries
Economic Development Cooperation Agency
(Public Organization)

Key work experience:

1. Deputy Director, Peace Operations Center, Directorate of Joint Operations, Royal Thai Armed Forces Headquarters
2. Director, Projects and Budget Division, Directorate of Joint Intelligence

Education:

1. Doctor of Science (Technology of Environmental Management), Mahidol University
2. Master of Science (Structural Engineering), Stanford University, USA
3. Master of Science (Environmental Engineering), the University of California, Los Angeles (UCLA), USA
4. Bachelor of Science (Honors) (Double Majors in Civil Engineering and Nuclear Engineering), United States Military Academy (USMA: West Point), USA

Directorships of other organizations: Executive Director, United Thai-Sweden 1897 Foundation

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: Appointed by the Cabinet resolution to the PEA Board of Directors with effect from 20 July 2021



Tidarat Thanapakpawin

(Directors' Pool 2021)

Age: 43

Position: Vice president and chairperson of the
Standards and Indicators Mission,
Digital Council of Thailand

Key work experience:

1. Director, Information Technology Business and Communication, Thai Chamber of Commerce
2. President, Thai Game Software Industry Association

Education:

1. Master of Finance/Marketing, Willmette University, USA
2. Bachelor of Science (Computer Science), Chulalongkorn University

Directorships of other organizations: Director, Government Savings Bank

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: She has served as a PEA director through the Cabinet's appointment since 4 January 2022.



Prechaporn Suwatnodom

(Directors' Pool 2019)

Age: 45

Position: Senior Professional Civil Engineer, Bureau of Planning, Department of Highways

Key work experience:

1. Working Group on Supporting Operation of Subcommittee of Strategic Innovation and Digital Management, Metropolitan Electricity Authority
2. Director of CAT Telecom Public Company Limited
3. Subcommittee of Digital Technology Development of Metropolitan Waterworks Authority

Education:

1. Doctor of Philosophy in Civil Engineering, University of California, USA
2. Master of Engineering, University of California, Los Angeles, USA
3. Master of Science, University of California, Los Angeles, USA
4. Bachelor of Science in Civil Engineering Specialize in Transportation Engineering, University of California, Irvine, USA (Honors)
5. Bachelor of Science in Civil Engineering Specialize in Structure Engineering, University of California, Irvine, USA (Honors)

Directorships of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: Appointed by the Cabinet resolution to the PEA Board of Directors with effect from 20 July 2021 to 1 March 2022



Supachai Ek-un

(Directors' Pool 2021)

Age: 57

Position: Governor, Provincial Electricity Authority
(Take a position since 17 August 2021 – Present)

Key work experience:

1. Deputy Governor (Engineering)
2. Deputy Governor (Electricity Authority Region 3)

Education:

1. Master of Engineering (Safety Engineering), Kasetsart University
2. Master of Public Administration, Khon Kaen University
3. Bachelor of Science in Technical Education (Electrical Engineering), King Mongkut's Institute of Technology North Bangkok

Directorships of other organizations: None

Shareholding in energy-related companies and businesses of over 5% of all voting shares: None

Connected transactions (accounting year 2022): None

Remark: Appointed by the Cabinet resolution to the PEA Board of Directors with effect from 17 August 2021

Appointment of the Board of Directors and Committees

The Provincial Electricity Authority (PEA) Board of Directors has defined mechanisms for the supervision and review of all important work systems in compliance with the principles of good governance and best practices. The Board of Directors appointed 11 specific committees, each manned by directors. The order also defined the authority, duties, and responsibility of each committee in the supervision of operations of all systems and in providing comments and screen all work plans before submission to the meeting of the Board of Directors as described below:

1. PEA Executive Board of Directors

Name	Position	Meeting Attendance/ Number of Meetings Held	Meeting Allowance Received (Baht)	
			Before Tax	After Tax
1. Mr. Danucha Pichayanan	Chairman	15/15	187,500	168,750
2. Mr. Sak Segkhoonthod	Director	1/1	10,000	9,000
3. Mr. Thongchai Chawalitpicheat	Director	1/1	10,000	9,000
4. Assoc. Prof. Thira Jearsiripongkul	Director	15/15	130,000	117,000
5. Col. Saranyu Viriyavejakul	Director	14/14	120,000	108,000
6. Ms. Tidarat Thanapakpawin	Director	15/15	150,000	135,000

Remark: Persons No. 2 – 3 were appointed PEA's executive directors through PEA Order No. 9/2021. They were also later assigned to double as members of PEA's committees.

Roles, duties, and responsibility

Screen and consider matters concerning approval for the hiring and procurement which are in the authority of the Board of Directors, and ordinances, regulations, annual budget, strategic plans, and work plans of the organizational management system before submission to the Board of Directors.

2. PEA Audit Committee

Name	Position	Meeting Attendance/ Number of Meetings Held	Meeting Allowance Received (Baht)	
			Before Tax	After Tax
1. Pol.Maj.Gen. Wiwat Chaisangkha	Chairman	12/12	300,000	270,000
2. Mr. Panit Dhirapharbwongse	Director	12/12	240,000	216,000
3. Assoc. Prof. Pornanong Budsaratagoon	Director	12/12	240,000	216,000

Roles, duties, and responsibility

- Review Corporate Risk Management, Internal Control System, Corporate Governance processes, and the operations complied with the new State Enterprise Assessment Model (SE-AM).
- Review PEA's businesses for compliance with laws and related ordinances and regulations, including related-party transactions or transactions of potential conflicts of interest.
- Review PEA's financial reports for accuracy and reliability.

3. PEA Risk Management and Internal Control Committee

Name	Position	Meeting Attendance/ Number of Meetings Held	Meeting Allowance Received (Baht)	
			Before Tax	After Tax
1. Mr. Sak Segkhoonthod	Chairman	6/6	72,000	67,500
2. Mr. Prechaporn Suwatnodom	Committee	1/1	10,000	9,000
3. Mr. Thongchai Chawalitpicheat	Committee	6/6	60,000	54,000
4. Col. Saranyu Viriyavejakul	Committee	6/6	10,000	9,000
5. Mr. Supachai Ek-un	Committee	6/6	60,000	54,000

Remark: No. 2 resigned from the Board of Directors on 1 March 2022.

Roles, duties, and responsibility

Set a policy for corporate risk management and internal control, supervise, approve, and assess corresponding plans and processes as well as risk management during extraordinary circumstance, and ensure integration of Corporate Governance (CG), Risk Management, Governance Risk and Compliance (GRC).

4. Corporate Governance and Social Responsibility Committee

Name	Position	Meeting Attendance/ Number of Meetings Held	Meeting Allowance Received (Baht)	
			Before Tax	After Tax
1. Mr. Yodphot Wongrukmit	Chairman	7/7	75,000	67,500
2. Flg.Off. Kamolnai Chaixanien	Committee	6/7	40,000	36,000
3. Mr. Thongchai Chawalitpicheat	Committee	6/6	50,000	45,000
4. Mr. Prechaporn Suwatnodom	Committee	1/1	10,000	9,000
5. Col. Saranyu Viriyavejakul	Committee	1/1	10,000	9,000

Remarks: - Person No. 3, at Meeting No. 1/2022, was not yet appointed a member of the Corporate Governance Committee.

- Person No.4 resigned from the Board of Directors on 1 March 2022.

- Person No. 5 was appointed a member of the Corporate Governance and Sustainable Development Committee through PEA Order No. 12/2021. Pursuant to the resolution of the PEA Board of Directors dated 1 February 2022, the person's tenure as a member of the Corporate Governance and Sustainable Development Committee was terminated because the person was named a member of another committee instead.

Roles, duties, and responsibility

It oversaw, monitored, and evaluated the implementation of PEA's policy and plan on Corporate Governance and Sustainable Development. It also supervised GRC work. Moreover, it reviewed guidelines on corporate governance, anti-corruption, CSR in Process, and sustainability covering environmental, social, and governance dimensions in comparison with international guidelines before making recommendations to the PEA Board of Directors.

5. PEA Governor's Operational Performance Assessment Subcommittee

Name	Position	Meeting Attendance/ Number of Meetings Held	Meeting Allowance Received (Baht)	
			Before Tax	After Tax
1. Flg.Off. Kamolnai Chaixanien	Subcommittee Chairman	3/3	37,500	33,750
2. Mr. Sak Segkhoonthod	Subcommittee	3/3	20,000	18,000

Roles and Responsibilities

1. To specify PEA Governor's performance evaluation details, methods, criteria, and indicators;
2. To consult with the PEA Governor on performance evaluation details and methods prior to evaluation so as to ensure efficiency, transparency, and fairness;
3. To monitor results, problems, obstacles, and solution guidelines related to the evaluation and report them to the PEA Board of Directors;
4. To evaluate the PEA Governor's performance based on prescribed criteria;
5. To consider monthly salary and bonus for the PEA Governor based on the Ministry of Finance's guidelines and employment conditions; and
6. To ensure the announcements of PEA's key plans and works

6. PEA Digital Committee

Name	Position	Meeting Attendance/ Number of Meetings Held	Meeting Allowance Received (Baht)	
			Before Tax	After Tax
1. Mr. Sak Segkhoonthod	Chairman	1/1	12,500	11,250
2. Col. Saranyu Viriyavejakul	Chairman	12/12	147,500	132,750
3. Flg.Off. Kamolnai Chaixanien	Committee	8/12	80,000	72,000
4. Assoc. Prof. Thira Jearsiripongkul	Committee	12/12	120,000	108,000
5. Mr. Prechaporn Suwatnodom	Committee	1/1	10,000	9,000
6. Ms. Tidarat Thanapakpawin	Committee	11/11	110,000	99,000

Remarks: - The person No. 1 was appointed a member of the Digital Technology Committee through PEA Order No.13/2021. Pursuant to the resolution of the PEA Board of Directors dated 1 February 2022, the person's tenure as a member of the Digital Technology Committee was terminated because the person was named a member of another committee instead.
 - The person No. 5 resigned from the PEA Board of Directors on 1 March 2022.
 - The person No. 6, at Meeting No. 1/2022, was not yet appointed a member of the Digital Technology Committee.

Roles and Responsibilities

To screen procurement, hiring, and lease requests that need approvals from the PEA Board of Directors, and to consider investment frameworks related to technology projects/plans/works as well as the direction and policies on connectivity projects/plans and other tasks assigned by the PEA Board of Directors in strict compliance with applicable laws, rules, regulations, guidelines, and facts.

7. PEA Governor Recruitment Committee

Name	Position	Meeting Attendance/ Number of Meetings Held	Meeting Allowance Received (Baht)	
			Before Tax	After Tax
1. Col. Saranyu Viriyavejakul	Chairman	2/2	25,000	22,500
2. Mr. Sak Segkhoonthod	Committee	2/2	20,000	18,000
3. Flg.Off. Kamolnai Chaixanien	Committee	2/2	-	-
4. Assoc. Prof. Thira Jearsirpongkul	Committee	2/2	20,000	18,000
5. Mr. Chavang Thaiying	Committee	2/2	-	-

Remarks: - The person No. 3 attended a meeting without receiving allowances because of attendance in the meetings of more than two committees in November and December 2022.
- The person No. 5 attended a meeting without receiving allowances because of attendance in the meetings of more than two committees in November and December 2022.

Roles and Responsibilities

- To select a qualified, capable, and experienced person for the post of the PEA Governor via a transparent and accountable process. The chosen person must have qualifications and must not have prohibited characteristics mentioned in Article 8 ter (1) (3) (4) (5) (6) (9) (10) (11) and (12) of the Standard Qualifications of State Enterprise Directors and Employees (Version 6) B.E. 2550 (2017). Also, he or she must neither be a director of PEA nor over 58 years of age at the time of submitting his or her application;
- To carry out any task assigned;
- To nominate the appropriate candidate, after selecting him or her, for the PEA Board of Directors to consider.

8. Committee for Consideration of Appeals against Orders on Employees' Penalty and on Compensation for Violation Liabilities

Name	Position	Meeting Attendance/ Number of Meetings Held	Meeting Allowance Received (Baht)	
			Before Tax	After Tax
1. Mr. Chavang Thaiying	Subcommittee Chairman	10/10	125,000	112,500

Remark: This director's appointment as the chair of the subcommittee on laws, regulations, and appeal review took effect from 1 February 2022 through PEA Order No. 10/2022, which was dated 19 January 2022. However, because some subcommittee members, as well as the subcommittee's secretary later reached retirement age, the order was canceled to pave way for the fresh appointment of subcommittee members. The new appointment was made through PEA Order No. 19/2022 on 21 November 2022.

Roles, duties, and responsibility

Consider and screen appeals against administrative orders and orders concerning employees' penalty and compensation for violation liabilities, and submit its views to the Chairman of the Board of Directors for consideration and further actions.

9. PEA Relations Affair Committee

Name	Position	Meeting Attendance/ Number of Meetings Held	Meeting Allowance Received (Baht)	
			Before Tax	After Tax
1. Mr. Chavang Thaiying	Chairman	12/12	150,000	135,000

Roles, duties, and responsibility

- Improve the efficiency of operation and the state enterprise ordinances and regulations, and promote and develop labor relations.
- Solve employees' or the labor union's complaints as well as complaints about disciplinary actions and state enterprise disputes.

10. Independent Directors

Name	Position	Meeting Attendance/ Number of Meetings Held	Meeting Allowance Received (Baht)	
			Before Tax	After Tax
1. Pol.Maj.Gen. Wiwat Chaisangkha	Chairman	4/4	50,000	44,800
2. Mr. Yodphot Wongrukmit	Director	4/4	40,000	36,000
3. Mr. Thongchai Chawalitpicheat	Director	4/4	30,000	27,000
4. Mr. Sak Segkhoonthod	Director	4/4	30,000	27,000
5. Flg.Off. Kamolnai Chaixanien	Director	4/4	20,000	18,000
6. Mr. Chavang Thaiying	Director	4/4	10,000	9,000
7. Assoc. Prof. Pornanong Budsaratagoon	Director	3/4	30,000	27,000
8. Mr. Prechaporn Suwatnodom	Director	1/1	10,000	9,000

Remark: No.8 resigned from the Board of Directors on 1 March 2022.

Roles, duties, and responsibility

Make strategic decisions and provide additional comments for Board meetings, using their experience and skills for the utmost benefit of PEA.

11. PEA Governor's Remuneration Review Subcommittee

Name	Position	Meeting Attendance/ Number of Meetings Held	Meeting Allowance Received (Baht)	
			Before Tax	After Tax
1. Flg.Off. Kamolnai Chaixanien	Subcommittee Chairman	1/1	12,500	11,250

Roles, duties, and responsibility

Consider compensation of the candidate for the Governor and prepare a draft management service contract.

Remuneration Policy of PEA Board of Directors

Remuneration for the Board of Directors is properly, transparently, and openly determined. The remuneration policy and its details are disclosed in the annual report as follows:

1. Remuneration Rate and State-Enterprise Meeting Allowance: On 24 April 2019, the cabinet passed a resolution to update the rate and criteria of monthly remuneration and meeting allowance for state-enterprise directors and other committee members in committees, subcommittees or other working groups. In group 1: a large-scale state enterprise, in which PEA has updated the rate and criteria of monthly remuneration and meeting allowance, in accordance with the resolution issued by the cabinet as follows:

1.1 Monthly remuneration

A state-enterprise chairman receives the wage twice the wage of state-enterprise director as the following details:

- Chairman: 20,000 baht per month
- Director/committee member: 10,000 baht per month

In the event a director/committee member is not in office for the full month, he/she will receive the monthly wage as per a proportion of office duration.

1.2 Meeting allowance

1) A director receives a meeting allowance on time basis (1 time/month); however, if necessary, meeting allowances for more than 1 time/month but not above 15 times/year are feasible.

2) A state-enterprise chairman receives a meeting allowance more than a director by 25 percent, i.e., 25,000 baht for the chairman while 20,000 baht for the director.

A chairman, committee member, and subcommittee member in committees/subcommittees receive a meeting allowance at the rate of 0.5 time of a state-enterprise meeting allowance (not exceeding 10,000 baht/person/time). A chairman receives a meeting allowance more than the rate of director by 25 percent; the only attended director receives the allowance. A state-enterprise chairman is capable of receiving the meeting allowance from other committee/subcommittee/working group meetings not more than 2 committees/subcommittees/working groups in total and 1 time/month.

2. Bonus Monetary remuneration according to state-enterprise performance assessment based on the title: bonus payment for state-enterprise board of directors as incentives is considered from the net profit and state-enterprise evaluation scores in accordance with the criteria determined by the Ministry of Finance.

Nevertheless, a state-enterprise chairman and vice chairman receive a bonus more than a director by 25 percent and 12.5 percent, respectively. In a fiscal year in which state-enterprise directors do not present at a meeting more than 3 months, the bonus will be paid based on the following criteria:

- 1) In case of not presenting at the meeting for more than 3 months but not more than 6 months, the bonus is reduced by 25 percent..
- 2) In case of not presenting at the meeting for more than 6 months but not more than 9 months, the bonus is reduced by 50 percent.
- 3) In case of not presenting at the meeting for more than and over 9 months, the bonus is reduced by 75 percent.



Meeting Attendance Record of PEA Board of Directors (2022)

Directors/Time/Date of meetings		1 st time 19 Jan	2 nd time 27 Jan	3 rd time 21 Feb	4 th time 28 Mar	5 th time 18 Apr	6 th time 23 May	7 th time 20 Jun	8 th time 18 Jul	9 th time 22 Aug	10 th time 2 - 3 Sep (Mobile)	11 th time 19 Sep	12 th time 25 Oct	13 th time 21 Nov	14 th time 26 Dec	Amount	Attended Meetings
1. Mr. Unsit Sampuntharat	Chairman	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14	14
2. Mr. Danucha Pichayanan	Director	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14	14
3. Mr. Yodphot Wongrukmit	Director	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14	14
4. Mr. Thongchai Chawalitpicheat	Director	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14	14
5. Mr. Sak Segkhoonthod	Director	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14	14
6. Pol.Maj.Gen. Wiwat Chaisangkha	Director	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14	14
7. Flg.Off. Kamolnai Chaixanien	Director	/	/	/	/	/	/	X	/	/	/	/	/	/	/	13	14
8. Mr. Chavang Thaiying	Director	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14	14
9. Mr. Panit Dhirapharbongse	Director	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14	14
10. Assoc. Prof. Thira Jearsiripongkul	Director	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14	14
11. Mr. Prechaporn Suwatnodom	Director	/	X	/												2	3
12. Assoc. Prof. Pornanong Budsaratragoon	Director	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14	14
13. Col. Saranyu Viriyavejakul	Director	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14	14
14. Ms. Tidarat Thanapakpawin	Director	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14	14
15. Mr. Supachai Ek-un	Director	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14	14

Remark: The person No. 11 resigned from PEA Board of Directors on 1 March 2022.

Summary of Board Meeting Allowance, Monthly Allowance, and Bonus, 2022

Name	Position	Meeting Allowance (Baht)		Monthly Allowance (Baht)		Bonus for 2022 Paid in 2022 (Baht)
		Before Tax	After Tax	Before Tax	After Tax	
1. Mr. Unsit Sampuntharat	Chairman	350,000	315,000	238,666.67	214,800	253,873.49
2. Mr. Danucha Pichayanan	Director	430,000	387,000	120,000	108,000	204,750
3. Mr. Yodphot Wongrukmit	Director	395,000	355,500	120,000	108,000	204,750
4. Mr. Thongchai Chawalitpicheat	Director	430,000	387,000	120,000	108,000	204,750
5. Mr. Sak Segkhoonthod	Director	447,500	402,750	120,000	108,000	204,750
6. Pol.Maj.Gen. Wiwat Chaisangkha	Director	630,000	567,000	120,000	108,000	204,750
7. Flg.Off. Kamolnai Chaixanien	Director	450,000	405,000	120,000	108,000	204,750
8. Mr. Panit Dhirapharbongse	Director	520,000	468,000	120,000	108,000	204,750
9. Mr. Chavang Thaiying	Director	565,000	508,500	120,000	108,000	204,750
10. Assoc. Prof. Thira Jearsiripongkul	Director	520,000	468,000	120,000	108,000	204,750
11. Mr. Prechaporn Suwatnodom	Director	80,000	72,000	20,000	18,000	34,125
12. Assoc. Prof. Pornanong Budsaratragoon	Director	550,000	495,000	120,000	108,000	204,750
13. Col. Saranyu Viriyavejakul	Director	552,500	497,250	120,000	108,000	204,750
14. Ms. Tidarat Thanapakpawin	Director	500,000	450,000	119,333.33	107,400	203,098.79
15. Mr. Supachai Ek-un	Governor/ Director	440,000	330,000	120,000	90,000	227,500

Remark: The person No. 11 resigned from PEA Board of Directors on 1 March 2022.

Report of the Audit Committee

The PEA's Audit Committee was appointed by the PEA's Board of Directors from the ranks of directors who are experts, competent, and experienced as required by the Skill Matrix. The current committee consists of

- | | |
|--|-----------------------------|
| 1. Pol.Maj.Gen. Wiwat Chaisangkha | Chairman of Audit Committee |
| 2. Mr. Panit Dhirapharbwongse | Audit Committee |
| 3. Assoc. Prof. Pornanong Budsaratragoon | Audit Committee |

Serving as its secretary is Mr. Anake Jensai, Assistant Governor (Internal Audit).

This year, the Audit Committee held a total of 12 meetings, with the executives team, the internal auditors, and the external auditor (EY Office Company Limited), who were in attendance on pertinent agenda items. A report was submitted to the PEA's Board of Directors each time.

Performance Highlights of the Audit Committee

1. Audit of Financial Statements

The Audit Committee reviewed PEA's financial statements on a monthly basis and issued its opinions on PEA's operating results. Also, the Audit Committee held meetings with relevant executives to consider key topics and make useful recommendations. It thus provided assurances that the PEA's financial statements in material aspects were properly prepared in compliance with legal requirements as well as financial reporting standards with timely, accurate, relevant, and sufficient disclosures of information.

