





Provincial Electricity Authority is a leading organization of international standards, modernity and efficiency doing business in energy, services and related businesses, going on the community, society and the environment. Start Up Smart Life into the digital 4.0 with technology, creativity and innovation.

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PEA's implementation in 2016 laid emphasis on its commitment to becoming a modern organization that holds onto the principles of good governance and high competency in an attempt to deliver sustainable satisfaction to its employees and customers, in accordance with its 4S-12 Strategies for management and development. 2016 was the year when Thailand encountered the tremendous loss as His Majesty King Bhumibol Adulyadej (Rama IX) of the Chakri Dynasty passed away. The Passing of His Majesty King Bhumibol Adulyadej resulted in an outpouring of sadness among Thai citizens. Along the period of 70 years, His Majesty King Bhumibol Adulyadej worked tirelessly for the well-being of Thai people. The Provincial Electricity Authority (PEA) would like to humbly apply His Majesty the King's Philosophy of Sufficiency Economy, the working principle that leads to sustainable operations, to PEA's operational framework that is conducive to the well-being of Thai people, as well as the prosperity of the country accordingly.

PEA's implementation in 2016 laid emphasis on its commitment to becoming a modern organization that holds onto the principles of good governance and high competency in an attempt to deliver sustainable satisfaction to its employees and customers, in accordance with its 4S-12 Strategies for management and development as follows:

Strengthening

- Capability Building Catapulted PEA into a High Performance Organization (HPO) driven by its quality personnel who are happy and committed to working
- Strong Grid Focused on building a reliable and effective power system
- Renewable Energy and Energy Efficiency Partnership (REEP) Promoted, supported, and invested in renewable energy and energy conservation

Standardizing

- PEA Standard Establish an excellent and standardized power system acceptable at reginal level
- Safety Excellence Moved towards the excellence in safety performance
- Operational Excellence Focused on increasing efficiency and process improvements continuously

Smart

- Service Excellence Provided excellent and full-fledged customer service
- Grid Modernization Developed the power system into a modern Smart Grid
- Smart Organization Improved the organization's information technology infrastructure in order to increase its operational efficiency

Sustainable

- Excellence in Governance Provided a good corporate governance
- Towards Sustainable CSR Strengthened sustainable growth alongside the country's community, society, environment, and economy under the Philosophy of Sufficiency Economy
- Enhancing Human Capital Promoted human capital development in order to enhance a sustainable improvement of the organization

As the result of the continuous commitment and development, PEA received several awards for its business implementation carried out under the Sustainable Development Guidelines from many agencies such as "2016 Excellent State Enterprise Award" and "Honorable Mention Award for Excellent Innovation" from the State Enterprise Policy Office, Ministry of Finance. Other awards include "Honor Award for State Enterprise with Development Excellence in Operational Integrity and Transparency Enhancement" from the Office of National Anti-Corruption Commission,

"2016 Green Office Award" from the Department of Environmental Quality Promotion, Ministry of Natural Resources and Environment, and "2016 Engineering Institute of Thailand's Corporate Social Responsibility Award" from the Engineering Institute of Thailand.

Despite its challenging and important mission ahead, PEA will focus on developing people with innovation, enhancing operations with technology, and moving towards the Electric Utility of the Future, also known as PEA 4.0, in order to usher in sustainable economic prosperity, while taking into account the country's community, society, and environment.

Sente Khe

(Mr. Sermsakool Klaikaew) PEA Governor

About This Report



The Provincial Electricity Authority (PEA) has arranged an annual sustainability report for 2016. It is the 7th report executed to put management guidelines to the forefront, as well as to demonstrate the impact of the sustainability operations covering economic, social and environmental dimensions on all groups of important stakeholders. The reporting concept adopted to demonstrate the PEA's operations from January 1, 2016 to December 31, 2016 and the information was disclosed in accordance with the GRI's G4 guidelines core option. In addition, additional information on electric utilities sector is disclosed in line with the core option. The PEA is committed to developing sustainability by analyzing and linking the operations to a set of 17 Sustainable Development Goals (SDGs).

Scope of Report (G4-17)

The disclosure of information on this report specifically extends to the entities affiliated with the PEA not including subsidiary companies due to the limitations of a data-gathering system. Nonetheless, in an attempt to bring about the comprehensiveness and clarity of the content, the PEA will seek to plan and improve the system in order to fully meet the GRI Guideliness for the foreseeable future.

Process for Defining Report Content (G4-18)

The PEA has conducted a materiality assessment of the aspects associated with sustainability, while also taking into account the opinions and advice of the stakeholders in order to go over the assessment of all those material aspects to both the organization and stakeholders. The assessment process is as follows:

Step 1: Identification (G4-18)

The PEA has identified the material sustainability aspects of the organization by taking into consideration all of the important information such as the organization's business strategies, risks, and GRI indicators. The global trends of the same business type and the aspects of expectations elicited from the stakeholders are also be considered.

Step 2: Prioritization (G4-18)

The PEA has organized a workshop designed to define the scope of the report alongside the relevant management and employees. They prioritize the aspects of sustainability and take into account their importance in two dimensions as follows:



Assessment Report on Material Aspects (G4-19)

Step 3: Validation (G4-18)

The PEA has validated the material aspects and has proposed validated sustainability aspects to high-level administrators so that they could endorse them under the impact boundaries both external and internal to the organization. In addition, they could examine whether these material aspects cover economic, social and environmental dimensions.

Step 4: Review (G4-18)

The PEA is continuously committed to developing a suitability report by creating questionnaires designed to draw the opinions and suggestions from the stakeholders, which are outlined at the end of the report. The PEA will also partake in the Sustainability Report Award to be held by the Thai Listed Companies Association, so as to make use of the suggestions and opinions based on the assessment to improve the sustainability report in the following year.

Report's Quality Assurance (G4-33)

The board of directors of the PEA is tasked to monitor and provide advice on the making of the sustainability report in order to make it complete and inclusive of all of the material aspects to both the organization and the stakeholders. They are also charged with endorsing and examining the accuracy of the information. In the future, the organization has a plan to have third party entities to review the report in order to bring about the credibility and inclusiveness of the report.

Contact Channels (G4-31)

Should you have additional questions about this report, please contact the Department of Corporate Social Responsibility, Provincial Electricity Authority.

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		Impact Boundaries		
Operational Performance	Sustainability Aspects in line with GRI Standards (G4-19)	Internal Boundaries (G4-20)	External Boundaries (G4-21)	
	Economic Performance	•		
Economic Aspects	Indirect Economic Impacts	٠		
	Overall (Environmental Expenditure)	٠		
	Energy	٠		
Aspects	Effluents and Waste (Waste and Hazardous Waste Management)	•		
	Compliance (Environmental)	•		
Labor Drastica	Employment	•		
Aspects	Occupational Health and Safety	•		
	Training and Education	•		
Human Rights Aspects	Non-discrimination	•		
	Local Communities	•	Communities, Society and Environment	
	Supplier Assessment for Impacts on Society	•	Suppliers	
Social Aspects	Grievance Mechanism for Societal impacts	•	Customers / Users / Communities, Society and Environment	
	Anti-corruption	•		
	Compliance (Society)	•		
	Customer Health and Safety	•	Customers / Users	
	Customer Privacy	•	Customers / Users	
Product Responsibility Aspects	Marketing Communications	•	Customers / Users / Business Partners / Counterparts / Suppliers/ Communities, Society and Environment	
	Product and Service Labeling	•	Customers / Users	
	Compliance (Product Responsibility)	•		
Electric Utilities Businesses Aspects	Availability and Reliability	•	Customers / Users / Communities, Society and Environment	
	System Efficiency	•	Customers / Users / Communities, Society and Environment	
	Disaster/ Emergency Planning and Response	•	Customers / Users / Communities, Society and Environment	
	Research and Development	•		
	Demand-Side Management	•	Customers / Users / Communities, Society and Environment	
	Access	•	Customers / Users / Communities, Society and Environment	

Assessment Report on Material Aspects and Scope of Report

Stakeholder Engagement

(G4-25)

The Provincial Electricity Authority (PEA) puts emphasis on forming the engagement of its stakeholders, which is regarded as a part of the sustainable management. The PEA has analyzed and reviewed its stakeholders such as employees, business partners, customers and communities that have been negatively affected by the organization's business operations, while also aiming to appropriately respond to the needs of all stakeholders. In the making of the 2016 annual sustainability report, the PEA has gathered and implemented all of the aspects and opinions from key stakeholders to define the scope of this sustainability report as follows:





Stakeholders (G4-24)	Communications and Channels (G4-26)	Needs and Expectations (G4-27)	Response (G4-27)	Results
1.Public Sector	 Meetings / Seminars held once a month. Newsletters / "Saijai faifa" Journals published once a month. Symposiums / Presentations on operational performance conducted once a year. Annual Report. 	 Focus on improving electricity distribution systems by making them readily available and safe. Develop the readiness of the electricity infrastructure. Promote the effective use of energy. Promote and support energy conservation and renewable energy. Educate both society and its citizens to be cognizant of energy-related matters. Create transparency in terms of procurement and disclosure of information technology. Manage and respond to the needs of electricity consumers. (Demand Response). 	• Improve electricity systems and service quality. Expand electricity distribution systems in a thorough fashion.	 Submarine cable projects in Koh Pa Ngan and Koh Tao, Surat Thani province have already been 35.07% done. Electricity systems expansion projects for agricultural areas have already helped 73,308 households. Urgent electricity expansion projects for households unable to use electricity have already been 124.59% complete, exceeding targeted goals. The organization's good corporate governance under the integrity and transparent assessment project held by the Office of National Anti-Corruption Commission has been improved, receiving a 92.67 rating.
2.Employees	 Executive meetings held once a month. Employees' meet and greet sessions with PEA chief organized once every three months. Meetings for operators held once a month. Lectures / workshops organized once a year. 	 Improve executives' vision and usher in good management. Acquire chances for career advancement. Improve the quality of work life. Improve salary, fringe benefits, compensation and any other benefits that employees are well within their rights to receive from the PEA . 	 High-level leaders should mobilize the organization by being a good example. Create work plans that improve emploees' satisfaction with the organization such as career advancement projects and talent management projects. Seek to improve their know-how and ability. Manage compensation and benefits-related matters. 	 PEA Chief adopted his vision, values, government policy, and important indicators and communicated them through the announcement of the management and development policy of the Electricity Gener ating Authority of Thailand (EGAT). The policy entails 4 strategies and 12 strategies (4S-12 Strategies). Employees' satisfaction rate with the organization standed at 85.27%. Workers' satisfaction rate with the organization standed at 88.46%.
3.Suppliers	 Meetings / Seminars / Focus Group organized once a month. 	 Create fairness in competition among suppliers. Make contracts in fair terms. Abide by the terms and conditions agreed upon in contracts. Incorporate information technology into the operations. 	• Take into account suppliers' feedback and factor them into the management of operations.	 Measure goals' achievement with an internal control report, an SLA compliance report and a sequential action plan report for extra monitoring purposes.

Stakeholders Identifications and Responses to Their Needs/Expectations

Stakeholders (G4-24)	Communications and Channels (G4-26)	Needs and Expectations (G4-27)	Response (G4-27)	Results
4.Business Partners / Counterparts	 Meeting / Seminar / Focus Group conduced once a year. News published within and outside the organization (once a year). 	 Create transparency in joint business operations. Compliance with terms and conditions agreed upon in contacts. Exchange of information within an appropriate period for the sake of shared development. Make contracts and agreements in fair terms. Incorporate information technology into operations. 	 Take into account counterparts' and partners' feedback and factor them into the management of operations. Improve overall operational procedures and develop activities relevant to both counterparts and partners. Make a proposition to the committee regarding the PEA's management of complaints. 	 Measure goals' achievement with an internal control report, an SLA compliance report and a sequential action plan report for extra monitoring purposes. Review procedures associated with the management of complaints by changing the window period of monitoring and contacting those who lodge complaints from 5 business days to 5 consecutive days, regardless of weekends and official holidays. Change the window period of responding to complaints from 30 business days to 30 consecutive days, regardless of weekends and official holidays.
5.Customers / Users	 Newsletters / "Saijaikanfaifa" Journal published once a month. News published within and outside the organization (once a year). Meetings / Seminars / Focus Group conducted once a year. Customers' information improvement session conducted once every 3 months. Acknowledgement of issues via 1129 PEA Call Center (24-Hour a day). 	 Reliability of electricity systems. Availability of measures for monitoring and preventing power outages. Equipped with power backup systems. Increase speed in fixing power outages. Put remedial measures for damages arising from power outages in place. Improve electricity systems and organize electrical wires in an orderly fashion. 	 Create maximum satisfaction for clients in terms of quality and provision of service. 	 The 2016 average period of power outrages (SAIFI) standed at 5.17%, lower than that of 2015. The 2016 average period of power outrages (SAIDI) standed at 153.31%, lower than that of 2015. A satisfaction rate of customers and markets standed at 85.93%. The number of complaints pertaining to overall services provided in 2016 has been decreased to 4.67%, compared to that of 2015. The number of complaints pertaining to service quality has been decreased to 1.48%, compared to that of 2015. The PEA received the management innovation excellence award (good category), bestowed in recognition of the 1129 Project Tracking.

Stakeholders (G4-24)	Communications and Channels (G4-26)	Needs and Expectations (G4-27)	Response (G4-27)	Results
6.Communities,	 Symposium held once	 Safe electricity systems. Harmless to the environment. Sustainable social and	 Run operations with social	 The organization's good corporate governance rate under the integrity and transparent assessment project held by the Office of National Anti-Corruption commission received a score of 92.67%. The 2016 average frequency rate of power outages (SAIFI) standed at 5.17%, lower than that of 2015. The 2016 average period of power outrages (SAIDI) standed at 153.31%, lower than that of 2015. The satisfaction rate with the PEA LED project for Thai fishing communities standed at 97.64%.
Societies and	a year. Press relations activities	environmental activities to	responsibility and good	
Environment	held once a month.	be provided by the PEA.	governance.	



