2018 Taiwan Power Company

Sustainability Report

Sustainable Power, Caring Forever

Reporting Principles

This is the twelfth issue of the annual Sustainability Report published by Taiwan Power Company (Taipower). This year, the statistics and disclosures in the report have been compiled in accordance with the Sustainability Reporting Standards of the Global Reporting Initiatives (GRI). This report has been verified by SGS Taiwan to ensure that the report meets the requirements of both the Core Option of the GRI and the accountability principle standards (APS) in AA1000 (Type 1 Moderate Level).

The contents featured in this Sustainability Report have been compiled from data submitted by relevant units of Taipower. To ensure the accuracy of report contents and compliance with stakeholders' expectations, each year, an editorial meeting is held upon the completion of the report's initial draft for all data-submitting units to review the contents of the report and provide feedback on the report. All contents of the report must be approved by the corresponding unit supervisor, the President and Chairman before publication.

Considering the changes in Taiwan's economy and environments in conjunction with the three major developmental issues (reliable power supply, Energy Transition and corporate transformation) that Taipower now faces, Taipower's 2018 Sustainability Report has adopted "Achieving Sustainable Power through Dedication" as its theme as the company responds to international trends in green Energy Transition and domestic expectations for reliable power supply. The contents of each chapter have been compiled based on the roadmap of Taipower's five major developments in the future to reflect the roles that the company is anticipating to assume in the days to come.

Period Covered by the Report

From January 1 to December 31, 2017 (For the sake of complete disclosure and comparability, the report also includes some historical data).

Scope of the Report

This report covers Taipower's data and information regarding sustainability issues and achievements within the areas of operational development, social responsibility and environmental sustainability.

Inquiries

In 2015, Taipower established its Sustainable Development Website that serves as a channel to communicate with stakeholders about the company's performance on sustainability issues (including issues of lower materiality such as "Contribution to Society", which are not covered in this report). The company has also introduced stakeholder section and questionnaires in the hopes of facilitating smooth communication with our stakeholders. This report is also available in English, and the full version of the English report can be downloaded from Taipower's website. In addition, the "Information Disclosure" section on Taipower's website is updated regularly to provide the latest statistics on specific aspects of the company's operations, including management, power generation, environment and so forth. The company is eager to receive any feedback regarding its Sustainability Report. Your input will enable Taipower to better meet your expectations and publish our next Sustainability Report in the third quarter of 2019. You can reach us by the following methods:

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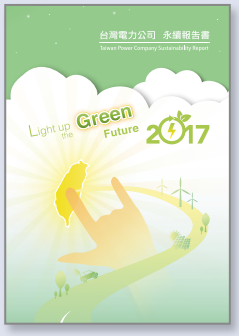
Sustainability Reports Published every August

2017



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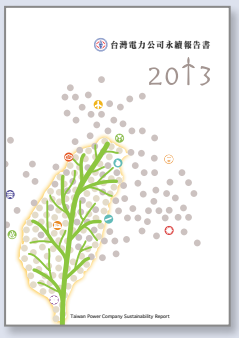

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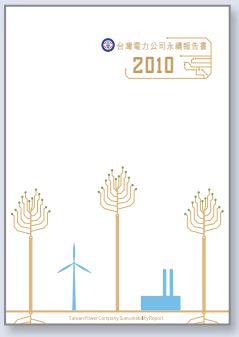

2009

2008

2007

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Statement from the Chairman

The year 2017 has seen rapid change in the power industry. Developed countries and neighboring nations alike embraced the integration of carbon trading systems into their power industries. Moreover, at least 131 major international corporations pledged to exclusively use renewable energy in meeting their power needs.

It is clear, that energy transition has become a focal point for governments and corporations alike. In Taiwan, amendments to the Electricity Act came into effect and a growing amount of public attention was paid to the issues of power supply stability and air pollution. In response to these trends, Taipower has shouldered its social responsibilities and dedicated itself to energy transition, the promotion of green energy and a corporate transformation to a holding company.

In order to stabilize Taiwan's electric power supply amidst these challenges, Taipower is pursuing four major goals in order to create a stable and sustainable business:

Advancing Energy Transition

In keeping with national energy transition policies, Taipower is pursuing its eco-friendly corporate mission in the following ways:

1. More Gas, Less Coal

   The government's energy aims to establish an energy generation portfolio composed of 50% gas, 30% coal and 20% renewable energy by 2025. Taipower plans to upgrade and expand existing facilities with high-efficiency combined cycle, gas-fired units and high-efficiency ultra-supercritical coal-fired units. The company will also construct new Liquid Natural Gas (LNG) receiving terminals to improve the stability of the gas-fired power supply.

2. Equal Emphasis on Wind and Solar Power

   The Phase V Wind Power project in the Changhua Coastal Industrial Park is expected to begin commercial operation by 2020. Additionally, a Demonstration Offshore Wind Farm, currently in Phase I, was launched in early 2018. The total installed capacity of that project comes to 109.2MW and is expected to produce over 360 GWh per year – equivalent to the annual power consumption of around 90,000 residential households.

   Taipower's Changhua Coastal Industrial Park Solar Power Project commenced in early 2018 and will be Taiwan's largest (and the world's 54th largest) solar farm with a total installed capacity of 100 MW. The project will generate 130 GWh annually – enough to supply the needs of about 30,000 residential households. As part of the government's two-year solar power promotion project, Taipower is developing a demonstration site for a 150MW solar power system located at the salt fields in Tainan. The project is scheduled for completion in 2019.

Promoting Company Transformation

Amendments to the Electricity Act came into effect in 2017, prompting the transformation of Taipower's corporate structure. The Taipower company is to be unbundled into constituents part that will then be legally bound into a corporate power group that is responsible for ensuring a reliable power supply and boosting competitiveness within the market. In July 2017, Taipower established Transformation Promotion Committee that is providing a consensus platform for ensuring a complete, and on-schedule transformation of the company.

In addition, the company has conducted a range or research on topics related to the future liberalization of the market. This research has explored financial planning, wheeling contracts and regulations, dispatch regulations, dispatch fee calculations, public retailer strategies and power plant operation improvements.

Strengthening Internal and External Communications

Internally, Taipower has been actively communicating with employees about the challenges associated with transformation. In 2017, a total of 21 employee communication sessions were held to facilitate and foster consensus and to promote transformation among the company's 26,000 employees. Externally, Taipower sought to engender public support and consensus with regards to issues such as air pollution, the removal of nuclear power, tariff schedule adjustments and power supply reliability.

Smart Life Strategy

Taipower is actively promoting smart living through the development and construction of a smart grid, strengthening the resilience of its power system, and creating a reliable & sustainable power grid. The company is also improving demand response, promoting smart meter installation and analyzing customers' power use preferences with big data in order to create a basis for smart power allocation. In 2017, Taipower proposed a smart meter and user integration demonstration program and completed the communication module that mediates between smart meters and household customers. At the same time, the company has been actively promoting grid connection for renewable energy to support an increased proportion of renewable energy in its power generation portfolio.

Looking ahead, Taipower will adopt a strategy of "prioritizing a stable power supply and drive transformation forward." The company is actively increasing its reserve capacity through engineering, supply, and demand solutions in order to ensure the reliable delivery of power. Moreover, the company is strengthening its internal and external communications in order to achieve information transparency. It is hoped that these measures will earn the company broader social recognition. Additionally, the company is responding to the Electricity Act Amendments with a philosophy of "Confidence, Determination and Action." As the company continues with its various undertakings and prepares for its transformation into a holding group with subsidiaries, we will continue to strive to become a prestigious world-class power utility group and a sustainable power business.

Chairman Wei-Fun Yang

Taipower's Value Chain and Operational Elements

Resource Input ▶ **Power Generation** ▶ **Transmission** ▶ **Distribution and Service**

Fund Investments

- **Taipower's capital:** NT$ 330 billion
- **Total expenditure in 2017:** NT$ 557.69 billion

Environmental Investments

- **Coal:** 28.97 million metric tons
- **LNG:** 14,113 million m^3
- **Petroleum:** 2,790 thousand KI
- **Nuclear fuel:** 676.1 thousand pounds
- **Water used for power generation:** 11. 495 million tons
- **Environmental protection expenses:** NT$ 26.16 billion

Equipment Investments

- **Total number of power plants in operation:** 24
- **Installed renewable energy capacity:** 2,110 MW
- **Installed thermal power capacity:** 21,640 MW
- **Installed pumped storage hydro power capacity:** 2,600 MW
- **Transmission lines:** 17,715 circuit kilometers
- **Distribution lines:** 369,027 circuit kilometers
- **Substations:** 607

Human Resource Investments

- **Total number of employees:** 26,734
- **Outsourced manpower positions:** 1,283 (End of 2017)

R&D Investments

- **No. of research projects:** 226

Social Investment

- **Social and charitable investment:** NT$ 864.05 million

Power Generation Division

Responsible for hydro and thermal power, management, generation, maintenance and construction.

Thermal: *52%*

Pumped storage hydro: *6%*

Renewable energy: *5%*

Nuclear Power Division

Responsible for nuclear power safety, system design and management, public communication and nuclear waste treatment.

Nuclear: *12%*

Procured Power

Private thermal power: *18%*

Renewable energy: *7%*

Transmission System Division

Responsible for electric grid planning, design, construction and operation.

HV transmission lines: 345 KV

General transmission lines: 161 KV

Underground transmission lines: 69 KV

Distribution and Service Division

Responsible for electricity purchasing, customer service, grid planning, construction, operation and maintenance.

Total number of users: 14.01 million households

User power consumption (sales) percentages:

Industrial: *56%*

Residential: *21%*

Commercial: *15%*

Other: *8%*

As an integrated electric utility company, Taipower has been committed to creating value for its stakeholders in a range of diverse ways as outlined in our vision statement. These include the adoption of eco-friendly and cost-effective measures that aid in the reliable delivery of power for the development of society. In shouldering these responsibilities while navigating the process of green energy transition and responding to the latest trends in sustainable development and amendments to the Electricity Act, Taipower has restructured its organization to four major divisions and is currently in the process of transitioning to a holding company with subsidiaries responsible for power generation, transmission, distribution and services. The value that Taipower creates is summarized in the figure below:

Output

- **Total annual revenue:** NT$ 566.804 billion
- **Profit before tax:** NT$ 23.15 billion

- **Net generation and purchased power:** 231,100 GWh
- **Power generated:** 180,500 GWh
- **Power purchased:** 50,600 GWh
- **Power sold:** 217,200 GWh

- **Line loss rate:** 3.82% (0.03% less than in the previous year)
- **GHG emission:** 100,722 thousand tons of CO_2e
- Submitted 15 applications for **greenhouse gas emission offsets**

- **No. of new employees:** 1,608
- **Employee injury frequency**: 0.21
- **Total number of employee training hours:** 1.588 million hours, equivalent to an average of 59.4 hours per employee

- **Patents:** 31
- **Published research reports:** 185
- **Published papers:** 87

- **Customer satisfaction score:** 96 points
- **Sponsored charity events:** 8

Value Creation

Provider of High-Quality Power Services

- Construct a stable and highly efficient power supply system to improve power supply reliability
- Strengthen customer relationship management, raise customer satisfaction
- Improve system data transmission through the construction of optical fiber networks to enhance system response capabilities
- Utilize IoT infrastructure and big data analytics to strengthen asset and equipment management
- Build a smart grid with capabilities for self-monitoring, self-diagnosis, maintenance, protection and recovery

Intergrator of Energy Networks

- Achieve effective integration and distribution of energy supply and demand by placing a smart energy resource grid and trading platform at the core of relevant operations
- Strengthen the development, construction and operations management of various power sources while fostering ties with IPPs and supply chain partners
- Ensure a safe fuel supply and improve procurement performance while moving into LNG supply
- Enhance power generation efficiency and construct energy resources as part of cyclical business models
- Distribute power and energy storage systems to achieve accurate supply management through a smart grid
- Promote corporate transformation and establish an international power utility group with an energy network as its core competitive edge

Adopter of Smart Living

- Utilize latest technologies to deliver services to customers that satisfy their diverse power needs
- Integrate smart appliances and buildings into the smart grid to bring greater convenience to the lives of consumers
- Utilize big data to better understand customers' usage behavior in order to provide value-added services that enable customers to use power in smart ways that reduces CO_2 emissions
- Integrate smart home energy management systems and various power demand management approaches to improve power usage efficiency

Agent of Environmental Friendliness

- Increase low-carbon power generation and develop renewable energies to improve the safety of renewable power grid integration
- Foster attitudes for sustainable and green lifestyles and focus on ecological preservation so as to create a better environment
- Increase low-carbon power generation to achieve carbon emission reductions so as to become a green enterprise
- Encourage the general public to cultivate habits of energy conservation, to purchase green energy and to facilitate power consumption efficiency
- Strengthen nuclear power plant decommissioning and nuclear waste treatment safety

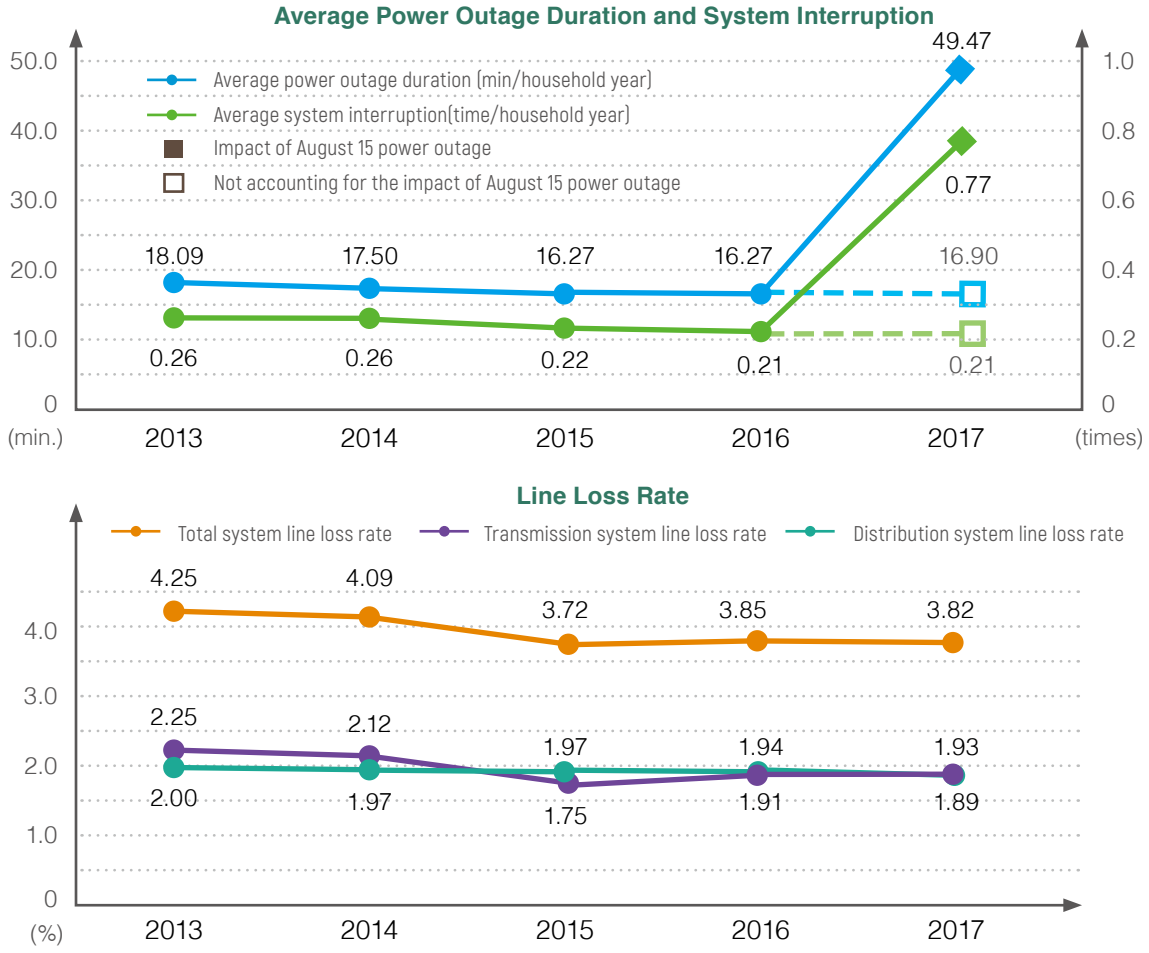
Practitioner of Corporate Social Responsibility

- Focus on corporate governance and corporate ethics
- Promote corporate culture; expand public welfare activities and encourage co-prosperity with communities around our power plants
- Build a safety culture that fosters initiative, mutual care and discipline
- Build diverse channels of communication with society. Engage society with an open mind in order to establish trusting, win-win relationships with the public

Reliable Power Supply

As Taiwan's economy has grown, a reliable power supply has become the basis for the island's industrial development. Since supplying power is at the very core of Taipower's operations, ensuring stable power supply capabilities has always been a target of the company. However, the domestic demand for power is growing and the power grid is facing more severe threats from natural disasters. In consequence, Taipower has hastened the pace of growth and resorted to means such as power development, enhancing grid resilience, improving dispatch capabilities, analyzing risk scenarios and so forth in order to ensure the continued delivery of stable power and ensure the company remains the driving force that propels sustainable development and a competitive edge for Taiwan.