In addition, the Audit Committee held a meeting with the auditor (EY Office Company Limited) without the presence of the management to discuss audit scope and guidelines, audit outcomes, independence, and the auditor's opinion.

2. Audits of Risk Management, Internal Control, and Corporate Governance

The Audit Committee constantly oversaw PEA's operations via its audits of internal control, risk management, and corporate governance. It also issued recommendations and opinions on how to improve operations to ensure PEA's risk management responded to expectations, comprehensively addressed material risks, promoted corporate governance, and pursued goals based on the principles of good corporate governance.

3. Oversight of Internal Audit

The Audit Committee approved the Internal Audit Bureau's five-year Audit Plan (2023 - 2027) as well as the Audit Plan 2023. Also, it reviewed the outcome of the audits and monitored the response to the Internal Audit Bureau's recommendations on a quarterly basis. The Audit Committee, moreover, reviewed the PEA Regulation on the Internal Audit Bureau Charter, the Internal Audit Process Manual, annual budget for internal audits, personnel selection, and training and human resources development plans to ensure efficiency and effectiveness in accordance with international standards. The Audit Committee also promoted internal auditors' self-improvement and encouraged them to pursue professional licenses related to internal audits. The Internal Audit Bureau, meanwhile, received support to proceed in line with PEA for Sustainable Transparency standards and uphold transparency, fairness, and accountability, and fair treatments of both internal and external stakeholders. The Audit Committee helped the Internal Audit Bureau significantly upgrade its operations and pass the evaluation of the Ministry of Finance's State Enterprise Policy Office.

4. Audit Committee's Quality Assurance

The Audit Committee complied with the State Enterprise Audit Committee Manual (Revision 2012) of the Ministry of Finance's State Enterprise Policy Office. It also reviewed and completely prepared the Audit Committee Charter, the Audit Committee Manual, and the Audit Committee Action Plan. Evaluations of the Audit Committee's components and qualifications were also made, along with the Audit Committee Development Plan. In addition, the Audit Committee reported its development plan's results and conducted self-assessments in line with the State Enterprise Policy Office's guidelines. Self-assessments covered both the Audit Committee as a whole and committee members individually. The score was 5 out of 5, reflecting the excellent level of efficiency.

In summary, the Audit Committee carried out its duties as outlined in the Audit Committee Charter and the Audit Committee Manual of PEA that were in line with good practices. The Audit Committee had the opinion that PEA had prepared its financial statements with reasonable accuracy in material aspects and adequate and appropriate data disclosure in accordance with financial reporting standards, applicable laws, regulations, and rules related to its businesses. The Audit Committee also found that PEA had fully complied with applicable laws, rules, and regulations with adequate, proper, and efficient corporate governance, risk management, and internal control systems.



Pol.Maj.Gen. Wiwat Chaisangkha

Chairman of the Audit Committee



Report of the Risk Management and Internal Control Committee

PEA has applied the principles of Governance Risk and Compliance (GRC) based on the Open Compliance and Ethics Group's (OCEG) GRC Capability Model version 3.0 to ensure the efficiency of its organizational management system on the basis of transparency, fairness, and accountability; the ability to fulfill its vision and missions; and assurances for personnel namely, directors, executives, employees, workers, as well as other direct and indirect stakeholders, that it is driving its sustainable growth. Risk management and internal control at PEA have been conducted in accordance with the Committee of Sponsoring Organizations of the Treadway Commission's (COSO) guidelines - COSO 2013 - Internal Control and COSO 2017 - Enterprise Risk Management Integrating with Strategy and Performance. PEA has integrated risk management into its strategies and performance evaluation. By structure, risk management and internal control apply at both organizational and function levels with clear reporting, monitoring, and evaluation systems as assurances that PEA has comprehensive risk management and internal control for dealing with changing situation, which may affect its operations, and thanks to timely response ensuring positive impacts on its missions now and also in the future.

Integrated Implementation of Governance Risk and Compliance (GRC)

The Risk Management and Internal Control Committee of PEA approved the "Governance Risk Management and Compliance (GRC) Policy" for use with directors, executives, employees, and workers across PEA on 20 June 2022. Its work can be summarized as follows:

1. The committee sets PEA's objectives, strategies, and goals in accordance with context and corporate culture based on analyses of both internal and external factors, risks, opportunities, as well as the expectations of all stakeholder groups with a focus on adding value to and creating growth for its organization;
2. The committee assigns PEA units to fully comply with strategies and plans that resonate with existing resources and applicable laws, rules, and regulations so as to prevent non-compliance, and prescribes anti-corruption process and communicates about it to ensure organization-wide implementation;
3. The committee prepares comprehensive risk management and internal control systems at all levels, and raises awareness of risks in every process and step to foster supportive corporate culture;
4. The committee develops information technology to provide information for timely decision-making by the management or executives;
5. The committee fosters a supportive environment for GRC in order for PEA to operate its businesses in line with the Office of Compliance & Ethics Group's (OCEG) GRC principles and international standards; and
6. The committee monitors, evaluates, and examines GRC work, and assesses the situation that may change for analyses, reviews, and improvement of GRC process on a continuous basis.

Risk Management in 2022

PEA has assessed risks by examining internal and external factors that may affect its operations. Supported by the assessment, it has then drawn up plans to address risks and ensure that it will be able to fulfill its corporate goals. In 2022, the Risk Management and Internal Control Committee approved the list of eight following risk factors for management:

1. Power distribution system upgrade in preparations for changes in power industry
2. Preparations and long-term planning for a pilot project in EEC region ahead of power-industry liberalization
3. Lack of PEA-Affiliate Business Alignment analyses and of clear strategic positioning for affiliates
4. Operating results poorer than target and delays in key projects because of COVID-19 outbreak

5. Readiness for management and restructuring during transition to Digital Utility
6. Stakeholder Satisfaction and Expectation Upgrade especially for Key Accounts and Industrial Customers
7. Disabling Injury Index ($\sqrt{\text{DI}}$) Management
8. Cyber Security

Internal Control in 2022

PEA has applied information technology in support of internal control monitoring, evaluation, and improvement to ensure its internal control is up-to-date, adequate, appropriate, efficient, and able to prevent or reduce risks to the acceptable level. PEA has compiled its annual internal control report and submitted it to the Ministry of Interior within the specified timeframe. Copies of the reports are also submitted to the PEA Board of Directors and the Audit Committee.

Compliance Performance in 2022

PEA has developed its Compliance Management System based on ISO 19600:2014 and ISO 37301:2021 standards. It has also drawn up Compliance Roadmap for implementation over three years (2021 - 2023) with the aim to upgrade process for higher efficiency, effectiveness, and systematization. The Risk Management and Internal Control Committee approved the Compliance Roadmap as well as the Compliance Management System Plan (CMS Plan). It has also monitored the implementation of Compliance Roadmap (Phase 2) on a quarterly basis. This roadmap has prescribed:

1. Improvement/development of compliance risk control process;
2. Development of compliance-data communications;
3. Development of the process to evaluate the effectiveness and efficiency of Compliance Management System, with key output supporting the PEA Governor's policy on increasing operational efficiency. As parts of the development, digital technology has been integrated to relevant process paving the way for PEA to transform into a digital utility. Enabled by digital technology, a system has enabled efficient searches for laws and regulations related to PEA's operations. Therefore, compliance management is also efficient. Digital technology has been applied to channels for reporting compliance issues, as well as automatic alert system too.

The Risk Management and Internal Control Committee is determined to properly carry out its GRC and compliance duties. On a quarterly basis, it has monitored trends that may significantly affect PEA to ensure that PEA will be able to fulfill its objectives. The committee trusts that employees' cooperation in complying with PEA's policies, measures, and systems will raise success chance and cushion any impact from uncertainties that may affect PEA's overall operations.



(Mr. Sak Segkhoonthod)

Chairman of the Risk Management
and Internal Control Committee

Report of the Corporate Governance and Sustainable Development Committee

The PEA Board of Directors recognizes the importance of and is committed to good governance standards, operational ethics, and corporate social responsibility. To ensure PEA's sustainability, it has assigned the Corporate Governance and Sustainable Development Committee to several relevant duties. This committee has three members, all of whom being knowledgeable, capable, and experienced in related fields. The committee is consisted of:

- | | |
|----------------------------------|---------------------------|
| 1. Mr. Yodphot Wongrukmit | Chairman of the Committee |
| 2. Flg.Off. Kamolnai Chaixanien | Committee Member |
| 3. Mr. Thongchai Chawalitpicheat | Committee Member |

The Corporate Governance and Sustainable Development Committee is tasked with formulating and proposing guidelines, giving advice, overseeing, monitoring, and evaluating work related to corporate governance, anti-corruption, concerns for stakeholders, and sustainable development that encompasses social, environmental, and governance aspects with international practices as benchmarks.

Attaching importance to its duties as stated in the Corporate Governance and Sustainable Development Committee Charter, the committee convened seven meetings (including one mobile meeting) in 2022 to oversee, monitor, and evaluate the implementation of policies and work plans on corporate governance and sustainable development. The committee is committed to developing PEA as well as its value chain in accordance with stakeholders' needs/expectations for the goal of creating PEA's profitability, competitiveness, good image, reputation, and viability, and realizing PEA's vision to become a sustainable electricity utility that creates balanced and "sustainable economic, social, and environmental growth".

Corporate Governance (CG) Performance

The Board of Directors, executives, and staff at all levels have adhered to policies/guidelines on transparency and anti-corruption as well as CG Code for PEA, with a strong emphasis on Code of Conduct. The code covers core ethical values, ethical code, and professional ethics. Reviews have also been made to ensure compliance with international standards and changing situations. In addition, PEA has embraced the government's policies/guidelines on good governance and corruption prevention as guidance in reviewing/preparing the CG and Anti-Corruption Master Plan. Under this master plan, four following strategies are laid down with their implementation results monitored on a quarterly basis:

- | | |
|------------|---|
| Strategy 1 | Heightening intention for management and leadership under CG Code |
| Strategy 2 | Enhancing CG knowledge, society, and culture |
| Strategy 3 | Heightening CG standard and proactive fraud prevention system |
| Strategy 4 | Promoting participation in processes and tools for efficient prevention, suppression, vigilance, monitoring, auditing, and punishment |

PEA has upgraded its anti-corruption practices in response to issues and needs in society by leveraging its resources and expertise for maximum public benefits in this aspect. Its CSR activities have thus included collaborations with the Anti Corruption Foundation on the "PEA's Clean Villages" project, which resonates with the government's policy on good governance and anti-corruption.

Sustainable Development (SD) Performance

The Corporate Governance and Sustainable Development Committee has encouraged PEA to formulate policies, plans, and guidelines by taking stakeholders and sustainable development into consideration in line with international standards because it is aware of their importance. Applicable international standards include the AA1000 Stakeholder Engagement Standard, the ISO 26000 standard, the BCG Model, the United Nations' Sustainable Development Goals (SDGs), and the Dow Jones Sustainability Indices (DJSI). Paying attention to impacts on communities, society, and the environment, the Corporate Governance and Sustainable Development Committee has prepared the following plans and monitored their implementations on a quarterly basis.

1. Master Plan on Stakeholder Management for Years 2022 to 2026 and the Action Plan on Stakeholder Management 2022, which cover four strategies, namely:

- Strategy 1 Setting up the system to oversee stakeholder management in support of sustainability;
- Strategy 2 Improving operations to foster confidence, acceptance, and engagement with both internal and external stakeholders;
- Strategy 3 Upgrading operational process in response to stakeholders' needs and expectations; and
- Strategy 4 Enhancing personnel's knowledge, abilities, and attitudes about stakeholder management and human capital.

2. Action Plan on Social and Environmental Responsibility, which covers four strategies, namely:

- Strategy 1 Balancing business growth and environmental care;
- Strategy 2 Engaging, developing, and strengthening communities;
- Strategy 3 Developing human resources in line with operational strategies; and
- Strategy 4 Increasing data-disclosure efficiency in regard to Sustainability Report and CSR projects.

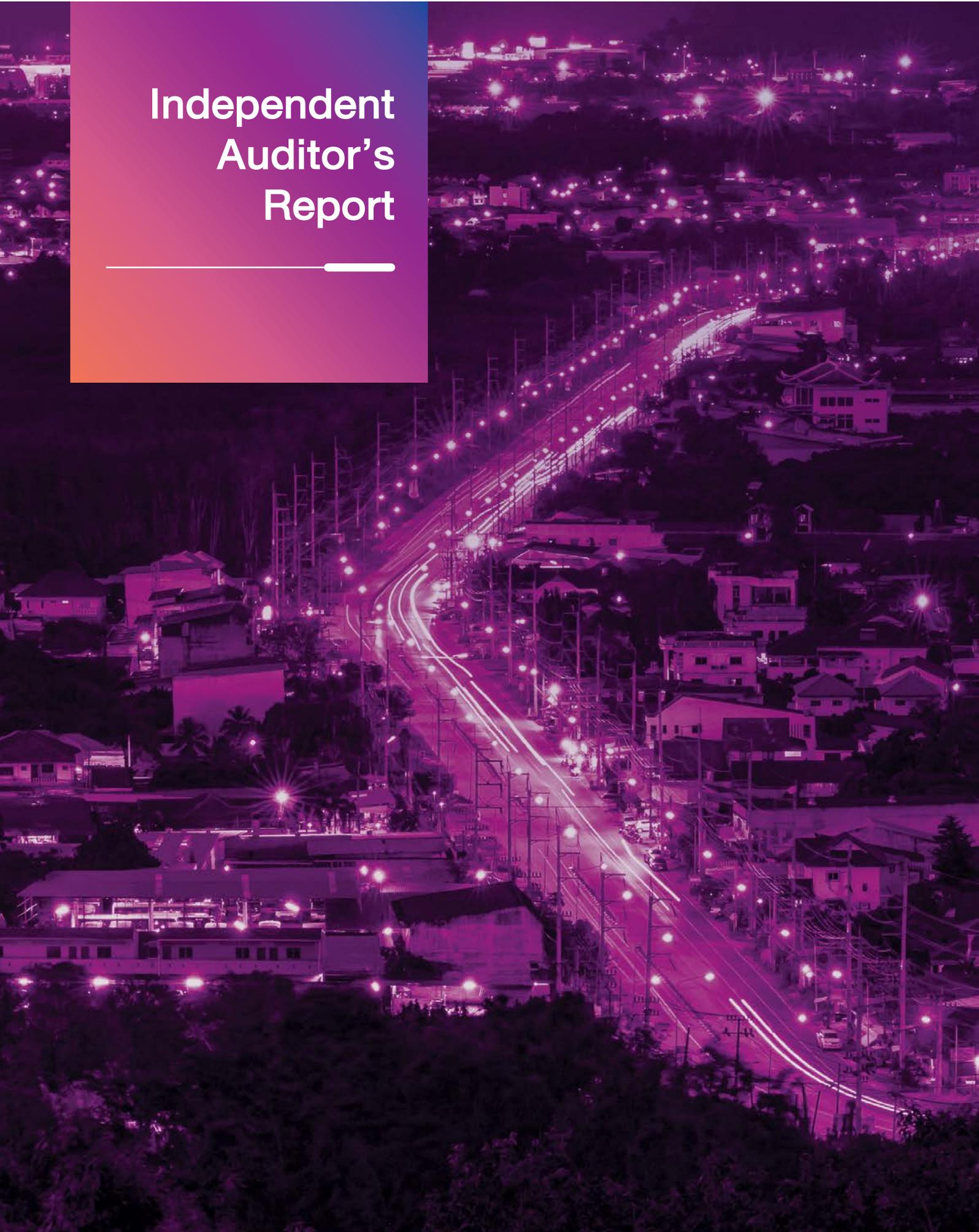
In addition, the Corporate Governance and Sustainable Development Committee has assessed internal and external sustainability topics of significance, stakeholders' impacts/needs/expectations, and power-industry trends. The percentage of alternative energy and clean energy in PEA's businesses has thus increased via various work plans/projects, reflecting PEA's intention to bring Thailand towards clean energy and carbon neutrality. The reviews of PEA's strategies and annual action plans have also taken sustainability topics into account. PEA's Sustainability Report, meanwhile, has disclosed economic, social, and environmental data based on the Global Reporting Initiative (GRI) Sustainability Reporting Standard 2021.

Therefore, there are assurances that PEA has driven its businesses on the basis of good governance, anti-corruption, stakeholder focus, and sustainable development in the way that enables it to grow on a solid foundation and be well poised to continuously uphold sustainability for society.

Mr. Yodphot Wongrukmit

Chairman of the Corporate Governance
and Sustainable Development Committee

Independent Auditor's Report



Independent Auditor's Report

To the Board of Directors of Provincial Electricity Authority

Opinion

I have audited the accompanying consolidated financial statements of Provincial Electricity Authority and its subsidiary (the Group), which comprise the consolidated statement of financial position as at 31 December 2022, and the related consolidated statements of comprehensive income, changes in equity and cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies, and have also audited the separate financial statements of Provincial Electricity Authority for the same period.

In my opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Provincial Electricity Authority and its subsidiary and of Provincial Electricity Authority as at 31 December 2022, their financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards.

Basis for Opinion

I conducted my audit in accordance with the State Audit Standards and Thai Standards on Auditing. My responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of my report. I am independent of the Group in accordance with the State Audit Standards as issued by the State Audit Commission and the *Code of Ethics for Professional Accountants* including Independence Standards issued by the Federation of Accounting Professions as relevant to my audit of the financial statements, and I have fulfilled my other ethical responsibilities in accordance with the State Audit Standards and the Code. 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 Financial Statements* section are relevant only to the audit of the financial statements, which are prepared by management in accordance with Thai Financial Reporting Standards.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

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

In preparing the financial statements, management is responsible for assessing the Group'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 or to cease operations, or has no realistic alternative but to do so. Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

My objectives are to obtain reasonable assurance about whether the 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 Thai Standards on Auditing 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 financial statements.

As part of an audit in accordance with the State Audit standards and Thai Standards on Auditing, I exercise professional judgement and maintain professional skepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the 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 internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- 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 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 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 to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the 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 those charged with governance 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.

I am responsible for the audit resulting in this independent auditor's report.



Gingkarn Atsawarangsalit

Certified Public Accountant (Thailand) No. 4496

EY Office Limited

Bangkok: 24 March 2023

Provincial Electricity Authority and its subsidiary
 Statements of financial position
 As at 31 December 2022

(Unit: Thousand Baht)

	Note	Consolidated financial statements		Separate financial statements	
		2022	2021	2022	2021
Assets					
Current assets					
Cash and cash equivalents	7	9,689,324	12,240,072	8,559,848	10,857,809
Trade and other receivables	6, 8	62,506,381	46,440,711	62,091,946	45,986,779
Short-term loans to related parties	6	-	49,237	-	-
Inventories	9	1,634,793	2,485,973	1,628,764	2,477,313
Specific-purpose deposits at financial institutions	10	37,957,206	40,852,170	37,957,206	40,852,170
Undue input VAT		3,588,256	2,327,494	3,584,363	2,324,593
Advance payments to suppliers		1,966,807	1,920,043	1,959,366	1,877,572
Other current assets		108,298	108,273	89,869	84,733
Total current assets		117,451,065	106,423,973	115,871,362	104,460,969
Non-current assets					
Restricted bank deposits		50,000	50,000	-	-
Investments in subsidiary	11	-	-	4,010,621	3,295,284
Investments in associates	12	1,678,069	1,387,804	-	-
Investments in joint ventures	13	-	-	-	-
Other non-current financial assets	14	256,641	256,896	1,641	1,896
Other non-current receivables	15	1,728,877	999,550	344,585	38,947
Constructions in progress	16	66,630,652	56,076,891	65,752,838	55,409,989
Investment properties	17	461,859	500,679	461,859	452,171
Property, plant and equipment	18	331,418,440	316,267,673	331,426,449	316,273,652
Right-of-use assets	22.1.1	2,018,142	1,902,142	2,004,784	1,854,009
Intangible assets	19	2,988,625	2,591,028	2,985,378	2,586,595
Other non-current assets		193,983	123,129	146,970	104,801
Total non-current assets		407,425,288	380,155,792	407,135,125	380,017,344
Total assets		524,876,353	486,579,765	523,006,487	484,478,313

The accompanying notes are an integral part of the financial statements.

Provincial Electricity Authority and its subsidiary
 Statements of financial position (continued)
 As at 31 December 2022

(Unit: Thousand Baht)

	Note	Consolidated financial statements		Separate financial statements	
		2022	2021	2022	2021
Liabilities and equity					
Current liabilities					
Trade and other payables	6, 20	66,590,583	48,566,500	66,379,287	48,163,434
Current portion of long-term loans	21	9,451,180	5,635,932	9,352,242	5,553,516
Current portion of lease liabilities	22.1.2	913,955	851,283	907,499	840,917
Accrued remittance to the Ministry of Finance	23	10,229,231	12,162,638	10,229,231	12,162,638
Advance received per contract		1,352,746	1,024,859	1,352,746	1,021,409
Deposits payable	24	381,796	346,782	381,796	346,782
Other current liabilities	6, 25	6,233,774	3,394,348	6,203,415	3,387,464
Total current liabilities		95,153,265	71,982,342	94,806,216	71,476,160
Non-current liabilities					
Long-term loans, net of current portion	21	133,161,473	122,615,879	132,311,707	121,667,176
Lease liabilities, net of current portion	22.1.2	1,592,048	1,264,348	1,566,159	1,224,814
Other non-current payables		14,665	17,171	14,665	17,171
Provisions for litigations	26	268,284	428,644	268,284	428,644
Provisions for service contracts		276,484	176,668	-	-
Construction obligations	6, 27	6,501,739	5,998,553	6,503,473	6,000,287
Deferred revenues	28	56,653,265	56,659,166	56,653,265	56,659,166
Electricity usage guarantee	29	24,468,344	23,584,596	24,468,374	23,584,626
Sales and service guarantee	6	2,197,733	1,880,734	2,190,002	1,873,314
Provision for long-term employee benefits	30	15,731,603	16,254,192	15,728,167	16,251,539
Other non-current liabilities		84,525	59,652	84,525	59,651
Total non-current liabilities		240,950,163	228,939,603	239,788,621	227,766,388
Total liabilities		336,103,428	300,921,945	334,594,837	299,242,548

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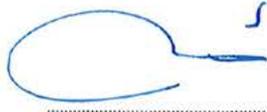
The accompanying notes are an integral part of the financial statements.