General Information

The Provincial Electricity Authority (PEA) was established as the "Provincial Electricity Organization" on March 6, 1954 and was subsequently published in the Royal Gazette on March 16, 1964, with an initial legal capital of 5 million Baht. In addition, there were 117 electricity authority offices under its supervision. It was not until September 28, 1960 that it was officially established as the "Provincial Electricity Authority" under the Provincial Electricity Authority Act B.E. 2503, taking over and the mission of the Provincial Electricity Organization in order to create continuity in its operations; accommodate the expansion of large communities; and respond to public demand for electricity. At the time, PEA had the capacity to generate electricity for 26.4 million units (kilowatt per hour), making electricity available to approximately 1 million citizens out of a total of 23 million citizens, or 5 percent of the total population.

At the present time, the PEA is a state enterprise under the Ministry of Interior, whose primary business operations are related to electrical supplies. services and other supporting businesses covering 7 work areas: electrical system construction, power supply rental, repair, maintenance, electrical system inspection and testing, personnel development workshops, electrical system consulting and designing and etc. PEA is regarded as a leading electricity service provider that has a network of electrical transmission and distribution in 74 provinces with the exception of Bangkok, Nonthaburi and Samut Prakan province. Its network area is equivalent to 510,000 square kilometers, accounting for a total of 99.98 percent of the entire area of the country. The highest amount of electricity sold was 129,673 million units for a total of 18,893,919 service consumers.



Structure of PEA's Electricity Service Consumers in 2016

Furthermore, PEA is ready to respond to the public and business sectors' needs for electricity, while also accommodating the country's economic expansion, with the availability of 35,889 capable employees (as of December 31, 2016) and countrywide public service offices in both central and regional areas as follows:

- PEA's Head Office : Located on 200 Ngamwongwan Road, Lad Yao Sub-district, Chatuchak District, Bangkok 10900.
- District-level PEA: Divided into 4 regions. Each region has 3 zones, totaling 12 districts.
- The total number of provincial and district electricity authority offices, division offices and sub-division offices is 933 nationwide.



Number of PEA Public Service Offices





Economic Performance (G4-9, G4-EC1)

	Amount (THB Million)		
Economic Details	2015	2016	
Direct Economic Value Generated			
Revenues	465,754.73	456,707.78	
Direct Economic Value Distributed			
Operating Costs	418,621.59	403,130.90	
Employee Wages and Benefits	22,440.93	24,361.62	
Payments to Providers of Capital	3,313.29	3,087.61	
Payments to Government	13,636.00	13,039.00	
Community Investments	278.77	234.79	
Economic Value Retained	7,464.14	12,853.86	

PEA's total revenue in 2016 was 456,707.78 million Baht, a drop of 9,046.95 million Baht from 2015. Its operating costs in 2016 were 403,130.90 million Baht, down by 15,490.69 million Baht from 2015. Its employee wages and benefits was 24,361.62 million Baht, increasing by 1,920.69 million Baht from the previous year. Its payments to providers of capital fell to 3,087.61 million Baht, about a 225.68 million Baht decrease from 2015. Its payments to the Government or the Ministry of Treasury were 13,039 million Baht, with a drop of 597 million Baht from 2015. Its community investments such as social, environmental, public and charity expenditures dropped by 43.98 million Baht from 2015 to 234.79 million Baht in 2016.

Free Electricity Project (G4-EC7)

The PEA proceeded to reduce electricity costs for households in an attempt to mitigate social disparities, in accordance with the consensus of the Energy Regulatory Commission (ERC). Those benefiting from this project are electricity users in residential areas who have 5 (15) AMP power meters installed and are not juristic persons. They must also use electricity less than 50 units for at least 3 consecutive months (up to the current month). Those who bear the costs incurred by the use of free electricity are a mix of big, medium and specific business electricity users, non-profit organizations and temporary electricity users.

Remarks

- 1. The ERC's consensus reached on May 10, 2012 granted free electricity to household electricity users who had 5 (15) AMP power meters installed and used electricity under 50 units per month from June 2012 onwards.
- 2. The ERC's consensus reached on May 29, 2012 stipulated that those beneficiaries eligible for free electricity must not be juristic persons and must use electricity under 50 units per month for at least three consecutive months (up to the current month) -- effective January 2016.

PEA's Vision, Mission, Core Value and Core Competency (G4-56)

The PEA has set its vision, mission, core value and core competency in harmony with the organization's goals aimed at becoming the corporate leader in electrical power supplies and services which are the country's fundamental public utilities. Access to electrical systems will bring about the growth of culture, communications and innovations.

Vision

PEA is a leading and modern organization committed to providing electrical power in an effective and reliable manner for the quality of life of people and a sustainable society and economy

Mission

PEA provides power supply services and operates other relevant businesses in order to respond to customer needs as well as achieve customer satisfaction in terms of quality and services by continuously improving the organization and having social and environmental responsibilities

Core Value

Quality customer service and integrity

Core Competency

Organization's Current Core Competency

- Manage and provide inclusive, efficient, secure and reliable services in electrical power distribution systems
- Provide full-fledged, standardized and reliable services in electrical power systems

Organization's Future Core Competency

• Enhance operational and personnel skills to accommodate the expansion of relevant businesses in the foreseeable future

Strategic Operations

The PEA reviewed its 2014-2023 strategic plans (Second Revision in 2016), which are medium-term (3-5 years) and long-term (5-10 years) strategic plans in an attempt to push for the High Performance Organization (HPO) and bring about a standardized and sustainable electrical distribution system recognized at the regional level. In addition, PEA strives to focus on a full-scale electrical business and move towards becoming a regional leader by setting strategic plans that cover economic, social and environmental dimensions as follows:

Economic Dimension	 To become a fully effective management and asset management organization To distribute electricity in accordance with international standards To seek opportunities in relevant business investments both domestically and internationally To promote and create organizational innovations, research institutes and develop innovations To develop technology to increase the organization's operational efficiency
Social Dimension	 To promote social, communal and environmental responsibilities To encourage the organization's sustainable growth To bring about good corporate governance To support the development of human capital To create the High Performance Organization (HPO) To focus on developing products and services To respond to customers' demands and expectations

• To provide support in renewable energy and efficient energy consumption

Environmental

Dimension

Social and Environmental Responsibilities (G4-15)

The PEA realized the importance of being the sustainable organization that has social and environmental responsibilities as a basis for its mission-based operations. It focuses on developing the operations associated with social and environmental responsibilities, so as to keep their standards in line with the international operational framework. Adopting the ISO 26000 Corporate Social Responsibility Standard, the organization supports its personnel at all levels to

be well informed of the standard and incorporate it into their daily tasks. In addition, it also encourages the participation in social, communal and environmental responsibilities in a transparent and verifiable manner, while also supporting the involvement with the community in order to strengthen its economic, social and environmental areas.

Subsidiary Company (G4-17) PEA ENCOM International Company Limited

PEA ENCOM International Company Limited or PEA ENCOM was established in line with the cabinet resolution dated June 3, 2009 in order to invest in domestic and international energy businesses and provide workshops on electrical systems to private and public sectors in Thailand and internationally. It was registered as a juristic person on October 14, 2009 whereby the PEA held all shares. Its initial capital was 100 million Baht and has risen to 557.283 million Baht nowadays.

Vision

To become the leader in energy businesses and energy conservation in the ASEAN region.

Mission

1. Invest in and develop energy business and conservation in the country in an integrated fashion.

2. Act as a government mechanism in supporting investments and serve as a market reference relevant to the government's renewable energy and energy conservation.

3. Expand relevant energy businesses and investments in the region.

Operational Performance

Based on its previous operational performance, PEA ENCOM jointly invested in the country's renewable energy such as 4 solar electric generation projects and a biomass electric generation project. The company was assigned by the Ministry of Interior and the PEA to be an investor in the construction of a waste-to-energy plant in Ayutthaya province, which is still in progress. In addition, the company is in the middle of studying and developing electric power generation projects by making use of other renewable energy sources such as electric generation from industrial waste. In terms of its international affairs, PEA ENCOM is in the process of a negotiation on its joint investment in a solar electric generation project in the Union of Myanmar and in the Kingdom of Cambodia. At the present time, the company is in the midst of submitting its proposals regarding construction designs, power maintenance systems and relevant tasks.

With regard to its consultancy services in engineering and other relevant areas, PEA ENCOM has carried out these previous operations such as procuring backup generators and having them installed at the King's Agricultural Museum Complex; studying the effects of PEA's connection systems from 5 sources of wind power for Energon Wayu Company Limited; organizing training activities with Solar Power Roof Company Limited on a solar electric system installation on a rooftop; and providing electric system inspection services for 86 branches of Siam Commercial Bank Company Limited.

PEA ENCOM also provides workshops and seminars on electric systems to domestic and international clients. It signed a Memorandum of Understanding (MOU) on academic cooperation and environmentally friendly business investments in energy conservation with the Faculty of Engineering and Architecture at Rajamangala University. The company launched its LED products under the name "ENCOM LED" available for sale at 130 branches of PEA shops at department stores and shopping centers for household items and construction materials. Sustainable Management Guidelines, Good Corporate Governance and Anti-Corruption

(G4-DMA Anti-corruption, G4-DMA Compliance - Society)

The Provincial Electricity Authority (PEA) has realized the importance of good corporate governance as it paves the way for the operations that usher in sustainability to the origination. In addition, it helps to build a good working relationship with the organization's external and internal stakeholders. In 2016, PEA's Board of Directors and Executives laid out the good corporate governance policy to serve as guidance for the board of directors, executives and employees to be aware of and compliant with. The PEA Good Corporate Governance Policy was published on January 20, 2016. PEA's Board of Directors appointed the Committee for Good Corporate Governance and Social Responsibility. The committee is made up of 3-5 PEA committee members who collectively function as a sub-committee tasked to consider and scrutinize the organization's good corporate governance operations.

Key Operations (G4-SO4)

In 2016, PEA held a variety of good corporate governance activities as follows:

Revision/Improvement	2016 Key Operations	Continuing Guidelines for 2017
 Reviewed the Charter of Good Corporate Governance 2016 With reference to the meeting of meeting of the GCG committee, it was required to be held at least once every three months. Furthermore, the president could set up more meetings as he deemed appropriate, or when there were requests from no less than half of the committee members. Other relevant entities could also be invited to participate in these meetings, so as to provide supporting information as 	 Publicized good corporte governance, ethical standards, and code of business conduct handbooks for PEA operations - The board of directors, executives and employees abided by these handbooks. Awareness Development Project on good corporate governance, morality and integrity in 2016 operations (Soft-Control) Activities including content on good corporate governance were organized to make executives and employees under PEA's authority 	 According to the 2016 operations, PEA laid out its continuing guidelines in 2017 as outlined below: Review good corporate governance handbook (Third Revision) Executed to improve content to be in harmony with the international standards and current world's affairs. PEA's transparency Action Plan 2.0 Raises the level of PEA's operations to be transparent and to improve standards and spread to all electricity authority offices nationwide. Refine operational processes based on the results of the Integrity and Technology and the standards and the processes based on the results of the Integrity and Technology and the standards and the processes based on the results of the Integrity and Technology and the standards and the processes based on the results of the Integrity and the standards and the processes based on the results of the Integrity and the standards and the standar
 Reviewed PEA's Master Plan on Master Paln on Good Corporate Governance and Prevention and Suppression of Corruption Set forth a master plan (2017- 2021) and an action plan (2016) by refining content to be in line with the National Strategy for Anti- Corruption Phase 3 (B.E. 2560- B.E. 2564). 	well informed. There were a total of 29 courses and more than 4,951 participants, which were 2,000 people more than initially targeted. Participated in the 2016 Integrity and Transparency Assessment (ITA) help for government agencies by the National Anti-Corruption Commission (NACC) - PEA earned ascore of 92.675%, which was indicative of a high level of operational	 Focus on procurement, information disclosure, relationship-building and public relations, while also looking to foster a culture of integrity within the organization and in the operations of all agencies.

Revision/Improvement	2016 Key Operations	Continuing Guidelines for 2017
	integrity and was ranked 4 th among	
	all participating state enterprises.	
	• PEA's Transparency Action Plan	
	- Expanded the results of the	
	operations in line with its	
	transparency standards to include	
	other electricity authority offices.	
	In 2016, the agencies that passed	
	the assessment criteria were	
	divided into 17 divisions/offices	
	and 186 electricity authority	
	offices (Grade 1-3). The overall	
	operational results won PEA the	
	2016 State Enterprise Excellence	
	Award for "Excellence	
	Development in Implementation of	
	Integrity and Transparency	
	Operational Plan" from the	
	National Anti-Corruption	
	Commission (NACC).	

In this regard, the PEA also put in place the assessment of the Good Corporate Governance operations in various ways. The results of the assessment in 2016 are as follows:

1. Assessment of Committee's Good Corporate Governance and Social Responsibility Operations - The assessment of each committee was conducted once every three months. The results showed that their operations met the criteria for excellent performance.

2. Assessment of Executives and Employees' Awareness and Implementation of Good Corporate Governance and Integrity Principles in 2016 - Based on 5,990 survey respondents, the awareness rate rose to 90.25%, which was an increase from 2015 and better than the target value set.