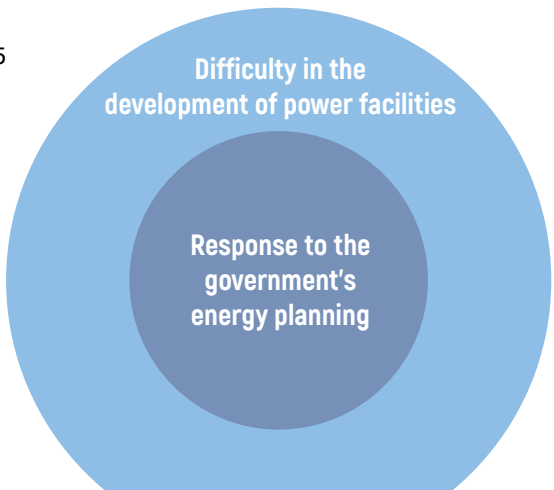
Duration and Frequency of Power Outages



A Reliable Power Supply is a Major Concern for Taiwan—Challenges to a reliable future power supply

Internal: **Growth in energy demand**

- Power generation ratio planning for 2025
- Implement power development in conjunction with relevant policies
- Natural Gas Supplier management



External: **Climate change**

- Difficulty in acquiring land for facility construction
- Difficulty in monitoring the progress of environmental assessment
- Complaints and protests against projects
- Escalating impacts from natural disasters
- Renewable energy construction needs to be completed gradually
- Adjustments must be made to the power grid in order to facilitate the integration of green energy

Taipower's Efforts to Stabilize the Power Supply

Supply

Power Facilities

Maintain existing generators

- Strengthen maintenance for existing units
- Control of major overhaul progress
- Implement online servicing for units in operation to reduce the frequency of shutdowns due to overhauls
- Enhance human resource training
- Duly implement generation/transmission/dispatch equipment maintenance and replacements
- Xiehe power plant units 1 and 2 are intended for emergency backup generation
- Decommissioning for Dalin unit 5 delayed till the end of 2019

Install new generators

- Eight major plans to increase gas generation and reduce coal-fire generation
- Expedite the construction and rebuilding of units including Dailin units 1 and 2 and Datan C.C. units7 , Tungsiao C.C. units 1 and 2 and Linkou units3 and so forth to begin commercial operations in 2018
- Speed up green energy unit planning and construction

Strengthen power grid resilience

- Develop smart transmission to facilitate the assessment and handling of system anomalies
- Develop smart distribution to facilitate feeder automation and the integration/distribution of power
- Adopt a clustering design at key power plants and strengthen independent operability of circuits
- For sections that are more susceptible to the impact of typhoons, deploy 161kV power lead
- Continue to promote grid improvements; construct and update substations
- Fortify existing key towers in regions of greater geological sensitivity or relocate the facilities

Management Strategies

Strengthen supply chain management

- Collaborate with CPC for LNG supply
- Coordinate with CPC to ensure that the fuel supplied by CPC is compliant with the environmental requirements of the Keelung City Government (i.e. sulfur content below 0.3%) to ensure that the Xiehe power plant is operating in compliance with pertinent regulations
- Independently construct LNG receiving terminal and purchasing to strengthen operational independence and cost control

Improve dispatch capabilities

- Include terms on peak load coordination in the contracts with IPPs
- Establish guidelines for emergency dispatch
- Implement large drills to test the impact of power shortages on system stability and safety risk management by creating different risk scenarios to verify Taipower's response capabilities. In recent years, Taipower has created scenarios for earthquakes, typhoons and volcanic activity that render power plants inoperable, result in insufficient reserve operating capacity and line malfunctions and used these scenarios to carry out relevant exercises

Demand

- Increase the gap for time-of-use rates and peak load rates
- Improve upon and promote demand-based response measures
- Promote a New Energy Conservation Movement

Emergency Preparedness

When power supply pressure is high or in the event of emergency, Taipower has to rely more heavily on specific dispatch and responses in order to maintain power supply stability. Taipower's process of stabilizing power supply during emergencies can be illustrated with the August 15 incident in 2017. On August 15 at 16:51:02 PM, due to a disruption in LNG supply, six generators at the Datan power plant tripped and immediately led to a 4.1567 GW reduction in power generation. Taipower's response included:

1. As a result of incident, under-frequency relays (power system protective equipment) automatically activated load shedding feature at 16:51 PM and cut off power supply for some customers (approximately 3.36 GW of load was shed and roughly 1.54 million customers were affected).
2. At 18:00 PM on August 15, Taipower's Emergency Response Center established an Emergency Response Task Force comprised of personnel from the Departments of Power Generation, Nuclear Power, Power Supply, System Operations, Telecommunications, Public Relations, Secretariat, Business, Distribution and the Emergency Power Supply Center.
3. Starting from 18:00 PM on August 15, Taipower implemented four rounds of rolling blackouts across Taiwan. The operation affected approximately 5.92 million customers. As power generation was gradually restored at the Dalin power plant, the number of customers involved in the rolling blackouts decreased until, by 21:40 PM, normal power supply was restored in various areas and power rationing officially ended.

Energy Transition

In light of abnormal climate patterns occurring around the world, a new green energy revolution has swept across the globe in an effort to separate energy production from carbon emissions and move humanity forward on a path of sustainable development. Riding this wave of green energy, Taiwan has set 2025 as the target deadline for energy transformation composed of the development of renewable energy and a nuclear-free homeland. The effects of this energy transformation are broad, and as the primary supplier of power in Taiwan, Taipower shoulders a vital responsibility for implementing the transformation without compromising the stability of the power supply, environmental sustainability or reasonable tariffs. Nevertheless, it will take the participation and efforts of all citizens to change our society into a low-carbon one.

- Potential situations where grid integration and the addition of transmission grids may not be sufficient to meet demand
- Relevant systems at the distribution level are not capable of accounting for the needs of distributed power generation such as renewable energy grid integration, and relevant facilities will require time for update and renewal
- Integration of offshore wind power into the grid needs to take into consideration potential impacts on marine ecology

WHY

Driving Forces for Energy Transition

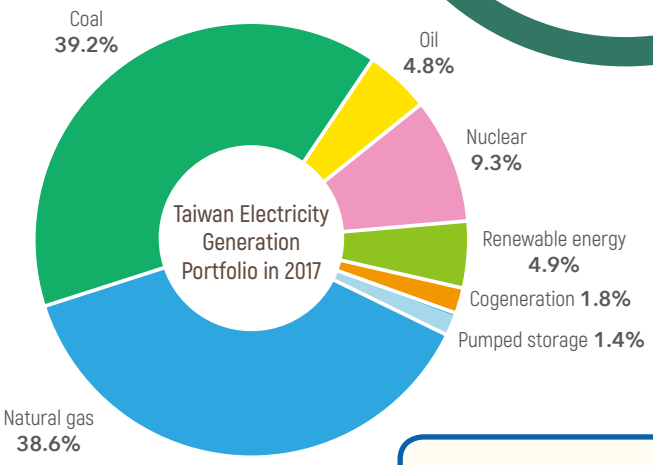
- International trend to carbon reduction
- Domestic target of GHG reduction
- Domestic concerns and responses to the issue of air pollution
- Domestic environmental protection regulations are becoming more stringent

WHAT

Taipower's Challenges

- Continued increase in energy demands
- Assurance of reserve capacity
- Renewable energy development costs and technologies
- Limitations of the existing power grid

- During the global energy crisis of the 1970s, nations around the world deliberated on ways to achieve energy transformation in order to prevent over dependence on fossil fuels. With the changes in the international situations, climate change and carbon reduction is again receiving increased focus around the world. In 2015, the Paris Accord came into effect whereby nations around the world agreed to contain global warming within 2℃ before the end of the century, with each participating nation establishing its own national contributions (INDC). Although Taiwan did not take part in the agreement, the government has nonetheless declared Taiwan's INDC: to reduce GHG emission by 20% in 2030 (compared to 2005)



2015

- The Paris Agreement was established at CO21
- The Greenhouse Gas Reduction and Management Act was passed in Taiwan

2017

- Amendment to the Electricity Act

2020

- The Paris Agreement takes effect
- The EU's objectives for 2020:
  - Increase the ratio of renewable energy in the energy mix to 20%
  - Improve energy efficiency by 20%

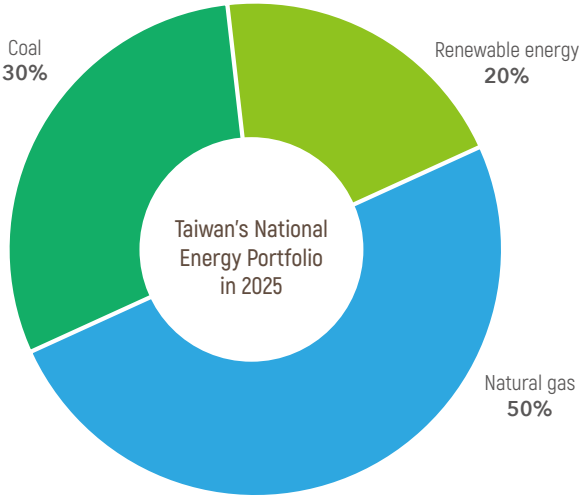
HOW

Taipower's Efforts

- Planning for nuclear power plant decommissioning
- Adopting LNG during the process of energy transformation
- Continual development of inland wind and solar power generation
- Investment in offshore wind farm construction and a geothermal generation demonstration project
- Taipower has completed an inventory of renewable energy to improve the integration of feeders in areas where grid integration is more difficult. The company has also established short/medium/long-term models for the activation of renewable energy grid integration improvement planning
- Promoting smart grids and smart dispatch
- Promoting and improving demand-based management

- In the past 16 years (2002-2017), Taipower had invested a total of NT$ 22.2 billion in independent inland wind farms and solar power generation projects
- Between 2015-2030, Taipower will invest in excess of NT$ 418 billion in order to increase the total installed capacity for renewable energy to 5.4GW by 2030
- Taipower's ongoing power projects include solar power Phases 2-4, wind power phase 5, the Penghu low-carbon island project, offshore wind farm phases 1 and 2, the Green Island geothermal experiment, and other small renewable energy projects
- Thus far, a total of 1.8GW of green energy has been integrated into the power grid and Taipower had received applications for another 7.5GW (as of February 13 2018)

GOAL



Prospects for Energy Transition

- Achieve a nuclear-free homeland
- Achieve carbon reduction objectives
- Transition towards a reliable power supply system that operates mainly on low-carbon energy

- Achieve a nuclear-free homeland
- The composition of domestic energy:
  - Natural gas 50%
  - Coal 30%
  - Renewable energy generation 20%

2025

- Taipower producing 5.417 GW of renewable energy:
  - Hydro 1.896 GW
  - Solar 1.024 GW
  - Offshore Wind 1.804 GW
  - Inland Wind 0.593 GW
  - Geothermal 0.1 GW

2030

- International Carbon Neutrality Goal

2050

Company Transformation

The Objective of Transformation

Holding Company

Accounting unbundling

Power Generation Company	T&D co with Public Retailer	
Power Generation Division	Transmission and Distribution Division	Public Retailer

Could co-operation

Sustainable Development for Various Power Business Value Chains

- Supervise the development of clean technologies and actively promote renewable energy
- Use LNG as the fuel of choice during the transitional period
- Use coal fuel as a means for cost balancing and stabilizing the power supply while accelerating the development of clean coal technologies
- Improve power plant operational performance
- Construct a smart grid and relevant infrastructure
- Make relevant adjustments to cope with the framework of power industry restrictions
- Redefine functions, content of service and new business possibilities
- Strive to deliver low-carbon power
- Satisfy consumer demand by connecting and regulating supply and demand

Prospects for the Four Business Divisions

Power Generation Division

Chien-Yih, Chen
VP and CEO

The Power Generation Division is tasked with the mission of aggressively improving air quality and working to-wards environmental sustainability while offering emergency dispatch support to ensure that all power supply difficulties can be resolved smoothly in order to achieve an ideal balance between energy safety and environmental sustainability.

With regards to offshore wind power, we have entered a lease contract for the Port of Taichung with the Taiwan International Ports Corporation so as to work together to create the largest offshore wind power harbor in Southeast Asia. At the same time, we will be promoting new thermal projects and large thermal plants, relevant equipment will be replaced and upgraded to significantly improve power supply efficiency.

In the future, we will continue to implement strategies including friendly load reduction, adjusting the ratio of generation fuel composition, increasing renewable energy and so forth in order to address the issue of air quality while preparing for a future of energy transformation, market liberalization and open green power so that Taipower may become a competitive green enterprise dedicated to the goal of environmental sustainability.

Nuclear Power Division

Fuh-Feng, Tsai
VP and CEO

The status of Taiwan's existing nuclear power plants will be a focus of public attention as Taiwan works its way towards the goal of "nuclear-free homeland by 2025." Taipower's nuclear generation operational strategies have always adhered to pertinent national policies and will continue to do so as we gradually advance towards the objective of a nuclear-free homeland by transitioning from the missions of carbon reduction and stabilizing power supply to the ultimate goals of decommissioning and appropriate handling of nuclear waste.