Provincial Electricity Authority and its subsidiary
 Statements of financial position (continued)
 As at 31 December 2022

(Unit: Thousand Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Equity				
Initial capital	87,004	87,004	87,004	87,004
Contributions from the government	4,802,501	4,802,501	4,802,501	4,802,501
Retained earnings				
Appropriated-statutory reserve - subsidiary	11,653	10,801	-	-
Unappropriated	183,873,667	180,759,159	183,524,045	180,347,905
Other components of equity	(1,900)	(1,645)	(1,900)	(1,645)
Total equity	188,772,925	185,657,820	188,411,650	185,235,765
Total liabilities and equity	524,876,353	486,579,765	523,006,487	484,478,313

The accompanying notes are an integral part of the financial statements.



(Mr. Supachai Ek-un)
 Director and Governor



(Mr. Itsaret Chensupakan)
 Deputy Governor
 (Accounting and Finance)

Provincial Electricity Authority and its subsidiary
Statement of comprehensive income
For the year ended 31 December 2022

(Unit: Thousand Baht)

	Note	Consolidated financial statements		Separate financial statements	
		2022	2021	2022	2021
Profit or loss:					
Revenues					
Sales and Rendering of services	31	593,217,478	497,667,677	592,765,549	497,246,506
Revenue compensations	32	12,000,000	10,917,960	12,000,000	10,917,960
Dividend income	11.1	-	-	19,618	-
Other income		1,326,826	856,853	1,324,442	854,218
Total revenues		606,544,304	509,442,490	606,109,609	509,018,684
Expenses					
Cost of electricity		524,523,945	428,283,139	524,523,945	428,283,139
Employee compensations		21,077,845	20,207,487	21,042,690	20,174,441
Employee benefit expenses		1,960,793	1,672,472	1,960,010	1,671,772
Executives' remunerations		125,233	119,897	121,669	115,396
Preventive, repair and maintenance, and construction expenses		7,930,454	7,729,018	7,533,084	7,350,880
Depreciation and amortisation expenses		26,490,604	24,872,946	26,477,196	24,863,043
Other operating expenses		9,154,012	9,121,689	9,049,939	9,106,433
Other expenses		695,370	838,997	695,370	838,995
Total expenses		591,958,256	492,845,645	591,403,903	492,404,099
Operating profit		14,586,048	16,596,845	14,705,706	16,614,585
Share of profit from investments in associates	12	62,729	65,553	-	-
Finance income		496,153	473,890	490,527	468,504
Finance cost	33	(3,637,154)	(3,067,426)	(3,628,432)	(3,061,990)
Profit before income tax expenses		11,507,776	14,068,862	11,567,801	14,021,099
Income tax expenses		(755)	(9,834)	-	-
Profit for the year		11,507,021	14,059,028	11,567,801	14,021,099
Other comprehensive income:					
<i>Other comprehensive income not to be reclassified to profit or loss in subsequent periods</i>					
Actuarial gain - net of income tax	30	963,189	1,634,256	963,189	1,634,256
Gain (loss) on changes in value of equity investments designated at fair value through other comprehensive income		(255)	336	(255)	336
Total other comprehensive income not to be reclassified to profit or loss in subsequent periods		962,934	1,634,592	962,934	1,634,592
Other comprehensive income for the year		962,934	1,634,592	962,934	1,634,592
Total comprehensive income for the year		12,469,955	15,693,620	12,530,735	15,655,691

The accompanying notes are an integral part of the financial statements.

Provincial Electricity Authority and its subsidiary
Statement of changes in equity
For the year ended 31 December 2022

(Unit: Thousand Baht)

	Consolidated financial statements						
	Other component of equity						Total equity
	Initial capital and contributions from the government	Retained earnings		designated at fair value through other comprehensive income	Total other components of equity	Total equity	
		Appropriated	Unappropriated				
comprehensive income							
Balance as at 1 January 2021	4,889,505	8,348	168,878,804	(1,981)	(1,981)	173,774,676	
Profit for the year	-	-	14,059,028	-	-	14,059,028	
Other comprehensive income for the year	-	-	1,634,256	336	336	1,634,592	
Total comprehensive income for the year	-	-	15,693,284	336	336	15,693,620	
Transfer unappropriated to statutory reserve - subsidiary	-	2,453	(2,453)	-	-	-	
Adjusted remittance to the Ministry of Finance for the year 2020 (Note 23)	-	-	4,043,524	-	-	4,043,524	
Remittance to the Ministry of Finance for the year (Note 23)	-	-	(7,854,000)	-	-	(7,854,000)	
Balance as at 31 December 2021	4,889,505	10,801	180,759,159	(1,645)	(1,645)	185,657,820	
Balance as at 1 January 2022	4,889,505	10,801	180,759,159	(1,645)	(1,645)	185,657,820	
Profit for the year	-	-	11,507,021	-	-	11,507,021	
Other comprehensive income for the year	-	-	963,189	(255)	(255)	962,934	
Total comprehensive income for the year	-	-	12,470,210	(255)	(255)	12,469,955	
Transfer unappropriated to statutory reserve - subsidiary	-	852	(852)	-	-	-	
Adjusted remittance to the Ministry of Finance for the year 2021 (Note 23)	-	-	150	-	-	150	
Remittance to the Ministry of Finance for the year (Note 23)	-	-	(9,355,000)	-	-	(9,355,000)	
Balance as at 31 December 2022	4,889,505	11,653	183,873,667	(1,900)	(1,900)	188,772,925	

The accompanying notes are an integral part of the financial statements.

Provincial Electricity Authority and its subsidiary
Statement of changes in equity (continued)
For the year ended 31 December 2022

(Unit: Thousand Baht)

		Separate financial statements					Total equity
		Initial capital and contributions from the government	Unappropriated retained earnings	designated at fair value through other comprehensive income	Total other components of equity		
		Other component of equity					
		Other comprehensive income					
		Gain (loss) on investment in equity					
Balance as at 1 January 2021	4,889,505	168,503,026	(1,981)	(1,981)		173,390,550	
Profit for the year	-	14,021,099	-	-		14,021,099	
Other comprehensive income for the year	-	1,634,256	336	336		1,634,592	
Total comprehensive income for the year	-	15,655,355	336	336		15,655,691	
Adjusted remittance to the Ministry of Finance for the year 2020 (Note 23)	-	4,043,524	-	-		4,043,524	
Remittance to the Ministry of Finance for the year (Note 23)	-	(7,854,000)	-	-		(7,854,000)	
Balance as at 31 December 2021	4,889,505	180,347,905	(1,645)	(1,645)		185,235,765	
Balance as at 1 January 2022	4,889,505	180,347,905	(1,645)	(1,645)		185,235,765	
Profit for the year	-	11,567,801	-	-		11,567,801	
Other comprehensive income for the year	-	963,189	(255)	(255)		962,934	
Total comprehensive income for the year	-	12,530,990	(255)	(255)		12,530,735	
Adjusted remittance to the Ministry of Finance for the year 2021 (Note 23)	-	150	-	-		150	
Remittance to the Ministry of Finance for the year (Note 23)	-	(9,355,000)	-	-		(9,355,000)	
Balance as at 31 December 2022	4,889,505	183,524,045	(1,900)	(1,900)		188,411,650	

The accompanying notes are an integral part of the financial statements.

Provincial Electricity Authority and its subsidiary
Cash flow statement
for the year ended 31 December 2022

(Unit: Thousand Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Cash flows from operating activities				
Profit before tax	11,507,776	14,068,862	11,567,801	14,021,099
Adjustments to reconcile profit before tax to net cash provided by (paid from) operating activities:				
Depreciation and amortisation	26,490,604	24,872,946	26,477,196	24,863,043
Expected credit losses (reversal)	(683,931)	308,378	(659,858)	294,465
Loss from obsolete materials	32,726	18,644	30,370	17,150
Amortisation of deferred revenues	(4,921,782)	(4,720,584)	(4,921,782)	(4,720,584)
Revenues from donations	(30,905)	(284)	(29,720)	(284)
Loss on sales and write-off of assets	1,195,932	1,326,175	1,195,473	1,326,173
Loss on write-off of intangible assets	17	-	17	-
Loss from write-off of materials	1,527	34,122	1,527	34,122
Loss from terminated leases	2,900	5,322	2,437	5,322
Provision for long-term employee benefits	1,960,793	1,672,472	1,960,010	1,671,772
Provisions for litigations (reversal)	(154,700)	59,722	(154,700)	59,722
Unrealised loss (gain) on foreign exchange	(4,208)	16,517	(4,208)	16,517
Amortisation premium on loans	149	8,231	-	8,066
Revenues from receive scrap materials	(745,581)	(720,926)	(745,124)	(720,926)
Dividend income	-	-	(19,618)	-
Share of profit from investments in associates	(62,729)	(65,553)	-	-
Finance income	(496,153)	(473,890)	(490,527)	(468,504)
Finance cost	3,637,154	3,067,426	3,628,432	3,061,990
Profit from operating activities before changes in operating assets and liabilities	37,729,589	39,477,580	37,837,726	39,469,143
Operating assets (increase) decrease				
Trade and other receivables	(15,332,117)	(2,429,624)	(15,395,630)	(2,064,927)
Inventories	1,562,627	767,333	1,561,776	769,977
Specific-purpose deposits at financial institutions	2,894,964	(3,549,634)	2,894,964	(3,549,634)
Undue input VAT	(1,260,762)	(87,994)	(1,259,770)	(88,644)
Advance payments to suppliers	(46,764)	(133,619)	(81,794)	(38,249)
Other current assets	(25)	(24,551)	(5,136)	(18,825)
Other non-current receivables	(147,782)	(32,633)	(305,638)	22,819
Other non-current assets	(50,448)	52,723	(42,169)	(4,890)
Operating liabilities increase (decrease)				
Trade and other payables	18,116,319	1,570,585	18,366,870	1,279,107
Advance received per contract	327,887	(118,185)	331,337	(121,635)
Deposits payable	35,014	(83,093)	35,014	(83,093)
Other current liabilities	2,839,426	293,510	2,815,951	289,590
Other non-current payables	(3,113)	(22,887)	(3,113)	(22,887)
Provisions for long-term service contracts	99,816	87,578	-	-
Construction obligations	503,186	(1,291,190)	503,186	(1,289,456)
Deferred revenues	4,809,159	6,359,239	4,809,159	6,359,239

The accompanying notes are an integral part of the financial statements.

Provincial Electricity Authority and its subsidiary

Cash flow statement (continued)

For the year ended 31 December 2022

(Unit: Thousand Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Operating liabilities increase (decrease) (continued)				
Electricity usage guarantee	883,748	294,582	883,748	294,582
Sales and service guarantee	316,999	326,005	316,888	320,914
Other non-current liabilities	24,873	25,427	24,874	25,427
Cash paid for provisions for litigations	(5,660)	(870)	(5,660)	(870)
Cash paid for long-term employee benefits	(1,515,412)	(1,675,520)	(1,515,412)	(1,675,520)
Cash flows from operating activities	51,781,524	39,804,762	51,766,971	39,872,168
Cash received from interest income	446,531	489,444	440,848	484,164
Cash paid for income tax	(21,161)	(7,077)	-	-
Net cash flows from operating activities	52,206,894	40,287,129	52,207,819	40,356,332
Cash flows from investing activities				
Cash paid for investments in non-current financial assets	-	(13,750)	-	-
Cash paid for short-term loans to related parties	-	(65,237)	-	-
Cash received from short-term loans to related parties	49,237	16,000	-	-
Cash paid for investments in subsidiary	-	-	(715,337)	(844,000)
Cash paid for investments in associates	(276,830)	(742,831)	-	-
Cash received from dividends from investments in subsidiary	-	-	19,618	-
Cash received from dividends from investments in associates	49,294	49,665	-	-
Cash paid for constructions in progress	(50,183,592)	(45,650,515)	(49,591,181)	(45,059,020)
Cash paid for purchase of investment properties	(52,612)	(48,508)	-	-
Cash paid for purchase of property, plant and equipment	(2,701,569)	(3,879,540)	(2,701,416)	(3,890,931)
Cash received from disposal of property, plant and equipment	155,278	153,891	155,278	153,891
Cash paid for purchase of intangible asset	(255,025)	(65,531)	(255,025)	(63,425)
Interest expense capitalised to constructions in progress	(504,822)	(614,857)	(489,557)	(608,736)
Net cash flows used in investing activities	(53,720,641)	(50,861,213)	(53,577,620)	(50,312,221)
Cash flows from financing activities				
Cash received from long-term loans	20,000,000	28,888,057	20,000,000	28,000,000
Repayment of long-term loans	(5,637,848)	(8,242,446)	(5,555,283)	(8,242,446)
Interest paid	(3,521,907)	(2,860,988)	(3,516,021)	(2,857,144)
Repayments of lease liabilities	(588,988)	(777,076)	(568,598)	(769,805)
Cash paid for remittance to the Ministry of Finance	(11,288,258)	(7,502,862)	(11,288,258)	(7,502,862)
Net cash flows from (used in) financing activities	(1,037,001)	9,304,685	(928,160)	8,627,743
Net decrease in cash and cash equivalents	(2,550,748)	(1,269,399)	(2,297,961)	(1,328,146)
Cash and cash equivalents at beginning of year	12,240,072	13,509,471	10,857,809	12,185,955
Cash and cash equivalents at end of year (Note 7)	9,689,324	12,240,072	8,559,848	10,857,809

Provincial Electricity Authority and its subsidiary

Cash flow statement (continued)

For the year ended 31 December 2022

Supplemental cash flows information

Non-cash items consist of:

Payables from purchase of property, plant and equipment	72,884	25,480	72,884	25,480
Payables from constructions in progress	1,074,679	1,255,265	1,006,761	1,255,265
Transfer constructions in progress to investment in property	392	-	392	-
Transfer constructions in progress to property, plant and equipment	38,610,528	41,288,531	38,610,528	41,288,531
Transfer constructions in progress to intangible asset	1,166,673	709,485	1,166,673	709,485
Transfer constructions in progress to other non-current receivables	455,544	327,377	-	-
Transfer investment property to other non-current receivables	101,120	-	-	-
Transfer investment property to property, plant and equipment	6,735	39,246	6,735	39,246
Transfer property, plant and equipment to investment properties	31,082	6,500	31,082	6,500
Transfer intangible assets to inventories	119	-	-	-
Transfer right-of-use assets to other non-current receivables	24,881	-	-	-
Acquisitions of equipment under lease agreements	914,397	990,046	914,397	956,142
Received assets from donations	136,003	142,245	134,817	142,245
Interest expense capitalised	504,822	614,857	489,557	608,736

The accompanying notes are an integral part of the financial statements.



Notes to consolidated financial statements

Provincial Electricity Authority and its subsidiary

Notes to consolidated financial statements

For the year ended 31 December 2022

1. General information

1.1 General information of Provincial Electricity Authority

Provincial Electricity Authority was established as a state enterprise for public utility under Provincial Electricity Authority Act, B.E. 2503 and is located at 200 Ngamwongwan Road, Ladyao, Chatuchak, Bangkok 10900. The main objective of Provincial Electricity Authority is to generate, obtain, distribute, and sell electricity energy to people, businesses, and industrial sectors in 74 provinces throughout Thailand, with the exception of Bangkok, Nonthaburi, and Samut Prakan provinces.

1.2 Financial criteria

According to the policy on determining the electricity tariff structure, the Energy Regulatory Commission (ERC) has established financial criteria with objectives to supervise the operational performance of Provincial Electricity Authority in order to bring about appropriate investments with a financial rate of return that reflects the weighted average cost of capital, efficiently control costs, monitor the investments, and establish operating principles. In the event that the operational investing of Provincial Electricity Authority does not comply with the investment plan, the ERC will consider a clawback as stipulated in the criteria and conditions set forth by the ERC. Moreover, the ERC will consider restoring/recovering the financial position so that Provincial Electricity Authority is able to maintain financial position in accordance with the specified criteria and conditions (Return on Investment Capital: ROIC).

1.3 The rising energy price situation

The rising energy price situation has resulted in higher commodity and energy prices.

Therefore, the cabinet approved measures to assist people who have been affected, the related measures that Provincial Electricity Authority provided are as follows:

- 1.3.1 Measures to reduce Ft for residential user type 1: a residential user and type 2: a small business user (excluding government agencies and state-owned enterprises) with electricity consumption not exceeding 300 units per month for 4 months from the monthly electricity bill from May to August 2022.
- 1.3.2 Measures to reduce Ft for residential user type 1: a residential user with electricity consumption not exceeding 500 units per month for 4 months from the monthly electricity bill from September to December 2022.
- 1.3.3 Measures to reduce Ft for residential user type 1: a residential user with electricity consumption not exceeding 300 units per month for 4 months from the monthly electricity bill from January to April 2023.

According to measures No. 1.3.1 and No. 1.3.2 for the electricity bill for September 2022, the funds from the Annual Budget Expenditure Act, Budget B.E. 2565, the central fund, reserve for emergencies or necessities, measure No. 1.3.2 for electricity bills from October to December 2022, the funds from the Annual Budget Expenditure Act, Budget B.E. 2566, the central fund, reserve for emergencies or necessities, measure No. 1.3.3 for electricity bills from January to April 2023, the funds from the Annual Budget Expenditure Act, Budget B.E. 2566, the central fund, the reserve for emergencies or necessities, and the funds allocated by PTT Public Company Limited in accordance with a resolution of the National Energy Policy Council on 25 November 2022 are to be expended.

2. Basis of preparation

2.1 The financial statements have been prepared in accordance with Thai Financial Reporting Standards enunciated under the Accounting Professions Act B.E. 2547 and their presentation has been made in compliance with the stipulations of the Notification of the Department of Business Development, issued under the Accounting Act B.E. 2543

The financial statements in Thai language are the official statutory financial statements of Provincial Electricity Authority. The financial statements in English language have been translated from the Thai language financial statements.

The financial statements have been prepared on a historical cost basis except where otherwise disclosed in the accounting policies.

2.2 Basis of consolidation

- a) The consolidated financial statements include the financial statements of Provincial Electricity Authority and the following subsidiary company (“the subsidiary”) (collectively as “the Group”):

Company's name	Nature of business	Country of incorporation	Percentage of shareholding	
			2022	2021
			%	%
PEA ENCOM International Company Limited	Investing in electricity-related businesses and conducting training services concerning electricity systems	Thailand	100	100

- b) Provincial Electricity Authority is deemed to have control over an investee or subsidiary if it has rights, or is exposed, to variable returns from its involvement with the investee, and it has the ability to direct the activities that affect the amount of its returns.
- c) Subsidiary is fully consolidated, being the date on which Provincial Electricity Authority obtains control, and continues to be consolidated until the date when such control ceases.
- d) The financial statements of the subsidiary are prepared using the same significant accounting policies as Provincial Electricity Authority.
- e) Material balances and transactions between the Group have been eliminated from the consolidated financial statements.

2.3 The separate financial statements present investments in subsidiary under the cost method.

3. New financial reporting standards

3.1 Financial reporting standards that became effective in the current year

During the year, the Group has adopted the revised financial reporting standards and interpretations which are effective for fiscal years beginning on or after 1 January 2022. These financial reporting standards were aimed at alignment with the corresponding International Financial Reporting Standards with most of the changes directed towards clarifying accounting treatment and providing accounting guidance for users of the standards.

The adoption of these financial reporting standards does not have any significant impact on the Group's financial statements.

3.2 Financial reporting standards that will become effective for fiscal years beginning on or after 1 January 2023

The Federation of Accounting Professions issued a number of revised financial reporting standards, which are effective for fiscal years beginning on or after 1 January 2023. These financial reporting standards were aimed at alignment with the corresponding International Financial Reporting Standards with most of the changes directed towards clarifying accounting treatment and, for some standards, providing temporary reliefs or temporary exemptions for users.

The management of the Group believes that adoption of these amendments will not have any significant impact on the Group's financial statements.

4. Significant accounting policies

4.1 Revenue and expense recognition

Sales

Revenue from sale of goods is recognized at the point in time when control of the asset is transferred to the customer, generally upon delivery of the goods. Revenue is measured at the amount of the consideration received or receivable, excluding value added tax, of goods supplied after deducting returns, discounts, allowances, and price promotions to customers.

Rendering of services

Service revenue is recognized at a point in time upon completion of the service.

Construction service revenue is recognized over time when services have been rendered, taking into account the stage of completion, measuring based on comparison of actual construction costs incurred up to the end of the period and total anticipated construction costs to be incurred to completion.

The recognized revenue which is not yet due per the contracts. The amounts recognized as are reclassified to trade receivables when the Group's right to consideration is unconditional such as upon completion of services and acceptance by the customer.

The obligation to transfer goods or services to a customer for which the Group has received consideration (or an amount of consideration is due) from the customer is presented under the caption of "Advances received per contract/Deferred revenue" in the statement of financial position are recognized as revenue when the Group performs under the contract.

Contributions for constructing electricity distributing systems

Contributions for constructing electricity distributing systems represent cash collected from people who request to use the electricity in order to reduce the cost of Provincial Electricity Authority for construction of the electricity distributing systems. Ownership of the systems, including responsibility for maintenance and repair, belongs to Provincial Electricity Authority. Such contributions are presented as "Deferred revenues" in the statements of financial position and recognized as revenues at the rate of 5 percent per annum when the construction is completed (the rate is equal to the depreciation rate of Provincial Electricity Authority's electricity distributing system assets).