3. NACC's Integrity and Transparency Assessment in 2016. - The PEA earned a score of 92.67%, which was indicative of a high level of

Anti-Corruption (G4-DMA Anti-corruption, G4-SO4)

The PEA put emphasis on the prevention of corruption, in accordance with the National Anti-Corruption Strategy Phase 2 (B.E. 2556 – 2560) and moved towards a transparent organization. In 2015, PEA's board of directors and executives laid out **the Anti-Corruption Policy** published on June 15, 2015 to serve as guidance for the personnel at all levels to comply with. In 2016, PEA proceeded with the operations that were indicative of its anti-corruption commitment as outlined below.

• PEA's 2016 Action Plan on Good Corporate Governance and Anti-Corruption - It specified the anti-corruption operations in Strategy 4, which entailed the development of monitoring systems to bring about transparency and anti-corruption measures within the organization. Key operations included PEA's transparency action plan, Action plan for increasing efficiency in managing complaints related to fraudulent behavior by PEA's Anti-Corruption Center and Action Plan on coordinated improvement efforts in internal control in the event that corruption takes place.

• **PEA's Transparency Action Plan** - set forth indicators for anti-corruption and defined them in the PEA's Transparency Standards.

• Dissemination of Knowledge and Information - Circulated and dispatched the anticorruption-related documents prepared by the National Anti-Corruption Commission to other agencies, so as to ensure compliance and enable them to keep their standard operating procedures in line with the law. Those above mentioned documents included "Mobilization of National Anti-Corruption Strategy among Targeted State Enterprises" and "Interesting Tidbits about Section 100 and 103 of National Anti-Corruption Act."

• Participation in Anti-Corruption Activities - PEA extended its cooperation and encouraged its board of directors, executives and employees to partake in the anti-corruption activities continuously organized by a variety of agencies. Those activities included the 2016 Anti-Corruption Day under the theme "Karma Exposes Corruption." It was organized by anti-corruption agencies at Sanam Luang on September 11, 2016. Another activity was called the International Anti-Corruption Day (Thailand) set up by the government, NACC, government networks, citizen networks, private networks at Mahidol Univeristy (Salaya Campus) on December 9, 2016.

In order to be certain that the Provincial Electricity Authority (PEA) will be able to efficiently operate according to the mission by virtue of the Provincial Electricity Authority Act B.E. 2503 and its revised 2nd edition (B.E. 2530), 3rd edition (B.E. 2535) and 4th edition (B.E. 2542), PEA brings a risk management approach into play to respond to the changes in the business environment associated with government policy, the economy, society and technology in a perpetual and prompt manner.

The above mentioned risk management approach is put into practice in line with the initiative of the Committee of Sponsoring Organizations of the Tread Way Commission - Enterprise Risk Management (COSO-ERM), along with the guidelines originating from the State Enterprise Policy Office (SEPO) and the Ministry of Finance. These guidelines are used as an apparatus that helps the organization to achieve sustainability and good corporate governance in relation to areas of its operations: being a leader in power distribution businesses, focusing on a customer-centric approach, preparing the organization's readiness in investing in new markets and relevant domestic and international business, and acting as the organization of innovation and technology. The progress of these operations takes into consideration relevant economic, social and environmental dimensions, including customers and all groups of stakeholders' demands and future business opportunities.

PEA's Corporate Risk Management Structure (G4-34)

Type of Risk	Risk Factors	Risk Management Measures in 2016	Results
Strategic Risk / Financial Risk	Asset Management with Maximum Productivity	PEA took into consideration the utilities of its main assets (electrical system) to maximize productivity and create income opportunities for PEA, as well as to begin making use of an asset management system.	ROA was better than the target at 45.01%. (Actual = 6.54% Target = 4.51%)
Operational Risk	PEA's Inability to Provide Continuous Power Distribution Services.	PEA develop an Information Technology system to aid in the acceleration of process related to its projects and stabilize the power distribution system. In addition, PEA developed its employees' skills in troubleshooting power outages.	SAIFI was better than target at 1.71% (Actual = 5.17 Target = 5.26 times per year) SAIDI was better than the target at 1.72% (Actual = 153.13 Target = 185.48 minutes per year)
	Personnel's Readiness for Future Operations	PEA revised its competency model and evaluated a competency gap by making an individual development plan, in accordance with job positions and evaluations.	The level of employee commitment was better than the target at 8.68% . (Actual = 4.38 Target = 4.03)
	IT Security	PEA developed its Information Technology system in line with international standards to the extent where it received ISO/IEC 25001 certification. It also improved the IT Security system of the automatic power transmission center (SCADA) and built PEA's data center.	Proceeded as planned (100%)
	Total Loss	PEA operated according to its action plans in order to control its loss. Overall, its loss was at an acceptable level in both techni- cal loss and non-technical loss.	Its accumulated loss was lower than the target at 0.04%. (Actual = 5.4% Target = 5.36%)
Compliance Risk	Loss of Corporate Image and Reputation	PEA improved the effectiveness of its complaint management and incorporated the Information Technology system to helped complaints, as well as to act on its transparency measures to the point where it won the prestigious State Enterprise Award for its "Excellence Development in Implementation of Integrity and Transpar- ency Operational Plan" and the Excellence Award for its "Transparency Action Plan" in 2016 from the National Anti-Corruption Commission (NACC) on September 19, 2016.	The number of complaints vis-a-vis millions of electricity users was less than the target at 29.3 % . (Actual = 106 Target= 150 complaints vis-a-vis millions of electricity users)

PEA's Corporate Risk Management Overview (G4-2, G4-14)

Development Guidelines (G4-2, G4-14)

According to the operational performance with respect to the corporate risk management in 2016, it was found that PEA was able to manage its corporate risks and almost all risk factors at an acceptable level, with the exception of its total loss. The total loss still continues to be a risk factor that needs to be managed to an acceptable level. In 2017, PEA plans to make use of an integrated Information Technology system for management support drawn from the U-CUBE power unit. The data on electric power consumption, power meters, transformers, and power supply circuits embedded in System Application Program (SAP), Geographic Information System (GIS) and meter reading systems will be amalgamated, so as to enable the organization to analyze irregular electric power consumption and losses in power supply units. Doing so will lead to a more concrete and clearer loss management plan.

The Process of Information Technology System for Electric Power Consumption Unit Management

Framework for Electrical Power Management

Managing the Electrical System's Availability Distribution and Reliability

Electricity is a crucial factor in developing the country's economy and contributes to the advancement of people's living standards, whether they are in urban or rural areas. Hence, the Provincial Electricity Authority (PEA) strives towards efficient management to ensure sufficient electricity supply for the clients' demand, at present as well as in the future. PEA gathers data to forecast the demand for electricity, including peak load, to be used as part of its management strategy. PEA plans to provide enough electricity to match the rising demand each year.

Electricity Demand and Consumption Forecast for 2016-2022

Note:

* Refers to the electricity consumption of residents, SMEs, large businesses, specific businesses, non-profit organizations, agricultural water pumps, temporary and backup power, power stoppage without incurring fees, and free electricity.

Peak Demand and Consumption Forecast for 2016-2022

PEA also assures that its electrical power system networks have the capacity to distribute electricity to the various groups of end-users, whether they are in urban or metropolitan areas or agricultural areas.

In 2016, PEA made plans to construct and maintain electric power systems, and to install more equipment in big cities across the country such as the following municipalities: Chiang Mai, Nakhon Ratchasima, Hat Yai, and Pattaya. This corresponds to PEA's Plan for Electric Power System Development under the 11th National Economic and Social Development Plan (2012-2016), aiming to make electric power system in those areas stable, reliable, and compatible with new technologies that may be introduced to further develop the economy, and to decrease the time spent in maintaining the electric power system. This plan will be implemented in 2017.

Management Strategy to Ensure Sufficient Electricity Supply for the Long-Term Demand (G4-EU10)

PEA is prepared to develop its electric power systems to cater to the electricity demand that will result from the establishment of special economic zones. For example, by constructing new power stations, 115 kV distribution systems, expanding the area with 22-33 kilowatt power distribution systems, installing distribution transformers, and constructing low voltage distribution systems (400/230 Volt). For its implementation, PEA has earmarked a budget of 7,140 million baht.

PEA readies itself to serve the electricity demand of the Eastern Economic Corridor Development (EEC), which covers areas in Chonburi, Rayong, and Chachoengsao province and will become an important business hub for the country. It begins by drafting the plan for developing the electric power system to support the special economic zone and its concentration of business operators, building on its analysis of the distribution capacity of the existing electric power system.

PEA has prepared its management strategies to minimize any impact on its electric power system and end users that may result from connecting the system to supply electricity to trains. It considers from the very first step of designing the power system for train operation and other electric-powered technologies. For example, it opts to design phase-shifting transformers to decrease the effects of imbalanced electricity load. It also designs power systems that will distribute to the driving system and transport stations in N-1, to ensure the smooth flow of power distribution even if issues arise in one part of the system by letting other parts compensate for areas that are not functioning.

Furthermore, PEA has also analyzed its power stations' capacity to support the rising electricity demand and plans to build new stations and install more transformers at existing power stations. This is stated in its 15-year plan for developing power stations and transmission lines.
Load Shedding Plan under Abnormal Circumstances (G4-DMA Availability and Reliability)

Electric power systems consist of generation systems, transmission systems, and distribution systems. In the event of unforeseen incidents happening to the power system, it may lead to insufficient electricity generation to serve the demand, causing an imbalance in the system and thus decreasing its stability. This can cause wide-range power outages. Factors contributing to the electric power system imbalance may vary. Examples include generator tripping, transmission lines tripping, or equipment issues within the system which prevents transmitting electricity into the system which if happens during electricity generation, would immediately affect the system's balance.

Therefore, to prevent the aforementioned, PEA's plan advises load shedding under such abnormal circumstances to help conserve the electric power system balance within the standard range, and decrease any impact on customers. In the case that load shedding may take several hours, PEA will do rotational load shedding and determine the appropriate timeframe for each turn until the system can distribute electricity normally again. It also reviews its load shedding plan under abnormal conditions on a yearly basis to ensure that it remains appropriate to the present context of power distribution.

Demand Side Management (G4-DMA Demand-Side Management)

Although PEA is already capable of securing energy sources for the country's rising electricity demand each year, from 18,842 MW in 2016 to 21,753 MW in 2020, that is still considered supply-side management. At present, finding new energy sources entails increasing operation costs and may also have negative effects on the environment and those living around the new energy sources. This risks social hostility, especially if the energy source uses fossil fuel.

Therefore, PEA highly values demand-side management strategies to promote behavioral change and use of energy conserving appliances among various groups of end users.

In the past, PEA has collaborated with the Energy Regulatory Commission (ERC) for its Demand Response (DR) project since 2014. It announced its measures and practices for decreasing the demand for electricity during peak load, or during electric power system crises that may affect the overall stability of the system. PEA would announce in advance the Event Day, which is when it requires people using Automatic Meter Reading participating in the project to decrease their electricity consumption during that time and date, and will in return provide financial compensation. Electricity generators who can produce more than the volume indicated in the contract during that particular period will also be compensated.





Source : Demand Response (DR) project progress report

Note : * As the Energy Regulatory Commission (ERC) did not implement its Demand Response policy in 2016, there are no operational figures.

In 2016, the National Energy Policy Council (NEPC) approved the budget ceiling for mobilizing PEA's implementation of Smart Grid projects in Thailand in the short term (2017-2021). It includes implementation plans for announcing electricity rates in line with its measures to promote electricity conservation at 250 million baht to incentivize those participating in the project to use less electricity. It approved a 247-million-baht budget for the pilot project to support the electricity load and semi-auto demand response and auto demand response in Pattaya City. As part of the project, residential electricity users installed the Smart Meter while commercial/ industrial participants installed Automatic Meter Reading (AMR) systems. Together, a total of 211,558 meters were installed. PEA has also set the goal to save electricity consumption of DR project participants by 200,000,000 units within 2017.

Furthermore, the government stated in the Energy Efficiency Plan (EEP 2015) its aim to decrease the country's energy intensity by 30% within 2036, when compared to the baseline in 2010. It expects government agencies to decrease its electricity consumption by 10%, to shift those within the public sector and higher education institutions who are interested, towards the use of energy saving appliances such as Light-Emitting Diode (LED) or highly energy efficient ACs. In addition, PEA has been applying the Energy Service Companies (ESCO) management principles since 2012 to its project on energy saving management in government buildings, whereby PEA oversees the holistic energy management for participating organizations.



In 2016, external organizations receiving ESCO services from PEA saved 1,685,090 units of its electricity consumption. Over the past 3 years, 12,921,756 units have been conserved through such scheme.





Source : The expected amount of electricity saved by following PEA's advice was determined from the contracts made with 6 places from 2014-2016. These places include Nakhon Si Thammarat Rajabhat University, 6 campuses of Rajamangala University of Technology Lanna, Ramkhamhaeng University, Bueng Kan Hospital and the Thai Customs Department.



Research and Development on Electricity Distribution and Sustainable Development (G4-DMA Research and Development)

PEA strives to be an innovative organization to ensure people thoroughly have access to electricity. In achieving that, it draws from research, development and innovation to further advance the organization's strategy. In 2016, PEA announced its policy on research, development and innovation, as well as its policy on protection against copyrights or patents infringement and protection of intellectual property. It also approved a budget of 39.82 million baht to be used for innovation management according to its plan to promote and develop research work/expand on inventions, and to secure tools that will help advance innovators such as 10 3D scanners and designing software, and also to provide training to give staff, technicians and engineers the necessary capacity. Examples of training include a course on electrical and electronics work, on mechanics and hardware for a total of 288 people.