The decommissioning of NPP1 is scheduled to commence on August 1, 2019. Presently, we have been actively involved in the drafting of Decommissioning Plans (DP) for NPP2 and NPP3. Although Taipower has no prior experience in the decommissioning of nuclear power plants, by enlisting international technical services and assistance, Taipower will develop decommissioning know-how and, along with the technical knowledge and skills Taipower has accumulated through several decades of working with nuclear power, pass them down to future generations. The Nuclear Power Division also established an "Energy Service Company" promotion taskforce in September 2017 in hopes of creating new value and new business opportunities with nuclear power abroad.

2017
Amendment of The Electricity Act in Taiwan

2018
Preparation for Transformation

2.5 years after the amendment
- Liberalize the market and open access to renewable energy wheeling, distribution and sales
- Open access to green power for all customers
- Accounting separation among different Taipower division

2020
Design for the Division of Labor

Core Rationale & Tasks of Promotion

Public Operations and Monitoring, Corporate Government, Group Management, Group Development, Accountability

Planning Objectives

Responsibility

Holding Company

Organize

Group Development
Investment Planning
Resources Allocation
Synergy

Preparing for Competitiveness

Power Generation Company

Power Generation Division

Cooperate

Refine Competitiveness

T&Dco with Retailer

Transmission and Distribution Division

Support Neutrality

Create stable Revenues

Public Retailer

Support Neutrality

Foster Competitiveness

Conception of Planning

- Conduct relevant studies
- Learn from benchmark businesses

Discussion of Issues

- Promotion meeting
- Taskforces

Consensus and Decision

- Management meeting
- Decision by senior management

Transmission System Division

Hung-Wei, Lan
VP and CEO

In addition to the maintenance and operation of the public power grid, the Transmission System Division will also be responsible for the dispatch of power in the future. The "Power transmission & distribution subsidiary" will focus on ensuring stable supply of power whilst carrying out the marketing of power transmission and distribution in order to coordinate the functions between power generation and power sales so that we may satisfy user demands.

The deployment of "smart grid" and "friendly integration of renewable energy" will play a vital role and in the future, the division will work on developing new technologies and techniques in this domain to create new opportunities by utilizing the smart network and information and telecommunication technologies.

In order to maintain stable supply of power, power dispatch would be of utmost importance and as such, it is crucial for the division to continue to improve upon relevant functions of the Energy Management System (EMS) so that we can deliver stable and reliable power to our users. The construction of an information and communication technology (ICT) network is also an inevitable trend for the future.

Distribution and Service Division

Yao-Ting, Wang
VP and CEO

Creating the maximum profit for the group while ensuring the delivery of innovative, quality and diverse power services to the people has become the most important task for the Distribution and Service Division at this moment.

The continuation of smart grid construction is a vital task and in conjunction with the Bureau of Energy's "Smart Grid Master Plan", the division has already integrated advance technologies for information, communication and automation to actively construct a smart grid of high efficiency in order to expand the scope of energy use and power management in order to achieve the goal of energy conservation.

Last year, the division has also established its "Distribution and Service Division Transformation Taskforce" to discuss and identify the role that the division shall play in the future. Due to the intricate relation between "power distribution" and "power sales" when it comes to user service, the division will adopt the model of "division of labor and operating in coordination" to safeguard the general public's right to power access.

In the future, Taipower will be even more active in its response to the development of new businesses and commercial models by constantly pursuing innovation and change so as to prepare itself for the challenges from power industry liberalization.

6~9 years after the amendment

- Taipower transforms into a holding parent company
- Establish two subsidiaries for power generation and power transmission & distribution

- Liberalization of general power generation and sales industries
- Taipower fully response to competition from the open market

Future outlook

2023

2026

1 Taipower And Sustainability

Operation Highlights in 2017

- In the "***Doing Business 2018***" report, published by the World Bank, Taipower ranked third in the world on the Getting Accessibility to Electricity Index
- Taipower received five awards (2 gold, 1 silver and 2 bronze medals) at the "***13th Asian Power Awards***," organized by Asian Power Magazine. These included:
  - Nuclear Power Project of the Year - ***Gold*** and Hydro Power Project of the Year - ***Gold***
  - Transmission and Distribution Project of the Year - ***Silver***
  - Information Technology Project of the Year – Bronze and Coal Power Project of the Year - ***Bronze***
- Taipower was ranked ***33rd*** in the Large Enterprises category by CommonWealth's Magazine's "CSR Award for 2017"
- The company has received the Taiwan Institute for Sustainable Energy (TAISE)'s ***Gold Taiwan Corporate Sustainability Award*** for three consecutive years in the energy industry category
- The company received the ***Excellence Award*** in the "2018 Taipei Golden Eagle Micro-movie Festival" for the entry of "My Daddy My Hero"
- Taipower received the "***17th Gold Medal for Public Works***" from the Public Construction Commission, Executive Yuan. Two Taipower facilities were named exceptional and one hydro project was named outstanding
- The "***2017 Public Construction Quality Award***" from the State-Owned Enterprise Commission of the MOEA. Two facilities were selected for construction and one was chosen for civil engineering
- The "19th National Golden Award for Architecture" from the Republic of China's National Enterprise Competitiveness Development Association: ***Gold Quality Award for Public Construction in 2017***.
- The "***2017 Sports Activist Awards***" from the Sports Administration, Ministry of Education. The company won three major awards in the "Sponsorship Award Gold Class", "Sponsorship Award – Long-Term Sponsorship Award" and "Promotion Award Gold Class"
- The "***26th ROC Enterprise Environmental Protection Awards***" from the Environmental Prodection Agency (EPA): Bronze Award for Enterprise Environmental Protection
- The "***2017 TIBA Awards***" from the Taiwan Intelligent Building Association: the platinum award (the highest honor) in the "Excellent Intelligent Green Building Renovation Class"
- The "***13th Art & Business Awards***" by the Ministry of Culture: The Jurors' Award. Taipower is the first state-owned enterprise to receive the award in the twenty years since the award was established
- Ranked ***Number 1 among state-owned enterprises*** in Cheers Magazine's "2017 Top 100 Favorite Enterprises Among the New Generation"
- Wanda Power Plant completed a review by the EPA on May 4 2017 and became a "***certified Environmental Education Facility***"

1.1 Taipower Profile

1.1.1 Introduction

The Taiwan Power Company (Taipower) was established on May 1, 1946. It is a vertically integrated, state-owned company with businesses covering power generation, transmission, distribution and sales. Revenue from electricity sales constituted 95.8% of Taipower's operating revenues for 2017. As of 2017, the Taipower system (including independent Power Plants or IPPs) had a total installed capacity of 41.89 GW. Its main energy sources were comprised of thermal and nuclear power, combined with hydro and other forms of renewable energy. In terms of transmission and distribution, at the end of 2017 Taipower operated 607 transmission (sub) stations along 17,715 circuit kms of transmission lines and 369,027 circuit kms of distribution lines.

Founded	May 1, 1946
Coverage	Taiwan, Penghu, Kinmen and Matsu areas
Headquarters	Taipei
Capital	TWD 330 billion
Stock	96.92% government-owned, 3.08% private owned
Total Assets	TWD 2,018.772 billion
Annual Revenue	TWD 566.804 billion
Employees	26,734
Customers	14.01 million
Installed Capacity	41.89 GW in the Taipower system (Taipower-owned: 31.50 GW)
2017 Power Generated and Purchased	231,100 GWh

Plant Average Availability in 2015-2017

Unit: %

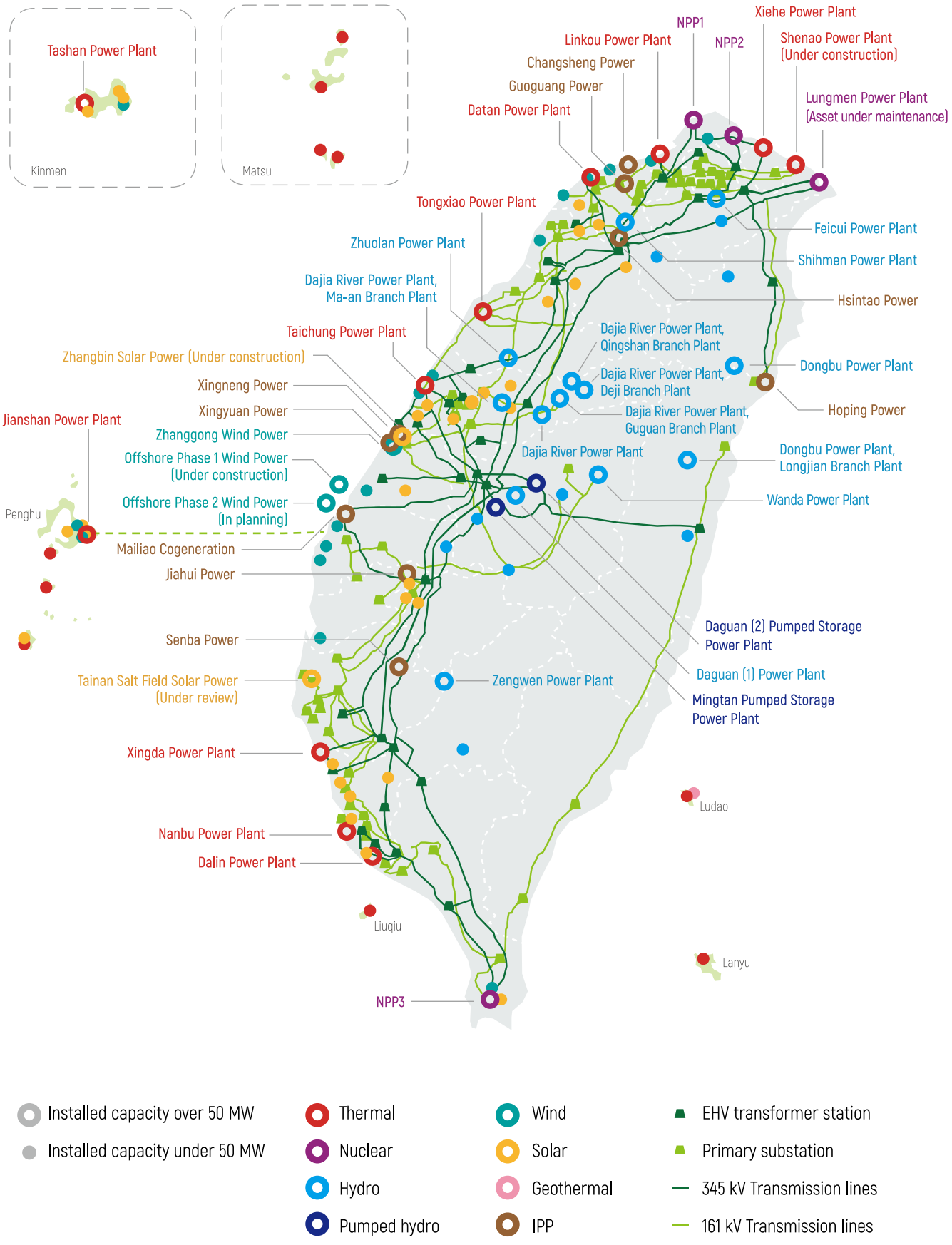
Unit		Energy Type	2015	2016	2017
Thermal	Steam	Oil	93.87	89.08	89.43
		Coal	90.31	91.25	90.74
		LNG	93.66	73.52	90.38
	Combined Cycle	LNG	89.43	90.26	90.81
Nuclear		Uranium	75.26	67.83*	46.19**
Hydro		Hydro	91.81	93.85	95.07
Wind		Wind	89.49 (93.23***)	83.13 (88.20****)	93.02

Note:
- Thermal Unit Availability = 1- Period Unit Impact on Power Supply/No. of Hours/Unit Max Net Output
- Thermal Plant Average Availability = Σ (Unit Availability × Unit Max Net Output)/Σ Unit Max Net Output
- Nuclear Various Units Availability = Annual No. of Hours of Parallel Power Generation/Annual Total No. of Hours
- Nuclear Power Plant Annual Availability = Arithmetic mean of Unit Annual Availability
- Although the damage to the connecting hardware for the water channel in an atrium 10 fuel at nuclear Power Plant No.1's reactor 1 in 2015 were repaired by February 2015, the Legislative Yuan's Education and Culture Committee resolved on March 17, 2015 that the Atomic Energy Council has to complete its report on the incident before Taipower will be permitted to apply for nuclear Power Plant No.1's resumption of operations. Although the Atomic Energy Council made numerous applications to present its report, the Education and Culture Committee did not include the report in its schedule. Consequently, nuclear Power Plant No.1 has remained non-operational since its repairs (it is still not operating).
  * The generator in Reactor 2 at nuclear Power Plant No. 2 tripped on May 16 2016 due to a lightning arrestor malfunction. All repairs, inspection and testing on the unit were completed on June 27. Presently the Atomic Energy Council has yet to present a report on the incident to the Legislative Yuan and as such, the unit is still non-operational as of the writing of this report.
  ** Reactor 2 at nuclear Power Plant No.1 was shut down on June 2, 2017, when the fuel rod pool reached its maximum capacity. The construction of a dry storage facility cannot commence until "Water and Soil Preservation Facility Completion Certificate" is issued by the New Taipei City Government. As the Company has yet to receive a "Water and Soil Preservation Facility Completion Certificate" from the New Taipei City Government, the reactor's operations cannot be re-initiated due to the inability to replace fuel rods.
- Hydro Unit Availability = (Operational Period + No. of Standby Hours)/Annual No. of Hours
- Hydro Plant Annual Availability = Arithmetic mean of Unit Annual Availability
- Annual wind power utilization rate = hours of unit operation (including standby)/total number of hours in the year
  *** Average availability excluding the wind power plants damaged by typhoons in 2015.
  **** Figures in parenthesis factor in potential availability following the relocation and retrofit project of the Taichung Wind Farm and the fire that damaged Wind Turbine No.31 in Changhua on April 28, 2016.

Taipower's decision making and operations are governed by a series of laws and regulations including the Government Procurement Act, the Accounting Act, the Electricity Act, etc. Since Taipower's policies are susceptible to a variety of legal and regulatory influences, the promotion of any company policy requires the comprehensive consideration of all pertinent regulations as well as negotiations with the competent authorities in order to ensure specific government policies are supplemented when feasible. This is a primary distinction that makes Taipower different from many typical private enterprises.

In an effort to boost employee awarements of the company's legal affairs and to ensure compliance, the Legal Affairs Office has made a point of organizing multiple sessions of the "Practical Legal Issues – Case Studies and Solutions Seminar" at different units along with other legal affairs training events each year. In addition, the Legal Affairs Office provides various legal consultation services in order to help with the legal issues that different units encounter in their operations to ensure that all employees abide by the pertinent regulations.

1.1.2 Taipower's Power Plants and Power Grid



1.2 Taipower's Mission and Vision

Global trends in sustainable development have created an “energy trilemma” for the power industry. Specifically, the industry must now strike a balance between energy quality, energy safety and environmental sustainability. As a state-owned power utility group, Taipower must also shoulder these responsibilities. In response to international climate changes, domestic energy transition and competition from the gradual liberalization of the power market, Taipower revised its corporate mission, vision and management philosophies in 2015 in hopes of steering the Company in the right direction, and of changing employees’ approach to management so that we can advance towards our goal of becoming an excellent and sustainable power utility group.