Revenues from transferring of operating assets

Revenues from transferring of operating assets represent assets received from donations which are used in operations. Most of such assets are electricity distribution systems that the electricity users donate to Provincial Electricity Authority, which Provincial Electricity Authority is responsible for maintenance. Such assets are presented as deferred revenues from transferring of operating assets in the statements of financial position and recognized as revenues at the rate in accordance with depreciation rates of such assets over their useful lives.

Assets received from donations, which are not used in operations, are recognized as other non-operating revenues in the statements of comprehensive income in the period of acquisitions.

Contribution revenues from foreign financial institutions

Contribution revenues according to the solution of foreign financial institutions represent contributions from foreign financial institutions in forms of interest discount to be used for various purposes of Provincial Electricity Authority. Such revenues are

presented as deferred revenues in the statements of financial position and recognized as revenues based on the actual amount of expenses incurred.

Revenue compensations

Revenue compensations received in accordance with resolution of regulators are recognized when the Group obtains the right to receive the revenue compensations.

Interest income

Interest income is calculated using the effective interest method and recognized on an accrual basis. The effective interest rate is applied to the gross carrying amount of a financial asset, unless the financial assets subsequently become credit-impaired when it is applied to the net carrying amount of the financial asset (net of the expected credit loss allowance).

Finance cost

Interest expense from financial liabilities at amortized cost is calculated using the effective interest method and recognized on an accrual basis.

Dividends

Dividends are recognized when the right to receive the dividends is established.

4.2 Cash and cash equivalents

Cash and cash equivalents consist of cash in hand and at banks, and all highly liquid investments with original maturity of three months or less and not subject to withdrawal restrictions.

4.3 Inventories

Inventories which consist of spare parts and supplies, are valued at the lower of cost (under the weighted average method) and net realizable value. Allowance is made in full for obsolete spare parts and supplies and for spare parts and supplies pending for improvement.

4.4 Specific-purpose deposits at financial institutions

4.4.1 Specific-purpose deposits at financial institutions, which are presented as current assets in statements of financial position, are deposits to be used within one accounting period and with the specific purposes and conditions. Special-purpose deposits comprises electricity usage guarantee fund, sinking fund for repayment of bonds, and restricted cash. All of which can be used in Provincial Electricity Authority's activities in case of Provincial Electricity Authority having the deficits in working capital. Interest from electricity usage guarantee fund is used for benefits of electricity users and KFW special fund is used for scholarships, training, analysis, and research.

4.4.2 Special-purpose deposits at financial institutions, which are presented as non-current assets in the statements of financial position, are deposits to be used longer than one accounting period and cannot be used for operating activities are PEA Employee Gratuity Fund.

4.5 Investments in subsidiary, joint ventures, and associates

Investments in joint ventures and associates are accounted for in the consolidated financial statements using the equity method.

Investments in subsidiary is accounted for in the separate financial statements using the cost method.

4.6 Investment properties

Investment properties are measured initially at cost, including transaction costs. Subsequent to initial recognition, investment properties are stated at cost less than accumulated depreciation and allowance for loss on impairment (if any).

Depreciation of investment properties is calculated by reference to their costs on the straight-line basis over estimated economic useful lives of 33 years. No depreciation is provided on land. Depreciation of the investment properties is included in determining income.

On disposal of investment properties, the difference between the net disposal proceeds and the carrying amount of the asset is recognized in profit or loss in the period when the asset is derecognized.

4.7 Constructions in progress

Constructions in progress include construction costs, borrowing costs incurred on direct costs associated with the borrowing of funds used for the construction, and other costs which are directly related to construction or preparation of the property for its intended use. No depreciation is provided on constructions in progress.

4.8 Property, plant, and equipment/Depreciation

Land is stated at cost. Buildings and equipment are stated at cost less accumulated depreciation and allowance for loss on impairment of assets (if any).

Depreciation of plant and equipment is calculated by reference to their costs on the straight-line basis over the following estimated useful lives:

Land improvement	16 - 33	years
Buildings	16 - 33	years
Electricity generating systems	5 - 33	years
Electricity distributing systems	5 - 25	years
Furniture, tools, and equipment	5 - 25	years
Vehicles	5 - 10	years

Depreciation is included in determining income.

No depreciation is provided on land.

An item of property, plant, and equipment is derecognized upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss arising on disposal of an asset is included in profit or loss when the asset is derecognized.

4.9 Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of an asset that necessarily takes a substantial period of time to get ready for its intended use or sale are capitalized as part of the cost of the respective assets. All other borrowing costs are expensed in the period they are incurred. Borrowing costs consist of interest and other costs that an entity incurs in connection with the borrowing of funds.

4.10 Intangible assets

Intangible assets are carried at cost less accumulated amortization and any accumulated impairment losses (if any).

Intangible assets with finite lives are amortized on the straight-line basis over the economic useful life and tested for impairment whenever there is an indication that the intangible asset may be impaired. The amortization period and the amortization method of such intangible assets are reviewed at least at each financial year end. The amortization expense is charged to profit or loss.

A summary of the intangible assets with finite useful lives is as follows:

		Useful lives
Computer software licenses	5	years
Computer software	5	years

4.11 Leases

At the inception of contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

The Group as a lessee

The Group applied a single recognition and measurement approach for all leases, except for short-term leases and leases of low-value assets. As at the commencement date of the lease (i.e. the date the underlying asset is available for use), the Group recognizes right-of-use assets representing the right to use underlying assets and lease liabilities based on lease payments.

Right-of-use assets

Right-of-use assets are measured at cost, less accumulated depreciation, any accumulated impairment losses, and adjusted for any remeasurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities initially recognized, initial direct costs incurred and lease payments made at or before the commencement date of the lease, less any lease incentives received.

Depreciation of right-of-use assets is calculated by reference to their on the straight-line basis over the shorter of their estimated useful lives and the lease term.

Land and land improvement	1 - 19	years
Buildings	1 - 5	years
Electricity generating systems	2	years
Furniture, tools, and equipment	5	years
Vehicles	2 - 5	years
Intangible assets	6	years

If ownership of the leased asset is transferred to the Group at the end of the lease term or the cost reflects the exercise of a purchase option, depreciation is calculated using the estimated useful life of the asset.

Lease liabilities

Lease liabilities are measured at the present value of the lease payments to be made over the lease term. The lease payments include fixed payments less any lease incentives receivable, variable lease payments that depend on an index or a rate, and amounts expected to be payable under residual value guarantees. Moreover, the lease payments include the exercise price of a purchase option reasonably certain to be exercised by the Group and payments of penalties for terminating the lease, if the lease term reflects the Group exercising an option to terminate. Variable lease payments that do not depend on an index or a rate are recognized as expenses in the period in which the event or condition that triggers the payment occurs.

The Group discounted the present value of the lease payments by the interest rate implicit in the lease or the Group's incremental borrowing rate. After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made. In addition, the carrying amount of lease liabilities is remeasured if there is a change in the lease term, a change in the lease payments, or a change in the assessment of an option to purchase the underlying asset.

Short-term leases and leases of low-value assets

A lease that has a lease term less than or equal to 12 months from the commencement date or a lease of low-value assets is recognized as expenses on a straight-line basis over the lease term.

The Group as a lessor

A lease that transfers substantially all the risks and rewards incidental to ownership of an underlying asset to a lessee is classified as finance leases. As at the commencement date, an asset held under a finance lease is recognized as a receivable at an amount equal to the net investment in the lease or the present value of the lease payments receivable and any unguaranteed residual value. Subsequently, finance income is recognized over the lease term to reflect a constant periodic rate of return on the net investment in the lease.

A lease is classified as an operating lease if it does not transfer substantially all the risks and rewards incidental to ownership of an underlying asset to a lessee. Lease receivables from operating leases is recognized as income in profit or loss on a straight-line basis over the lease term. Initial direct costs incurred in obtaining an operating lease are added to the carrying amount of the underlying assets and recognized as an expense over the lease term on the same basis as the lease income.

4.12 Related party transactions

Related parties comprise individuals or enterprises that control, or are controlled by, Provincial Electricity Authority, whether directly or indirectly, or which are under common control with Provincial Electricity Authority.

They also include associates, and individuals or enterprises which directly or indirectly own a voting interest in Provincial Electricity Authority that gives them significant influence over Provincial Electricity Authority, key management personnel, directors, and officers with authority in the planning and direction of Provincial Electricity Authority's operations.

4.13 Foreign currencies

The consolidated and separate financial statements are presented in baht, which is also Provincial Electricity Authority's functional currency.

Transactions in foreign currencies are translated into baht at the exchange rate ruling at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are translated into baht at the exchange rate ruling at the end of reporting period.

Gains and losses on exchange are included in determining income.

4.14 Impairment of non-financial assets

At the end of each reporting period, the Group performs impairment reviews in respect of the property, plant and equipment, right-of-use assets, investment properties, and other intangible assets whenever events or changes in circumstances indicate that an asset may be impaired. An impairment loss is recognized when the recoverable amount of an asset, which is the higher of the asset's fair value less costs to sell and its value in use, is less than the carrying amount. An impairment loss is recognized in profit or loss.

In the assessment of asset impairment, if there is any indication that previously recognized impairment losses may no longer exist or may have decreased, the Group estimates the asset's recoverable amount. A previously recognized impairment loss is reversed only if there has been a change in the assumptions used to determine the asset's recoverable amount since the last impairment loss was recognized. The increased carrying amount of the asset attributable to a reversal of an impairment loss shall not exceed the carrying amount that would have been determined had no impairment loss been recognized for the asset in prior years. Such reversal is recognized in profit or loss.

4.15 Employee benefits

Short-term employee benefits

Salaries, wages, overtimes, bonuses, contributions to the social security fund, compensated absences and other short-term benefits in accordance with the contract of employment are recognized as expenses when incurred.

Post-employment benefits and other long-term employee benefits

Defined contribution plans

The Group and its employees have jointly established a provident fund. The fund is monthly contributed by employees and by the Group. The fund's assets are held in a separate trust fund and the Group's contributions are recognized as expenses when incurred.

Defined benefit plan and other long-term employee benefits

The Group has obligations in respect of the severance payments it must make to employees upon retirement under State Enterprise Labor Relations Act, B.E. 2543, compensation under Labor Law, compensated absences of employees who are dismissed without committing an offense under the law, unused portion of personal leaves of employees, souvenir for retired employees, and other employee benefit plans in accordance with the contract of employment. In addition, The Group has other long-term employee benefit welfare for employees who are due in accordance with the conditions.

The obligation under the defined benefit plan and other long-term employee benefit plans is determined by a professionally qualified independent actuary based on actuarial techniques, using the projected unit credit method.

Actuarial gains and losses arising from defined benefit plans are recognized immediately in other comprehensive income.

Actuarial gains and losses arising from other long-term benefits are recognized immediately in profit and loss.

Past service costs are recognized in profit or loss on the earlier of the date of the plan amendment or curtailment and the date that the Group recognizes restructuring-related costs.

4.16 Provisions

Provisions are recognized when the Group has a present obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation.

4.17 Income tax

Income tax expense represents the sum of corporate income tax currently payable and deferred tax.

Current tax

For subsidiary, current income is provided in the accounts at the amount expected to be paid to the taxation authorities, based on taxable profits determined in accordance with tax legislation.

Deferred tax

For subsidiary, deferred income tax is provided on temporary differences between the tax bases of assets and liabilities and their carrying amounts at the end of each reporting period, using the tax rates enacted at the end of the reporting period.

The Subsidiary recognizes deferred tax liabilities for all taxable temporary differences while it recognizes deferred tax assets for all deductible temporary differences and tax losses carried forward to the extent that it is probable that future taxable profit will be available against which such deductible temporary differences and tax losses carried forward can be utilized.

At each reporting date, the Subsidiary reviews and reduces the carrying amount of deferred tax assets to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred tax asset to be utilized.

The Subsidiary records deferred tax directly to shareholders' equity if the tax relates to items that are recorded directly to equity.

4.18 Financial instruments

The Group initially measures financial assets at its fair value plus, in the case of financial assets that are not measured at fair value through profit or loss, transaction costs. However, trade receivables that do not contain a significant financing component, are measured at the transaction price as disclosed in the accounting policy relating to revenue recognition.

Classification and measurement of financial assets

Financial assets are classified, at initial recognition, as to be subsequently measured at amortized cost, fair value through other comprehensive income ("FVOCI"), or fair value through profit or loss ("FVTPL"). The classification of financial assets at initial recognition is driven by the Group's business model for managing the financial assets and the contractual cash flows characteristics of the financial assets.

Financial assets at amortized cost

The Group measures financial assets at amortized cost if the financial asset is held in order to collect contractual cash flows and the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

Financial assets at amortized cost are subsequently measured using the effective interest rate ("EIR") method and are subject to impairment. Gains and losses are recognized in profit or loss when the asset is derecognized, modified or impaired.

Financial assets designated at FVOCI (equity instruments)

Upon initial recognition, the Group can elect to irrevocably classify its equity investments, which are not held for trading as equity instruments designated at FVOCI. The classification is determined on an instrument-by-instrument basis.

Gains and losses recognized in other comprehensive income on these financial assets are never recycled to profit or loss.

Dividends are recognized as other income in profit or loss, except when the dividends clearly represent a recovery of part of the cost of the financial asset, in which case, the gains are recognized in other comprehensive income.

Equity instruments designated at FVOCI are not subject to impairment assessment.

Classification and measurement of financial liabilities

At initial recognition, the Group's financial liabilities are recognized at fair value net of transaction costs and classified as liabilities to be subsequently measured at amortised cost using the EIR method. Gains and losses are recognized in profit or loss when the liabilities are derecognized as well as through the EIR amortization process. In determining amortized cost, the Group takes into account any discounts or premiums on acquisition and fees or costs that are an integral part of the EIR. The EIR amortization is included in finance costs in profit or loss.

Derecognition of financial instruments

A financial asset is primarily derecognized when the rights to receive cash flows from the asset have expired or have been transferred and either the Group has transferred substantially all the risks and rewards of the asset, or the Group has transferred control of the asset.

A financial liability is derecognized when the obligation under the liability is discharged or canceled or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as the derecognition of the original liability and the recognition of a new liability. The difference in the respective carrying amounts is recognized in profit or loss.

Impairment of financial assets

The Group recognizes an allowance for expected credit losses ("ECLs") for all debt instruments not held at FVTPL. ECLs are based on the difference between the contractual cash flows due in accordance with the contract and all the cash flows that the Group expects to receive, discounted at an approximation of the original effective interest rate.

For credit exposures for which there has not been a significant increase in credit risk since initial recognition, ECLs are provided for credit losses that result from default events that are possible within the next 12-months (a 12-month ECL). For those credit exposures for which there has been a significant increase in credit risk since initial recognition, a loss allowance is required for credit losses expected over the remaining life of the exposure (a lifetime ECL).

The Group considers a significant increase in credit risk to have occurred when contractual payments are more than 30 days past due and considers a financial asset as credit impaired or default when contractual payments are 90 days past due. However, in certain cases, the Group may also consider a financial asset to have a significant increase in credit risk and to be in default using other internal or external information, such as credit rating of issuers.

For trade receivables, the Group applies a simplified approach in calculating ECLs. Therefore, the Group does not track changes in credit risk, but recognizes a loss allowance based on lifetime ECLs at each reporting date.

ECLs are calculated based on its historical credit loss experience and adjusted for forward-looking factors specific to the debtors and the economic environment.

A financial asset is written off when there is no reasonable expectation of recovering the contractual cash flows.

Offsetting of financial instruments

Financial assets and financial liabilities are offset, and the net amount is reported in the statement of financial position if there is a currently enforceable legal right to offset the recognized amounts and there is an intention to settle on a net basis, to realize the assets and settle the liabilities simultaneously.

4.19 Fair value measurement

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between buyer and seller (market participants) at the measurement date. The Group applies a quoted market price in an active market to measure their assets and liabilities that are required to be measured at fair value by relevant financial reporting standards. Except in case of no active market of an identical asset or liability or when a quoted market price is not available, the Group measures fair value using valuation technique that are appropriate in the circumstances and maximizes the use of relevant observable inputs related to assets and liabilities that are required to be measured at fair value.

All assets and liabilities for which fair value is measured or disclosed in the financial statements are categorized within the fair value hierarchy into three levels based on categories of input to be used in fair value measurement as follows:

Level 1 - Use of quoted market prices in an active market for such assets or liabilities

Level 2 - Use of other observable inputs for such assets or liabilities, whether directly or indirectly

Level 3 - Use of unobservable inputs such as estimates of future cash flows

At the end of each reporting period, the Group determines whether transfers have occurred between levels within the fair value hierarchy for assets and liabilities held at the end of the reporting period that are measured at fair value on a recurring basis.

5. Significant accounting judgments and estimates

The preparation of financial statements in conformity with financial reporting standards at times requires management to make subjective judgments and estimates regarding matters that are inherently uncertain. These judgments and estimates affect reported amounts and disclosures; and the actual results could differ from these estimates. Significant judgments and estimates are as follows:

Allowance for expected credit losses of trade receivables

In determining an allowance for expected credit losses of trade, the management needs to make judgment and estimates based upon, among other things, past collection history, aging profile of outstanding debts, and the forecast economic condition for groupings of various customer segments with similar credit risks. The Group's historical credit loss experience and forecast economic conditions may also not be representative of whether a customer will actually default in the future.

Post-employment benefits under defined benefit plans and other long-term employee benefits

The obligation under the defined benefit plan and other long-term employee benefit plans is determined based on actuarial techniques. Such determination is made based on various assumptions, including discount rate, inflation rate, future salary increase rate, mortality rate, and staff turnover rate.

Provisions and contingent liabilities in relation to litigations

The Group has contingent liabilities as a result of litigation. The Group's management has used judgment to assess of the results of the litigation and believes that loss incurred will not exceed the record amounts as at the end of reporting period.

Property, plant, and equipment/Depreciation

In determining depreciation of plant and equipment, the management is required to make estimates of the useful lives and residual values of the plant and equipment and to review estimate useful lives and residual values when there are any changes.

In addition, the management is required to review property, plant, and equipment for impairment on a periodical basis and record impairment losses when it is determined that their recoverable amount is lower than the carrying amount. This requires judgments regarding forecast of future revenues and expenses relating to the assets subject to the review.

6. Related party transactions

During the years, the Group had significant business transactions with person or related parties. Such transactions, which are summarized below, arose in the ordinary course of business and were concluded on commercial terms and bases agreed upon between Provincial Electricity Authority and those related parties.

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Transactions with subsidiary company				
(eliminated from the consolidated financial statements)				
Sales and services income	-	-	12	7
Dividend income	-	-	20	-
Construction and purchase of fixed asset	-	-	37	317
Other operating expenses	-	-	23	55

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Transactions with associates				
Sales and service revenues	166	185	110	48
Dividend income	49	50	-	-
Cost of electricity	526	510	526	510
Preventive, repair and maintenance, and construction expenses	11	-	-	-

As at 31 December 2022 and 2021, the balances of the accounts between Provincial Electricity Authority and those related companies are as follows:

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Other receivable - related party (Note 8)				
Subsidiary	-	-	5	1
Associates	21	123	14	-
Total	21	123	19	1
Short-term loans to related parties				
Associates	-	49	-	-
Trade and other payables - related party (Note 20)				
Subsidiary	-	-	12	52
Associates	109	72	101	72
Total	109	72	113	124
Other current liabilities				
Associates	19	-	-	-
Construction obligations				
Subsidiary	-	-	1	2
Sales and service guarantee				
Sales and service guarantee	-	-	2	-
Subsidiary	1	1	1	1
	1	1	3	1



Short-term loans to related parties

As at 31 December 2022 and 2021, the balances of short-term loans to related parties and the movement in short-term loans are as follows:

(Unit: Million Baht)

	Consolidated financial statements			
	Balance as at 31 December 2021	During the year		Balance as at 31 December 2022
		Increase	Decrease	
Short-term loans to related parties				
Associates				
Thai Digital Energy Development Company Limited	17	-	(17)	-
Pracharath Biomass Maelan Company Limited	10	-	(10)	-
Pracharath Biomass Bannangsata Company Limited	22	-	(22)	-
Total	49	-	(49)	-

Short-term loans to related parties are unsecured loans, with a fixed interest rate per annum. The loans and interest are due for repayment within 1 year. During the year, the subsidiary has already received the repayment.

Transactions with related parties as mentioned above do not include government agencies and state enterprises, except PEA ENCOM International Company Limited, a subsidiary of Provincial Electricity Authority.

Directors and management's benefits

During the years ended 31 December 2022 and 2021, the Group had employee benefit expenses payable to their directors and management as below.

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Short-term employee benefits	125	120	122	115
Post-employment benefits	4	4	4	4
Total	129	124	126	119

7. Cash and cash equivalents

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Cash	53	53	53	53
Bank deposits - Current	4	35	4	31
Bank deposits - Saving	6,613	11,166	6,503	10,774
Bank deposits - Fixed	3,019	986	2,000	-
Total	9,689	12,240	8,560	10,858

As at 31 December 2022, bank deposits in saving accounts and fixed deposits carried interests between 0.10 and 1.00 percent per annum (2021: between 0.05 and 0.45 percent per annum).