Creating an appropriate and enabling environment for employees to become aware and eager to research and develop, and placing high value on bringing innovations to PEA and to its customers, has given PEA 530 inventions made by its employees and research work in 2016. These have been applied to business operation, especially in generating clean energy. For example, a research and development project on the management of small-scale mixed energy sources for electricity generation and the transmission lines for remote areas utilizing Microgrid in the community area of Ban Khun Pae village, Jom Thong district, Chiang Mai province. It is expected to be completed in 2019 and will benefit 483 individuals within a 39.4 km² or 24,625 rai area.

Additionally, PEA has approved a budget of 1,069 million baht for the Smart Grid pilot project in Pattaya, Chonburi province. The project will have 3 stations: North Pattaya power station, South Pattaya power station, and Bang Lamung power station. It will provide a case study for the benefits of the Smart Meter, the power failure troubleshooting system, and information technology connection system. At present, the project is still undergoing the approval process and public hearing. It is expected that individuals under the project will benefit from the convenience which the project offers.

PEA will be able to save costs from meter reading, meter operations, and protect its revenue from both technical and non-technical losses. It will be able to collect its fees more quickly and thus improving its cash flow. It will also expand its electricity sales opportunity by minimizing power outages and prolong the need to invest further in distribution systems. In total, the project is estimated to help save 3,204.5 million baht throughout its 20-year span.

Cooperation on Innovation with Educational Institutions (G4-DMA Research and Development)

Over the past several years, PEA has worked in cooperation with organizations and educational institutions on research and development on relevant areas of energy innovation to promote sustainable energy in Thai society while moving in the same direction as the country's energy policy, which is towards alternative energy. This also follows energy regulatory organizations' policies. Examples include:

• A pilot project with King Mongkut's Institute of Technology Ladkrabang (KMITL) to set up Electric Vehicles (EV) charging stations and a charging stations network management system. For this, PEA contributed a budget of 19.68 million baht to support tourists traveling from Suvanabhumi airport to Pattaya. This project is implemented following the decision of the National Energy Policy Council (NEPC), under its mission regarding energy, to promote the use of EVs in Thailand. The first phase is to prepare the readiness to use Electric Vehicles (EVs) (2016-2017), which at present is in the process of acquiring space to install the charging stations along the Bangkok-Chonburi motorway and test driving the EVs, as well as testing the designated charging stations network management system.



• The PEA Smart Home research and development project is a collaboration between PEA and KMITL. For this project, PEA has committed 16.43 million baht to be used for the research and design of the Home Energy Management System (HEMS). In 2016, this project has designed and prototyped a PEA Smart Home, a model house that can generate electricity for its own use. It also installed the smart plug and test runs the Home Energy Management System (HEMS). • A project to design and optimize the efficiency of turbines for small hydroelectric power plants is conceived as a collaboration between PEA and the Asian Institute of Technology (AIT). These turbines are for use at run-off-the-river hydro plants with 90 kV generating capacity at Khun Pae village, Jom Thong district, Chiang Mai province, since February 8, 2016.

Currently, the project is constructing clarifier pools and a water distribution system within the project area as it develops the prototype system for a Microgrid for the community in the long term. PEA will also apply its findings from this turbine research project for use in other areas in the future.



The Structure of PEA Smart Grid

Accessibility for Electricity End Users (G4-DMA Access, G4-EC8, G4-EU26)

Throughout the past 56 years, PEA as an ESCO public enterprise that provides electricity across the country except for Bangkok, Samutprakarn and Nonthaburi, recognizes that electricity is a necessity in developing the country's economy. Hence, it is determined to secure and thoroughly supply electricity to the public in all areas, whether urban or rural. In the past, PEA has implemented Remote Rural Household Electrification Project (RHEP) in line with the government's policy and the Ministry of Interior's strategy which target to provide electricity to every household in 74 provinces. At present, there are 21,071,007 people with access to electricity, which is determined as 99.70% of the country's households. There are various ways to access electricity, for example, with pole and cables setup, underground cables, underwater cables, solar cells, etc. Therefore, only 0.30% of the country's households lack access. These households may be in restricted zones that require permits from relevant organizations, such as reserved forest, national parks, areas under military authority or areas in which PEA does not have the rights to expand its power system.

Details	2014	2015	2016*
Villages with electricity access	76,121	80,032	74,297
Total number of villages in Thailand	76,138	80,056	74,304
Households with electricity access	19,651,743	20,642,491	21,071,007
Total number of households in Thailand	19,723,902	20,721,003	21,133,640

Note : * The total number of villages is cited from Provincial Affairs Bureau, Department of Public Administration, as of December 2016. The figure has decreased from that reported in Q3 2016 (80,057 households), which is as reported by the Division of Registration Technology Development and Administration (RTDA), the Bureau of Registration Administration (BORA), Department of Public Administration.

Nevertheless, populations migrate and settle in new areas every year. Thus, PEA must continuously expand its service area so that people residing in all regions may have access to electricity. It does so by prioritizing areas with higher permanent population density, convenient transport routes, enabling timely service provision for all seasons, villages with capacity and potential which are not situated in restricted areas. Regardless, PEA proceeds without primary concern for returns. In fact, in some areas the financial return may not be worth the investment of expanding its service area. In 2016, PEA has extended its services to additional 35,635 households.

Moreover, farmers, who make up much of Thailand's population, have started introducing technology and agricultural machinery to increase their efficiency, control production output to certain standards, help simplify procedures or minimize unnecessary expenditure, contribute to better produce quality, all of which creates a higher electricity demand for agricultural uses. PEA had already implemented Phase 1 (2009-2013) of its Agriculture Electrification project, which included the construction of both high and low voltage power distribution system, the installation of distribution transformers and electricity meters. In total, 73,308 farmers across the country had participated in this phase, a figure which exceeded initial expectations. Hence, PEA decided to proceed with its Phase 2 (2016-2020), which started its implementation last year. Within the first year, 11,999 farmers joined the project and brought electricity access to their agricultural land. This constitutes 29.5% of the project's total target number of participating farmers.

Farmer Population in the Region	2009 - 2015	2016	2016-2020
North	23,509	4,682	15,841
Northeast	32,449	5,488	18,568
Central	7,269	1,303	4,410
South	10,081	526	1,781
Total	73,308	11,999	40,600

Providing Quality Electrical Service (G4-DMA Access, G4-EU28, G4-EU29)

There are currently up to 18,893,916 people across the country receiving PEA's services for all kinds of uses, whether they are in industrial estates, industrial zones, municipalities, districts, commercial areas, landmarks, or rural areas. It is then considered PEA's great mission to provide quality service, to be able to distribute power smoothly and continuously without outages. In 2016, PEA has implemented its plans and projects aiming to increase its power distribution efficiency and electric power system reliability, some examples include:

- Transmission lines and power stations development project
- Electric power system reliability project
- Transmission and distribution systems
 development project Phase 1

- Big Patrolling and Cleansing for Strong Grid activities, for distribution and transmission lines
- Survey and maintenance of equipment in the power stations and distribution system
- Supervisory Control and Data Acquisition system (SCADA) to assist in diverting power from a nearby power substation when an area faces an outage

Consequently, the System Average Interruption Frequency Index (SAIFI) was reduced to only 5.17 times/customer/year in 2016, from 11.47 previously. If considering only the 12 big cities, the figure falls to only 1.568 times/customer/year. The time spent on troubleshooting or System Average Interruption Duration Index (SAIDI) was only 153.13 minutes/customer/year, a decrease by 17.44 minutes from the previous year. And if considering only the 12 big cities, the SAIDI drops to only 21.182 minutes/customer/year.

	Power System Reliability Indices						
Data		SAIFI* (times/customer/year) (G4-EU28)			SAIDI** (minutes/customer/year) (G4-EU29)		
		2015	2016	2014	2015	2016	
Nationwide	6.46	5.79	5.17	217.89	185.97	153.13	
12 big cities (i.e. Chiang Mai, Pitsanulok, Lopburi, KhonKaen, Ubon	2.174	2.034	1.568	37.075	32.402	21.182	
Ratchathani, Nakhon Ratchasima, Rangsit, Pattaya City, Samutsakorn,							
Hua Hin, Phuket, and Hat Yai)							

Note : *SAIFI (System Average Interruption Frequency Index) (times/customer/year) is the index of the average number of times of system interruption or power outage.

**SAIDI (System Average Interruption Duration Index) (minutes/customer/year) is the index of the average duration of system interruption or power outage.



Disaster / Emergency Planning and Response (G4-DMA Disaster/Emergency Planning and Response, G4-15)

Electricity is considered a basic public utility for all regions and areas, nationwide. Hence, PEA ceaselessly dedicates its services, under both normal and abnormal circumstances. To this end, it employs the Business Continuity Management System (BCMS) to help ready its capacity to respond to disasters and crises that may arise. It focuses on recovering critical business process to minimize impact and to respond to emergencies and disasters effective. PEA has evaluated and determined 9 different types of threats and risks, which comprise of flooding, storms, sabotages, earthquakes, fire, riots/unrest, epidemics, tsunamis, chemical leakages. PEA adopted and implemented the British Standard Business Continuity Management (BS 25999) in 2016; details are as follows:





PEA's Disaster and Emergency Response Structure

PEA is determined to develop its BCMS in compliance with the ISO 22301 standard, to increase its capacity in managing and responding to emergencies and disasters and to be able to meet its clients' and stakeholders' demands better under such circumstances. An example of PEA's effort toward this end is its tropical storm risk management. It has appointed a working group to consider the various ways to solve issues of electric poles collapsing from tropical storms by exploring preventive measures such as stringing power cables such that they will not trip or collapse when under peak load or carrying voltages higher than normal standard. By tackling the power lines issue, it is possible to prevent electric poles from breaking and collapsing. PEA also goes further and researches about wind to incorporate its findings to the design of its poles to help it withstand the wind.

Another example is PEA's measure to install electricity meters in higher places in areas which experience frequent flooding. This is one of the ways PEA manages its services in areas with frequent flooding, as they often have higher levels of drainage floods that stay retained in the area for prolonged periods of time. This causes damage to agriculture, properties, and even lives. By following this measure, PEA was able to limit the damage caused by power outages and to quickly start transmitting again, for example in the case of flash floods in the south. PEA also implemented a PR campaign to inform the public of safe uses of electricity during such crises, which significantly helped reduce the affected clients' anxiety.

Additionally, PEA also practices Business Continuity Plan (BCP) drills in case there are attacks or riots in the vicinity of PEA's head office. It has categorized 3 different levels of violence:

Level 1: PEA is notified that there is a demonstration around the PEA head office (causing no effect to operation, but requires some preparation)

Level 2: Demonstrators surround the area around the PEA head office (causing some effect, but operation can continue)

Level 3: Demonstrators occupy PEA head office' space or building (making operation impossible)

Results indicate that PEA only needed 54 minutes to complete the drill, which was 73% faster than predicted. Those who participated demonstrated a thorough understanding of each procedure in the BCP and gave their full cooperation throughout the drill.



The Provincial Electricity Authority (PEA) highly values of compliance with pertinent legal and environmental regulations, both at the national and international level. This ranges from the design phase (from the construction of power stations, transmission and distribution systems, the electrical appliances used, among others), to obtaining due permission prior to construction that may encroach on restricted areas such as national parks and class 1 watersheds and monitoring the power distribution system to ensure consistency, maintenance, as well as stringent environmental monitoring and management. As a result, PEA faced no penalties in 2016, be it monetary or otherwise, from environmental compliance violations.

Environmental Management in Business Operations



Pre-Construction Procedures for Electric Power Systems (G4-DMA Compliance (Envi))

Electricity is a basic national public utility. The construction of power plants, transmission and distribution systems are considered huge projects and require big budgets. They may also entail large-scale environmental and social impacts. Hence, prior to launching any such project, PEA conducts Environmental

Impact Assessments (EIA) and strictly follows existing regulations such as the National Environmental Quality Act B.E. 2535. It must also seek approval from all the relevant government agencies and the cabinet, according to the details as following;



Procedures of Protecting the Interests of Stakeholders in the Construction of PEA's Electric Power Systems

In 2016, several projects were subject to public hearing, such as the waste power plant project in Ayutthaya Municipality. The project was appointed by the Ministry of Interior to be the source of funding for the construction of the Ayutthaya Municipality's waste power plant, converting the Municipal Solid Waste (MSW) into Refuse Derived Fuel (RDF) in order to be further used to generate electricity, and is estimated to help dispose of 300 tons of waste per day.

For the construction of power stations, transmission and distribution systems, PEA applies its standards made in line with engineering and safety principles. Additionally, PEA also cites the existing national and international standards in the design of its power stations, transmission and distribution systems; for instance, the International Electrotechnical Commision (IEC), Institute of Electrical and Electronics Engineers (IEEE), and The Engineering Institute of Thailand (EIT).



Construction Procedures for Electric Power Systems (G4-DMA Compliance (Envi))

PEA operates in strict compliance with all indications listed in the Environmental Impact Assessment (EIA). It also determines safety measures and practices for all projects to follow rigorously throughout their implementation, for example:

• Standard for constructing electrical systems of all voltage levels.

• Regulation by the Department of Civil Aviation regarding painting or installing devices for warning purposes along the power lines and buildings.

• Regulations by the Department of Highways regarding electric pole installation and conductor stringing, the spacing necessary between power lines and traffic surface. This also includes the installation of underground cables.

• Other regulations on the spacing between the underground cables and other public utilities, to determine and incorporate the distance required into the design and installation of underground cables.

• Regulations by the Marine Department on acquiring permission to install cables, buoys and warning signs for underwater cables.

• Standard for warning devices used in roadside operations to inform and protect passers by on the maintenance route; the use of standard warning signs such as those for low and high voltage cables.