Taipower's Mission

To supply stable power for the need of diverse social developments with an eco-friendly approach at a reasonable cost

Power is crucial for the daily livelihoods of people in our society and for the development of various businesses. Thus, power reliability has always been a fundamental mission for Taipower. Guided by an open attitude, we will include independent power generation, cogeneration and the suppliers of renewable energy into the Taipower power supply system so that, together, we can achieve the goal of delivering a reliable power supply at a reasonable cost. As reductions in air pollution become the norm, Taipower will actively develop renewable energies and commit to introducing clean energies that lower pollution and carbon-emissions. At the same time, Taipower will pursue trends in power industry development by strengthening its customer relationship management. By considering factors such as the varying needs of residential and corporate customers, the company will deliver differentiated services through the use of specific technologies and smart services. This will enable our customers to lead “energized lifestyles of greater convenience”.

Taipower's Vision

To be deemed as a prominent, trustworthy world-class utility group

- Excellence: We will endeavor to strengthen our management efficacy and improve our management performance in order to compete with international benchmark power companies while constantly improving ourselves so that we may grow along with our customers and society. This will allow us to evolve into an outstanding and sustainable power utility group.
- Trustworthiness: We firmly believe that earning the trust of society and our customers is the highest level of achievement that a company’s corporate management can attain. At Taipower, we are tasked with passing down Taipower’s existing spirit of “professional, down-to-earth, diligent and responsible.” As we strive to improve our operations and the reliability of our power, we are seeking an open, diverse, green and culture-oriented attitude to enhance corporate governance. Guided by philosophies of “integrity, caring, service and growth”, we will foster relationships of mutual assistance and trust with all stakeholders so that Taipower may become an inseparable partner in the lives of the general public.
- A world-class power utility group: As a wave of power industry liberalization spreads around the world, Taipower will continue to aggressively develop its corporate/conglomerate operations in order to cultivate competitive advantages while capitalizing on opportunities for development. This will allow us to extend our management advantages to the emerging sectors of energy conservation and green energy. By collaborating with our business partners to cultivate offshore markets, we will be able to inject new momentum into the growth of the Company.

1.3 Management Philosophy and Strategy

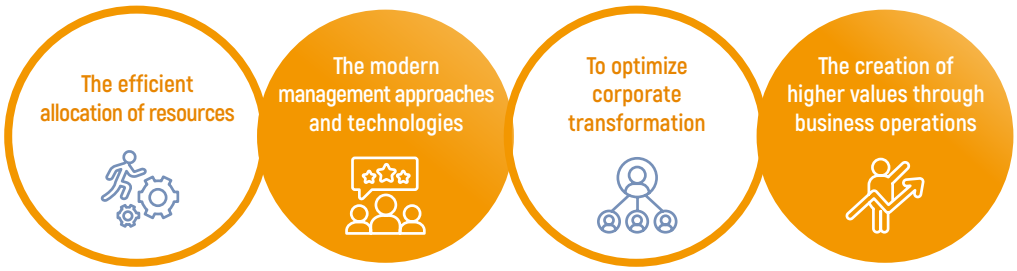
Four Elements of Management Philosophy

Taipower's corporate culture is built around the values of "**people first**" and "**the pursuit of excellence**."
"**People first**," as a management philosophy, manifests itself as "**integrity**" and "**caring**."
"**Pursuit of excellence**," as a management philosophy, is reflected in the principles of "**service**" and "**growth**."

Integrity	Caring	Service	Growth
To conduct our business with the right mindset, which entails no forgery or violation of laws or ethics; to build mutual trust through communication in order to foster trust among different teams; to speak the truth and keep our promises in order to gain the trust of our employees and other members of society.	To take the initiative to understand the needs of people, the environment and society and to fulfill our corporate social responsibilities through attitudes that emphasizes caring, green sustainability, altruism and co-prosperity.	To embrace aspirations for safety, reliability, responsibility and improvement in our delivery of quality power services for local and foreign customers in order to gain their recognition and respect.	To establish an organizational culture that facilitates sharing and learning to help staff cultivate their capacities for analytical thought and keen observation. By fostering their competence to challenge the future, we will be able to advance from growth in work to growth within our teams and lives.

A Four Pronged Business Strategy

As a state-owned enterprise, Taipower has a mission of providing reliable power, operating as an environmentally friendly business while implementing the government's energy policies. This is done to ensure the fundamental development requirements of corporations and members of the public are met. In order to attain sustainability in operations through the updated Electricity Act without compromising efforts to develop green energy, reduce carbon emissions, conserve energy and deliver reliable power, Taipower had to re-evaluate its operations by analyzing different aspects of the Company. These aspects include resource allocation, management and technological development, corporate transformation, the professional management of its various businesses. This analysis has allowed Taipower to formulate its overall management strategies as summarized as below:



Through the aforementioned management strategies, Taipower will take on the various challenges it is confronting – from Energy Transition to the reform of the power market and the transition to a holding company with subsidiaries. It will meet this challenges by ensuring the Company's management efficacy, energy supply development and power demand management remain up to date with the latest trends, thereby propelling Taiwan into a new era of energy generation as Taipower becomes a world-class power utility group that is capable of shouldering its social responsibilities while remaining competitive and maintaining ample potential for development.

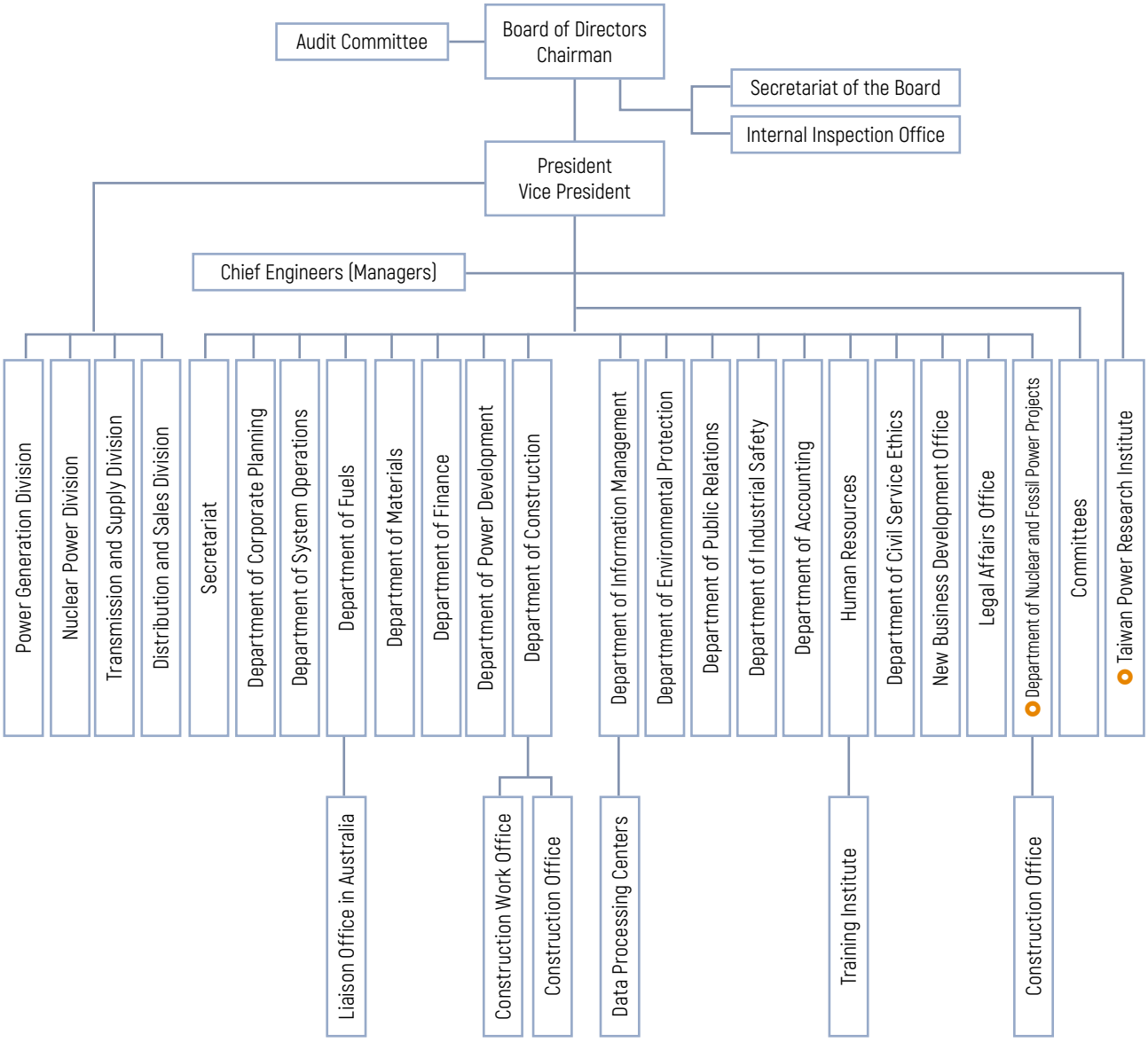
1.4 Corporate Sustainable Governance

1.4.1 Corporate Governance

Organizational Structure

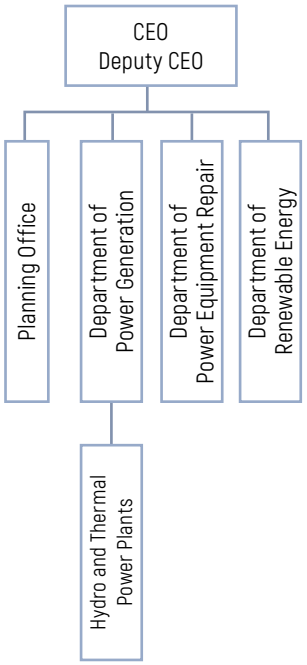
Presently, Taipower consists of 17 departments and offices along with four major business divisions (power generation, nuclear power, transmission systems and distribution and service). In addition, subordinate units (such as the Taiwan Power Research Institute and the Department of Nuclear and Fossil Power Projects) and committees have been established based on the needs of specific operations. In light of amendments to the Electricity Act, the Company is in the process of planning its transition into a holding company with subsidiaries that will be responsible for power generation and the transmission, distribution and service of power.

Taiwan Power Company - Organizational Structure Chart

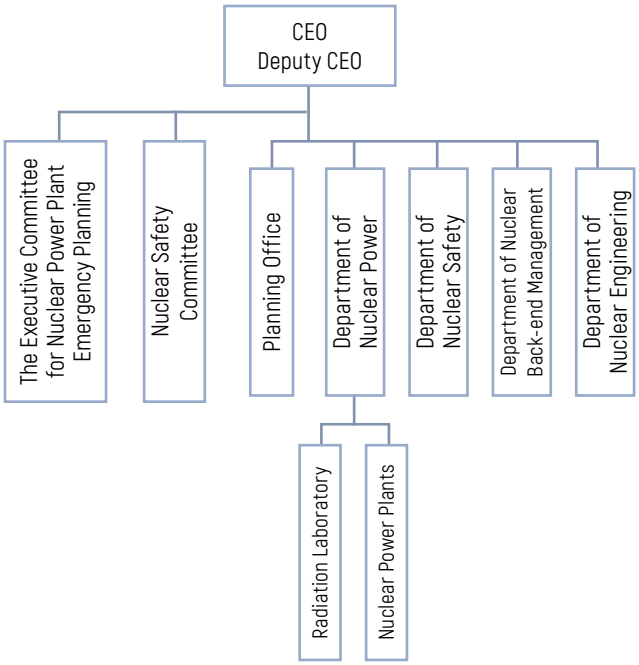


Note: 1. ○ Denotes units that are not located at the headquarters.
2. The Taiwan Power Research Institute reports to the President directly.

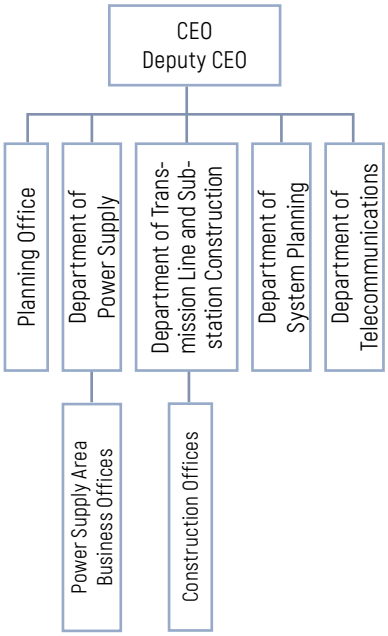
Power Generation Division Organization Structure Chart



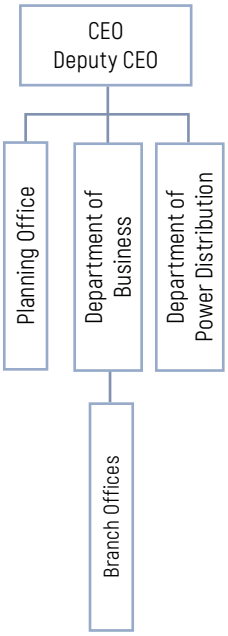
Nuclear Power Division Organization Structure Chart



Transmission System Division Organization Structure Chart



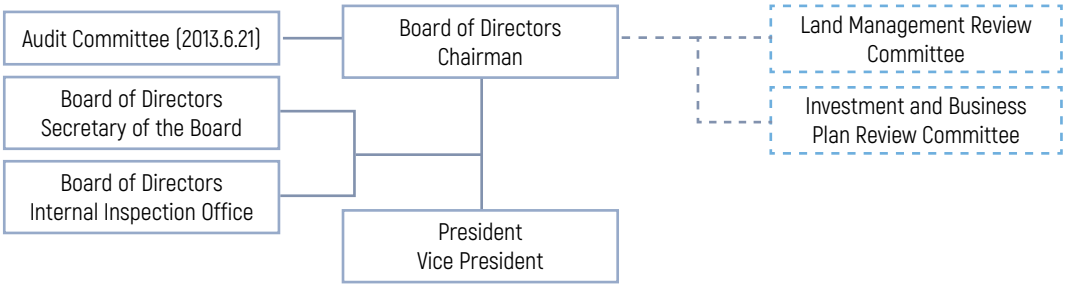
Distribution and Sales Division Organization Structure Chart



Structure and Organization of the Board of Directors

According to Taipower bylaws, the Board of Directors consists of 15 directors that are elected at the shareholders' meeting. In accordance with the provisions of the Securities and Exchange Act, the board shall reserve three seats for independent directors who also make up the Audit Committee. The Board of Directors will elect five managing directors, including one independent director from among the board members. The term of service for directors (including independent directors and managing directors) lasts for two years and can be extended with subsequent terms. Pursuant to the Administrative Law of State-Owned Enterprises, no less than 1/5 of the seats on the Board shall be reserved for candidates representing the government's stake in the company and these candidates shall be recommended by unions and through official requests from competent authorities. Thus, the fifteen directors of Taipower shall include five managing directors (one of whom serves as an independent director), three independent directors, and three directors that represent labor interests. In addition, the Audit Committee (consisting of the three independent directors) was established as the result of board of director election during the shareholders' meeting, held on June 21, 2013 and will replace the auditors.