8. Trade and other receivables

The balance of trade and other receivables as at 31 December 2022 and 2021, aged on the basis of due dates, can be summarized as follows:

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Other receivables - related party (Note 6)				
Aged on the basis of due dates				
Not yet due	14	-	14	-
Total trade receivables - unrelated parties	14	-	14	-
Trade receivables - unrelated parties				
Aged on the basis of due dates				
Not yet due	43,012	32,316	42,832	32,260
Past due				
Up to 3 months	7,673	7,453	7,673	7,453
3 - 6 months	456	1,013	456	1,012
6 - 12 months	383	759	383	756
Over 12 months	1,291	1,744	1,286	1,742
Total trade receivables - unrelated parties	52,815	43,285	52,630	43,223
Other current liabilities				
Less: Allowance for expected credit losses	(1,405)	(2,126)	(1,399)	(2,096)
Total trade receivables - net	51,424	41,159	51,245	41,127

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Other receivables				
Other receivables - unrelated parties	2,167	2,498	2,005	2,375
Other receivables - related party (Note 6)	1	-	-	1
Prepaid expenses	29	21	26	17
Interest receivable	58	8	57	7
Accrued revenues from the Power Development Fund	4,023	2,511	4,023	2,511
Other accrued revenues - unrelated parties	5,059	360	4,983	179
Other accrued revenues - related party (Note 6)	6	123	5	-
Total	11,343	5,521	11,099	5,090
Less: Allowance for expected credit losses	(261)	(239)	(252)	(230)
Total other receivables - net	11,082	5,282	10,847	4,860
Trade and other receivables - net	62,506	46,441	62,092	45,987

Set out below is the movements in the allowance for expected credit losses of trade and other receivables.

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Beginning balance	2,365	2,072	2,326	2,047
Expected credit losses	(684)	308	(660)	294
Amount written off	(15)	(15)	(15)	(15)
Ending balance	1,666	2,365	1,651	2,326

The normal credit term is 10 to 30 days (Provincial Electricity Authority only: 10 to 18 days).

9. Inventories

(Unit: Million Baht)

	Consolidated financial statements					
	Cost		Reduce cost to net realizable value		Inventories - net	
	2022	2021	2022	2021	2022	2021
Operating materials and supplies	46	69	-	-	46	69
Materials and supplies for construction and maintenance	563	490	(2)	(2)	561	488
Materials and supplies for repair	526	1,526	-	-	526	1,526
Demolition materials and supplies, and obsolete materials and supplies	505	397	(11)	(2)	494	395
Materials and supplies pending for adjustments	76	54	(76)	(54)	-	-
Cars waiting for delivery	6	6	(4)	(2)	2	4
Materials and supplies in transit	6	4	-	-	6	4
Total	1,728	2,546	(93)	(60)	1,635	2,486

(Unit: Million Baht)

	Separate financial statements					
	Cost		Reduce cost to net realizable value		Inventories - net	
	2022	2021	2022	2021	2022	2021
Operating materials and supplies	46	69	-	-	46	69
Materials and supplies for construction and maintenance	557	483	-	-	557	483
Materials and supplies for repair	526	1,526	-	-	526	1,526
Demolition materials and supplies, and obsolete materials and supplies	505	397	(11)	(2)	494	395
Materials and supplies pending for adjustments	76	54	(76)	(54)	-	-
Materials and supplies in transit	6	4	-	-	6	4
Total	1,716	2,533	(87)	(56)	1,629	2,477



During the year, the Group reduced the cost of allowance by Baht 226 million (2021: Baht 148 million) (Provincial Electricity Authority only: Baht 224 million, 2021: Baht 147 million), to reflect the net realizable value. This was included in expense. In addition, the Group reversed the write-down of cost of inventories by Baht 193 million (2021: Baht 130 million) (Provincial Electricity Authority only: Baht 193 million, 2021: Baht 130 million), and reduced the amount of inventories recognized as expenses during the year.

10. Specific-purpose deposits at financial institutions

(Unit: Million Baht)

	Consolidated and Separate financial statements	
	2022	2021
Electricity usage guarantee fund (Note 29)	24,329	23,548
Interest from electricity usage guarantee fund	4,991	4,878
Sinking fund for repayment of bonds	5,178	6,253
KFW special fund	187	184
Restricted deposits with banks	2,589	3,264
Funding under the energy conservation policy from Energy Policy and Planning Office and other government agencies	-	1
Deposits on incomes reimburse to users based on the Energy Regulatory Commission directives	683	2,724
Total	37,957	40,852

Electricity usage guarantee fund, sinking fund for repayment of bonds and restricted cash are deposits at financial institutions that can be used in Provincial Electricity Authority's activities in case of Provincial Electricity Authority have deficits in working capital.

Sinking fund for repayment of bonds is used as Provincial Electricity Authority guarantee for repayment of bonds at the maturity date. Provincial Electricity Authority will periodically deposit to the account for repayment of bonds with the maturity period within 3 years.

Interest from electricity usage guarantee fund, interest from KFW special fund, and funding under the energy conservation policy from Energy Policy are deposited at financial institutions which are restricted for specific purposes as determined by Provincial Electricity Authority.

Restricted deposits - saving accounts are used as a guarantee for Provincial Electricity Authority's employee loans. Provincial Electricity Authority has to maintain a balance of saving accounts at a monthly average of Baht 3,100 million.

Deposits on incomes reimburse to users based on the Energy Regulatory Commission's directives are deposits at financial institutions that Provincial Electricity Authority uses according to a resolution directive by the Energy Regulatory Commission.

On 8 August 2022, the Energy Regulatory Commission acknowledged expenses incurred by measures to assist people who has been affected by the effect of Coronavirus disease 2019 pandemic in 2021 and approved the approach to managing such expenses of Baht 2,047 million by using the deposits on incomes reimburse the excess benefits maintained by the Provincial Electricity Authority as reserves for 2020 amounting to Baht 2,696 million for the expenses in accordance with such measures.



11. Investments in subsidiary

11.1 Details of investment in subsidiary

Investment in subsidiary as at 31 December 2022 and 2021 are as follows:

	Separate financial statements			
	Paid-up capital		Shareholding percentage	
	2022	2021	2022	2021
	(Million Baht)	(Million Baht)	(%)	(%)
Non-listed company				
PEA ENCOM International Company Limited	4,011	3,295	100	100

Investment in subsidiary in the separate financial statements represents the investment in PEA ENCOM International Company Limited. The subsidiary is registered in Thailand with purposes of investing in electricity-related businesses and conducting training services concerning electricity systems for public organizations and private organizations both domestically and internationally. Provincial Electricity Authority has acquired 100 percent shareholding of its ordinary shares. The investments in subsidiary are recorded under the cost method.

Investments in subsidiary as presented in separate financial statements details as follows:

(Unit: Million Baht)

	Separate financial statements			
	Cost		Dividend	
	2022	2021	2022	2021
	(Million Baht)	(Million Baht)	(Million Baht)	(Million Baht)
Non-listed company				
PEA ENCOM International Company Limited	4,011	3,295	20	-

11.2 Significant changes in investment in subsidiary

- On 19 January 2022, the Provincial Electricity Authority's Board of Directors Meeting No.1/2022 passed resolutions to approve share capital increase for subsidiary through issuance of 50 million shares with a par value of Baht 10 per share, totaling Baht 500 million, aiming to increase liquidity in the operation of the Solar Rooftop project. Provincial Electricity Authority paid for the newly issued shares on 16 March 2022. The subsidiary registered the capital increase with the Ministry of Commerce on 23 March 2022. The shareholding percentage in the subsidiary remains the same.
- On 27 July 2022, Provincial Electricity Authority paid for the newly issued shares of 21.5 million shares with a par value of Baht 10 per share, totaling Baht 215 million in accordance with the resolution of the subsidiary's Extraordinary General Meeting of shareholders on 12 July 2022, and in accordance with the Provincial Electricity Authority's Board of Directors Meeting No. 1/2021 held on 20 January 2021 which passed resolutions to approve share capital increase of Baht 1,150 million for PEA ENCOM International Company Limited to invest in a solar energy power project of Set Energy Company Limited. The subsidiary registered the capital increase with the Ministry of Commerce on 2 August 2022. The shareholding percentage in the subsidiary remains the same.

12. Investments in associates

12.1 Details of associates

Investments in associated companies in the consolidated financial statements as a transaction of PEA ENCOM International Company Limited which is the subsidiary of Provincial Electricity Authority, has jointly invested for the equity method.

(Unit: Million Baht)

Company's name	Nature of business	Country of incorporation	Consolidated financial statements																	
			Shareholding percentage		Cost		Carrying amounts based on equity method		Allowance for impairment of investments		Carrying amounts based on equity method – Net									
			2022 (%)	2021 (%)	2022	2021	2022	2021	2022	2021	2022	2021								
Indirect holdings																				
Solar Power (Surin 1) Company Limited	Generating electricity from solar power	Thailand	25	25	41.25	41.25	119.2	110.1	-	-	119.2	110.1	-	-	119.2	110.1				
Solar Power (Surin 2) Company Limited	Generating electricity from solar power	Thailand	25	25	41.25	41.25	117.4	107.9	-	-	117.4	107.9	-	-	117.4	107.9				
Solar Power (Khon Kaen 10) Company Limited	Generating electricity from solar power	Thailand	25	25	41.25	41.25	118.3	109.2	-	-	118.3	109.2	-	-	118.3	109.2				
Solar Power (Loei 2) Company Limited	Generating electricity from solar power	Thailand	25	25	41.25	41.25	118.3	109.7	-	-	118.3	109.7	-	-	118.3	109.7				
Pracharath Biomass Narathiwat Company Limited	Generating electricity from biomass	Thailand	40	40	2.4	2.4	2.2	2.2	(2.2)	(2.2)	2.2	2.2	(2.2)	(2.2)	-	-				
Pracharath Biomass Maeilan Company Limited	Generating electricity from biomass	Thailand	40	40	57.8	57.8	54.4	55.7	-	-	54.4	55.7	-	-	54.4	55.7				
Pracharath Biomass Bamangsata Company Limited	Generating electricity from biomass	Thailand	40	40	61.6	61.6	57.2	58.8	-	-	57.2	58.8	-	-	57.2	58.8				

(Unit: Million Baht)

Company's name	Nature of business	Country of incorporation	Consolidated financial statements									
			Shareholding percentage		Cost		Carrying amounts based on equity method		Allowance for impairment of investments		Carrying amounts based on equity method – Net	
			2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Indirect holdings (continued)												
Thai Serm Suk Energy Company Limited	Generating electricity from biomass	Thailand	25	25	25.0	25.0	26.1	24.0	-	-	26.1	24.0
Thai Digital Energy Development Company Limited	Developing integrated digital energy products and services	Thailand	25	25	50.0	50.0	50.9	49.5	-	-	50.9	49.5
Set Energy Company Limited	Developing and investing in smart power grids	Thailand	23.775	20	808.6	646.0	789.4	633.2	-	-	789.4	633.2
Encom Waste To Energy (Phranakhon Si Ayutthaya) Company Limited	Generating electricity from refuse derived fuel	Thailand	25	25	20.6	20.6	18.2	19.3	-	-	18.2	19.3
Salo Tech (Thailand) Company Limited	Generating and distribution of solar cell	Thailand	25	25	62.0	30.5	56.8	29.1	-	-	56.8	29.1
Siam Electrail Company Limited	Developing electrical systems to support high-speed rail business	Thailand	25	25	3.1	3.1	-	2.7	-	-	-	2.7
R EN Korat Energy Company Limited	Generating electricity from combined heat energy	Thailand	25	25	150.0	75.0	135.9	70.4	-	-	135.9	70.4
PEA Intelligent Technology Company Limited	Providing and selling electronic and smart devices	Thailand	25	25	1.5	1.5	1.9	1.5	-	-	1.9	1.5
Thai Encom Company Limited	Hiring to set up a system for data analysis and research	Thailand	25	25	6.3	6.3	5.7	6.3	-	-	5.7	6.3
PEA ENCOM Smart Solution Company Limited	Full services related to a solar cell system	Thailand	25	25	2.5	0.3	3.1	0.4	-	-	3.1	0.4
Encom Charge Utility Services Company Limited	EV Solution Provider	Thailand	25	-	5.5	-	5.3	-	-	-	5.3	-
Total					1,421.9	1,145.1	1,680.3	1,390.0	(2.2)	(2.2)	1,678.1	1,387.8

12.2 Share of comprehensive income and dividend received

During the years ended 31 December 2022 and 2021, the subsidiary of Provincial Electricity Authority has recognized its share of comprehensive income from investments in associates in the statement of comprehensive income as follows:

(Unit: Million Baht)

Associates	Consolidated financial statements			
	Share of profits (losses) from investments in associates		Dividend received by subsidiary*	
	2022	2021	2022	2021
Solar Power (Surin 1) Company Limited	23.7	22.8	14.6	14.1
Solar Power (Surin 2) Company Limited	23.2	22.7	13.7	13.8
Solar Power (Khon Kaen 10) Company Limited	20.6	20.6	11.5	11.7
Solar Power (Loei 2) Company Limited	18.0	18.8	9.4	10.1
Pracharath Biomass Narathiwat Company Limited	-	-	-	-
Pracharath Biomass Maelan Company Limited	(1.3)	(0.9)	-	-
Pracharath Biomass Bannangsata Company Limited	(1.6)	(1.1)	-	-
Thai Serm Suk Energy Company Limited	2.1	0.4	-	-
Thai Digital Energy Development Company Limited	1.4	(0.3)	-	-
Set Energy Company Limited	(6.4)	(11.7)	-	-
Encom Waste To Energy (Phranakhon Si Ayutthaya) Company Limited	(1.1)	(1.1)	-	-
Salo Tech (Thailand) Company Limited	(3.8)	(0.8)	-	-
Siam Electrail Company Limited	(2.7)	(0.4)	-	-
R E N Korat Energy Company Limited	(9.5)	(3.6)	-	-
PEA Intelligent Technology Company Limited	0.4	-	-	-
Thai Encom Company Limited	(0.6)	-	-	-
PEA ENCOM Smart Solution Company Limited	0.5	0.1	-	-
Encom Sharge Utility Services Company Limited	(0.2)	-	-	-
Total	62.7	65.5	49.2	49.7

* Dividends received by the subsidiaries were shown in their separate financial statements.

During the years ended 31 December 2022 and 2021, there was no share of other comprehensive income from investments in associates.

12.3 Significant changes in investments in associates

PEA ENCOM Smart Solution Company Limited

On 24 February 2022, PEA ENCOM Smart Solution Company Limited passed resolutions to approve share capital increase Baht 9 million, 0.9 million shares with a par value of Baht 10 per share. On 14 March 2022, the subsidiary made payment for the shares in proportion to its original investment stake, totaling Baht 2.25 million, 0.225 million shares, with a par value of Baht 10 per share.

On 19 January 2023, PEA ENCOM Smart Solution Company Limited passed resolutions to approve share capital increase from Baht 10 million, 1 million shares with a par value of Baht 10 to Baht 20 million, 1 million shares with a par value of Baht 20 per share. On 31 January 2023, the subsidiary made payment for the shares in proportion to its original investment stake, totaling Baht 2.5 million, 0.25 million shares at the rate of Baht 10 per share.



Salo Tech (Thailand) Company Limited

On 17 March 2022, Salo Tech (Thailand) Company Limited passed resolutions to approve share capital increase Baht 138 million, 1.38 million shares with a par value of Baht 100 per share, called on the payment for Euro 1.5 million or Baht 54 million. On 31 March 2022, the subsidiary made payment for the shares in proportion to its original investment stake totaling Euro 0.375 million or Baht 13.5 million.

On 9 November 2022, Salo Tech (Thailand) Company Limited called for share payment of Euro 2.0 million, or Baht 71 million. On 30 November 2022, the subsidiary made payment for the shares in proportion to its original investment stake totaling Euro 0.5 million or Baht 18 million.

R E N Korat Energy Company Limited

On 15 February 2022, R E N Korat Energy Company Limited passed resolutions to approve share capital increase Baht 200 million, 20 million shares with a par value of Baht 10 per share. On 5 April 2022, R E N Korat Energy Company Limited called on payment and on 7 April 2022, the subsidiary made payment for the shares in proportion to its original investment stake, totaling Baht 50 million, 5 million shares with a par value of Baht 10 per share.

On 3 November 2022, R E N Korat Energy Company Limited passed resolutions to approve share capital increase Baht 200 million, 20 million shares with a par value of Baht 10 per share and called on payment at the value of Baht 5 per share. On 10 November 2022, the subsidiary made payment for the shares in proportion to its original investment stake, totaling Baht 25 million, 5 million shares with the value of Baht 5 per share.

Encom Sharge Utility Services Company Limited

On 18 May 2022, Encom Sharge Utility Services Company Limited, which is a newly established company registered in Thailand and engaged in businesses relating to providing power distribution grid services for electric vehicles, called on payment for the newly issued 2.2 million shares with a par value of Baht 10 per share. On 29 June 2022, the subsidiary made payment for the shares in proportion to 25 percent of investment stake, totaling Baht 5.5 million, 0.55 million shares with a par value of Baht 10 per share.

Set Energy Company Limited

On 12 July 2022, the subsidiary's Board of Directors Meeting No. 8/2022 passed resolutions to approve an increasing investment in Set Energy Company Limited, 2.153 million ordinary shares with a par value of Baht 100 per share. On 3 August 2022, Set Energy Company Limited called for share payment of Baht 75.5 per share, totaling Baht 162.6 million. On 5 August 2022, the subsidiary made a payment for the shares. The shareholding percentage in associate has changed from 20 percent to 23.775 percent.

On 20 February 2023, Set Energy Company Limited, called for payment for 2.153 million ordinary shares with a par value of Baht 24.5 per share, totaling Baht 52.8 million. On 27 February 2023, the subsidiary made payment for the shares. The shareholding percentage in associate has changed from 23.775 percent to 25 percent.



13. Investments in joint ventures

13.1 Details of investments in joint ventures

Investments in joint ventures represent investments in entities which are jointly controlled by the subsidiary of Provincial Electricity Authority and other companies as at 31 December 2022 and 2021. Details of these investments are as follows:

(Unit: Million Baht)

Joint venture	Nature of business	Country of incorporation	Consolidated financial statements					
			Shareholding percentage		Cost		Carrying amounts based on cost method	
			2022	2021	2022	2021	2022	2021
			(%)	(%)				
Indirectly owned								
PEA Encom Fah Chai joint venture	Install and provide service on solar power electricity generating system	Thailand	25	25	5.5	5.5	5.3	5.3
	Less: Allowance for impairment of investments				(5.5)	(5.5)	(5.3)	(5.3)
	Total				-	-	-	-

Investments in joint venture in the consolidated financial statements is the investment of PEA ENCOM International Company Limited, the subsidiary of Provincial Electricity Authority, which has entered into a joint venture agreement in the name of PEA Encom Fah Chai joint venture to install and provide service on solar power electricity generating system on 8 March 2017 and are accounted by using the equity method.

During the years ended 31 December 2022 and 2021, there was no share of other comprehensive income from investments in joint venture and there was no dividend received from the joint venture.

14. Other non-current financial assets

Other non-current financial assets represent the Group's investments details as follows:

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Equity instruments designated at FVOCI				
Listed company equity investment				
WP Energy Public Company Limited	2	2	2	2
Non-listed company equity investment				
B.Grimm Power (AIE-MTP) Company Limited	255	255	-	-
Total trade and other receivable - net	257	257	2	2

15. Other non-current receivables

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Installment receivables	48	17	43	17
Lease receivables	101	9	-	-
Receivables under finance leases	1,580	974	302	22
Total	1,729	1,000	345	39

16. Constructions in progress

(Unit: Million Baht)

	Consolidated financial statements		
	The Group's capital budget	Partially funded by electricity users	Total
As at 1 January 2021	31,656	5,012	36,668
Transfer	(639)	639	-
Acquisition - at cost	40,638	6,688	47,326
Transfer out	(34,537)	(7,788)	(42,325)
	37,118	4,551	41,669
Inventories			14,406
Work in progress			2
As at 31 December 2021			56,077
As at 1 January 2022	37,118	4,551	41,669
Acquisition - at cost	40,249	7,036	47,285
Transfer out	(33,558)	(6,675)	(40,233)
	43,809	4,912	48,721
Inventories			17,908
Work in progress			2
As at 31 December 2022			66,631

(Unit: Million Baht)

	Separate financial statements		
	Provincial Electricity Authority's capital budget	Partially funded by electricity users	Total
As at 1 January 2021	31,259	5,012	36,271
Transfer	(639)	639	-
Acquisition - at cost	40,041	6,688	46,729
Transfer out	(34,210)	(7,788)	(41,998)
	36,451	4,551	41,002
Inventories			14,406
Work in progress			2
As at 31 December 2021			55,410
As at 1 January 2022	36,451	4,551	41,002
Acquisition - at cost	39,582	7,036	46,618
Transfer out	(33,102)	(6,675)	(39,777)
	42,931	4,912	47,843
Inventories			17,908
Work in progress			2
As at 31 December 2022			65,753

Inventories presented in constructions in progress are the materials and supplies which Provincial Electricity Authority has purchased with specific purposes for use in the projects.

The Group has borrowed specific loans to construct buildings, electricity generating, and distributing systems which are eligible for qualifying assets. The borrowing costs that are directly attributable to the construction of qualifying assets and incurred from loans made for specific purposes are capitalized as cost of assets at interest rates of 1.33 to 4.90 percent per annum (2021: 0.73 to 6.53 percent per annum). Interest expenses on loans for the year ended 31 December 2022, amounting to Baht 4,075 million (2021: Baht 3,610 million) (Provincial Electricity Authority only: Baht 4,054 million, 2021: Baht 3,600 million) are capitalized as part of the cost of constructions in progress amounting to Baht 505 million (2021: Baht 615 million) (Provincial Electricity Authority only: Baht 490 million, 2021: Baht 608 million) and recognized as expenses in profit or loss amounting to Baht 3,570 million (2021: Baht 2,995 million) (Provincial Electricity Authority only: Baht 3,564 million, 2021: Baht 2,992 million).

17. Investment properties

The net book value of investment properties as at 31 December 2022 and 2021 is presented below.