As a result, there were no complaints filed in 2016 regarding environmental considerations in the construction of electric power systems. Furthermore, all environmental monitoring results are within the permitted range according to relevant regulations. This takes into account results from air quality monitoring, particulate matter measurement, and noise level measurement.

In addition, for every case of electric power system expansion or maintenance, there would be coordination with relevant agencies and the surrounding communities in order to inform them of the project's details and development. For example, the project would set up a sign to notify beforehand the delivery time of large electrical appliances in the project area, as well as of the delivery route in order to mitigate traffic congestion.

Electric Power Distribution Process (G4-DMA Compliance (Envi), G4-EN24)

PEA has been closely monitoring the Environmental Impact Assessment (EIA) as well as other relevant regulations, from air quality monitoring, particulate matter measurement, noise level measurement, to electric and magnetic fields measurement. Hence, there were no complaint filed in 2016 regarding environmental concerns from business operations and all the environmental impacts whether in terms of water, air, or solid waste, they were within permitted range.

Nevertheless, over the past year, PEA did encounter incidents of oil leakage around its diesel plant in Koh Kood island, Trat province occasionally during the rainy season. While the spill might have been in small quantities, it affected those living in the surrounding area. Therefore, to mitigate the risk of oil contamination in local water resources, PEA had arranged to build another layer of protective barrier to prevent oil leaks.

In addition, PEA also followed its plan to trim and prune trees by using tree surgeons, under its "Tree Doctors" project. They regularly tend the trees growing close to power lines in distribution hotspots to avoid power outages caused by trees, whether they are close to 115 kV transmission lines, industrial estates, PEA offices, power stations, warehouses, tourist destinations or landmarks, municipal areas and distribution lines to terminals, or other areas' distribution networks.

Environmental Management Principles for Office Buildings (G4-DMA Overall)

PEA has implemented the Department of Environmental Quality Promotion's "Green Office" project to promote and support all units within the PEA to utilize resources in an appreciative and environmentally friendly manner in hopes that it could reduce greenhouse gas emissions and prepare the offices to achieve international environmental standards, as well as to changes its employees' behavior and attitudes so that they are conscious of their effects on the environment in the long run.

The project aimed to make offices' practices more environmentally friendly, such as to reduce the use of energy, fuel and water, to reuse and recycle to cut waste, to reduce and eliminate the use of hazardous products or chemicals within the offices, in an effort to decrease pollutant and greenhouse gas emissions. It also addressed green procurement, whereby office equipment and supplies must be certified as environmentally friendly for example with green labels, label No.5, and High Energy Performance Standard label. This also extends to hiring, whereby contractors should illustrate qualities and capacity in environmental management, in line with Green Office principles.

This holistic practice of "Green Office" management is the collective effort of all employees in changing their behavior to make PEA facilities "Green Offices". Thus, in 2016, 24 PEA offices were awarded the Golden Prize for passing the Green Office Standard by the Department of Environmental Quality Promotion, Ministry of Natural Resources and Environment. PEA offices also managed to reduce 4454.76 (tCO2e) of their emissions between 2014-2016.

To date, PEA has won the Golden Prize for 3 consecutive years (2014-2016). 4 PEA offices were awarded the Prize in 2014, 12 and 24 more in 2015-2016, recently totaling at 40 offices. PEA still remains determined to expand its Green Office project to all its area offices in the future as well.

Energy Management Principles for Office Buildings and Business Operations (G4-DMA Overall)

Electricity

As a leading government agency in the field of energy, PEA recognizes the importance of energy management. To ensure its energy management efficiency, it has announced its policy to conserve energy, set up a working group dedicated to this end, as well as appointed a committee to assess the energy use at the PEA head office since 2015. Additionally, it has proceeded strictly according to the energy conservation principles, applying it to the head office as well as all the area offices, through awareness-raising activities to persuade staffs to conserve energy. This resulted in a 5.75% decrease in electrical consumption compared to the previous year.

Table of Amount	of PEA Office's	Electrical Consumption	(G4-EN3)
		Electrical consumption	(01 110)

Electrical Consumption	2014	2015	2016
Amount of PEA Offices' Electrical Consumption (Units)	109,882,918	116,613,023	123,316,191

PEA has also opted for more energy efficient appliances for example by using Lighting Emitting Diode (LED) bulbs in areas under PEA's authority such as at the head office and area offices since 2013. This is resulted in saving 20,196,024 units of electricity.

Table of Amount of Electrical Consumption Conserved by Changing to Lighting Emitting Diode (LED) Bulbs (G4-EN6)

Buildings Opted for LED Bulbs	2013	2014	2015	2016
LED Building (Units per year)	230,000	230,000	230,000	230,000
Building 1, 2, 3 and Others (Units per year)	802,148	802,148	802,148	802,148
12 Area Offices' Service Buildings (Units per year)	-	3,864,000	3,864,000	3,864,000
Rangsit Warehouse (Units per year)	-	-	-	48,162
Buildings under 12 Area Offices (Units per year)	-	-	-	4,427,270

After assessing the energy use of PEA's business operations, it was found that there were systematic management and operational compliance in line with the strategy and plan for loss reduction in both technical and non-technical terms, which led to less electricity loss. Examples include increasing the efficiency of electric power system maintenance, installing condition-based maintenance and monitoring system in a pilot experiment at Samui island using underwater cables and power transformers.

Table of PEA's Energy Loss between 2014-2016 (G4-EN3, G4-EU12)

Energy Loss	2014	2015	2016
Units Lost (Total Loss)	5.46	5.55	5.4

Remarks : - Most of the technical loss was caused by high voltage feeder cables, distribution transformers, low voltage feeder cables, and equipment connections.

- Non-technical loss, calculated from the distribution system's total loss minus the technical loss, tends to result from inaccurate electricity meters, incomplete installation of meters, partial billing calculation or even unauthorized use of electricity.

- Loss is defined as the energy lost in the process of electricity transmission and distribution, calculated as the difference between the power producers' net units and the load received by end users.



Fuel

As part of the management of fuel usage for PEA vehicles, a fuel conservation policy was established. The policy requires all vehicles to have proper maintenance according to its mileage and work plan. It also provides training for chauffeurs to advocate conscientious and safe driving. In 2016, PEA managed to save 0.65% of its fuel consumption compared to the previous year.

Table of Amount of PEA Head Office's Fuel Consumption between 2014-2016 (G4-EN3)

Amount of Fuel Consumption	2014	2015	2016
PEA Head Office's Fuel Consumption (Liters)	18,437,276	18,988,819	19,113,089

Non-Hazardous Waste and Hazardous Waste Management (G4-DMA Effluents and Waste)

PEA recognizes that there are varieties of both non-hazardous and hazardous waste in the transmission and distribution systems, as well as at the head office and area offices, some of which require proper storage and disposal, for example old transformers and electricity meters.

Non-Hazardous and Hazardous Waste in the Transmission and Distribution Systems

PEA pays close attention to quality standards when selecting parts and equipment for its electric power systems. It also provides timely maintenance according to its work plan, which helps to maximize the lifetime of those equipment, thereby producing less waste than forecasted. For example,

• Providing more frequent cleaning for electrical equipment such as insulators located in areas close to the sea or areas with high airborne salinity, and areas with high concentration of particulates and dust in order to extend those equipment's lifetime.

• Organizing a database of equipment's health index since 2015 (for a recloser, for example) by taking into account various factors that may affect the equipment, in order to help plan the timely replacement of these equipment before damages occur. At present, this is still in a demonstration and evaluation phase and will continue to be adjusted and improved.

Disposal Method	Old Electricity Meters (Device)	Old Transformer Oil (Liter)
Reuse	10,929	-
Recycle	3,840	38,200
Landfill	0	-
Others	62,589	-
Total	7,758	38,200

Table of Volume of Waste from Electric Power Systems in 2016 (G4-EN23)

The assessment of old transformers removed from electric power systems revealed a 100% reuse rate of old transformer oil for other purposes within the organization, whereas the old transformers were disposed of as per regulations.

Non-Hazardous and Hazardous Waste at the Head Office and Area Offices

100 % of the waste generated at the head office was sent for proper disposal. Infectious waste from clinics in the head office was also separated from the general waste. 360 Kgs of infectious waste was properly disposed in 2016.



(G4-DMA Employment, G4-DMA Non-Discrimination)

Human Resources Management

Due to the current, ever-changing world's affairs in terms of economic, social and environmental dimensions, the Provincial Electricity Authority (PEA) deems it necessary to recruit knowledgeable and talented personnel who mesh well with business demands. In 2016, PEA researched, analyzed and set guidelines on the demand for manpower that covers all occupational fields in an attempt to efficiently bridge the gap in human resources management, as well as to recruit the personnel that fit the organization's needs clearly and effectively.

With regard to recruitment, employment, placement, shortlisting and new employee retention processes, PEA proceeds with an open recruitment process, while disregarding factors involving race, religion and educational institutes. The organization focuses on hiring good and able employees, including those who hail from different regions, in the hopes that they could represent diversity of thought and culture and communal opinions.

Recruitment, Employment and Placement Processes

PEA analyzed and reviewed its guidelines on recruitment, employment, placement for new employees and job vacancies, after which it proceeded to announce job vacancies for new employees by dividing its recruitment into two types as follows: **External Recruitment** -PEA announces its job vacancies on its website at https://pea.job.thai.com. Written tests will be conducted based on the qualifications announced. Those who pass these written tests will be required to participate in an interview. If they pass the interview, they will have to go through a 3 month probationary period before they are considered by each agency's respective administrators as to whether or they can carry out their duties efficiently. Provided that they meet all requirements, they will be officially recruited into PEA as an employee.

Internal Recruitment -PEA sends out a notification regarding job vacancies within the organization via e-letters and radio broadcasting. It conducts written tests and interviews, according to each candidate's required skills. Once they pass the selection process, PEA will mandate amendments to education qualifications and position descriptions.

After employees pass the recruitment, employment and placement processes, PEA will proceed to act on the employee retention guideline so that they can work for the organization smoothly. The guideline will be implemented in a wide range of activities and projects such as career advancement and talent management projects. In addition, PEA will seek to enhance their knowledge and ability, manage compensation and fridge benefits, allow employees a platform to communicate and convey their opinions and complaints via PEA's various channels. In 2016, PEA had a total of 2,007 new employees and 680 new contractors. The details are as follows:



Information on New Employees in 2016 (G4-LA1)





Employee Management and Retention (G4-DMA Employment)

The PEA plans to retain knowledgeable and skillful employees and facilitate their career advancement in an efficient manner. Furthermore, PEA strives to uphold a safe and sanitary working environment, while providing assistance, support and benefits to its employees and allowing them to communicate and convey their needs and opinions, so as to bring satisfaction to them and create their organizational commitment.



Table of Total Employees (G4 - 10)

All Employee Details	2014		2015		2016	
(Classified by gender)	Person	Percentage	Person	Percentage	Person	Percentage
Total Employees and Contractors						
Male	23,711	72.48	25,116	73.11	26,131	72.81
Female	9,004	27.52	9,237	26.89	9,758	27.19
Total	32,715	100	34,353	100	35,889	100

Employee Benefits (G4-LA2)

PEA surveyed the needs of its personnel in hopes of using the findings to carve out the benefits policy that could respond to the needs of various personnel in different areas and work operations. Doing so resulted in more effective management, personnel satisfaction, and institutional commitment.

PEA has the benefits and compensation packages that suitably commensurate the personnel's positions and competencies. They include salary, wage, bonus, per diem, and risk premium for employees working in high risk areas. There are also medical benefits, tuition benefits for dependent children, annual leave, maternity leave, and ordination leave.

In addition, PEA has put in place the policy in other areas of non-monetary benefits services for its personnel in an attempt to facilitate their work operations such as shuttle buses, hygienic food, clinics, libraries, financial loans with low interest, gyms, and other recreational activities. PEA also regularly revamped its communication channels used to disseminate information, so as to be able to communicate the information regarding a variety of benefits to its employee in an efficient manner.



Personnel Development (G4-DMA Training and Education)

Preparing the personnel to undertake future operations is one of the risk factors that the PEA is facing because there are a number of high-ranking executives who will soon be retiring in 2016. In the meantime, skilled employees in various fields still lack readiness and the technical skills required to take on executive jobs. In addition, the recruitment process for qualified employees for those positions is not appropriate, which may result in the discontinuity of the organization's personnel management.

For this reason, PEA has expedited its preparation of the personnel to adapt to changing capacities and manpower by providing them personnel development in an attempt to diversify their skills through the restructuring of personnel management focused on a cross functional management style. This will allow employees to acquire and increase their professional experience and create the body of knowledge gained from cross-training.

On top of that, PEA encouraged its personnel to share their specialized skills with their peers and incorporated the information on their expertise into a database. PEA also organized workshop, seminars and information-sharing exhibitions so that employees can put the knowledge gained from these activities into practice to achieve good work performances.

In 2016, the number of hours spent on workshops among PEA's employees and contractors averages 36.15 per hour/person/year as follows:

Number of Workshop Participants Classified by Position

Courses on Workshops and Seminars	Expense Used (THB)	Participants (Person)	Number of Hours Per Person (Hour)
Main Courses*	224,275,367.32	20,038	19.81
Supplemental Courses**	95,232.815.67	28,915	16.34
Total	319,508,182.99	48,953	36.15

2016 Courses on Workshops and Seminars (G4-LA9, G4-LA11)

Remarks : * Courses are fixed and set forth in PEA's annual workshop plan.