Taipower Board of Directors Organization Structure Chart



List of Taipower Directors in 2017

Position	Name	Concurrent Position	Remarks
Board Chairman (Managing Director)	Yang, Wei-Fuu	Chairman of Taipower	Newly appointed
President (Managing Director)	Chung, Bin-Li	President of Taipower	Serving consecutive terms
Managing Director	Lin, Faa-Jeng	Chair Professor, Department of Electrical Engineering, National Central University	Newly appointed
Managing Director (Independent Director)	Fang, Liang-Jyi	Member of the Atomic Energy Council, Executive Yuan	Newly appointed
Director (Independent Director)	Hsu, Jyh-Yih	Professor, Department of Management Information Systems and Department of Applied Economics, National Chung Hsing University	Newly appointed
Director (Independent Director)	Liu, Chi-Chun	Professor, Department of Accounting, National Taiwan University	Newly appointed
Director	Liu, Pei-Ling (Female)	Distinguished Professor, Institute of Applied Mechanics and Director of Center of Innovation and Synergy for Intelligent Home and Living Technology, National Taiwan University	Newly appointed
Director	Lin, Tze-Luen	Associate Professor, Department of Politics, National Taiwan University and Deputy CEO of the Office of Energy and Carbon Reduction, Executive Yuan	Newly appointed
Director	Cheng, Eng-Two	Head of the Third Division, State-Owned Enterprise Commission	Newly appointed
Director	Kuo, Chao-Chung	Senior Technical Specialist, Department of Industrial Technology, Ministry of Economic Affairs	Newly appointed
Director (Labor Director)	Liao, Chan-Ping	Taipower Company Technical Specialist/(Taipower Labor Union Representative)	Newly appointed
Director (Labor Director)	Huang, Lien-Chung	Taipower Company Technical Specialist/(Taipower Labor Union Representative)	Newly appointed
Director (Labor Director)	Tsuei, Kuo-Li	Taipower Company Technical Specialist/(Taipower Labor Union Representative)	Newly appointed
Board Chairman (Managing Director)	Chu, Wen-Chen	Former Taipower Company Chairman	Former board member
Managing Director	Chang, Tzi-Chin	Deputy Director of the Environmental Protection Agency	Former board member
Managing Director (Independent Director)	Ma, Kai	Founder and Chairman of the Social Enterprise Commitment Foundation, Financial Consultant for the Money Weekly Magazine, Editor-in-chief of Economic Daily News	Former board member
Managing Director (Independent Director)	Chen, Hsin-Hung	Research Fellow, Director of the Second Research Division, Chung-Hua Institution for Economic Research	Former board member
Director (Independent Director)	Tsai, Yann-Ching	Professor, Department of Accounting, National Taiwan University	Former board member
Director	Wu, Tsai-Yi	President, Taiwan Research Institute	Former board member
Director	Ma, Hsiao-Kang	Professor, Department of Mechanical Engineering, National Taiwan University	Former board member
Director	Lee, Min	Professor, Department of Engineering and System Science, National Tsing Hua University	Former board member
Director	Bien, Tai-Ming	Professor, Department of Land Economics, National Chengchi University	Former board member
Director	Chang, Ssu-Li (Female)	Professor, Institute of Natural Resources Management, National Taipei University	Former board member
Director (Labor Director)	Shih, Chao-Hsien	Taipower Company Technical Specialist/(Taipower Labor Union Representative)	Former board member
Director (Labor Director)	Lin, Wan-Fu	Taipower Company Technical Specialist/(Taipower Labor Union Representative)	Former board member
Director (Labor Director)	Liu, Han-Tong	Taipower Company Technical Specialist/(Taipower Labor Union Representative)	Former board member
Managing Director	Hsu, Yu-Chin	Deputy Minister of Science and Technology	Resigned
Director	Shih, Tsuen-Hua	Director-General of the Department of Issuing, Central Bank of the Republic of China	Resigned

Note: 1. The board of directors' election was held during the Shareholders' Meeting in June 2017; the former chairman resigned in October 2017 and the new chairman took office.
2. Managing director Hsu Yu-Chin and director Shih Tsun-Hua resigned in December 2017 and January 2018 respectively, and their positions have yet been filled. As a result, the board of directors presently has only 13 members.

Enhance the Function and Effectiveness of the Board of Directors

The Board of Directors takes responsibilities for establishing and maintaining the company's vision, determining the company's strategies, supervising the management and being accountable to the stakeholders. As a state-owned enterprise, Taipower not only operates its own businesses but also plays the role of public policy executor. Therefore, Taipower's board of directors shall place increased emphasis on integrity management and the objectives, strategies and management of sustainable governance. The following section will cover the operations of the Board of Directors:

Board of Directors Operations

In 2017, the board convened 15 times, with an average attendance rate of 89.5%. The records of the monthly board meetings are disclosed on Taipower's intranet and its website as a reference for Taipower employees and external stakeholders. Motions on tasks to be performed by respective divisions that are resolved during meetings are also be tracked accordingly.

Board of Directors Project Review Meetings

The Board of Directors has established Land and Business Plan Review Committees. Both are responsible for reporting important issues to the Audit Committee. Issues might include the acquisition and sale of land, large engineering and investment projects, operational budgets and so forth. Moreover, the committees provide suggestions to help the BOD in its decision making process. In 2017, the Land Review Committee was convened 10 times and the Business Plan Review Committee met 11 times.

Managing Directors Meetings

Managing directors are required to assemble and exercise their powers as directors in accordance with pertinent regulations, charters, resolutions from Shareholders' Meeting and BOD meetings in lieu of discussion by the Board. In 2017, six Managing Directors' Meetings were convened, with an average attendance rate of 83.3%.

The Operation of Independent Directors and the Audit Committee

Taipower's Audit Committee comprises only independent directors serving on the BOD. The committee is responsible for the review and approval of the company's adjustments on its internal control statements, the acquisition and disposal of assets, major financial loans, the appointment/dismissal of accounting or internal audit supervisors, financial reports and so forth. In 2017, the Audit Committee held five meetings in total.

Pursuant to the Securities and Exchange Act, when independent directors raise objections or reservations in BOD meetings, the objections/reservations are duly noted in the records and published on the "Market Observation Post System (MOPS)." In 2017, independent directors had an average attendance of 91.1% and expressed no rejections or reservations of opinion. They have actively participated in the operation of the "Audit Committee" and "Review Committees" and performed their duties to assist the Company in its governance.

Disclosing Corporate Governance Information

Taipower held its Shareholders' Meeting on Friday, June 23, 2017 in accordance with the provisions of the Company Act and Taipower's Articles of Association. The meeting was held to report to the shareholders, acknowledge and discuss specific matters with the participants – including the presentation of the 2016 Business Report, the Audit Committee's 2016 Financial Statement, the 2015 Corporate Bond Report, the 2015 Closure of Accounts and Loss Compensation Report, the 2016 Partial Adjustments to Real Estate, the Facilities and Equipment Durability Report, the election of directors (including independent directors) – and so forth.

BOD Performance Evaluation

In order to improve Taipower's corporate governance and the efficacy of its Board of Directors, Taipower established a "Taipower Board of Directors Performance Assessment Criteria" in 2016 by referring to the Corporate Governance Best Practice Principles for TWSE/TPEx Listed Companies. At the end of each fiscal year, the company performs a BOD performance assessment in accordance with the process and criteria prescribed in the procedure and report the results of the assessment during the BOD meeting in March of the following year. BOD performance assessment for 2017 has already been implemented in accordance with the pertinent regulations and the results were duly disclosed within the "Board of Directors" section on Taipower's official website.

In addition, with the guidance and supervision of the board directors, Taipower continued to strengthen its internal control system in 2017, with regards to corporate governance by implementing three defense mechanisms for internal control, thereby enabling Taipower to win the prestigious first place award for corporate governance among state-owned businesses.

Disclosing Corporate Governance Information

Information on the organizational structure and operations of the BOD (including the Audit Committee) is released in the "Board of Directors" and the "Corporate Governance" sections of the Taipower website. It is also incorporated in the 2018 Taipower Report to the Shareholders Meeting and disclosed on the Market Observation Post System (MOPS).

Continuing Education for Directors

In 2017, 44 Taipower directors (including independent directors) took part in relevant training courses on corporate governance and completed 144 hours of training. Courses covered topics such as environmental education, management decision-making, corporate management, legal affairs, risk management, information and safety governance and so forth.

Planning of Future BOD Operations

To ensure improvement in the operational performance for the board of directors, the following plans have been made for 2018:

Improving Directors' Knowledge and Understanding of Taipower's Operations

In conjunction with the promotion of business and issues of significant concern to the general public, Taipower will arrange for 2-3 presentations during its monthly BOD meetings with a rolling review of monthly topics. Adjustments to the presentation schedule may be made at any time depending on the actual needs of the Company. In the near future, Taipower will continue to arrange for directors to visit/inspect the sites of the company's major projects in order to help them better understand the situation and progress at the sites. In addition, the management will also invite directors to participate in relevant tasks forces to offer consultation on relevant issues to raise directors' awareness of Taipower's operations and include their professional input in the decision-making process.

Continual Improvement of the Performance Evaluation System

Taipower will stay abreast of the latest local and foreign trends in corporate governance so as to implement continual reviews and improvements on its performance evaluation system for the BOD and the aforementioned committees. This will help the company move towards an ideal performance evaluation system, which in turn will boost Taipower's efficacy in corporate governance.

Mechanism to Avoid Conflict of Interest

Pursuant to Taipower's Board of Directors Meeting Bylaws, directors are required to declare any conflicts of interest they may have regarding issues on the agenda for BOD meetings. Directors are barred from joining, voting on or even attending discussions regarding matters in which they have conflicting interest. Nor are recused directors allowed to represent other absent directors in such votes. Prior to each BOD meeting, reminders of these conflict of interest rules will be stated in meeting notifications.

Remuneration Policy

Taipower is a state-owned enterprise and hence, the standards for remuneration of its directors (including the chairman) are set by the competent authorities (the Ministry of Economic Affairs) and reported to the shareholders in the absence of a "Remuneration Committee." Apart from monthly compensation, independent directors may not collect earning distributions, year-end bonuses or other forms of compensation. As labor directors fall under the category of Taipower employees, their compensation shall be determined in accordance with the "Basic Principles of Employee Compensation Authorization for State-Owned Businesses" and the "Management Guidelines Governing Remuneration for Employees of Subordinate Units under MOEA." They many not collect the remuneration paid to other directors. In 2017, the remuneration for Taipower directors (including the chairman, independent directors and labour directors) constituted 0.06% of the Company's net profits after tax.

1.4.2 Sustainable Development Mechanism

Sustainable Development Committee

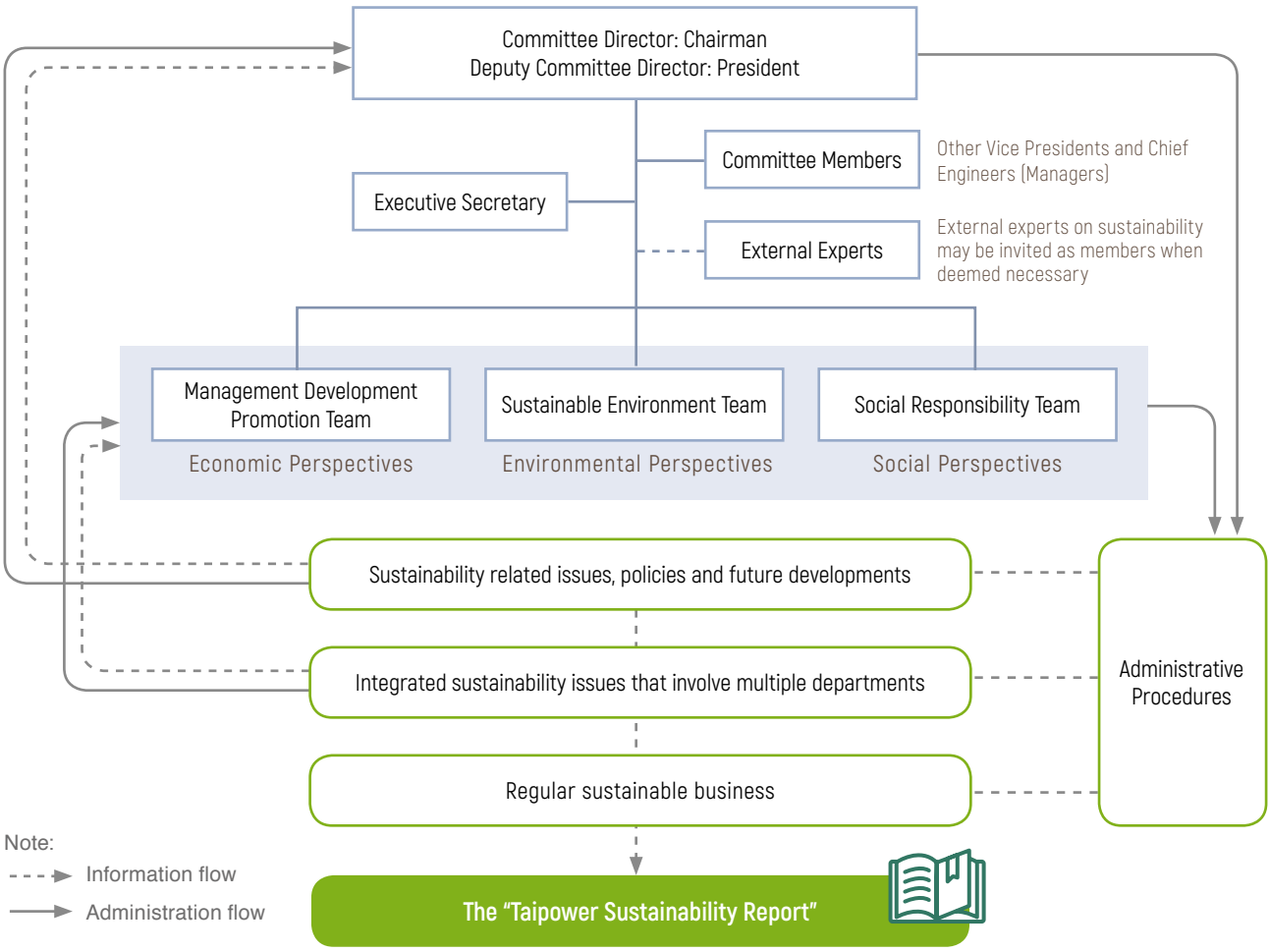
In 2009, Taipower established its Sustainable Development Committee (SDC) dedicated to the implementation of relevant sustainable development programs and initiatives. In order to ensure SDC's functions are more aligned to the Company's needs for sustainable development in the future, relevant adjustments have been made to its structures and functions. With the approval from the Chairman, the SDC promptly commenced its operations as follows:

Sustainable Development Committee Structure

The Taipower Chairman is the highest-ranking figure responsible for the committee's work of leading the Company tooward sustainable development. The President will serve on the committee as the deputy director, along with the Company's various vice presidents and chief engineers (managers) to ensure thorough sustainable development from the top to the bottom of the organization.