(Unit: Million Baht)

	Consolidated financial statements				Separate financial statements			
	Land and land improvements	Building and building improvements	Construction in progress	Total	Land and land improvements	Building and building improvements	Construction in progress	Total
As at 31 December 2021								
Cost	117	475	49	641	117	475	-	592
Less: Accumulated depreciation	-	(140)	-	(140)	-	(140)	-	(140)
Net book value	117	335	49	501	117	335	-	452
As at 31 December 2022								
Cost	141	476	-	617	141	476	-	617
Less: Accumulated depreciation	-	(155)	-	(155)	-	(155)	-	(155)
Net book value	141	321	-	462	141	321	-	462

A reconciliation of the net book value of investment properties for the years 2022 and 2021 is presented below.

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Net book value at beginning of year	501	501	452	501
Acquisition - at cost	52	52	-	-
Transfer	(76)	(76)	25	(32)
Depreciation for the year	(15)	(15)	(15)	(17)
Net book value at end of year	462	462	462	452

Provincial Electricity Authority had rental revenue from investment properties for the year ended 31 December 2022 of Baht 22 million (2021: Baht 26 million). As at 31 December 2022, the cost value of land for lease is Baht 42 million (2021: Baht 43 million) and the cost value of building for lease is Baht 476 million (2021: Baht 475 million).

The additional information of the investment properties as at 31 December 2022 and 2021 stated below:

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
The fair value of land and land improvements	558	397	558	397
The fair value of building and building improvements	172	174	172	174
The fair value of construction in progress	-	49	-	-
Total	730	620	730	571

The fair value has been determined based on valuation announced by the Treasury Department and the fair value of construction in progress is stated at cost.

18. Property, plant, and equipment

Movements of property, plant, and equipment for the years ended 31 December 2022 and 2021 are summarized below.

(Unit: Million Baht)

	Consolidated financial statements						
	Land and land improvements	Building and building improvements	Electricity generating systems	Electricity distributing systems	Furniture, tools, and equipment	Vehicles	Total
Cost:							
1 January 2021	17,999	20,415	2,688	521,192	27,947	11,933	602,174
Additions	733	100	19	106	1,058	1,531	3,547
Received from donations	-	-	-	142	-	-	142
Transfer from construction in progress	406	1,304	28	38,289	1,258	4	41,289
Transfer	41	7	373	(50)	2	(378)	(5)
Disposals	(16)	(165)	(3)	(6,162)	(589)	(141)	(7,076)
31 December 2021	19,163	21,661	3,105	553,517	29,676	12,949	640,071
Additions	580	119	52	3	1,138	858	2,750
Received from donations	25	5	-	105	-	-	135
Transfer from construction in progress	375	659	171	35,607	1,799	-	38,611
Transfer	(18)	154	7	(107)	(56)	(5)	(25)
Disposals	(13)	(93)	(26)	(6,383)	(489)	(370)	(7,374)
31 December 2022	20,112	22,505	3,309	582,742	32,068	13,432	674,168

(Unit: Million Baht)

	Consolidated financial statements						
	Land and land improvements	Building and building improvements	Electricity generating systems	Electricity distributing systems	Furniture, tools, and equipment	Vehicles	Total
Accumulated depreciation:							
1 January 2021	1,824	7,603	1,404	269,403	17,098	8,549	305,881
Depreciation for the year	158	653	43	20,149	1,980	572	23,555
Transfer	1	4	146	(41)	1	(148)	(37)
Depreciation on disposals	(10)	(118)	(3)	(4,742)	(583)	(140)	(5,596)
31 December 2021	1,973	8,142	1,590	284,769	18,496	8,833	323,803
Depreciation for the year	170	662	125	21,147	2,193	672	24,969
Transfer	1	81	3	(24)	(61)	-	-
Depreciation on disposals	(8)	(71)	(26)	(5,038)	(509)	(370)	(6,022)
31 December 2022	2,136	8,814	1,692	300,854	20,119	9,135	342,750
Net book value:							
31 December 2021	17,190	13,519	1,515	268,748	11,180	4,116	316,268
31 December 2022	17,976	13,691	1,617	281,888	11,949	4,297	331,418

Depreciation for the year

2021 (Baht 275 million included in construction in progress cost, and the balance in statement of profit or loss)	23,280
2022 (Baht 288 million included in construction in progress cost, and the balance in statement of profit or loss)	24,681

(Unit: Million Baht)

	Separate financial statements						
	Land and land improvements	Building and building improvements	Electricity generating systems	Electricity distributing systems	Furniture, tools, and equipment	Vehicles	Total
Cost:							
1 January 2021	17,999	20,415	2,688	521,188	27,940	11,931	602,161
Additions	733	99	19	121	1,056	1,531	3,559
Asset received from donations	-	-	-	142	-	-	142
Transfer from construction in progress	406	1,304	28	38,289	1,258	4	41,289
Transfer	41	7	373	(50)	2	(378)	(5)
Disposals	(16)	(165)	(3)	(6,162)	(589)	(141)	(7,076)
31 December 2021	19,163	21,660	3,105	553,528	29,667	12,947	640,070
Additions	580	119	52	6	1,134	858	2,749
Asset received from donations	25	5	-	105	-	-	135
Transfer from construction in progress	375	659	171	35,607	1,799	-	38,611
Transfer	(18)	154	7	(107)	(56)	(5)	(25)
Disposals	(13)	(93)	(26)	(6,383)	(489)	(370)	(7,374)
31 December 2022	20,112	22,504	3,309	582,756	32,055	13,430	674,166

(Unit: Million Baht)

	Consolidated financial statements				Separate financial statements		
	Land and land improvements	Building and building improvements	Electricity generating systems	Electricity distributing systems	Furniture, tools, and equipment	Vehicles	Total
Accumulated depreciation:							
1 January 2021	1,824	7,603	1,404	269,402	17,094	8,549	305,876
Depreciation for the year	158	653	43	20,148	1,979	572	23,553
Transfer	1	4	146	(41)	1	(148)	(37)
Depreciation on disposals	(10)	(118)	(3)	(4,742)	(583)	(140)	(5,596)
31 December 2021	1,973	8,142	1,590	284,767	18,491	8,833	323,796
Depreciation for the year	170	662	125	21,146	2,191	672	24,966
Transfer	1	81	3	(24)	(61)	-	-
Depreciation on disposals	(8)	(71)	(26)	(5,038)	(509)	(370)	(6,022)
31 December 2022	2,136	8,814	1,692	300,851	20,112	9,135	342,740
Net book value:							
31 December 2021	17,190	13,518	1,515	268,761	11,176	4,114	316,274
31 December 2022	17,976	13,690	1,617	281,905	11,943	4,295	331,426

Depreciation for the year

2021 (Baht 275 million included in construction in progress cost, and the balance in statement of profit or loss)	23,278
2022 (Baht 288 million included in construction in progress cost, and the balance in statement of profit or loss)	24,678

As at 31 December 2022, certain items of building and equipment were fully depreciated but are still in use. The gross carrying amount before deducting accumulated depreciation of those assets amounted to approximately Baht 114,096 million (2021: Baht 104,673 million) (Provincial Electricity Authority only: Baht 114,093 million, 2021: Baht 104,672 million).

19. Intangible assets

The net book value of intangible assets as at 31 December 2022 and 2021 is presented below.

(Unit: Million Baht)

	Consolidated financial statements			Separate financial statements		
	Computer software licenses	Computer software	Total	Computer software licenses	Computer software	Total
As at 31 December 2021						
Cost	5,032	2,398	7,430	5,027	2,398	7,425
Less: Accumulated amortization	(3,999)	(840)	(4,839)	(3,998)	(840)	(4,838)
Net book value	1,033	1,558	2,591	1,029	1,558	2,587
As at 31 December 2022						
Cost	5,771	3,069	3,069	5,765	3,069	8,834
Less: Accumulated amortization	(4,440)	(1,411)	(1,411)	(4,438)	(1,411)	(5,849)
Net book value	1,331	1,658	1,658	1,327	1,658	2,985

A reconciliation of the net book value of intangible assets for the years 2022 and 2021 is presented below.

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Net book value at beginning of year	2,591	2,670	2,587	2,667
Acquisition - cost	256	66	255	63
Transfers from construction in progress	1,166	709	1,166	709
Amortization for the year	(1,024)	(854)	(1,023)	(852)
Net book value at end of year	2,989	2,591	2,985	2,587

As at 31 December 2022, certain items of Computer software licenses were fully amortized but are still in use. The gross carrying amount before deducting accumulated amortization of those assets amounted to approximately Baht 3,343 million (2021: Baht 3,329 million) (Provincial Electricity Authority only: Baht 3,342 million, 2021: Baht 3,328 million).

20. Trade and other payables

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Trade payables - unrelated parties	61,180	42,796	61,099	42,731
Trade payables - related party (Note 6)	109	72	101	73
Other payables - unrelated parties	1,431	1,304	1,421	1,294
Other payables - related party (Note 6)	-	-	9	22
Accrued interest expenses	983	938	983	938
Accrued expenses - unrelated parties	2,740	3,222	2,615	2,841
Accrued expenses - related party (Note 6)	-	-	3	29
Unearned revenues - unrelated parties	148	235	148	235
Total trade and other payables	66,591	48,567	66,379	48,163

21. Long-term loans

(Unit: Million Baht)

	Interest rate	Repayment schedule	Consolidated financial statements		Separate financial statements	
			2022	2021	2022	2021
(% per annum)						
Domestic long-term loans						
The Ministry of Finance	No interest charge	1988 - 2031	114	133	114	133
Bonds	1.33 - 4.90	2007 - 2042	138,514	127,013	138,514	127,013
Financial institutions	1.4453 - 2.1106	2021 - 2031	3,949	1,031	3,000	-
Foreign long-term loans						
Financial institutions	8.00*	2007 - 2023	36	75	36	75
Total			142,613	128,252	141,664	127,221
Less: Current portion			(9,451)	(5,636)	(9,352)	(5,554)
Long-term loans, net of current portion			133,162	122,616	132,312	121,667

* Borrowing interest rate of 8 percent per annum under the loan contract includes interest expense that Provincial Electricity Authority paid into KFW special fund at the rate of 6 percent per annum. The objective is to be used to develop the personnel of Provincial Electricity Authority. Another 2 percent per year is paid to lenders.

Movements of the long-term loan account for the years ended 31 December 2022 and 2021 are summarized as follows:

(Unit: Million Baht)

	Consolidated financial statements					
	2022					
	Balance as at 1 January 2022	Additions during year	Decreases during year	Unrealized gain on foreign exchange	Premium amortize	Balance as at 31 December 2022
Domestic long-term loans						
The Ministry of Finance	133	-	(18)	(2)	1	114
Bonds	127,013	17,000	(5,500)	-	1	138,514
Financial institutions	1,031	3,000	(83)	-	1	3,949
Foreign long-term loans						
Financial institutions	75	-	(37)	(2)	-	36
Total	128,252	20,000	(5,638)	(4)	3	142,613

(Unit: Million Baht)

	Consolidated financial statements					
	2021					
	Balance as at 1 January 2021	Additions during year	Decreases during year	Unrealized gain on foreign exchange	Premium amortize	Balance as at 31 December 2021
Domestic long-term loans						
The Ministry of Finance	133	-	(16)	15	1	133
Bonds	104,197	28,000	(5,190)	-	6	127,013
Financial institutions	3,343	688	(3,000)	-	-	1,031
Foreign long-term loans						
Financial institutions	109	-	(36)	2	-	75
Total	107,782	28,688	(8,242)	17	7	128,252

(Unit: Million Baht)

	Separate financial statements					
	2022					
	Balance as at 1 January 2022	Additions during year	Decreases during year	Unrealized gain on foreign exchange	Premium amortize	Balance as at 31 December 2022
Domestic long-term loans						
The Ministry of Finance	133	-	(18)	(2)	1	114
Bonds	127,013	17,000	(5,500)	-	1	138,514
Financial institutions	-	3,000	-	-	-	3,000
Foreign long-term loans						
Financial institutions	75	-	(37)	(2)	-	36
Total	127,221	20,000	(5,555)	(4)	2	141,664

(Unit: Million Baht)

	Separate financial statements					
	2021					
	Balance as at 1 January 2021	Additions during year	Decreases during year	Unrealized gain on foreign exchange	Premium amortize	Balance as at 31 December 2021
Domestic long-term loans						
The Ministry of Finance	133	-	(16)	15	1	133
Bonds	104,197	28,000	(5,190)	-	6	127,013
Financial institutions	3,000	-	(3,000)	-	-	-
Foreign long-term loans						
Financial institutions	109	-	(36)	2	-	75
Total	107,439	28,000	(8,242)	17	7	127,221

During the year, Provincial Electricity Authority issues PEA bonds B.E. 2565 and B.E. 2566, and enter into long-term loan agreements with financial institutions summarized as follows:

No.	Facility	Issued date	Maturity date	Interest rate	Interest payment term
	(Million Baht)			(% per annum)	
No.4/2565	6,000	29 June 2022	29 June 2032	3.79	Every six months
No.5/2565	2,400	20 September 2022	20 March 2033	3.75	Every six months
No.6/2565	3,600	20 September 2022	20 September 2042	4.57	Every six months
No.1/2566	5,000	30 November 2022	30 November 2034	4.00	Every six months

On 29 June 2022, Provincial Electricity Authority entered into a loan agreement with a domestic bank of credit facilities Baht 1,000 million, which is fully drawdown. The interest rate is based on the short-term interest rate in six-month Bangkok Interbank Offered Rate (six-month BIBOR) plus 0.369 percent per annum. Principal repayment is due within 3 years and the interest period is due every six months, which is due on 30 June 2025.

On 19 September 2022, Provincial Electricity Authority entered into a loan agreement with a domestic bank of credit facilities Baht 2,000 million, which is fully drawdown. The interest rate is based on the short-term interest rate in six-month Bangkok Interbank Offered Rate (six-month BIBOR) plus 0.25 percent per annum. Principal repayment is due within 1 year 3 months and the interest period is due every six months, which is due on 20 December 2023.

Long-term loan from a foreign financial institution of Provincial Electricity Authority secured by the Ministry of Finance.

Long-term loan from a domestic financial institution of the subsidiary is secured by the assets of the distribution and installation of generating electricity from Solar Power project (Solar Rooftop) presented as other non-current receivables in the statement of financial position. In addition, the subsidiary has to comply with certain requirements as stipulated in the agreement, which includes maintaining financial ratios as stipulated in the contract.

On 29 September 2022, the subsidiary entered into a long-term loan agreement with a bank of Baht 800 million. The principal repayment begins on the last working day of the 12th month from the first loan drawdown month and fully repayment within 144 months of the loan drawdown month. The interest rate is based on the short-term interest rate in six-month Bangkok Interbank Offered Rate (six-month BIBOR) plus 2.10 percent per annum. The long-term loan is unsecured. In addition, the subsidiary must comply with certain requirements as specified in the agreement, including maintaining of Provincial Electricity Authority's shareholding percentage, which is not less than 100 percent shareholding of the subsidiary's shares.

As at 31 December 2022, the long-term credit facilities and other credit facilities of the Group which have not yet been drawn down amounted to Baht 3,800 million (2021: Baht 3,118 million) (Provincial Electricity Authority only: Baht 3,000 million, 2021: Baht 3,000 million).

On 20 February 2023, the subsidiary amended the terms of principal repayment, from the repayment of 0.8 percent on the drawdown amount for installments 1st - 125th and the remaining is to be paid in the 126th installment as follows:

Due Repayment Installment Date	Amount of Installment
1 - 11	0.8% of the withdrawn loan amount
12 - 22	0.3% of the withdrawn loan amount
23 - 34	0.5% of the withdrawn loan amount
35 - 82	0.8% of the withdrawn loan amount
83 - 125	0.9% of the withdrawn loan amount
126	All the remaining amount

Moreover, it changed the interest rate from BIBOR plus 1.4 percent throughout the term of the contract to:

Period	Interest Rate (% per year)
a. First withdrawal of loan to the last workday of January 2023	BIBOR plus 1.4
b. The end of "a" period to April 2023	BIBOR plus 1.35
c. The end of "b" period	BIBOR plus 1.4

22. Leases

22.1 The Group as a lessee

The Group has lease contracts for various items of land, buildings, vehicles, and others used in its operations. Leases generally have lease terms between 1 - 19 years.

22.1.1 Right-of-use assets

Movements of right-of-use assets for the years ended 31 December 2022 and 2021 are summarized below:

(Unit: Million Baht)

	Consolidated financial statements						
	Land and land improvements	Building and construction	Electricity generating systems	Furniture, tools, and equipment	Vehicles	Intangible assets	Total
As at 1 January 2021	101	103	46	7	1,372	11	1,640
Additions	89	63	-	-	838	-	990
Decrease from contract termination	(2)	(2)	-	-	(2)	-	(6)
Depreciation for the year	(53)	(73)	(24)	(3)	(567)	(2)	(722)
As at 31 December 2021	135	91	22	4	1,641	9	1,902
Additions	35	51	34	-	794	-	914
Decrease from contract termination	-	(2)	-	-	-	-	(2)
Depreciation for the year	(56)	(68)	(24)	(3)	(618)	(2)	(771)
Transfer	(25)	-	-	-	-	-	(25)
As at 31 December 2022	89	72	32	1	1,817	7	2,018

(Unit: Million Baht)

	Separate financial statements						
	Land and land improvements	Building and construction	Electricity generating systems	Furniture, tools, and equipment	Vehicles	Intangible assets	Total
As at 1 January 2021	101	84	46	7	1,370	11	1,619
Additions	58	63	-	-	835	-	956
Decrease from contract termination	(1)	(2)	-	-	(2)	-	(5)
Depreciation for the year	(52)	(69)	(24)	(3)	(566)	(2)	(716)
As at 31 December 2021	106	76	22	4	1,637	9	1,854
Additions	35	51	34	-	794	-	914
Decrease from contract termination	-	(2)	-	-	-	-	(2)
Depreciation for the year	(52)	(63)	(24)	(3)	(617)	(2)	(761)
As at 31 December 2022	89	62	32	1	1,814	7	2,005

22.1.2 Lease liabilities

(Unit: Million Baht)

	Consolidated financial statements	
	2022	2021
Lease payments	2,865	2,226
Less: Deferred interest expenses	(359)	(110)
Total	2,506	2,116
Less: Portion due within one year	(914)	(852)
Lease liabilities - net of current portion	1,592	1,264

(Unit: Million Baht)

	Separate financial statements	
	2022	2021
Lease payments	2,829	2,170
Less: Deferred interest expenses	(355)	(104)
Total	2,474	2,066
Less: Portion due within one year	(908)	(841)
Lease liabilities - net of current portion	1,566	1,225

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Balance at beginning of year	2,116	1,833	2,066	1,811
Additions	914	990	914	956
Accretion of interest	65	70	62	69
Repayments	(589)	(777)	(568)	(770)
Balance at end of year	2,506	2,116	2,474	2,066

A maturity analysis of lease payments is disclosed in Note 38.1 under the liquidity risk.

22.1.3 Expenses relating to leases that are recognized in profit or loss

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Depreciation expense of right-of-use assets	771	722	761	716
Interest expense on lease liabilities	65	70	62	69
Expense relating to short-term leases	158	41	158	40
Expense relating to leases of low-value assets	2	2	2	2
Expense relating to variable lease payments that do not depend on an index or a rate	27	32	27	31

22.1.4 Others

The Group had total cash outflows for leases for the year ended 31 December 2022 of Baht 776 million (2021: Baht 852 million) (Provincial Electricity Authority only: Baht 755 million, 2021: Baht 843 million), including the cash outflow related to short-term lease, leases of low-value assets, and variable lease payments that do not depend on an index or a rate.

22.2 Group as a lessor

The Group has entered into finance leases for its generating electricity from solar rooftop system of the lease terms are between 10 - 25 years.

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Undiscounted lease payments receivable under finance leases				
Within 1 year	142	100	26	2
Over 1 and up to 5 years	537	382	101	7
Over 5 years	1,633	1,049	441	32
Total	2,312	1,531	568	41
Less: Deferred interest income	(647)	(509)	(258)	(18)
Net investment in the finance leases	1,665	1,022	310	23
Less: Allowance for expected credit losses	-	(24)	-	-
Net	1,665	998	310	23

23. Accrued remittance to the Ministry of Finance

Movements of accrued remittance to the Ministry of Finance for the years ended 31 December 2022 and 2021 are summarized as follows:

(Unit: Million Baht)

	Consolidated and separate financial statements	
	2022	2021
Balance at beginning of year	12,163	15,855
Adjustment for remittance to the Ministry of Finance for the year 2022	-	(4,043)
Adjustment for remittance to the Ministry of Finance for the year 2021	(1)	-
Reserve for remittance to public revenues	9,355	7,854
Remit to public revenues during the year	(11,288)	(7,503)
Balance at end of year	10,229	12,163

The Ministry of Finance requires Provincial Electricity Authority to allocate net profit to the Ministry of Finance as state revenue remittance at the rate of 50 percent of net profit before deducting bonus expenses or at the remittance amount specified in the Annual Budget Appropriation Act of the Budget Bureau, Office of the Prime Minister.

During the year 2022, Provincial Electricity Authority has to reserve for remittance to public revenue as stipulated in the Annual Budget Expenditure Act, Budget B.E. 2566

On 7 June 2022, the State Enterprise Policy Office approved that Provincial Electricity Authority is to remit the state revenue for the year 2021 of Baht 7,854 million to the Ministry of Finance. Provincial Electricity Authority remits the remaining amount after deducting of the state revenue for the half-year 2021 of Baht 203 million, which was already delivered in 2021. During the year 2022, Provincial Electricity Authority already remitted to the Ministry of Finance. Therefore, Provincial Electricity Authority adjusted the revenue projection of Baht 0.15 million.

On 18 October 2022, the State Enterprise Policy Office approved that Provincial Electricity Authority is to remit the state revenue for the half-year 2022 of Baht 3,637 million. During the year 2022, Provincial Electricity Authority already remitted to the Ministry of Finance.