** Courses are provided beyond PEA's annual workshop plan.



Number of Workshop Participants Classified by Gender

Sustainability Report 2016



Type of Personnel Development Courses In 2016 (G4-LA10)

Personnel Occupational Health and Safety (G4-DMA Occupational Health and Safety, G4-LA5, G4-LA7, G4-LA10)

The important factor of PEA's operations is the occupational health and safety of its personnel, therefore, PEA focuses on improving its workplace and making it safe, sanitary and secure by appointing the Committee of Occupational Safety, Health and Environment. There are 203 committees that cover operational areas. The committees are made up of 50 % of the employees representing their employers and 50 % of the representatives of the contractors. Moreover, there are still safety-related entities responsible for acting on and abiding by the policy on occupational safety and health and environment. Their operations are as follows:

1. The director and operators must pay attention to and prioritize the importance of safety, occupational health and working environment.

2. The director must, by all means, support the operations that help to minimize accidents every step of the way and must focus on making zero accidents a reality.

3. The director must have a management role, while operators are obligated to continuously carry out their duties related to occupational safety and health and working environment, in accordance with law, standards and the safety rules and regulations. 4. Encourage operators to have knowledge, awareness and good attitudes about carrying out their duties safely, while also raising awareness about the safe use of electricity among citizens.

5. Support the adequate allocation of resources and budgets for the operations associated with occupational safety and health and working environment.

6. Make sure that all entities earnestly manage, monitor and evaluate the results of the operations associated with occupational safety and health and working environment.

In an attempt to respond to the Occupational Safety and Health and Working Environment policy, PEA employed a proactive occupational health process by evaluating its employees' health risks; controlling hazards at work sites; and examining and monitoring a working environment consistently in order to be able to set forth the preventive measures as appropriate.

After having studied the working conditions between operators and environment - or Ergonomics - with pilot agencies, it was found that 64.90 % of the human resources personnel were at risk of developing the symptoms of an office syndrome because they sat at their desks for more than 5 hours a day. For this reason, PEA provided training to disseminate knowledge and improve its workplace to accommodate the health conditions of its personnel, which resulted in a drop of 11.90 % in their office syndrome risks. Nonetheless, the organization will seek to improve the occupational health conditions of its personnel in other agencies in the foreseeable future.

In addition, PEA added special health checks for 20-25 employees who had to operate with printers in the printing department annually. Those health checks included detecting lead in their blood work since printing inks might have lead content. If it enters their bodies, it could be accumulated to the extent where it becomes fatal.

From 2015 to 2016, the results of employees' annual health showed that employees were at risk of developing Non-Communicable Diseases (NCDS) such as diabetes, high-blood pressure, coronary and vascular diseases problems and obesity. Some of them had a higher body mass index than the standard range; therefore, PEA held workshops designed to disseminate knowledge in the hopes that they could change their viewpoints and behavior in healthcare.

Number of Occupational Fatalities: 9 Persons Number of Occuptional Injuries: 9 Persons

Occupational Injury and Fatality Rate in 2016 (G4-LA6)

Table of Occupational Accident Rate in 2016 (G4-LA6, G4-LA7)

	Accident Rate (Classified by operation area)						
Description of Accidents	Head Office	Construction and Electrical System Maintenance	Pro- curement	Service Areas in Northern Region	Service Areas in Northeastern Region	Service Areas in Central Region	Service Areas in Southern Region
Accident Frequency Rate (AFR)	0	0.3663	0	0.0651	0.0592	0.0420	0.1448
Disabling Injury Severity Rate (DISR)	0	185.0427	0	117.1523	103.4827	53.9751	192.0543
Disabling Injury Index (\sqrt{DI})	0	0.2603	0	0.0873	0.0783	0.0476	0.1668

According to the accident and fatality rate of its personnel, the organization investigated the causes and took into account lessons learned from their mistakes in its safety management operations. It strengthened these operations, so as to prevent occupational accidents, which will prompt employees to have confidence in the safety aspect of their work, as well as to be able to perform work efficiently in the future.

Employee Satisfaction

PEA realizes that its personnel are the important factor that moves the organization towards sustainability; therefore, it strongly focuses on retaining its employees either in terms of their compensation or benefits that they are entitled to. Moreover, it also seeks to consistently improve their skills and fully take care of their occupational safety, health and environment, so as to raise a quality of their occupational life to the extent where they gain satisfaction and commitment towards the organization. In order to be informed of the employee satisfaction towards the organization in respective agencies, PEA conducted the employee satisfaction survey and held focus group meetings. The results of the survey indicated that the employee satisfaction rate stood at 85.27 % , while the contractor satisfaction rate rose to 88.46 % . These numbers represent an increase from 2015 as follows:

Year	2015	2016	
Employee and Contractor Satisfaction			
Employee	81.17	85.27	
Contractor	91.26	88.46	
Employee and Contractor Commitment			
Employee	85.69	89.12	
Contractor	92.15	89.87	

Table of Employee and Contractor Satisfaction and Commitment towards Organization (G4-LA4)

Nonetheless, PEA is still committed to fully taking care of its personnel to the best of its ability and maintaining a high level of their satisfaction, in the hopes that all employees working for PEA will feel happy and safe. The organization also seeks to improve a quality of their life and enable them to continually live in society.

Treatment of Retired Employees (G4-LA10)

All employees are one of the invaluable resources. With this belief and commitment, the organization has continually looked after everyone from their first day at work to their retirement days, while specifically looking to improve a quality of their life and create balance in their mental and physical health. In 2016, the number of retired employees is as follows:



Information on Retired Employees in 2016 (G4-LA1)





851 employees or 2.37% of all employees

233 contractors or 0.65%







85 contractors or 0.24%

The causes of resignation among employees can be divided into 7 categories: retirement at 60 years of age, death, dismissal from employment, termination, resignation, lay-off, firing or forced resignation. According to the number of resigned employees in 2016, the causes of resignation can be classified as follows:

Causes of Resignation	Number (Person)
Retirement at 60 years of age	860
Death	98
Dismissal from employment	7
Termination	6
Resignation	77
Lay-off	3
Firing or forced resignation	0
Total	1,051

Preparation for Retirement (G4-EC3, G4-LA10)

PEA sets out plans to provide skills management and life-long learning. The organization raises awareness about savings and investment management in order to achieve a post-retirement happy life. The registered PEA Employees Provident Fund Committee (PEA PVD), cooperated with the Department of Provident Fund (PVD) to mobilize and support savings and investment management in order to make members understand the existence of provident funds, savings and investment choices and enable them to have a sufficient amount of money and a good quality of life after their retirement. Through the PEA PVD meet and greet projects held at different venues nationwide, PEA has continually encouraged them to manage their savings and investments to usher in a happy retirement life. In 2016, PEA succeeded in raising awareness, provided information and visited a total of 3,608 members of PEA PVD in 12 electricity authority district offices and at the head office on one occasion.

In addition to what is mentioned above, PEA still employs a proactive operational policy by appointing PEA PVD liaisons and their network nationwide. The organization also includes the use of information technology as channels of communication such as a mobile application named "PEAFUND," PEA Website or Facebook. PEA also supports the PVD personnel to attend workshops on financing, investments, public relations and information technology, so as to enable them to effectively carry out their campaigning duties and disseminate knowledge.

With regard to the total provident fund as of December 31, 2016, PEA PVD has a net asset value of 36,923.16 million Baht. In the same year, PEA PVD provided a total of 2,757.58 million baht to 860 retired employees. These accumulated monies come from both retired employees and the financial support provided by the organization throughout their tenure. Retired employees will make use of these subsistence funds after retirement.



The Province Electric Authority (PEA) has recognized that customers or electricity users are key stakeholders in mobilizing and promoting its business growth. Hence, in 2013, PEA appointed a customer service master plan working group to deliver a customer service master plan for 2013-2020 which aims to improve its retail according to the 2014-2023 PEA strategy plan. PEA strives to be a customer centric organization which focuses on customer relationship building and management, in order to meet customer's demand and expectations through good service delivery system equipped with state-of-the-art technology and innovation.

The Customer Service Master Plan for 2013-2020 that PEA prepared does not only aim at developing service support systems but also at improving and developing the overall service structure, including providing service to those requesting and canceling PEA services, customer's personal data management, electricity bill payment channels, communication and public relations channels, as well as complaints management. Implementation plan is as outlined below:

1. Requesting and Canceling Electric Service Procedure

1.1 Procedure for Requesting Electric Service

PEA has indicated different procedures for new residential and industrial users requesting electricity as the following:

1.1.1 Requesting Electricity for Residential Users

In requesting electricity for new residential users who are installing electricity meters under 30 amps and do not need to expand its distribution system, customers must submit a request for electricity and prepare relevant documents for PEA's review. The period for such review and the commencement of meter installation will depend on the service area. It takes 2 working days for those residing in urban areas, and 5 working days for those in rural areas, counting from the day customers pay due fees and fulfill all the conditions. The process is illustrated in the diagram.



Procedure for Residential Users Requesting Electricity

Residential users are required to pay their electricity bills within the designated time. The failure to do so within 10 days from the date indicated in the invoice (the 10 days include 7 days after due date and 3 days of warning period), will result in a temporary suspension of electricity transmission.

Customers also have the right to ask PEA to examine the margin of error of the meter. PEA may install another meter for 24 hours to compare the figures, or it may bring the reported meter back for testing at its facilities. If it is found that the meter has a margin of error beyond 2.5%, PEA will replace it without charging any testing fees, and will deduct the erroneous due amount calculated from the bill to compensate the customer.

1.1.2 Requesting Electricity for Industrial Users

In requesting electricity for industrial users, the request can be submitted the necessary documents to the PEA area office which oversees the area in which the establishment is, at least 2 years prior to its intended start date of use. This applies to those wishing to utilize 10,000 kVA and above or to utilize less than 10,000 kVA but would require stability for high voltage transmission. In order to ensure the completion of all setups by the time the company intends to start using electricity, PEA considers to install a meter and transmission differently in each case. For requests to install a transformer smaller than 250 kVA, PEA can install meters and start transmitting electricity within 35 working days. If the request is for transformers that altogether exceeds 250 kVA but not beyond 2,000 kVA, PEA will proceed with meter installment and transmission within 55 working days.

Requesting Electric Service for Industrial Users



1.2 Pocedure for Canceling Electric Service

If customers wish to cancel PEA's electric service, they can submit their cancellation request along with an evidence of electricity payment in order to receive the insurance fee refunds. After PEA reviews the documents and determines that the customer does not have any balance unsettled, it will then proceed to return the electricity use insurance fee within 20 working days, following the process outlined below :



Procedure For Canceling Electric Service

If the service requestor would like to access further details concerning electricity bill payment, meter testing, the conditions for increasing meter size, and transferring user account, please visit www.pea.co.th

2. Customer's Personal Information Management (G4-DMA Customer Privacy, G4-PR8)

In 2016, PEA provided its services to over 18.89 million customers nationwide who altogether consumed 129,672.60 units of electricity, which amounts to 71% of all electricity users in Thailand. These customers can be divided into the following groups: 'Residential Users' which consumed 30,933.71 units, 'Commercial Users' which consumed 31,562.87 units, 'Industrial Users' which consumed 63,394.64 units, and 'Others' users which consumed 3,7814.38 units.

This brings PEA as the electricity provider with the largest customer base in the country. Therefore, PEA highly values the protection of its customers' personal data. It follows the various related rules and regulations such as the Official Information Act B.E. 2540, Electronic Transactions Act B.E. 2544, Office of The Electronic Transactions Commission's Announcement of Guideline on Personal Data Protection of a Government Agency B.E. 2553, which requires government agencies to set up a strict personal data protection system for its customers in order to prevent violations of right to privacy. By operating in compliance with the aforementioned regulations, PEA consequently did not receive any complaints in 2016 regarding violations of privacy or loss of customers' data.

3. Improving Electricity Bill Payment Channels (G4-DMA Provision of Information)

Throughout its operation, PEA has continuously improved and developed its payment system, to cater to the customers' changing needs. For example, PEA focuses on convenience, speed, and efficient channels of payment whereby customers can settle their bills at PEA's service counter or other representative counters which has a PEA logo, through automatic deduction from bank account, credit cards, internet banking, and PEA mobile application. Details are as illustrated below.



PEA Front Office Service Centers



10,509,663 Customers (57.30%)

PEA Mobile Shops

Representatives Authorized by PEA



Moreover, PEA has also appointed a Smart Customer Service Committee, and a Smart Front Office Sub-Committee to deliberate on ways to improve service efficiency through different projects. Examples include:

3.1 PEA Mobile Shop Project

PEA has a policy to expand its service area to locations with several payment overdue notices, high density of electricity users, isolated or rural areas that do not find existing PEA service spots convenient. Therefore, PEA started its PEA Mobile Shop project to bring its various services to the customers, whether they are requesting electricity meter, paying electricity bills, meter works, amending user history, and notifying power outages without any extra service fees. This PEA's project goal is to service at least 3,000 customers per month.

In 2016, PEA had dedicated a budget of 24,256,206 baht to adapt 54 2-ton trucks used for fixing power failures that have at least 20 remaining serviceable years to be used as PEA Mobile Shops. Of those, 50 trucks have already been successfully retrofitted, while 4 trucks are still in progress. Each region service area is not given more than 5 trucks, according to the following details.