The Sustainable Development Committee has three subordinate promotion teams: a "Management Development Promotion Team", a "Sustainable Environment Team" and a "Social Responsibility Team." Each of these teams is chaired by a Vice President and is responsible for planning Taipower's sustainable development direction and for promoting relevant sustainable operations.

Sustainable Development Committee



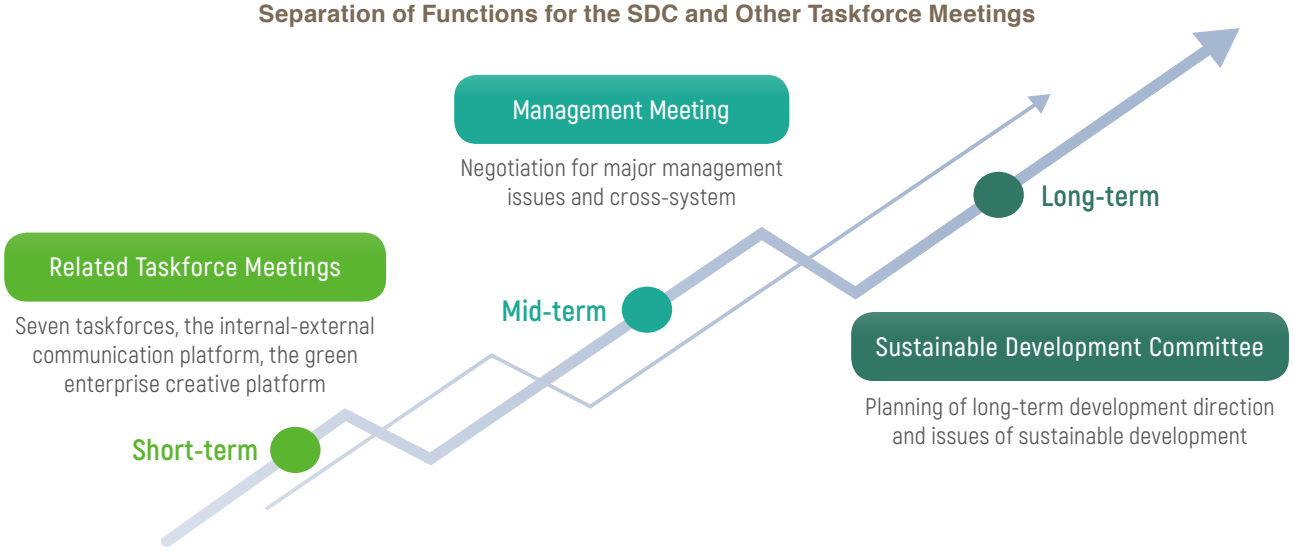
Functions of the Sustainable Development Committee

Taipower has relegated the responsibilities of short, mid- and long-term strategic planning and the execution of relevant tasks to the SDC, the BOD's management meetings and the meetings of other relevant task forces. The responsibilities of these bodies and results of their operations in 2017 are shown in the table below.

Strategic Category	Responsible Meeting	Responsibilities	Operational Performance in 2017
Mid/Long-term strategy	Sustainable Development Committee	Planning of Taipower's long-term sustainable development direction and establishment of material issues	Four meetings convened
	Management Meeting	Formulation and execution of Taipower's mid-term management strategies	A total of 19 meetings were held (with one meeting held each fortnight)
Short-term strategy	Related taskforce meeting/project platform	Formulation and execution of Taipower's short-term annual strategies	Non-periodic meetings of each taskforce

The functions of the Sustainable Development Committee (SDC) include the formulation of long-term development strategies for Taipower and steering the company towards the right path while identifying critical issues related to sustainable development. The committee also offers feedback on the company's long-term development direction during management meetings. This helps to facilitate multi-departmental, integrated, sustainable business coordination and effective negotiations over the promotion of vital issues. In addition, the SDC is responsible for establishing concrete mid-term objectives and corresponding strategies, action plans and solutions to achieve those objectives. These plans are incorporated into the "Future Management Strategies" report that is updated yearly. The report serves as a description of Taipower's overall strategy, objectives and sustainable development related affairs as well as action plans and functions for Taipower's future development. After future management strategies have been adequately reviewed in the management meetings, taskforces will conduct short-term, annual, strategic action plan formulation based on the future management strategies. These taskforces will report the results of their work periodically.

Separation of Functions for the SDC and Other Taskforce Meetings



Operating Mechanisms of the Sustainable Development Committee

Through three promotional teams, the SDC is able to analyze changes in the external environment and in policies through the dimensions of management development, sustainable development and social responsibilities. The results of these analyses are used as references for the planning of Taipower's long-term direction for sustainable development and for the identification of the company's material issues. This allows for the consolidation of Taipower's annual performance in sustainable development. Under the guidance and supervision of the Chairman, the SDC is in charge of review and feedback on relevant directions in sustainable development and for material issues related to sustainability that are proposed by various VPs and external experts.

The routine business of each team will be conducted by each unit in keeping with Taipower's administrative procedures. When meetings are held to discuss business involving more than one unit, the conveners of the meetings should discuss and make conclusions in accord with Taipower's bylaw. Key issues concerning corporate strategy and future development should be submitted to the SDC for consideration.

Key Tasks for the SDC

Management Development Promotion Team

The current key tasks for the Management Development Promotion Team will emphasize the planning of the company's management direction and the promotion of management reforms so that Taipower can fulfill its mission of becoming a worldclass power utility group. With regards to management, through the establishment of Taipower's vision, philosophy and management structure, the team will formulate suitable management plans, which will guide Taipower towards diversified management. The team will also implement relevant plans for management improvement, power industry liberalization, organizational transformation and diversified management so as to strengthen Taipower's corporate operations.

Sustainable Environment Team

The current key tasks for the Sustainable Environment Team will include the shaping of Taipower's green corporate image, facilitating the integration of green energy, and developing a low-carbon environment. Through promoting green lifestyles, architectural energy conservation, green procurement and environmental friendliness, the team shall establish a creative green enterprise platform that will expand upon current low-carbon energy efforts, improve power transmission/distribution efficacy, boost grid technologies and carbon credit development and create a stable supply of low-carbon energy in a low-carbon environment.

Social Responsibility Team

The pressing tasks for the Social Responsibility Team include the strengthening of Taipower's corporate culture and its contribution to social charity in order to fulfill the company's "people first" management philosophy. The team will strive to demonstrate Taipower's cultural qualities through focusing on humanities (i.e. the gallery) and employee care (i.e. Employees' Heart-to-Heart). The team will also expand Taipower's involvement in social participation by taking the initiative to care for the general public in order to demonstrate Taipower's resolve in championing the values of social charity.

SDC Achievements in 2017

In 2017, the SDC held four meetings and discussed specific details of several issues including new media operations, the operations of the major business divisions, the promotion of the green innovation platform and management strategies for the five year period from 2018-2022.

The committee has emphasized the importance of ensuring the consistency and fitness of information disclosed in all future external communications. This will help bolster positive impressions of the Company's integrity and values. Furthermore, in light of the latest international trends and recent amendments to the Electricity Act, the SDC discussed and formulated values, plans and organizational details for each division as the company moves toward a liberalized market. With regards to the promotion of sustainable development, going green and remaining environmental friendly have always been commitments for Taipower. Moving forward from the basis formed by past achievements, Taipower will continue to strengthen green creativity, promotion and communication and will include topics such as coal ash/putty recycling, microalgae engineering for carbon fixation, marine ranching and so forth in discussions to help the Company make more effective use of its resources. As the company moves forward, more diversified formats of energy supply can be expected and smart grids will become platforms upon which different energy services converge. As such, they will increasing serve as core components of the company's efforts to maintain its management advantages.

On the topic of sustainable development, Taipower plans to gradually transition from "a supplier of power" to "a integrator of energy networks" and from "a service industry" to "smart lifestyle industry." This will be accomplished by delivering smarter and more relevant services, and in so doing, by forming closer bonds with our users, thereby becoming an irreplaceable power utility business that can be entrusted to fulfill key social responsibilities.

Sustainable Development Strategy

Taipower's "Future Business Strategy" integrates the company's long-term sustainable development objectives with key emerging issues to envision a range of future scenarios for Taipower's development. The report also contains the company's long-term development priorities and action plans.

Given the constant changes in the external environment, Taipower has been analyzing its strengths, weakness, opportunities and threats throughout its path towards transformation. In May 2018, the Company adjusted its vision to include five key roles. As such, Taipower will transform from "a supplier of power" to "a provider of high quality power service," "a practitioner of corporate social responsibility," "an agent of environmental friendliness," "an Adopter of Smart Living" and "an integrator of energy networks." These developments will allow the company to become a trustworthy and indispensable partner in the daily lives of members of the general public.

In addition to Taipower's vision for sustainable corporate development, the company is also paying attention to vital international issues in sustainability. This will ensure the company's promotion of sustainable development strategies is in line with global trends. In 2015, the United Nations published 17 Sustainable Development Goals (SDGs). Eleven of these goals are tightly correlated with Taipower's operations and are closely related to Taipower's Future Development Paradigm and the five roles that Taipower intends to assume. Concrete plans and specific performance for each SDG will be disclosed and covered in later chapters of this report.

SDGs	Relevance with Taipower	
	UN Goal	Consideration for Taipower's future development
1 NO POVERTY	Ensure access to necessary resources and basic services for economic development and the livelihood of all	Continual improvement of the ease of accessibility to power services, stability and reliability and efforts to ensure that remote areas and disadvantaged minorities have access to power services
6 CLEAN WATER AND SANITATION	Maintain water resource quality and supply; improving the usage efficacy of water resources while reducing wastewater discharge	Continual promotion of footprint inventories for power generation and water usage and inspection of water usage status at various power plants to enhance water usage efficacy. Taipower will also ensure that wastewater discharged (including warm wastewater) is compliant with pertinent regulations to maintain the quality of water resources in the proximity of power plants
7 AFFORDABLE AND CLEAN ENERGY	Increase the ratio of renewable power generation and ensure that reliable and affordable power service is accessible to all	Formulate plans for various forms of renewable energy and improve operational and energy efficacy while continuing to improve ease of accessibility and availability of power
8 DECENT WORK AND ECONOMIC GROWTH	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Achieve fully productive employment so that all employees (including younger employees and those with physical/mental disabilities) are eligible for similar positions and wages. In addition to offering decent job opportunities, Taipower will facilitate improved safety in the work environment so as to safeguard labor rights
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	Improve power efficiency and recovery for basic power facilities and promote innovative development of environmental-friendly technologies
11 SUSTAINABLE CITIES AND COMMUNITIES	Make cities and human settlements inclusive, safe, resilient and sustainable	Mitigate urban impact on the natural environment while focusing on the improvement on air pollution and reducing waste generation
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Use natural resources with greater efficiency and reduce the environmental footprint for generation activities	To improve the overall energy efficiency and resource requirement for generation, transmission and distribution in order to reduce the environmental footprint of power supply
13 CLIMATE ACTION	Take corresponding actions to mitigate and adapt to changes caused by climate changes	To actively participate in adaptation plans and mitigation actions while improving energy efficiency, developing renewable energies and enhancing the existing power generation system's climate resilience
14 LIFE BELOW WATER	Prevent and dramatically reduce marine pollution to protect the marine ecological system	To construct ecological power plants that protect their surrounding ecological systems
15 LIFE ON LAND	Protect the land, maintain ecological systems and promote biodiversity development	To construct ecological power plants that protect the surrounding ecological systems
16 PEACE, JUSTICE AND STRONG INSTITUTIONS	To promote corporate ethics and ensure the validity, accountability and transparency of corporate operations	Emphasize corporate governance, integrity management and information disclosure and ensure that various communication channels operate smoothly

Provider of High Quality Service

- Construct a stable and highly efficient power supply system to improve power supply reliability.
- Strengthen customer relationship management, raise customer satisfaction.
- Accelerate system information transmission through the construction of optical fiber networks to streng-then system response capabilities.
- Utilize IoT structure and big data analytics to streng-then asset and equipment management.
- Build a smart grid with capabilities for self-monitoring, self-diagnosis, maintenance, protection and recovery.

Adopter of Smart Living

- Utilize the latest technologies to deliver appreciable services for customers to satisfy their diverse power needs.
- Integrate smart appliances and buildings into the smart grid to bring greater convenience to the lives of consumers.
- Utilize big data to better understand customers' usa-ge behavior in order to provide value-added services which enable customers to use power in smarter ways that reduce CO_2 emissions.
- Integrate smart home energy management systems and various power demand management approaches to improve power usage efficiency.

Practitioner of Corporate Social Responsibility

- Focus on corporate governance and corporate ethics
- Promote corporate culture; expand public welfare activities and co-prosperity with communities around our power plants
- Build a safety culture that fosters initiative, mutual care and discipline
- Build diverse channels of communication with society. Interact with an open mind in order to establish a win-win relationship of trust with society

Intergrator of Energy Networks

- Effective integration and distribution of energy supply and demand through the core of smart energy resour-ce network and transaction platform.
- Strengthen the development, construction, operation and management of different energy resources and relationships with IPPs and supply chain partners.
- Ensure safety of the fuel supply and improve procure-ment performance while moving into LNG supply
- Enhance power generation efficiency and construct cyclical energy resource business models.
- Distribute power and energy storage systems to achie-ve accurate supply management through smart grids.
- Promote corporate transformation and establish an international power utility group with energy networks as its core competitive advantage.

Agent of Environmental Friendliness

- Increase low-carbon power generation and develop renewable energies to improve the safety of renewa-ble power grid integration.
- Foster sustainable and green lifestyles and focus on ecological preservation so as to create a friendly environment.
- Increase low-carbon power generation to achieve carbon emission reductions so as to become a green enterprise.
- Encourage the general public to cultivate habits of energy conservation and facilitate power consumption efficacy.
- Strengthen nuclear Power Plant decommissioning and nuclear waste treatment safety.

Sustainable Development Strategy Management Mechanism

Taipower's Future Business Strategy includes medium-term to long-term goals, strategies, action plans and implementation projects. In order to achieve these goals, Taipower has adopted a systematic management approach that monitors and manages the goals with a target system. Key Performance Indicators (KPIs) are set and used to gauge and represent the efficacy of actions taken. These KPIs are reviewed quarterly, to measure progress made and to track the implementation of the Future Business Strategy. Information from these reviews is also used to call for conferences on tracking and reviewing subsystem goals as necessary. The review process also tracks, manages, and control KPIs that are not met. Each business unit converts and integrates the goals and KPIs into its own operating performance indicators. Every quarter and at year's end, these KPIs are referenced in determining bonuses.

In summary, Taipower takes sustainable development very seriously and has incorporated it into a Future Business Strategy, which is created and implemented by different units throughout the company. The final KPI scores are linked to performance scores, and a responsibility center manages and controls actions taken towards set goals. Taipower is working to build consensus among its workforce in hopes of inspiring all employees to work towards the company's future development and sustainable operation.