24. Deposits payable

(Unit: Million Baht)

	Consolidated and separate financial statements	
	2022	2021
Pending repayment electricity usage guarantee	127	133
Other deposits payable	255	214
Total deposits payable	382	347

25. Other current liabilities

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Retentions and deposits	2,670	442	2,644	435
Undue output tax	3,419	2,809	3,414	2,809
Suspense accounts	145	143	145	143
Total other current liabilities	6,234	3,394	6,203	3,387

26. Provisions for litigations

(Unit: Million Baht)

	Consolidated and separate financial statements	
	2022	2021
Balance at beginning of year	429	370
Increase	15	86
Decrease	(176)	(27)
Balance at end of year	268	429

As at 31 December 2022, provisions for litigations have been set up for lawsuits relates to litigation in which compensation claims have been lodged against Provincial Electricity Authority. Provincial Electricity Authority has assessed the status of these lawsuits and expects to have provision for liabilities under 74 cases (2021: 77 cases), consisting of 37 cases in which full compensation of the claims is expected to be set up and 37 cases in which the compensation is expected to be less than the claims.

During the current year, Provincial Electricity Authority reversed the provisions for litigations by 19 cases, totaling Baht 176 million because Central Administrative Court, the Labor Court, dismissed the lawsuits or ruled for compensation. There was 1 case in which the Central Administrative Court ruled for compensation Baht 90 million, with claims amounting to Baht 183 million. However, this case is currently under trial by the Supreme Administrative Court.

27. Construction obligations

As at 31 December 2022, the group had construction obligations of Baht 6,502 million (2021: Baht 5,999 million) (Provincial Electricity Authority only: Baht 6,503 million, 2021: Baht 6,000 million) from Provincial Electricity Authority receiving payment to expand the electricity distributing areas for electricity users which the electricity users have fully or partially funded the construction costs. The ownership of the assets belongs to Provincial Electricity Authority.

28. Deferred revenue

(Unit: Million Baht)

	Consolidated and separate financial statements	
	2022	2021
Contributions for construction	54,689	54,753
Deferred revenues from transferring of assets	1,252	1,270
Deferred revenues from rental	307	322
Deferred revenues from services	122	128
Deferred revenues from energy management	98	4
Deferred revenues from donation	185	182
Total deferred revenue	56,653	56,659

29. Electricity usage guarantee

(Unit: Million Baht)

	Consolidated and separate financial statements	
	2022	2021
Specific-purpose deposits at financial institutions (Note 10)	24,329	23,548
Suspense saving accounts	139	37
Total deferred revenue	24,468	23,585



Movements of Electricity usage guarantee for the years ended 31 December 2022 and 2021 are summarized as follows:

(Unit: Million Baht)

	Consolidated and separate financial statements	
	2022	2021
Balance at beginning of year	23,585	23,290
Increase from electricity usage guarantee	3,055	2,550
Decrease in refunding of electricity usage guarantee	(67)	(230)
Decrease in offset with unpaid electricity bills	(402)	(714)
Decrease in electricity usage cancellation or changing collateral from cash to bank guarantees	(1,656)	(1,282)
Transfer guarantees to income	(47)	(29)
Balance at end of year	24,468	23,585

Electricity usage guarantee is the money that electricity users deposit to Provincial Electricity Authority for guarantee of electricity usage. Provincial Electricity Authority deposits into the bank account named “Electricity Usage Guarantee Fund” to reserve fund for refunding of electricity usage guarantee to electricity users. Any interest income earned is separately deposited in the bank account named “Interest from Electricity Usage Guarantee Fund”. Provincial Electricity Authority will use interest of the fund to be repaid as interest on deposit for electricity usage guarantee to the electricity users according to the requirement of the Energy Regulatory Commission and will use in activities for public interests and/or beneficial activities for electricity users.

Provincial Electricity Authority has set the Regulation on Supervision of Electricity Usage Guarantee Fund, B.E. 2557 and appointed the committee which is responsible for supervising and controlling an operation of Electricity Usage Guarantee Fund and interest from Electricity Usage Guarantee Fund. Provincial Electricity Authority has to make fund transfer at the amount equal to the net increase in electricity usage guarantee for each month to the Electricity Usage Guarantee Fund account. In case of working capital deficiency or liquidity difficulty, Provincial Electricity Authority can use the electricity usage guarantee fund as a working capital under consideration and approval of the Board of Directors of Provincial Electricity Authority. Then, Provincial Electricity Authority will be required to repay to electricity usage guarantee fund for not less than Baht 100 million on each month by depositing into the “Electricity Usage Guarantee Fund” account until the amount is fully covered. Also, Provincial Electricity Authority is required to make a payment of interest at the interest rate of saving accounts for state enterprises specified by Krung Thai Bank Public Company Limited by depositing into the Interest from “Electricity Usage Guarantee Fund”. In case of working capital deficiency or liquidity difficulty, the repayment can be postponed under the approval of the Governor and should be reported to the Board of Directors.

30. Provision for long-term employee benefits

Provision for long-term employee benefits as at 31 December 2022 and 2021 are as follows:

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Provision for long-term post employee benefits	14,754	15,884	14,750	15,882
Provision for special post employee benefit	413	219	413	219
Provision for long service year award	565	151	565	151
Total	15,732	16,254	15,728	16,252



Provision for long-term employee benefits are presented as follows:

(Unit: Million Baht)

	Consolidated financial statements					
	2022			2021		
	Post-employment benefits	Other long-term employee benefits	Total	Post-employment benefits	Other long-term employee benefits	Total
Provision for long-term employee benefits at beginning of year	16,103	151	16,254	17,678	201	17,879
Included in profit or loss:						
Current service cost	1,010	17	1,027	1,161	20	1,181
Interest cost	346	3	349	292	4	296
Past service costs and gains or losses on settlement	146	(1)	145	196	196	195
Actuarial loss	-	440	440	-	-	-
Included in other comprehensive income:						
Actuarial loss (gain) arising from						
Demographic assumptions changes	(57)	-	(57)	-	-	-
Financial assumptions changes	(1,304)	-	(1,304)	(1,603)	(31)	(1,634)
Experience adjustments	398	-	398	-	-	-
Benefits paid during the year	(1,475)	(45)	(1,520)	(1,621)	(42)	(1,663)
Provision for long-term employee benefits at end of year	15,167	565	15,732	16,103	151	16,254

(Unit: Million Baht)

	Separate financial statements					
	2022			2021		
	Post-employment benefits	Other long-term employee benefits	Total	Post-employment benefits	Other long-term employee benefits	Total
Provision for long-term employee benefits at beginning of year	16,101	151	16,252	17,676	201	17,877
Included in profit or loss:						
Current service cost	1,009	17	1,026	1,161	20	1,181
Interest cost	345	3	348	292	4	296
Past service costs and gains or losses on settlement	146	(1)	145	196	(1)	195
Actuarial loss	-	440	440	-	-	-
Included in other comprehensive income:						
Actuarial loss (gain) arising from						
Demographic assumptions changes	(57)	-	(57)	-	-	-
Financial assumptions changes	(1,304)	-	(1,304)	(1,603)	(31)	(1,634)
Experience adjustments	398	-	398	-	-	-
Benefits paid during the year	(1,475)	(45)	(1,520)	(1,621)	(42)	(1,663)
Provision for long-term employee benefits at end of year	15,163	565	15,728	16,101	151	16,252

During the year 2022, Provincial Electricity Authority has approved an amendment to change the annual cumulative vacation schedule for retired employees from 35 days to 40 days. The change is considered being an amendment of the retirement benefit scheme and resulted in an increase of Baht 162 million in Provincial Electricity Authority's long-term employee benefit reserve. Provincial Electricity Authority recorded the impact of the change by recognizing past service costs as an expense immediately in the statement of comprehensive income.

The Group expects to pay Baht 1,316 million of long-term employee benefits during the next year (2021: Baht 1,512 million) (Provincial Electricity Authority only: Baht 1,316 million, 2021: Baht 1,512 million).

As at 31 December 2022, the weighted average duration of the liabilities for long-term employee benefit is 21.2 years (2021: 20.5 years) (Provincial Electricity Authority only: 21.2 years, 2021: 20.5 years).

Significant actuarial assumptions are summarized below:

(Unit: % per annum)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Discount rate	2.15 - 3.36	2.15 - 2.54	3.36	2.54
Inflation rate	2.00	2.00	2.00	2.00
Salary increase rate	7.00 - 8.00	7.00 - 9.00	7.00 - 8.00	7.00 - 9.00
Turnover rate	0.00 - 10.00	0.00 - 8.00	0.20 - 10.00	0.20 - 8.00
Mortality rate	Thai mortality table 2017 with 3% adjustment of mortality rate	Thai mortality table 2017 with 3% adjustment of mortality rate	Thai mortality table 2017 with 3% adjustment of mortality rate	Thai mortality table 2017 with 3% adjustment of mortality rate

The result of sensitivity analysis for significant assumptions that affect the present value of the long-term employee benefit obligation as at 31 December 2022 and 2021 are summarized below:

(Unit: Million Baht)

	2022				
	(%)	Consolidated financial statements		Separate financial statements	
		Increase	Decrease	Increase	Decrease
Discount rate	1	(1,507)	1,809	(1,507)	1,808
Inflation rate	1	105	(91)	105	(91)
Salary increase rate	1	1,771	(1,506)	1,771	(1,506)
Turnover rate	20*	(102)	107	(102)	106
Mortality rate	1	72	(84)	72	(84)

* percent of assumptions

(Unit: Million Baht)

	2021				
	(%)	Consolidated financial statements		Separate financial statements	
		Increase	Decrease	Increase	Decrease
Discount rate	1	(1,668)	2,025	(1,668)	2,025
Inflation rate	1	60	(51)	60	(51)
Salary increase rate	1	2,355	(1,967)	2,355	(1,966)
Turnover rate	20*	(132)	139	(132)	138
Mortality rate	1	80	(92)	80	(192)

* percent of assumptions

31. Revenue from contracts with customers

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Type of goods or service:				
Sale of electricity	578,469	483,747	578,469	483,747
Construction service income	4,422	3,840	4,014	3,840
Rendering of services	10,326	10,081	10,283	9,660
Total revenue from contracts with customers	593,217	497,668	592,766	497,247

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Timing of revenue recognition:				
Revenue recognized at a point in time	3,436	3,263	3,393	2,836
Revenue recognized over time	589,781	494,405	589,373	494,411
Total revenue from contracts with customers	593,217	497,668	592,766	497,247

Set out below is a reconciliation of the revenue from contracts with customers with the amounts disclosed in Note 34 relating to the segment information:

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
External customers	593,217	497,668	592,766	497,247
Inter-segment	73	398	-	-
	593,290	498,066	592,766	497,247
Adjustments and eliminations	(73)	(398)	-	-
Total revenue from contracts with customers	593,217	497,668	592,766	497,247

Assistance and support in accordance with relief measures entities impacted by COVID-19

On 1 June 2021, the Cabinet acknowledged and approved of the resolutions passed by the Loan Expenditure Screening Committee in the meetings No. 17/2021 and No. 18/2021 with respect to measures to relieve the obligation on cost of basic utilities due to the new outbreak of the COVID-19 (electricity and water supply expenses) of the Ministry of Interior by the financial support from financial sources as per the Emergency Decree Authorizing the Ministry of Finance to Raise Loans to Solve Problems, to Remedy and Restore the Economy and Society as Affected by the Coronavirus Disease Pandemic, B.E. 2563 (2019) (the Emergency Decree) whereby Provincial Electricity Authority received Baht 3,390 million on 9 July 2021.

On 17 August 2021, the Cabinet approved the resolution passed by the Loan Expenditure Screening Committee in the meeting No. 29/2021 in accordance with the Emergency Decree whereby Provincial Electricity Authority received Baht 6,154 million on 28 September 2021.

On 9 November 2021, the Cabinet approved the resolution passed by the Loan Expenditure Screening Committee in the meeting No. 13/2021 in accordance with the Emergency Decree B.E. 2564, whereby Provincial Electricity Authority received Baht 10,293 million on 24 December 2021.

Assistance and support in accordance with measures to relieve impacts from the rising energy prices situation

On 10 May 2022, the Cabinet passed a resolution approving a budget for urgent measures to mitigate the impacts on people from the energy price situation caused by conflicts in the European region. In the meetings held on 29 March 2022, and 19 April 2022, measures to reduce Ft for residential user type 1: a residential user and type 2: a small business user (excluding government agencies and state-owned enterprises) with electricity consumption not exceeding 300 units per month for 4 months from the monthly electricity bills from May to August 2022 by expending the funds from Annual Budget Expenditure Act, Budget B.E. 2565, the central fund, and the reserve for emergencies or necessities. The Provincial Electricity Authority is eligible for a total budget of Baht 1,485 million, and fully received such amount in 2022.

On 13 September 2022, the Cabinet passed a resolution approving the Ministry of Energy's proposed measures to mitigate electricity impacts for measures to reduce Ft for residential user type 1: a residential user with electricity consumption not exceeding 500 units per month for 4 months from the monthly electricity bills from September to December 2022 by expending the funds from Annual Budget Expenditure Act, Budget B.E. 2022, the central fund, and the reserve for emergencies or necessities for the electricity bill for September 2022, and expending the funds from Annual Budget Expenditure Act, Budget B.E. 2023, the central fund, and the reserve for emergencies or necessities for electricity bills from October 2022 to December 2022. The Provincial Electricity Authority is eligible for a total budget of Baht 6,346 million, the portion of Baht 1,601 million was received on 3 October 2022, and the remaining portion of Baht 4,745 million was received in January 2023.

Power Development Fund subsidies to support underprivileged power consumers under Section 97(1)

In accordance with the resolution of the National Energy Policy Council on 13 August 2015, the Provincial Electricity Authority is to provide electricity subsidies to non-juristic residential households with installed meters of not exceeding 5 amps and with electricity consumption not exceeding 50 units per month, for a consecutive period of not less than 3 months. The subsidies will be disbursed by the Power Development Fund under Section 97(1). For the year ended 31 December 2022 amounted to Baht 2,430 million (2021: Baht 1,950 million).

On 7 March 2023, the Energy Regulatory Commission (ERC) approved the consideration outcome for the financial position (actual values) for the year 2021, with the Provincial Electricity Authority having a return of excess benefits of Baht 695 million. The accrued revenue for 2021 of the Power Development Fund subsidies to support underprivileged power consumers under Section 97(1) of Baht 593 million will be deducted. The return of the remaining benefits will be retained by the Provincial Electricity Authority as a reserve until further notice by the Energy Regulatory Commission ERC.

Rendering of services

Provincial Electricity Authority has received a license to operate the third type of telecommunication business No. 3n/50/003 (fiber optic) since 1 March 2007 from Office of The National Broadcasting and Telecommunications Commission, which recognized as service income. During the years ended 31 December 2022, Provincial Electricity Authority has recognized sales and service revenues amounting to Baht 140 million (2021: Baht 136 million).

Provincial Electricity Authority has received a license to operate broadcasting and television business No. B1-F22051-0004-56 in providing assistance on broadcasting and television. The service includes a rental of an electric pole for putting up cable line by Office of The National Broadcasting and Telecommunications Commission beginning from 16 December 2013 to 15 December 2028. During the years ended 31 December 2022, Provincial Electricity Authority has revenues on rental of electric pole for putting up cable line from Cable TVs business amounting to Baht 14 million (2021: Baht 15 million).

32. Revenue compensation

With respect to sending contributions to and disbursement of money from the Power Development Fund under Section 97(1) and Section 97 paragraph two for revenue compensation among power utilities that are Provincial Electricity Authority, Metropolitan Electricity Authority, and Electricity Generating Authority of Thailand to enhance extensive electrification and to support the policy on development decentralization to provincial areas, Metropolitan Electricity Authority is required to remit contributions to the Power Development Fund in accordance with Section 97(1) and Section 97 paragraph two on a monthly basis or equivalent to Baht 1,000 million per month, in accordance with the Order of the Energy Regulatory Commission No. 28/2022 dated 24 February 2022 (2021: equivalent to Baht 959 million per month in accordance with the Order of the Energy Regulatory Commission No. 4/2021 dated 22 January 2021). Provincial Electricity Authority can request to disburse from the Power Development Fund in compliance with Section 97(1) and Section 97 paragraph two in the amount equal to the amount that Metropolitan Electricity Authority has contributed to the Power Development Fund each month. For the year ended 31 December 2022, the amount that Provincial Electricity Authority disbursed from the Power Development Fund in this matter was Baht 12,000 million (2021: Baht 11,508 million).

On 22 June 2021, the Energy Regulatory Commission (ERC) resolved to acknowledge the results of the calculation of the financial position. (preliminary actual value) for the year 2020. In calculating the return of the difference, the return amount of Baht 590 million for accrued income for the year 2019 shall be net, with the results of the calculation of the financial position. Therefore, Provincial Electricity Authority recorded a reduction in revenue compensation with such amount.

33. Finance cost

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Interest expenses on borrowings	3,572	2,997	3,566	2,993
Interest expenses on lease liabilities	65	70	62	69
Total	3,637	3,067	3,628	3,062

34. Segment information

Operating segment information is reported in a manner consistent with Provincial Electricity Authority's internal reports that are regularly reviewed by the chief operating decision maker in order to make decisions about the allocation of resources to the segment and assess its performance.

For management purposes, the Group is organized into business units by region and have five reportable segments as follows:

- North
- Northeast
- Central region
- South
- Head office

The Group has aggregated the operating segments presented them as the reportable segment. The aggregated operating segments have similar economic characteristics and are similar in the other respects required by the standard.

The chief operating decision maker monitors the operating results of the business units separately for the purpose of making decisions about resource allocation and assessing performance. Provincial Electricity Authority segment performance is measured based on operating profit or loss and total assets and on a basis consistent with that used to measure operating profit or loss and total assets in the financial statements.

The basis of accounting for any transactions between reportable segments is consistent with that for third party transactions.

The following tables present revenue and profit and total assets/total liabilities information regarding the Group's operating segments.



Total assets/total liabilities information regarding the group's operating segments as at 31 December 2022 and 2021 are as follows:

(Unit: Million Baht)

	Northern		Northeastern		Central		Southern		Head Office		Elimination		Consolidated financial statements	
	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
	Assets													
Trade receivables	8,666	6,157	9,501	6,734	26,886	21,269	9,563	7,669	7,908	4,669	(18)	(57)	62,506	46,441
Other current assets	299	686	295	545	531	864	438	677	53,383	57,211	(1)	-	54,945	59,983
Property, plant, and equipment	70,579	67,854	74,888	71,171	107,749	101,081	72,397	70,797	5,822	5,379	(17)	(14)	331,418	316,268
Other non-current assets	12,811	9,371	15,643	12,910	15,666	15,522	14,026	11,145	21,627	17,993	(3,766)	(3,053)	76,007	63,888
Total assets	92,355	84,068	100,327	91,360	150,832	138,736	96,424	90,288	88,740	85,252	(3,802)	(3,124)	524,876	486,580
Liabilities and equity														
Current liabilities	75,115	65,699	88,938	77,293	(300,991)	(284,210)	39,375	32,849	183,283	174,772	(18)	(57)	85,702	66,346
Long-term loans	-	-	-	-	-	-	-	-	142,613	128,252	-	-	142,613	128,252
Other non-current liabilities	18,566	18,534	25,044	25,017	39,142	38,219	19,575	19,682	5,465	4,874	(4)	(2)	107,788	106,324
Total liabilities	93,681	84,233	113,982	102,310	(261,849)	(245,991)	58,950	52,531	331,361	307,898	(22)	(59)	336,103	300,922
Equity	(1,326)	(165)	(13,655)	(10,950)	412,681	384,727	37,474	37,757	(242,621)	(222,646)	(3,780)	(3,065)	188,773	185,658
Total liabilities and equity	92,355	84,068	100,327	91,360	150,832	138,736	96,424	90,288	88,740	85,252	(3,802)	(3,124)	524,876	486,580

Operating results information regarding operating segments as at 31 December 2022 and 2021 are as follows:

(Unit: Million Baht)

	Northern		Northeastern		Central		Southern		Head Office		Elimination		Consolidated financial statements	
	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
Statement of comprehensive income														
Sales and Rendering of services	88,799	75,663	100,274	86,253	305,537	254,151	97,762	80,699	918	1,300	(73)	(398)	593,217	497,668
Revenue compensations	1,769	1,628	2,012	1,876	6,267	5,670	1,952	1,744	-	-	-	-	12,000	10,918
Other income	177	85	164	113	289	260	403	166	363	282	(69)	(50)	1,327	856
Total revenues	90,745	77,376	102,450	88,242	312,093	260,081	100,117	82,609	1,281	1,582	(142)	(448)	606,544	509,442
Cost of electricity	80,095	66,471	90,621	75,951	266,849	216,000	86,959	69,861	-	-	-	-	524,524	428,283
Employee compensations	3,943	3,845	4,817	4,545	4,784	4,707	3,653	3,602	3,887	3,514	(6)	(6)	21,078	20,207
Employee benefit expenses	379	325	455	383	470	402	359	308	298	255	-	-	1,961	1,673
Management's benefits	6	6	7	6	6	6	6	6	100	96	-	-	125	120
Preventive, repair and maintenance, and construction expenses	1,159	1,164	1,347	1,304	2,094	1,890	1,650	1,553	1,690	1,991	(10)	(173)	7,930	7,729
Depreciation and amortization expenses	5,307	5,079	5,732	5,398	7,815	7,318	5,767	5,483	1,870	1,595	-	-	26,491	24,873
Other operating expenses	1,189	1,628	2,280	2,044	2,144	2,097	1,964	1,812	1,622	1,744	(45)	(203)	9,154	9,122
Other expenses	15	71	82	70	317	242	224	342	57	114	-	-	695	839
Total expenses	92,093	78,589	105,341	89,701	284,479	232,662	100,582	82,967	9,524	9,309	(61)	(382)	591,958	492,846
Share of profit from investments in associates	-	-	-	-	-	-	-	-	-	-	63	66	63	66
Finance income	20	17	14	14	36	50	19	25	407	368	-	-	496	474
Finance cost	(10)	(14)	(9)	(11)	(13)	(17)	(13)	(16)	(3,592)	(3,009)	-	-	(3,637)	(3,067)
Profit (loss) before income tax expenses	(1,338)	(1,210)	(2,886)	(1,456)	27,637	27,452	(459)	(349)	(11,428)	(10,368)	(18)	-	11,508	14,069
Income tax income (expenses)	-	-	-	-	-	-	-	-	(1)	(10)	-	-	(1)	(10)
Profit (loss) for the year	(1,338)	(1,210)	(2,886)	(1,456)	27,637	27,452	(459)	(349)	(11,429)	(10,378)	(18)	-	11,507	14,059
Other comprehensive income	-	-	-	-	-	-	-	-	963	1,635	-	-	963	1,635
Total comprehensive income for the year	(1,338)	(1,210)	(2,886)	(1,456)	27,637	27,452	(459)	(349)	(10,466)	(8,743)	(18)	-	12,470	15,694

Major customers

For the years 2022 and 2021, the Group has no major customer with revenue of 10 percent or more of an entity's revenues.