Region	Service Areas	Target (Number of Trucks)	Completed (Number of Trucks)	In Progress (Number of Trucks)
North	PEA Area 1 (North) Chiang Mai province	5	4	1
	PEA Area 2 (North) Pitsanulok province	5	5	-
	PEA Area 3 (North) Lopburi province	5	5	-
Total for Service Areas in	the North	15	14	1
	PEA Area 1 (Northeast) Udon Thani province	5	5	-
Northeast	PEA Area 2 (Northeast) Ubon Ratchathani province	5	5	-
	PEA Area 3 (Northeast) Nakhon Ratchasima province	5	5	-
Total for Service Areas in the Northeast		15	15	-
Central	PEA Area 1 (Central) Ayutthaya province	5	4	1
	PEA Area 2 (Central) Chon Buri province	6	5	1
	PEA Area 3 (Central) Nakhon Pathom province	5	5	-
Total for Service Areas in the Central		16	14	2
South	PEA Area 1 (South) Phetchaburi province	2	1	1
	PEA Area 2 (South) Nakhon Si Thammarat province	5	5	-
	PEA Area 3 (South) Yala province	1	1	-
Total for Service Areas in the South		8	7	1
	Total for All Service Areas	54	50	4

Table of PEA Mobile Shop Service in Different Regions

3.2 PEA Shop Project

PEA has operated according to its Customer Service Master Plan for 2013-2020. As part of its customer service strategy, it has a plan to develop service locations, "PEA Shops" in shopping malls. It has already outlined the standard and procedures for servicing and plans to begin its operation in all 12 service areas. PEA has used the following criteria in selecting its PEA Shop locations:



In 2016 PEA made plans to open PEA Shops at 131 locations, of which 81 have already opened and 50 locations are still under consideration. Further details are as follows:

Table of PEA shop Service	Availability in	Different Regions
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Region	Service Areas	Amount of PEA Shops	
	PEA Area 1 (North) Chiang Mai province	7	
North	PEA Area 2 (North) Pitsanulok province	6	
	PEA Area 3 (North) Lopburi province	4	
Total for Service Areas in the North		17	
Northeast	PEA Area 1 (Northeast) Udon Thani province	7	
	PEA Area 2 (Northeast) Ubon Ratchathani province	7	
	PEA Area 3 (Northeast) Nakhon Ratchasima province	5	
Total for Service Areas in the Northeast		19	
Central	PEA Area 1 (Central) Ayutthaya province	11	
	PEA Area 2 (Central) Chon Buri province	9	
	PEA Area 3 (Central) Nakhon Pathom province	8	
Total for Service Areas in the Central		28	
South	PEA Area 1 (South) Phetchaburi province	4	
	PEA Area 2 (South) Nakhon Si Thammarat province	6	
	PEA Area 3 (South) Yala province	7	
Total for Service Areas in the South		17	
Total for All Service Areas		81	

3.3 PEA Mobile Application Development Project

In 2016, PEA had developed a customer service platform through mobile application, the 'PEA Mobile'. Customers can use it on either iOS or Android operating system. The application was available for download since May 1, 2016 and there are now approximately 307,292 users.

The PEA Mobile application allows users to check electricity service rates, find PEA service centers, offices, and PEA Shops. The application is a channel for customers to report power outages or failures, provide feedback or lodge complaints while also serving as a faster and more convenient public relation news channel.

3.4 Enhancement of a Government Easy Contact Center (GECC) Project

PEA has responded to the government's policy which decrees that public offices and enterprises must organize a Government Easy Contact Center (GECC) to be the focal point for facilitating and advising the public. It is meant to increase the service efficiency and build people's confidence in public organizations and enterprises, and to promote government offices to provide a one-stop service.

In 2016, PEA selected 15 of its branches that offer outstanding service to be evaluated according to the GECC Certifying Standard, all of which had passed and were certified. PEA will also select 89 more branches to be evaluated for certification in 2017, and another 81 in 2018-2019. The plan is as detailed below.

Region	Service Areas	GECC Certified PEA Office (Branch)	Targets (Year)		
		2016	2017	2018	2019
North	PEA Area 1 (North) Chiang Mai province	1	7	4	3
	PEA Area 2 (North) Pitsanulok province	1	8	2	1
	PEA Area 3 (North) Lopburi province	1	8	2	2
Total for Service Area	as in the North	3	23	8	6
Northeast	PEA Area 1 (Northeast) Udon Thani province	2	8	3	2
	PEA Area 2 (Northeast) Ubon Ratchathani province	1	8	2	2
	PEA Area 3 (Northeast) Nakhon Ratchasima province	1	5	4	4
Total for Service Areas in the Northeast		4	21	9	8
Central	PEA Area 1 (Central) Ayutthaya province	2	10	7	6
	PEA Area 2 (Central) Chon Buri province	1	8	6	6
	PEA Area 3 (Central) Nakhon Pathom province	2	6	4	4
Total for Service Area	Total for Service Areas in the Central		24	17	16
South	PEA Area 1 (South) Phetchaburi province	1	7	3	2
	PEA Area 2 (South) Nakhon Si Thammarat province	1	7	4	3
	PEA Area 3 (South) Yala province	1	7	3	2
Total for Service Areas in the South		3	21	10	7
Total for All Service Areas		15	89	44	37

Table of Enhancement of a Government Easy Contact Center (GECC) Project
4. Developing Communication and Public Relations Channels (G4-DMA Provision of Information)

In 2016, PEA worked to increase the efficiency of its communication and public relations channels to ensure that they are fast, up-to-date, and allow for timely customer feedback. This is to establish means to communicate and send news to all groups of users and stakeholders. At present, PEA has the following channels which it uses to disseminate general news about its organization and to share information related to electricity use.





Even with a comprehensive customer service operation which cover requesting and cancelling electric services, customer's personal data management, improvement to electricity bill payment channels, development of communication and public relations channels, as well as complaints management, PEA is still determined to continue improving its service quality. It seeks to become a customer-centric organization. PEA conducts survey missions annually to learn more about its customers and the market, and to receive feedback on the satisfaction of customers from all regions and from all groups of end users. The feedback rates 6 dimensions of customer satisfaction, namely the quality and standard of operations, coordination and response to customers, operational outcomes, communication and public relations, personnel and facilities.

Results have shown that customers are most satisfied with personnel (4.19%) and are least satisfied with communications and public relations (3.57%). The data is as demonstrated below.



6 Dimensions of Customer Satisfaction Survey 2016 (G4-PR5)



From the customer satisfaction survey 2016, it is found that customers are more satisfied with PEA's services, rating at 85.93%, a 1.53% increase from 2015 which was rated 84.40%. The detail is as illustrated in the graph.



Overall Customer Satisfaction Survey 2014-2016 (G4-PR5)



5. Complaints Management (G4-DMA Grievance Mechanisms)

Throughout all of PEA's procedures, stakeholder involvement is always highly valued. PEA has set up a channel for receiving feedback, suggestions and comments regarding all the organization's process. It has also established a measure for preventing and resolving issues that arise as impact from any kind of PEA's operation, whereby stakeholders can contact PEA through the following channels.





Process of Complaints Management



Table of Types of Complaints (G4-SO11)

Type of Complaint	Description
Quality of Electricity	Complaints about issues of the quality of electricity such as brownouts, power failure, overloading, etc. that persist for a period of time or that cause damage or dissatisfaction to customers.
Service	Complaints about work/service that do not appear to be of PEA's proper standard such as requiring too much time to perform transactions, delayed response to complaints about the quality of electricity, inconvenient servicing, inability to reach PEA office or call center to report incidents relating to electricity.
Units Recording/ Electricity Bill	Complaints about electricity bill invoice or receipt that appears to be abnormal or does not seem fair, according to PEA regulations and standards. For example, not receiving an invoice or receipt, electricity bill balance seems unusual, delayed receipt of invoice, mistake in electricity units recording, etc.
Personnel Conduct	Complaints about personnel conduct, including contractors and representatives sent by PEA. For example, lack of servicing personnel, unwilling service provision, impoliteness, providing incorrect or unclear information to clients, etc.
Transmission Suspension	Complaints about suspensions of electricity transmission that do not comply with PEA standards, guidelines, regulations and practices.
Power outage	Complaints about the lack of thorough electricity access according to PEA's principles.
General	Complaints concerning topics other than quality of electricity, service, billing units recording, personnel conduct. For example, damaged electric poles, unsafe electrical appliances, abnormal electricity meter, downed or low-hanging power lines, encroachment of private property, etc.

PEA has surveyed the complaints regarding its services between 2015-2016 and found that in 2016, it received a total of 1,966 complaints on its services, a 4.67% decrease from 2015 which had 2,062 complaints filed. However, PEA did receive 60.58% more complaints on personnel conduct in 2016 when compared to 2015. Details are as illustrated below.



Number of Complaints of PEA Services 2015-2016 (G4-SO11)



Types of Complaints of PEA Services 2015-2016 (G4-SO11)

Note* 'Others' include the lack of electricity access, damaged poles, unsafe electrical appliances, abnormal electricity meter, downed or low-hanging power lines.

Nonetheless, PEA remains determined to resolve issues to lower the number of complaints in the future, particularly those in regards to personnel conduct which had recently increased. PEA has established procedures for verifying facts and punitive measures, warnings for inappropriate staff conducts that reflect poorly on the image and credibility of the organization. It also organizes trainings for its staff to promote appropriate behavior and increase operational efficiency.



Number of Responses to Complaints of PEA Services 2015-2016 (G4-SO11)

Provincial Electricity Authority (PEA) recognizes the importance of stakeholder relationship management throughout all operations of the value chain. In order to provide product and services of adequate quality in a timely manner, it is crucial to establish transparent and fair procurement processes, easily accessible information, and convenient complaint mechanisms.

Types of Stakeholders within the Value Chain

PEA has categorized stakeholders within its value chain into 4 groups namely electricity suppliers, equipment suppliers, business partners, and cooperation partners. Generally, PEA has the same overall management strategy for the four groups, but there are still varying details for each group, depending on their context of activities and implementation.

	Electricity Suppliers	Equipment Suppliers	Business Partners	Cooperation Partners
	 Electricity Generating Authority of Thailand (EGAT) Very Small Power Producers (VSPP) Department of Alternative Energy Development and Efficiency (DEDE) Solar PV Rooftop 	Electrical equipment suppliers such as transformers and electric meter	 Contractors for the construction of pcwer stations and electric power systems Outsourced services for information technology Recruitment companies Meter reading and billing representatives Call Center Contractor for meter works Contractors for trees cutting 	 Payment service representatives Partners for automatic deduction from bank accounts and credit cards services
Roles in Production	 Distributing electricity in 115 kV and 22 - 33 kV power systems Distributing no more than 10,000 watts for PEA Distributing electricity generated from alternative energy Distributing electricity generated from solar power 	 Supplying equipment according to its contract with PEA 	 Constructing power stations and electric power systems according to the work plan Improving information and technology work, examining, maintaining, and repairing equipment as necessary Ensuring sufficient human resources for PEA's mission Meter recording and billing 24 Hrs hotline for reporting, providing information and receiving complaints. Installing and maintaining meter Cutting trees according to plans determined by PEA 	• Increasing payment channels
Roles in Creating Innovation	Ensuring adequate quality for all products	 Supporting the safe expansion of electric power system Supporting timely customer service 	 Maintaining the quality of electric power systems Supporting and increasing the efficiency of operations Providing convenience to customers Increasing the efficiency of customer support Increasing the efficiency of service 	Providing convenience to customers

Table of PEA Stakeholders within the Value Chain



PEA's Value Chain Management (G4-12)

Overview of Value Chain Management



PEA has followed the various rules and regulations for the procurement process, such as PEA Procurement Regulations, Regulations of the Office of the Prime Minister on e-Auction, and operated as follow:

• Communication with those interested in doing business with PEA to register on the vender list, per PEA's Regulation on Vender List Registration B.E. 2555. It comprises of registration of vendors, product quality check and measures for withdrawal from the vendor list, which will help to reduce the time spent on procurement and encourage vendors to demonstrate continuous improvement.

• For every procurement, PEA will communicate the relevant information to all vendors fairly and widely, as indicated in the guidebook on good management for the compliance of all staff involved in procurement. In 2016, staff involved were trained and informed of standard practices, particularly in regards to communication.

• Communication of PEA standard practices to the suppliers, business and cooperation partners for their compliance. In 2016, suppliers and partners received training and information on PEA standard practices for every occasion of their cooperation.

• At meetings, address issues and determine solutions, preventions and improvements relevant to cooperation in order to develop and advance the organization's operational outcomes.

• Closely monitor the quality of products and services from all (100%) of the suppliers, business and cooperation partners. Responsibilities towards Communities around Electric Power Transmission and Distribution Systems and Operating Areas

(G4-DMA Local Communities, G4-DMA Customer Health and Safety)

The demand for electricity has been steadily growing and the trend is likely to continue following the ever-changing lifestyles and expansion of business and industrial sector. Hence, the public sector attempted to expand the country's electricity generation capacity to meet the demand through electric power system expansion and efficiency improvement. Provincial Electricity Authority (PEA), as a state enterprise and a major energy supplier, acknowledges the importance of power supplies as a prerequisite for economy expansion and operates in compliance with the government policy to expand electric power transmission and distribution network, as well as to construct new power stations to accommodate the growing electricity generation capacity and future power plants, as well as to ensure thorough accessibility across the country.

However, expanding and constructing power system requires the service provider to take into consideration safety and the highest satisfaction of the people surrounding the site. PEA proceeds with each step mindfully, from the construction of power station and electricity grid to their maintenance. To ensure the safety and satisfaction, staff are introduced to measures and guidelines on building relations with the community and raise their awareness of safe electricity use. The guidelines are as follows:

1. Communication on Safety with Community and Consumers

PEA has designated a budget for media production to promote safety practices relevant to working near high voltage posts, including constructing, cutting tree branches, installing cables or billboards. Residents can contact PEA staff to install conductor cover on high voltage power line before they proceed with any kind of operation, to advise the public on how to use electricity safely and to prevent risks entailed by its misuse.