1.5 Stakeholders and Material Topics

1.5.1 Stakeholder Identification

Taipower has spared no effort in building mechanisms for developing mutual trust and communication with its stakeholders. In 2014, a survey was conducted to identify the main groups of stakeholders from the Company's 34 business units in accordance with the five principles outlined in the "AA1000 Stakeholder Engagement Standards (2011)." This was done to ensure thorough coverage of all stakeholders who are relevant to different aspects of Taipower's operations. The main groups of identified stakeholders are reviewed on a yearly basis and adjustments are made as necessary. Despite the organizational reforms that have taken place during recent years, the company remains predominantly a large, vertically integrated, power utility group with no significant changes in the scope of its business operations. This report uses the same stakeholder groups that were established in previous reports.

Stakeholder (Group)	Party
Board of Directors	Directors
Shareholders	All shareholders
Employees	Employees, union
Partners	Contractors, IPP service providers, suppliers, technology exchange partners
Government/competent authority	The Ministry of Economic Affairs, the Bureau of Energy, the State-Owned Enterprise Commission, the Environmental Protection Agency, the Atomic Energy Council, the Legislative Yuan and local government agencies
People's representatives	Legislators, village/township elected representatives
Media	Printed, electronic and online
Private organizations	Environmental conservation groups, enterprise associations, academic organizations
Customers	Residents/general public
Residents/general public	Residents from the surrounding community, general public

Stakeholders in different group have different impacts on Taipower's operations. They also have varying levels of concern about issues of sustainability. The following section discusses the importance of different stakeholders to Taipower and the company's performance in communication with those groups in 2017.

Taipower's Stakeholder Engagement Performance and Results for 2017

Stakeholder Concerned	Materiality to Taipower	Issues of Concern	Channel of Communication and Frequency	Engagement Results
Board of Directors	The Board of Directors functions at the core of Taipower's operations and is responsible for leading the company towards sustainable management	Integrity and sustainable management Transformation into a new energy utility group Management and financial performance	· Board of Directors meeting (monthly) and Project Review meetings · Audit Committee meeting (at least once per quarter) · Training for directors (including independent directors) · Annual BOD performance assessment	· Convened 15 Board of Directors meetings. · Convened 21 Project Review meetings. · Convened five Audit Committee meetings. · 44 directors (including independent directors) participated in training courses on corporate governance, completing 144 hours of training. · Performance for 2017 had been evaluated in accordance with the "Performance Evaluation Guidelines for Boards of Directors" and the results have already been disclosed on Taipower's official website.
Shareholders	Maintaining the company's operational performance and safeguarding shareholders' rights are fundamental commitments for Taipower	Integrity and sustainable management Management and financial performance	· Shareholders' meeting · Taipower website and Market Observation Post System (MOPS)	· The shareholders' meeting was convened on June 23 · Relevant information is disclosed on the MOPS and the corporate governance section on Taipower's website
Employees	Employees are the soul of Taipower; they shape Taipower's corporate culture and function as the company's groundwork for sustainable management	Organizational transformation and reform Integrity and sustainable management Safety management and crisis response Worker health and safety Nuclear power safety communication Stakeholder engagement and information transparency	· Sustainability Report · OTJ training · Labor-management meeting · Themed lectures and seminars · Organized information session on amendments of The Electricity Act · Inspection visits, project inspections · Quarterly and annual internal self-evaluations · On-site occupational safety inspection · Occupational safety incident conferences · OSH Committee Meeting (once every two months)	· Organized 20 information sessions on amendments to the Electricity Act and five information sessions on the Labor Standards Act · Organized 559 sessions of OTJ training for 59,771 participants and 29 sessions of orientation training for 1,353 new employees · Organized nine themed lectures for high-ranking supervisors · Organized 11 labor-management meetings and 1 major labor-management issue information session · Organized 10 discussion and solution seminars on practical legal issues · Completed 66 inspection visits at different units and 30 project inspections · Total number of personnel audited on-site for occupational safety: 1,157,661
Partners	By working with partners such as contractors, IPPs, suppli-ers and technology exchange partners, Taipower strives to create value and offer high quality and reliable power services. At the same time, Taipower asks all collaborating partners to be compliant with pertinent occupational safety and health regulations in order to promote a sustainable value chain.	Supply chain management Worker health and safety Environment impact management Technological research and innovation	· Routine/irregular audits · Interview and communication by phone with suppliers · Annual meetings with suppliers to review contract · Internal and external communication meetings · Education and training · International partner conference	· Annual meeting with fixed-term coal suppliers to review and discuss contracts (held between April ~ August) · Held the quarterly "Taipower Materials Management and Control Task Force Meeting" · Taipower has established fuel oil and natural gas supply contact and a pre-emptive warning system with CPC and convenes at least one meeting per year with CPC for fuel oil and one meeting per quarter for natural gas · Audited a total of 1,874,200 contractor personnel and found 477 instances of violations · Relevant power plants interview/communicate with coal ash processing service operators on a daily basis to monitor coal ash processing status · Established the Clean Coal Technology Development Committee to routinely organize technological conference together with Japan's J-POWER company in turns · Requested that consultant company and subcontractors to incorporate features of power conservation, consumable material conservation, ease of maintenance and comprehensive safety protection into the design of relevant products so as to work together in fulfilling our corporate social responsibility of reducing air pollution

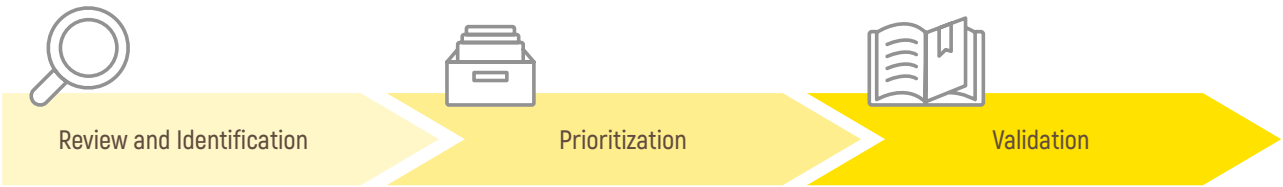
	Materiality to Taipower	Issues of Concern	Channel of Communication and Frequency	Engagement Results
Government/ competent authority	As a state-owned business, government policies have substantial impact on Taipower's operation and development. And as such, the company is committed to maintaining adequate communication with the government so as to ensure the company's stable operation and power supply.	Power supply stability and reliability Electricity tariff rationalization Stakeholder engagement and information transparency Renewable and clean energy development Power industry reform and fair competition	· Board of Directors meeting · Correspondence · Submission of reports on the progress of various projects · Participation in relevant meetings and conferences · Smart power generation and system operation meeting · Project communication meetings	· Important issues to be reviewed during the monthly BOD meetings are submitted to the competent authorities in advance · Submission of power supply reliability data to the Bureau of Energy on a monthly basis · Submission of relevant data and participation in the State-Owned Enterprise Review Meeting when required by the government (irregular) · Submitted 12 progress reports for "Smart Power Generation and Operation" and convened four "Smart Power Generation and Operation" meetings · Organized six power system stability and reliability team meetings. · Participated in periodic small hydro and renewable energy development strategic platform meetings organized by the Water Resources Agency · anticipate in the small hydro related conferences organized by government agencies and legislators (irregular) · Participated in the "Discussion of Responsibility Clarification for the Promotion of Major Projects for MOEA Subordinate Units Meeting Memo" held by the State-owned Enterprise Commission on January 16
People's representatives	Through communicating with the people's representatives, Taipower listens to the voice of the people, understands their needs and helps to promote relevant regulations.	Energy efficiency Electricity tariff rationalization Power plant decommissioning Stakeholder engagement and information transparency Renewable and clean energy development Safety management and crisis response	· Participation in committee meetings at the Legislative Yuan · Mediations, public hearings · Offered relevant materials and information on the company's operations · Visits to legislators	· Taipower's senior managers (VPs and higher) have participated in 39 sessions at the Legislative Yuan · Various supervisors and employees from Taipower have taken part in a total of 899 mediations/public hearings and other events · Taipower's senior managers (VP and higher) participated in a total of 22 meetings with Legislative Yuan committee members · Communicated with committee members regarding issues such as power plant decommissioning/extension, disposal of nuclear fuel, power supply and demand and so forth
Media	The media is Taipower's partner when it comes to communicating with the general public. Through positive interaction with the media and building appropriate means of information delivery, Taipower will be able to help the general public foster the right awareness and understanding of the company's operation.	Integrity and sustainable management Stakeholder communication and information transparency Renewable and clean energy development Power plant decommissioning Corporate culture and contributions to society	· Press releases · Media briefings · Public hearing/ information sessions · Site/expert visits · Taipower's corporate website · Market Observation Post System (MOPS)	· In 2017, Taipower published more than 100 press releases on issues related to power supply and demand, renewable energy development, environmental protection, power disruption/restoration and incidents of major contingency in order to provide prompt and immediate information to the media. Taipower has also taken the initiative to give press releases to the media for further broadcasting/ dissemination. · Regarding issues that have drawn significant public attention in recent years, Taipower has proactively released positive press releases (i.e., demand-based bidding, offshore wind power generation, solar power, green bond and so forth) to demonstrate company's active stance on the development of green energy due to the calls for Energy Transition · Taipower has taken steps to improve its spokesperson system by offering immediate responses and publicizing Taipower's key policies in response to issues that are closely related to people's livelihoods
Private organizations	Private organizations serve as a source of momentum that propels Taipower to grow. The urgings of and exchanges with the private sector have always driven Taipower to improve itself.	Stakeholder communication and information transparency Climate change response strategies Air quality Energy efficiency Power plant decommissioning Corporate culture and contribution to society	· Delegations · Press releases · Taipower's corporate website · Sustainable development section on the corporate website · Taipower TV	· Disclosed the company's financial information and corporate governance status on Taipower's corporate website in the "Corporate Governance" section · Organized 42 group visits at the Lungmen Power Plant (NPP4) · Organized "French radioactive waste management organization ANDRA practical experience international forum 2017" and invited international experts, scholars and relevant professionals from Taiwan and abroad to take part so as to help the general public gain better understanding of the management of radioactive wastes. · Organized the "2017 Nuclear Power in Our Lives" international forum to shed light on the truth of radiation's effects and share experiences through media communication in order to help the general public gain better understanding of radiation related knowledge. · Continued to visit government officials, community organizations, local leadership and communities at potential sites for low-radiation waste storage to help stakeholders gain a better understanding of low-radiation wastes and their acceptance.

	Materiality to Taipower	Issues of Concern	Channel of Communication and Frequency	Engagement Results
Customers	Maintaining customer relationships is key to Taipower's sustainable management. After the market is liberalized following the amendment of the Electricity Act Taipower will need to focus more on customer needs in order to stay competitive with potential competitors that emerge in the market.	Stability and reliability of power supply Accessibility and availability of electricity Electricity tariff rationalization Demand side management and power conservation	· Convene power supply meetings · Expert visits · Education and training · Electricity bills · Customer opinion boxes · Brochures (irregular)	· Established a comprehensive and tightly knit network of services with 24 branch offices and 269 service stations across Taiwan to communicate directly with users · Organized four power quality management and improvement meetings for high-tech parks on a yearly basis and power quality management and improvement meetings for industrial areas and export processing zones · Held routine review meetings for power consumption plans submitted by ultra-high voltage customers each month · Visited customers with consumption of over 100,000 kW to disseminate and promote the use of equipment with better energy efficiency so as to raise their awareness for energy conservation. Taipower visited a total of 5,116 customers in 2017. · Handled a total of 4,667 emails with customer feedback · Organized a total of 1,439 events in 2017 about energy conservation and the effective use of household appliances while promoting the use of high-efficiency appliances. These events were attended by approximately 363,000 people. · Offered community-based energy saving services and consultations in 237 communities · Held the "Save Power and Get a Present from Taipower" campaign to promote energy conservation for five consecutive years
Residents/ general public	The key to the passage of Taipower's major development projects and improvements in power supply lies in the maintenance of smooth communication with the general public. Striving for harmonious coexistence and sharing glory with residents from areas in close proximity to power plants would also be a vital issue that Taipower needs to consider.	Stakeholder communication and information transparency Environment impact management Air quality Corporate culture and contribution to society	· Irregular/routine communication with local residents · The Taipower Facebook page · Relevant information disclosed on the corporate website · Organized nuclear exhibition centers and power plant visits · Press releases	· Conducted 1,894 interactions between hydro/thermal Power Plants and local residents and 197 interactions for Nuclear Power Plants · Taipower's Facebook page reached out to approximately 37 million users in 2017 · The "Information Disclosure Section" of Taipower's website discloses information on the company's operations and electricity tariffs. In addition, Taipower has also setup an independent website on sustainable development as a channel to present the company's performance in sustainable development

1.5.2 Identification of Key Material Issues

In order to identify key issues that relate to sustainable operations and our stakeholders, Taipower uses the GRI guidelines for material analysis to review and identify key issues of sustainability for Taipower.

Material Issue Identification Process



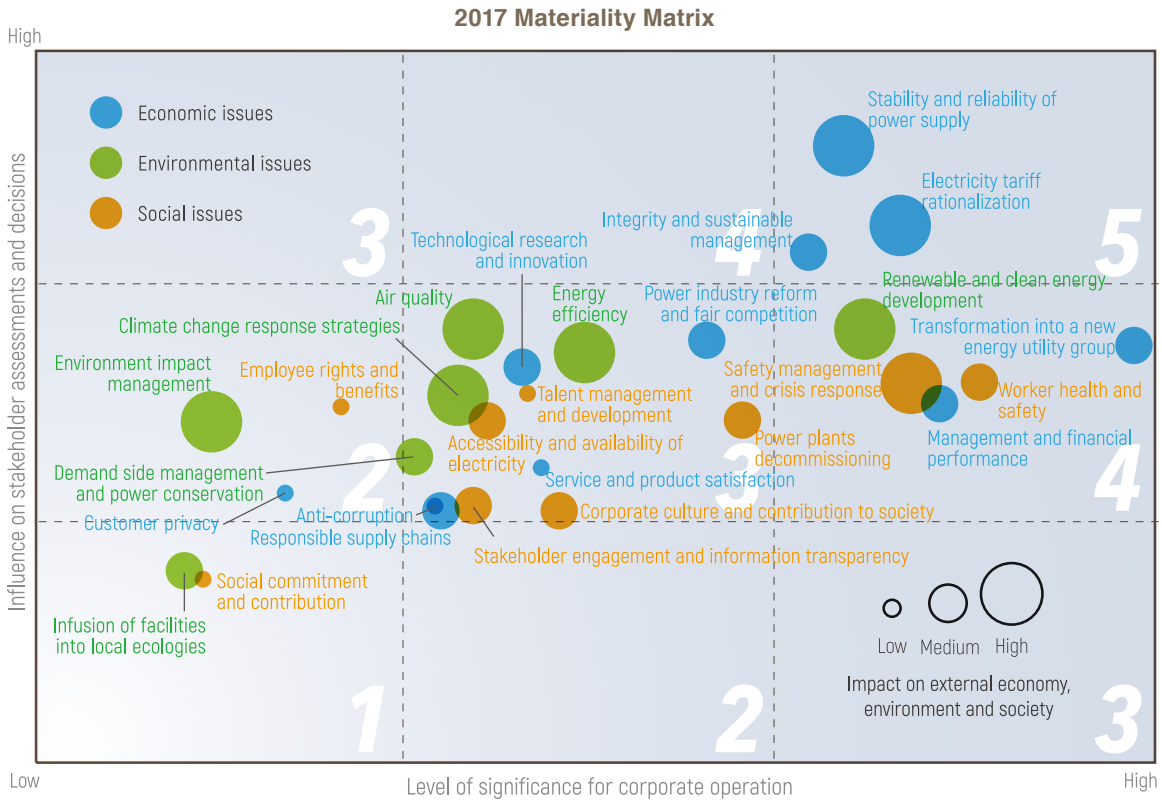
- Review key sustainability issues from the previous year
- Review major domestic and foreign developments, such as climate changes and amendments to pertinent domestic regulations
- Review contents including issues of Taipower management, power industry benchmark, internal/ external stakeholder opinions and major news events
- Identified 30 material issues