35. Provident fund

The Group and its employees have jointly established a provident fund in accordance with the Provident Fund Act B.E. 2530 which employees have option to pay into the fund accumulated at the rate of 3 - 15 percent of the salary of each and Provincial Electricity Authority will pay into the fund at the rate of 9 - 11 percent of salary of members. The fund, which is managed by MFC Asset Management Public Company Limited, will be paid to employees upon termination in accordance with the fund rules. The contributions for the year 2022 amounting to approximately Baht 1,279 million (2021: Baht 1,287 million) (Provincial Electricity Authority only: Baht 1,277 million, 2021: Baht 1,285 million) were recognized as expenses.

36. Commitments and contingent liabilities

36.1 Capital commitments

As at 31 December 2022, Provincial Electricity Authority had capital commitments of approximately Baht 30,233 million (2021: Baht 24,028 million), mainly relating to purchase materials and supplies for construction (Provincial Electricity Authority only: Baht 30,023 million, 2021: Baht 23,495 million).

36.2 Lease commitments

As at 31 December 2022 and 2021, the Group has future lease payments for land, buildings, and vehicles required under these non-cancelable leases contracts that have not yet commenced as follows:

(Unit: Million Baht)

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Payable:				
Within 1 year	245	39	245	39
Over 1 and up to 5 years	333	30	333	30

36.3 Significant long-term agreement commitments

As at 31 December 2022, Provincial Electricity Authority has commitment under the Power Purchase Agreement with the Very Small Power Producer amounting to 953 contracts (2021: 946 contracts). The performance of the contracts is in accordance with the terms and conditions specified in the contracts. The purchase of electricity consists of the base electricity cost. Electricity bill according to the formula for automatically adjusting the electricity rate. The purchase price of electricity will be added and the operating fee is deducted by 2 percent (if any). The purchase price will vary according to the contractual sales volume and the type of fuel that each VSPP has contracted with Provincial Electricity Authority.

36.4 Contributions to the Power Development Fund commitments

According to the Energy Business Act B.E. 2550, Sections 97(4) and 97(5) (Act), Provincial Electricity Authority must remit money to the Power Development Fund to promote the use of renewable energy and the technology used in the electricity business that has an impact on the environment and to promote society and people to have knowledge, awareness, and participation in electricity. The amount delivered is based on calculation from Provincial Electricity Authority's distribution unit each month and other relevant information in accordance with the rules and conditions specified in the said Act. During the year, Provincial Electricity Authority has recorded such expenditure in profit or loss amounted to Baht 953 million (2021: Baht 955 million).

On 29 December 2022, the Energy Regulatory Commission issued announcements regarding the contribution to the Power Development Fund for electricity distribution licensees to promote the use of renewable energy and the technology used that has less impact on the environment, and the contribution to the Power Development Fund for electricity distribution licensees to promote society and people to have knowledge, awareness, and involvement in electricity use. These announcements require that the Provincial Electricity Authority make contribution to the funds at a rate of Baht 0.00 per unit of net distribution in the month in which the electricity bill is charged, effective from 1 January 2023 onwards.

36.5 Litigations

As at 31 December 2022, Provincial Electricity Authority was being sued in 299 lawsuits with claims totaling Baht 30,240 million, which are under judicial proceedings. Provincial Electricity Authority expects to have to pay full compensation of the claims for 37 cases. Of the remaining cases, 225 cases are not expected to the results in significant losses and in 37 cases the compensation paid is expected to be less than the claims.

A summary of the lawsuits that are not expected to the results of significant losses and that may result in monetary damages less than the claims are as follows:

1. A total of 48 cases in which injured persons requested Provincial Electricity Authority to demolish assets or continue construction to completion, with claims amounting to totaling Baht 27 million.

2. A total of 30 cases where the injured persons claimed compensations from Provincial Electricity Authority in relation to employment and employee benefits, with claims amounting to totaling Baht 84 million.

3. A total of 62 cases in which the injured persons claimed for damages from Provincial Electricity Authority in circumstances where other persons or plaintiffs had received the damages from the property of Provincial Electricity Authority, with claims amounting to totaling Baht 373 million.

4. A total of 122 cases in which the injured persons claimed compensations from Provincial Electricity Authority in breach of contracts and infringement lawsuits, with claims amounting to totaling Baht 29,488 million.

37. Fair value hierarchy

As at 31 December 2022 and 2021, the Group had the assets and liabilities that were measured at fair value or for which fair value was disclosed using different levels of inputs as follows:

(Unit: Million Baht)

	Consolidated financial statements			
	2022			
	Level 1	Level 2	Level 3	Total
Assets measured at fair value				
Financial assets measured at FVOCI				
Listed company equity investment	2	-	-	2
Non-listed company equity investment	-	-	255	255
Assets for which fair value are disclosed				
Investment properties	-	-	730	730
Liabilities for which fair value are disclosed				
Long-term loans	-	136,220	143	136,363

(Unit: Million Baht)

	Consolidated financial statements			
	2021			
	Level 1	Level 2	Level 3	Total
Assets measured at fair value				
Financial assets measured at FVOCI				
Listed company equity investment	2	-	-	2
Non-listed company equity investment	-	-	255	255
Assets for which fair value are disclosed				
Investment properties	-	-	620	620
Liabilities for which fair value are disclosed				
Long-term loans	-	129,546	214	129,760

(Unit: Million Baht)

	Separate financial statements			
	2022			
	Level 1	Level 2	Level 3	Total
Assets measured at fair value				
Financial assets measured at FVOCI				
Listed company equity investment	2	-	-	2
Assets for which fair value are disclosed				
Investment properties	-	-	730	730
Liabilities for which fair value are disclosed				
Long-term loans	-	136,220	143	136,363

(Unit: Million Baht)

	Separate financial statements			
	2021			
	Level 1	Level 2	Level 3	Total
Assets measured at fair value				
Financial assets measured at FVOCI				
Listed company equity investment	2	-	-	2
Assets for which fair value are disclosed				
Investment properties	-	-	571	571
Liabilities for which fair value are disclosed				
Long-term loans	-	129,546	214	129,760

During the current year, the Group has no change in methods and assumptions used in measured the fair value of financial instruments and, there were no transfers within the fair value hierarchy.

38. Financial instruments

38.1 Financial risk management objectives and policies

The Group's financial instruments principally comprise cash and cash equivalents, trade and other receivable, short-term loans to related parties, specific-purpose deposits at financial institution, restricted bank deposits, other non-current financial assets, trade and other payables, long-term loans, lease liabilities, and other non-current payables. The financial risks associated with these financial instruments and how they are managed are described below.

Credit risk

The Group is exposed to credit risk primarily with respect to trade and other receivable, short-term loans to related parties, specific-purpose deposits at financial institution, restricted bank deposits, bank deposits, deposits at financial institution, other non-current financial assets, and other financial instruments, the maximum exposure to credit risk is limited to the carrying amounts as stated in the statement of financial position.

Trade receivables

The Group manages the risk by adopting appropriate credit control policies and procedures and therefore does not expect to incur material financial losses. Outstanding trade receivables are regularly monitored. Most of the electricity debtors of Provincial Electricity Authority are juristic persons and natural persons. There may be a risk arising from the debtor's failure to comply with the terms of the contract, which may cause damage to Provincial Electricity Authority and there may be a risk of credit concentration. However, there have been no significant losses that effect to Provincial Electricity Authority in the past.

An impairment analysis is performed at each reporting date to measure expected credit losses. The provision rates are based on days past due for groupings of various customer segments with similar credit risks. The Group classifies customer segments by revenues type and customer type. The calculation reflects the probability-weighted outcome, the time value of money and reasonable and supportable information that is available at the reporting date about past events, current conditions, and forecasts of future economic conditions.

Financial instruments and cash deposits

The Group manages the credit risk from balances with banks and financial institutions by making investments only with approved counterparties and within credit limits assigned to each counterparty. Counterparty credit limits are reviewed. The limits are set to minimize the concentration of risks and therefore mitigate financial loss through a counterparty's potential failure to make payments.

Market risk

There are two types of market risk comprising foreign currency risk and interest rate risk.

Foreign currency risk

The Group's exposure to the foreign currency risk relates primarily to loans that are denominated in foreign currencies. Exchange rate risk arises from changes in foreign currency exchange rates which caused an impact on Provincial Electricity Authority in the current period and in the following years, which the Group It is expected that the effect of exchange rate changes is insignificant on the Group's foreign-denominated financial assets and liabilities. Because most of the group's transactions are made in Thai baht.

Interest rate risk

The Group's exposure to interest rate risk relates primarily to its banks deposits, trade and other receivable, short-term loans to related parties, specific-purpose deposits at financial institution, restricted bank deposits, other non-current receivables, trade and other payables, long-term loans, lease liabilities, and other non-current payables. Most of the Group's financial assets and liabilities bear floating interest rates or fixed interest rates which are close to the market rate.

As at 31 December 2022 and 2021, significant financial assets and liabilities classified by type of interest rate are summarized in the table below, with those financial assets and liabilities that carry fixed interest rates further classified based on the maturity date, or the repricing date if this occurs before the maturity date.



(Unit: Million Baht)

Consolidated financial statements							
2022							
	Fixed interest rates			Floating interest rate	Non-interest bearing	Total	Effective interest rate
	Within 1 Year	1 – 5 years	Over 5 years				
(% per annum)							
Financial assets							
Cash and cash equivalent	3,019	-	-	6,613	57	9,689	0.100 - 1.000
Trade and other receivables	134	-	-	-	62,372	62,506	0.000 - 10.162
Specific-purpose deposits at financial institutions	33,869	-	-	4,088	-	37,957	0.100 - 2.100
Restricted bank deposits	50	-	-	-	-	50	0.250
Other non-current receivables	-	481	1,247	-	1	1,729	0.000 - 10.162
	<u>37,072</u>	<u>481</u>	<u>1,247</u>	<u>10,701</u>	<u>62,430</u>	<u>111,931</u>	
Financial liabilities							
Trade and other payables	10	-	-	-	66,581	66,591	1.440 - 2.361
Long-term loans	9,335	45,080	87,129	949	120	142,613	1.330 - 4.900
Lease liabilities	914	1,351	241	-	-	2,506	0.825 - 11.744
Other non-current payables	-	14	-	-	1	15	1.440 - 2.361
	<u>10,259</u>	<u>46,445</u>	<u>87,370</u>	<u>949</u>	<u>66,702</u>	<u>211,725</u>	

(Unit: Million Baht)

Consolidated financial statements							
2021							
	Fixed interest rates			Floating interest rate	Non-interest bearing	Total	Effective interest rate
	Within 1 Year	1 – 5 years	Over 5 years				
(% per annum)							
Financial assets							
Cash and cash equivalent	986	-	-	11,166	88	12,240	0.050 - 0.450
Trade and other receivables	39	-	-	-	46,402	46,441	2.667 - 19.664
Short-term loans to related parties	49	-	-	-	-	49	2.830 - 3.750
Specific-purpose deposits at financial institutions	28,265	-	-	12,587	-	40,852	0.050 - 0.800
Restricted bank deposits	50	-	-	-	-	50	0.250
Other non-current receivables	-	223	774	-	3	1,000	2.667 - 19.664
	<u>29,389</u>	<u>223</u>	<u>774</u>	<u>23,753</u>	<u>46,493</u>	<u>100,632</u>	
Financial liabilities							
Trade and other payables	6	-	-	-	48,561	48,567	2.361
Long-term loans	5,536	46,817	74,727	1,031	141	128,252	1.330 - 4.900
Lease liabilities	852	1,227	37	-	-	2,116	1.433 - 11.744
Other non-current payables	-	14	-	-	3	17	2.361
	<u>6,394</u>	<u>48,058</u>	<u>74,764</u>	<u>1,031</u>	<u>48,705</u>	<u>178,952</u>	

(Unit: Million Baht)

	Separate financial statements						
	2022						
	Fixed interest rates			Floating interest rate	Non-interest bearing	Total	Effective interest rate
	Within 1 Year	1 - 5 years	Over 5 years				
(% per annum)							
Financial assets							
Cash and cash equivalent	2,000	-	-	6,503	57	8,560	0.100 - 1.000
Trade and other receivables	27	-	-	-	62,065	62,092	2.667 - 10.162
Specific-purpose deposits at financial institutions	33,869	-	-	4,088	-	37,957	0.100 - 2.100
Other non-current receivables	-	79	265	-	1	345	2.667 - 10.162
	<u>35,896</u>	<u>79</u>	<u>265</u>	<u>10,591</u>	<u>62,123</u>	<u>108,954</u>	
Financial liabilities							
Trade and other payables	10	-	-	-	66,369	66,379	1.440 - 2.361
Long-term loans	9,335	45,080	87,129	-	120	141,664	1.330 - 4.900
Lease liabilities	908	1,325	241	-	-	2,474	0.825 - 11.744
Other non-current payables	-	14	-	-	1	15	1.440 - 2.361
	<u>10,253</u>	<u>46,419</u>	<u>87,370</u>	<u>-</u>	<u>66,490</u>	<u>210,532</u>	

(Unit: Million Baht)

	Separate financial statements						
	2021						
	Fixed interest rates			Floating interest rate	Non-interest bearing	Total	Effective interest rate
	Within 1 Year	1 - 5 years	Over 5 years				
(% per annum)							
Financial assets							
Cash and cash equivalent	-	-	-	10,774	84	10,858	0.050 - 0.250
Trade and other receivables	7	-	-	-	45,980	45,987	2.667 - 6.790
Specific-purpose deposits at financial institutions	28,265	-	-	12,587	-	40,852	0.050 - 0.800
Other non-current receivables	-	17	19	-	3	39	2.667 - 6.790
	<u>28,272</u>	<u>17</u>	<u>19</u>	<u>23,361</u>	<u>46,067</u>	<u>97,736</u>	
Financial liabilities							
Trade and other payables	6	-	-	-	48,157	48,163	2.361
Long-term loans	5,536	46,817	74,727	-	141	127,221	1.330 - 4.900
Lease liabilities	841	1,188	37	-	-	2,066	1.433 - 11.744
Other non-current payables	-	14	-	-	3	17	2.361
	<u>6,383</u>	<u>48,019</u>	<u>74,764</u>	<u>-</u>	<u>48,301</u>	<u>177,467</u>	



Liquidity risk

The Group monitors the risk of a shortage of liquidity by maintaining sufficient cash and cash equivalents to support the Group's operations and reduce the risks that may arise from the effects of fluctuations in cash flow. Approximately 36.37 percent of the Group's debt will mature in less than one year at 31 December 2022 (2021: 30.81 percent) (Provincial Electricity Authority only: 36.43 percent, 2021: 30.78 percent) based on the carrying value of borrowings reflected in the financial statements. The Group has assessed the concentration of risk with respect to refinancing its debt and concluded it to be low. The Group has access to a sufficient variety of sources of funding.

The table below summarizes the maturity profile of the Group's financial liabilities as at 31 December 2022 and 2021 based on contractual undiscounted cash flows:

(Unit: Million Baht)

	Consolidated financial statements			
	2022			
	Less than 1 Year	1 – 5 years	Over 5 years	Total
Financial liabilities				
Trade and other payables	66,442	-	-	66,442
Deposits payable	382	-	-	382
Long-term loans	9,470	45,703	87,600	142,773
Lease liabilities	978	1,468	419	2,865
Other non-current payables	-	16	-	16
Total financial liabilities	77,272	47,187	88,019	212,478

(Unit: Million Baht)

	Consolidated financial statements			
	2021			
	Less than 1 Year	1 – 5 years	Over 5 years	Total
Financial liabilities				
Trade and other payables	48,332	-	-	48,332
Deposits payable	348	-	-	348
Long-term loans	5,638	47,402	75,288	128,328
Lease liabilities	901	1,274	51	2,226
Other non-current payables	-	18	-	18
Total financial liabilities	55,219	48,694	75,339	179,252



(Unit: Million Baht)

	Separate financial statements			
	2022			
	Less than 1 Year	1 – 5 years	Over 5 years	Total
Financial liabilities				
Trade and other payables	66,231	-	-	66,231
Deposits payable	382	-	-	382
Long-term loans	9,354	45,158	87,225	141,737
Lease liabilities	969	1,440	419	2,828
Other non-current payables	-	16	-	16
Total financial liabilities	76,936	46,614	87,644	211,194

(Unit: Million Baht)

	Separate financial statements			
	2021			
	Less than 1 Year	1 – 5 years	Over 5 years	Total
Financial liabilities				
Trade and other payables	47,929	-	-	47,929
Deposits payable	348	-	-	348
Long-term loans	5,555	46,907	74,834	127,296
Lease liabilities	888	1,231	51	2,170
Other non-current payables	-	18	-	18
Total financial liabilities	54,720	48,156	74,885	177,761

38.2 Fair values of financial instruments

Since the majority of the Group's financial instruments are short-term in nature or carrying interest at rates close to the market interest rates, their fair value is not expected to be materially different from the amounts presented in the statement of financial position. The estimated fair value of financial instruments, in comparison with the related amounts carried in the statement of financial position, is as follows:

(Unit: Million Baht)

	Consolidated and separate financial statements			
	2022		2021	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial liabilities				
Long-term loans	138,664	139,363	127,221	129,760

The methods and assumptions used by the Grouping estimating the fair value of financial instruments are as follows:

- a) The fair value of equity securities is generally derived from quoted market prices, or based on generally accepted pricing models when no market price is available.
- b) The fair value of fixed rate debentures and long-term loans is estimated by discounting expected future cash flow by the current market interest rate of loans with similar terms and conditions.
- c) The carrying amounts of debentures and long-term loans carrying interest at rates approximating the market rate, in the statement of financial position, approximates their fair value.

39. Capital management

The primary objective of the Group's capital management is to ensure that it has an appropriate capital structure in order to support its business and maximize value, and subsidiary meets financial covenants attached to the loan agreements of subsidiary. The subsidiary has complied with these covenants throughout the reporting periods.

As at 31 December 2022, the Group's debt-to-equity ratio was 1.78:1 (2021: 1.62:1) and Provincial Electricity Authority only was 1.78:1 (2021: 1.62:1).

40. Approval of financial statements

These financial statements were authorized for issue by Provincial Electricity Authority's Governor on 24 March 2023.



10-Year Profile

(Unit: Million Baht)

Item	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Sales and rendering of services	592,766	497,247	473,168	502,784	482,681	461,324	454,262	463,419	462,732	431,124
Other Income	13,834	12,240	16,942	17,035	16,634	21,639	21,439	17,777	16,742	17,078
Operating expenses	590,709	491,565	476,195	503,185	475,650	452,105	446,548	456,528	455,647	423,598
Other expenses	4,323	3,901	3,970	3,317	3,049	3,406	3,265	3,595	3,430	3,529
Net profit	11,568	14,021	9,945	13,317	20,616	27,452	25,888	21,073	20,397	21,075
Investment property	53,578	50,132	48,622	23,206	34,356	29,517	37,457	37,230	27,154	26,240
Loan	141,664	127,221	107,439	75,651	71,580	76,151	78,075	84,283	82,254	79,385
Net assets	523,006	484,478	455,639	426,960	417,452	400,783	380,417	369,391	350,881	329,892
Customers	21,670,057	21,257,532	20,734,717	20,193,865	19,768,754	19,360,779	18,894,637	18,391,443	17,890,494	17,362,319
Total electricity sale units, including free-of-charge electricity	144,579	139,687	134,868	138,179	134,674	132,401	129,674	123,212	118,632	114,609
Average distribution	6,672	6,571	6,504	6,843	6,812	6,839	6,863	6,699	6,631	6,601
Maximum demand of electric power	22,714	21,282	20,001	20,952	19,475	19,721	20,439	18,597	17,724	17,294
Electricity purchase	152,518	147,737	142,676	146,017	142,296	139,548	137,078	130,390	125,484	120,796
- Purchase	152,417	147,650	142,586	145,932	142,191	139,443	136,974	130,299	125,380	120,696
- Self-generation	101	87	90	85	105	105	104	91	104	100
Transmission system	15,282	14,719	13,527	13,097	12,765	12,258	11,776	11,564	11,414	10,992
High-voltage distribution system	336,868	331,889	323,898	318,349	313,424	308,988	304,450	299,865	296,809	299,069
Low-voltage distribution system	519,347	507,211	493,105	480,477	472,464	462,786	453,836	460,721	442,348	444,741
Number of PEA offices	948	946	946	946	945	933	933	933	933	914
Number of PEA employees	28,090	28,168	28,372	29,085	29,659	29,835	30,114	29,093	28,109	27,792

SMART ENERGY
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