Procedures for PEA to Begin Work in any Area

or PEA District Office

2. Community Outreach (G4-SO1)

PEA has built relations with communities to create an understanding, learn about problems and impacts, and advise residents on safety precaution for electricity use. In 2016, PEA has conducted community relation building activities in 84 communities throughout the country to discover problem and impact. Examples of the concerns are danger from transformers, high voltage power lines crossing over houses, electrical leakage in flooded areas, and faulty electricity usage record. PEA also promotes safety precaution for electricity use through several projects such as:

2.1 The Communities Using PEA's Electricity Safety Project (G4 -S01)

PEA has been implementing this project for four consecutive years since its initiation in 2013 to

share knowledge with public and private organizations, educational institutions, and community leaders about electricity use in order to minimize risks of loss of life or property from electricity misuse. The project also aims to educate students at the level of high vocational certificate and technical diploma in electrical power technology about inspecting and improving power systems in the community area to ensure safety in areas under PEA's responsibility.

In 2016, PEA allocated 20,024,000 baht to organize training for 7,700 students, with 25 students from each of the 308 participating institutions. In addition, power system in 312,150 households were inspected, an increase of 24 % from 2015 as shown in the table below.

Table of Students and Households Participating in the Project

Project Participation	2013	2014	2015	2016
Number of Participating Educational Institutions	308	308	308	308
Number of Participating Students	3,700	7,725	7,765	7,700
Number of Households Inspected	111,000	309,000	309,750	312,150



2.2 Encouraging 84 Communities to Use Electricity Safely Project (G4 -EC8, G4 -SO1)

PEA has selected 84 disaster-prone communities that are within the areas under PEA's responsibility and allocated 84,000 baht for each community to organize trainings on safe and economical electricity use. The project also provided other services such as domestic electronic appliances inspection. This resulted in better understanding about safe use of electricity. The details of the project are as indicated below.

Table of Project Areas

Type of Area	Service Area	Number of Participating Communities
Area at Risk of Natural Disasters	Service Areas in 74 provinces	74
Area with Frequent Disasters	PEA Area 2 (North) Pitsanulok province	3
	PEA Area 1 (Central) Ayutthaya province	3
	PEA Area 2 (Central) Chonburi province	3
	PEA Area 2 (Northeast) Ubon Ratchathani province	1
	Total	84

2.3 PEA Renewable Energy for Drought Mitigation

Project (G4 -EC8)

PEA attaches great importance to providing support to drought-affected farmers who mostly use either diesel or electric irrigation pumps. In some cases, they are in areas without sufficient electricity supply for their use. PEA has demonstrated its effort in improving the basic infrastructure for the community, in order to contribute to farmers' well-being. Thus, PEA has launched this project to promote clean energy for sustainable farming by supplying equipment for solar power water pumps. The equipment consists of steel pole mounts to attach the Stand Alone System solar panel to the DC motor and piston pump. It is used to pump up surface water or ground water to irrigate farmers' lands within PEA's area of responsibility. The total budget of 1,305,400 baht was appropriated as detailed below.

• PEA Area 3 Lopburi province installed solar power water pumps for the Royal Development Project under the patronage of Her Royal Highness Princess Maha Chakri Sirindhorn and primary schools in Uthai Thani, equipping 18 locations and 18 households in total.

• PEA Area 3 Nakorn Ratchasima province installed solar power water pump for farmers in off-grid remote areas in Nangrong and Chalermprakiat district, Buriram province, equipping a total of 22 locations and 50 households.

The project results showed that 68 farmer households participated in the project, and the average income per month per household marked an increase of 500-100 baht, or a total of 1,200 baht per month. The use of solar power water pump lowers the cost for oil and also allows them to have water supply all year round. It also enables them to do mixed farming or grow cash crop, resulting in higher income per household.

CSR after Process

Through years of implementation, Provincial Electricity Authority (PEA) has developed itself in tandem with economic, social, and environmental growth in order to achieve global competence, and for the stakeholders to grow sustainably alongside PEA's several projects and activities as follows:

Educational Activities

"PEA Operational Skills Competition" and the "Standard Performance Day"





The activity "PEA Operational Skill Competition" was organized throughout the country and the "Standard Performance Day 2016" has been launched to upgrade PEA's standardized power systems. The aim is to achieve outstanding service and excellent safety and power system standard. The competitors used engineering software and tools to boost precision and to shorten operating time. In 2016, 720 staff from 12 PEA Area Offices took part in this competition.

PEA Sharing Smiles, Returning Happiness Project







PEA inspected and repaired electrical power systems for temples, schools, and foster homes. The "PEA Sharing Smiles, Returning Happiness" project also provided consumable goods, sports equipment, school supplies, computers, and free lunch scholarship for children in need. In 2016, the project was implemented once in each of the four area operations, with the total budget of 800,000 baht.

PEA Model Farm Project under the Royal Initiative of His Majesty

PEA has awarded a grant for the Mae Tung Ting model farm under the Royal Initiative Projects in Chiang Mai province to create a learning center and training venue on agriculture, fishery, animal farming, and food processing using solar energy. The project has been opened and provided training since April 10, 2016.

Environmental Activities

PEA Builds Check Dams Project



PEA initiated the "PEA Builds Check Dams Project" in 2010 by building weirs from faulty or damaged concrete structures such as poles, piers and concrete stuffs for rural communities across Thailand to promote quality of life and restore the natural environment. In 2016, 84 check dams were built, improving quality of life for over 20,580 households and irrigating 100,800 Rai of land.

PEA Forest Protection Project

PEA launched a campaign to encourage staffs and general people to join the tree plantation in the four area operations. The campaign was implemented in six areas: PEA Area 1 (Northeast) Udon Thani province, PEA Area 3 (Northeast) Nakhon Ratchasima province, PEA Area 3 (North) Lopburi province, PEA Area 1 (Central) Ayutthaya province, and PEA Area 1 (South) Phetchaburi province. In 2016, a total of 42,000 trees were planted over 59 Rai of land, reducing 617.40 tons carbon dioxide equivalent (tCO₂e) of greenhouse gas emission.







PEA's Community Revived the Marine Environment of Thailand Project



Following the submarine cable extension to Mook island, Trang province in 2011, PEA has initiated and implemented its seagrass planting project continuously. In 2016, 4,000 plants of seagrass were planted in Bor Hin, Sikao district, Trang province to restore the marine eco system and build up the natural nursery of marine life as well as fulfill the rich environment to the area.

The PEA's Greenhouse Gas Emissions Account

Resulting from PEA's activities such as power generating, vehicle use, electricity use, losses in transmission and distribution system, and Sulfur hexafluoride (SF₆) leakage, PEA emitted 4,543,675.29 tons of carbon dioxide equivalent (tCO_2e) in the year 2016. Thus, PEA launched projects and activities to encourage reduction in greenhouse gas emission. The projects involve power generating from renewable energy, use of diesel oil with blends of biodiesel, efficiency improvement of diesel engine power plants, and LED light bulb replacement. These projects helped reduce the emission of 2,127,696.15 tons of carbon dioxide equivalent (tCO_2e).

The Father's Trees Project

PEA organized the "Father's Trees" project to celebrate the auspicious occasion of the 70th anniversary of His Majesty the King's accession to the throne on June 9, 2016. PEA's seven area offices have conducted the surveys and chosen suitable areas to plant 970 trees in each, amounting to 6,790 trees in total, to improve the landscape and to build prospective tourist attractions in the future. The operating areas are as follows:

- Mae Wang National Park, Chiang Mai province
- Kwae Noi Bumroongdan Dam, Pitsanulok province
- Pasak Jolasid Water Conveying and Forest Maintenance Project, Lopburi province
- Roi Et Rajabhat University, Roi Et province
- Kaem Ling Royal Project, Ayutthaya province
- Huai Ongkot Royal Project, Kanchanaburi province
- Border Patrol Police Company 445, Yala province





The Releasing Elephants Back into the Wild Project

In 2016, PEA implemented the "Releasing Elephants Back into the Wild" project on the auspicious occasion of Her Majesty Queen Sirikit's 84th birthday on August 12, 2016 in order to support the Elephant Reintroduction Foundation. H.R.H. Princess Maha Chakri Sirindhorn released eight elephants into Doi Pha Mueang Wildlife Sanctuary, Hang Chat district, Lampang province.



Energy-Related Activities

The Illumination Systems Innovated and Installing LED Lights for Cultural Attractions across Thailand Project

PEA has promoted the Illumination Systems Innovated and Installing LED Lights for Cultural Attractions across Thailand since 2014 to improve lighting system and reduce energy consumption by replacing the original light bulbs in heritage sites across the country with LED bulbs. In 2016, PEA successfully implemented the project in 17 sites: Sothonwararam Worawihan temple in Chachoengsao province, Phra Boromathat Chaiya Ratchaworawihan temple in Surat Thani province, Chao Mae Lim Ko Niao Shrine in Pattani province, Chaiyathararam temple (Chalong temple) in



Phuket province, Ayutthaya Historical Park (Mongkhon Bophit temple) in Ayutthaya province, Phra That Na Dun in Mahasarakam province, Phetchabura Buddha in Phetchabun province, Phra Pathom Chedi temple in Nakhon Pathom province, Mahathat Woravihara in Phetchaburi province, Phra Thart Pha Sorn Kaew in Petchabun province, Phra That Cho Hae temple in Prae province, Phra Borommathat temple the Royal Monastery in Kampaeng Phet province, Phra Borommathat temple in Tak province, and Phra Mahathat Kaen Nakhon temple in Khon Kaen province. Since its initiation in 2014 until 2016, the project has helped reduce 141,596.20 units of energy usage and 72.40 tons of carbon dioxide equivalent (tCO₂e) in greenhouse gas emission.



Health Promotion Activities

The Mobile Medical Service



PEA collaborated with Saeng-Saiki Hetrakul Foundation, Daily News newspaper, and students of National Defence College of Thailand batch 27 has organized mobile medical service trips every year to provide medical service and treatment on general illnesses, regarding ears and dental disorders, trigger finger, and eye test. In 2016, PEA organized 12 mobile medical service trips nationwide and provided medical treatment to 25,874 patients.

PEA Light for Life: Cerebral Stroke Prevention Project

PEA along with the Neurological Research Foundation under Royal Patronage held knowledgesharing activities to promote better quality of life and to raise awareness of stroke risks. The check-up clinic was set up to assess the risk of having stroke and to advise people on how to treat the illness and prevent recurrence. In 2016, the activity was organized five times at both PEA's head office and four regional area offices, utilizing to a total of 5,860,000 baht.

Other activities

The PEA Caring Disaster Victims



Natural disasters in many provinces leave several of victims in distress. PEA organizes the "PEA Caring Disaster Victims" activity to rescue and provide preliminary assistance to the victims every year. In 2016, PEA allocated 1,950,000 baht to prepare and distribute 9,500 aid packages and drinking water.

The Volunteers at the Ceremony to Pay Homage to His Majesty the Late King Bhumibol Adulyadej



PEA's executives and volunteer staffs distributed 130,000 posters of His Majesty the late King Bhumibol Adulyadej, 17,000 nasal inhalers, 6,000 hand fans, food and drinking water to people coming to pay homage to His Majesty the late King Bhumibol Adulyadej at Sanam Luang during November-December 2016

The PEA Opens a Rice Selling Space for Farmers to Sell 100 Tons of Rice

PEA collaborated with regional farmer representatives throughout the country to put agricultural products on sale at PEA head office and regional offices without middleman. The products are 100 tons of authentic Surin jasmine rice from PEA Surin office, moreover, jasmine rice, brown rice and ground rice from PEA Buriram office.

Furthermore, in order to develop and empower communities, PEA also launched other special implementation under 49 projects such as Communities Using PEA's Electricity Safety Project, Red Cross Volunteer Project, Social and Environmental Consolidated Project of three Electricity Authorities (EGAT, MEA, and PEA), and Drought Impact Mitigation Project.





Awards of Pride

Provincial Electricity Authority (PEA) has always carried out its implementation on the basis of responsibility and value creation in economic, social and environmental areas. In 2016, PEA, as a result, received a list of awards that led to the pride of the organization and personnel at all levels. The aforementioned awards are as follows:









from the Ministry of Natural Resources and Environment.





On December 15, 2016, PEA received the 2016 Sustainability Report Award in the Recognition category from the Securities and Exchange Commission of Thailand (SEC), Thai Listed Companies Association and Thaipat Institute.





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Survey of Reader's (pinion PEA Sustainability	y Report 2016
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Customers/osers) Public sectors		employees	
Business partners) Counterparts	🔵 Sup	opliers	
Communities around PEA) Societies	Oth	er (Please sp	ecify)
Please rate your satisfaction of PEA Sustaina	bility Report 201	6	•	
Completeness and reliability of contents	High	Medium	Low	
PEA's material aspects	High	Medium	Low	Improveme
Interesting of information	High	Medium	Low	Improveme
Report design	High	Medium	Low	Improveme
Language	High	Medium	Low	mproveme
Overall satisfaction	High	Medium	Low	
 Energy consumption Effluents and waste management 	C	 Customer health and safety Customer privacy 		
Compliance (Environmental)	C	Marketing comm	unications	
Compliance (Product responsibility)	\sim	Availability and r	eliability	
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Occupational health and safety		Disaster/Emerger	, ncy planning	and response
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Does this report include all PEA's sustainability material aspects 2	
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Yes	
○ No (If not, please specify which aspects should be added to the future Sustainability Report)	
5. How did you receive the report ?	
PEA's website	 Seminar/Exhibition
PEA site visit	Giving within organization
Received by mail	Other (Please specify)
6. Please provide other comment and suggestions for the improvement of the future	
Please send us your survey of reader's opinion by:	
1. Mail: Corporate Social Responsibility Department	
Provincial Electricity Authority Head Office	
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