- Consider the extent of impact the issues could have on Taipower and different stakeholders through 76 employee surveys to determine the extent of impact on the economy, society and environment along with 171 surveys that cover different categories of stakeholders to analyze the extent of relevant issues' impact on stakeholder assessment and decision-making

- Taipower's senior management to review and verify the Material Issue Matrix
- Determine the contents and structure of Taipower's Sustainability Report based on the results of the analysis

Based on the process of identification illustrated above, and taking relevant trends and incidents into account, Taipower's list of material issues have been adjusted as follows for this year's sustainability report:

Original material topics	Nature of adjustment	New material topics	Description
- Organizational transformation and reform - Newly acquired units	Consolidation →	Transformation into a new energy utility group	In conjunction of current trends for renewable/clean energies and relevant government planning, issues of new unit installation have been consolidated here and renamed for emphasis on energy combination transformation as one of Taipower's focuses for the future.
Supply chain management	Renaming →	Responsible supply chain	After the incident on August 15, we came to the realization that we ought to place heavier emphasis on supply chain management and focus on adopting a more responsible and sustainable mindset for supply chain management.
Anti-corruption	Retention →	Anti-corruption	After benchmark analysis, two corporations have made it a point of including anti-corruption as one of their material issues. Since Taipower had an incident of corruption at the beginning of the year, the issue is still listed.
Renewable energy development	Renaming →	Renewable and clean energy development	In response to news coverage on air pollution, apart from renewable energy, clean energy has also been included as one of Taipower's material issues.
N/A	New addition →	Air quality	In response to the general public's attention to the issue of air pollution, air quality has been included as one of Taipower's material issues.
- Response to national climate change policies - Corporate response to climate change - Extreme climate	Consolidation →	Climate change response strategies	The three issues listed under climate change responses all focus on different issues, but Taipower's strategic direction is so closely tied to national policies that the three issues have been consolidated into one to prevent misunderstanding on part of the general public.
Environmental footprint management	Renaming →	Environment impact management	We wanted to transition from the perspective of footprint management to the rationale of identifying potential impacts on the environment and managing such impacts in same way as other benchmark corporations.
Ecosystem protection	Renaming →	Infusion of facilities and ecology	Like other benchmark corporations, Taipower is striving to achieve an infusion of power facilities with their surrounding ecologies and as such, the issue of ecological protection has been consolidated and renamed.
- Facility safety - Public safety and crisis response	Consolidation →	Safety management and crisis response	One of these two issues deals with the safe management of Taipower's internal facilities on a day-to-day basis. The other involves responding to emergencies. These are in essence two sides of the same coin and have been consolidated into one material issue.
Occupational safety and health	Renaming →	Worker health and safety	In addition to employees, Taipower hires a significant number of contract workers and, as such, suggestions have been made to expand the scope of this issue and to adopt the terminologies used by the GRI standards. As such, this issue has been renamed "Worker health and safety management".
- Nuclear power safety communications - Stakeholder engagement and information transparency	Consolidation →	Stakeholder engagement and information transparency	In light of the current discussions on changing NPP4 to a general power supply facility, the importance of nuclear safety communication has decreased and so, as been consolidated into the broader topic of stakeholder communication.
N/A	New addition →	Social commitment and contribution	Each year, Taipower contributes to society through various activities such as offering scholarships, caring for communities and so forth. Since the company intends to plan its own strategies for these social contributions, this issue has thus been added.
Talent development and training	Renaming →	Talent management and development	Apart from training, the issues of attracting and recruiting more quality employees and offering them appropriate compensation have been key concerns for Taipower. As such, this issue has been renamed to reflect a wider coverage.



Through the matrix of material issues, Taipower has compiled a list of relevant sustainability issues that are weigted based on their significance to Taipower. All issues located in block 5 (of the matrix) are classified as material issues regardless of the extent of their external impact (represented by the size of their bubbles); issues in blocks 3 and 4 have medium or higher external impacts while issues in block 2 that have significant external impacts are also classified as material issues. A total of 20 material issues have been identified within the scope of this report.

The material issues identified in Taipower's sustainability reports over recent years have faithfully reflected the changes in domestic/international sustainability trends and pertinent laws with no significant discrepancies. Looking back on the challenges and major events that took place in Taipower's 2017 operations, power supply stability and reliability received significant public attention and as such, the maintenance of a stable power was identified as one of the company's key operational tasks. With regards to issues such as electricity tariff rationalization, Taipower's integrity and sustainability of operations, development of renewable/clean energies, energy efficiency and so forth, the Company has adequately operated in conjunction with the government's promotion of Energy Transition to overcome relevant challenges.

This report includes detailed descriptions of the 20 material sustainability issues identified in the matrix. In addition, in light of recent management and operations goals, this report also covers relevant information on two items that are not of material importance. The impact of these issues on internal/external boundaries and the corresponding GRI standards and their respective chapters are summarized as follows:

Issue	Location of incidence for economic/environmental/social impact						Relevant GRI standard	Management policy and corresponding chapters
	Within Taipower	Business relationship		Other social relationship				
		Partners	Customers	Private organizations	Government agencies	Residents/general public		
Material issues								
Integrity and sustainable management	✓			✓	✓		Standard Disclosures: Governance Economic: Anti-corruption Environmental: Environmental Compliance Social: Social Compliance	1.4 Corporate Sustainable Governance 6.1 Integrity Management and Legal Compliance
Electricity tariff rationalization	✓		✓	✓	✓		Economic: Indirect Economic Impacts	3.1 Transformation of Energy Services
Stability and reliability of power supply	✓		✓		✓		Economic: Indirect Economic Performance	2.2 Enhancing Reliability of The Power Supply 4.1 Smart Grids Deployment

Issue	Location of incidence for economic/environmental/social impact						Relevant GRI standard	Management policy and corresponding chapters
	Within Taipower	Business relationship		Other social relationship				
		Partners	Customers	Private organi-zations	Govern-ment agencies	Residents/ general public		
Transformation into a new energy utility group	✓		✓		✓		Taipower-specific issue	2.1 Re-engineering The Company
Management and financial performance	✓				✓		Economic: Economic Performance	3.1 Transformation of Energy Services 3.2 Improving Power Generation Capabilities
Technological research and innovation	✓	✓					Economic: Indirect Economic Performance	3.2 Improving Power Generation Capabilities 4.1 Smart Grids Deployment
Power industry reform and fair competition	✓		✓		✓		Taipower-specific issue	2.1Re-engineering The Company
Responsible supply chain	✓	✓					Environmental: Supplier Assessment for Environmental Practices Social: Supplier Assessment for Social Practices	3.3 Procurement of Materials 6.3 Supplier Management
Renewable and clean energy development	✓	✓	✓	✓			Economic: Indirect Economic Impacts Environmental: Emissions	2.2 Enhancing Reliability of The Power Supply 5.2 Renewable Energy Development
Climate change response strategies	✓	✓		✓	✓		Standard Disclosures: Governance Economic: Indirect Economic Impacts Environmental: Emissions, Energy	1.6 Risk and Opportunities 5.1 Response to Climate Change
Environment impact management	✓	✓		✓		✓	Environmental: Effluents and Waste, Water, Energy	5.3 Pollution Prevention and Waste Management 5.4 Energy Management 5.5 Environmental Footprints 6.1.1 Integrity Management
Air quality	✓			✓	✓	✓	Environmental: Emissions	5.3 Pollution Prevention and Waste Management
Energy efficiency	✓		✓		✓		Environmental: Energy, Emissions	3.2 Improving Power Generation Capabilities
Demand side management and power conservation	✓		✓				Economic:Demand Management Environmental: Energy	4.1 Smart Grids Deployment 5.1 Response to Climate Change
Stakeholder engagement and information transparency	✓	✓	✓	✓	✓	✓	Standard Disclosures: Stakeholder Engagement Social: Operations with implemented local community engagement, impact assessments and development programs	1.4 Stakeholders and Material Topics 2.4 Creating Customer Satisfaction 5.3 Pollution Prevention and Waste Management
Power plant decommissioning	✓			✓	✓		Economic: Indirect Economic Performance	2.2 Enhancing Reliability of The Power Supply
Accessibility and availability of electricity	✓		✓		✓		Economic: Indirect Economic Performance	2.2 Enhancing Reliability of The Power Supply 4.2 Smart Grids Deployment
Safety management and crisis response	✓				✓	✓	Social: Local Communities	4.4 Enhancing Power Supply Infrastructures 6.1 Building a Sound Working Environment 6.6 Enhancing Nuclear Communications
Worker health and safety	✓	✓					Society: Occupational safety and health	6.1 Building a Sound Working Environment
Corporate culture and contribution to society	✓					✓	Standard Disclosures: Governance	1.2 Taipower's Mission and Vision 1.3 Management Philosophy and Strategy Sustainable website disclosure

Issue	Location of incidence for economic/environmental/social impact						Relevant GRI standard	Management policy and corresponding chapters
	Within Taipower	Business relationship		Other social relationship				
		Partners	Customers	Private organizations	Government agencies	Residents/general public		
Non-Material Issues								
Infusion of facilities and ecology	✓			✓		✓	Environmental: Biodiversity	5.5 Environmental Footprints
Talent management and development	✓						Social: Labor/Management Relations, benefits offered to full time employees	6.1 Building a Sound Working Environment Sustainable website disclosure

1.6 Risk and Opportunities

Corporate management must deal both with the impact of external risks and with various opportunities for development. Being able to effectively identify potential risk factors from external trends while searching for opportunities for development and creating effective guidelines for response are areas that Taipower is constantly seeking to overcome and improve within. As a state-owned business, Taipower shoulders major responsibilities including supplying Taiwan with stable power and implementing energy transition. As such, our management principles prioritize the elimination of poor practices over profit making. By emphasizing risk management, we will be able to ensure steady growth for the company. We also assess potential opportunities for feasibility through our new venture development office and make the most out of relevant opportunities through "spinoff investments."

1.6.1 Risk Management

In 2017, we faced changes in the global climate with regards to international trends. Domestically, we witnessed the emergence of a nuclear-free homeland policy, the development of renewable energies, concerns about a stable power supply and sustainable development. Taipower relied on its comprehensive and sound risk management system to identify, prioritize and respond to these internal and external risks.

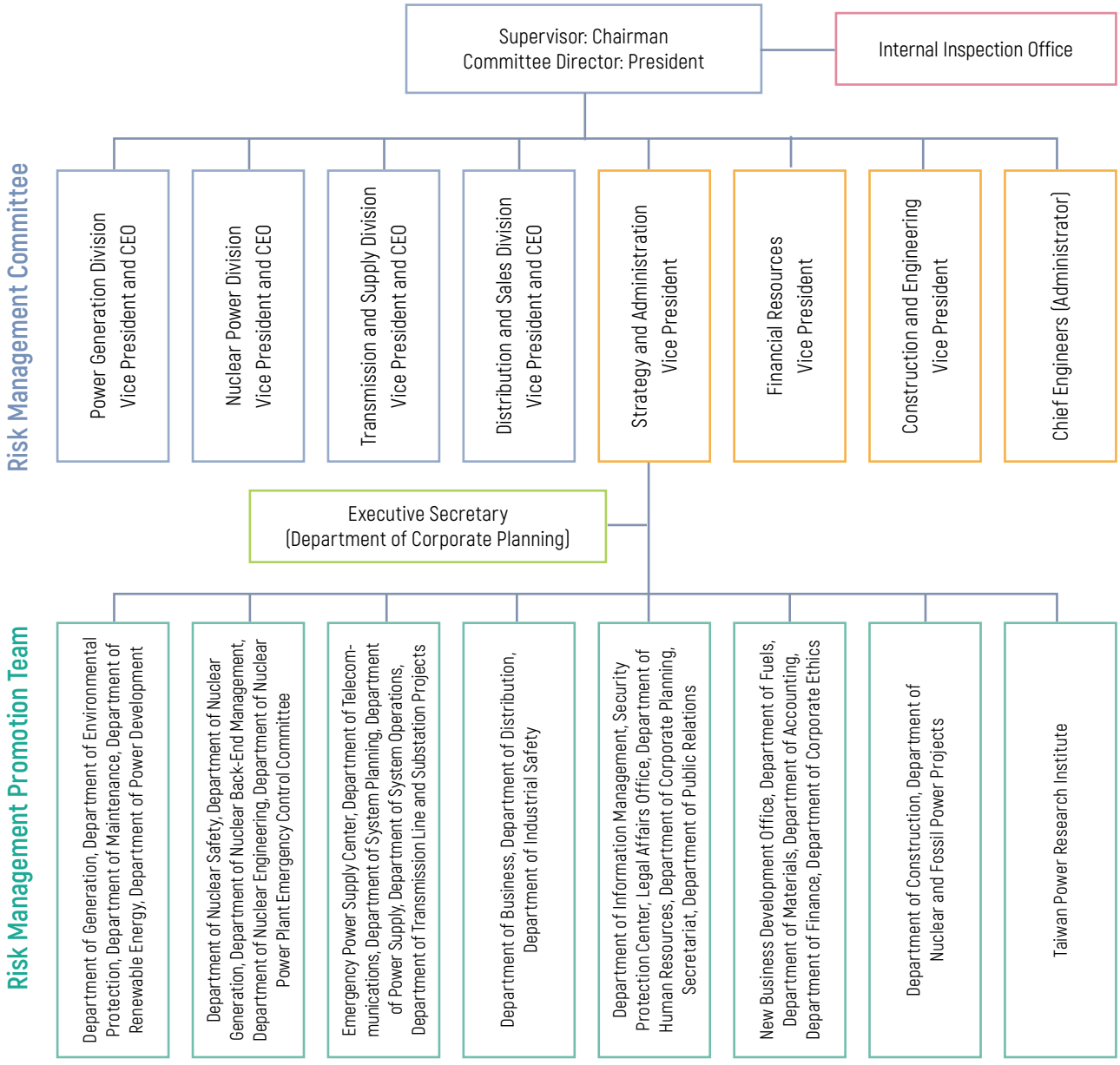
Risk Management Policies

Taipower has established four risk management policies as guidelines for organizational risk management. They are as follows:

Risk Management Organization Structure

Taipower's framework of governance for risk response involves the Chairman and President functioning as supervising committee and convening committee members respectively. The Risk Management Committee operates as a task force and comprises the CEOs and VPs from the four major divisions along with VPs from Strategic Administration, Financial Resources, Construction and Engineering and their chief engineers. The committee operates with subordinate risk management promotion teams that are responsible for the identification of potential risks and the establishment of risk management policies and corresponding responses.

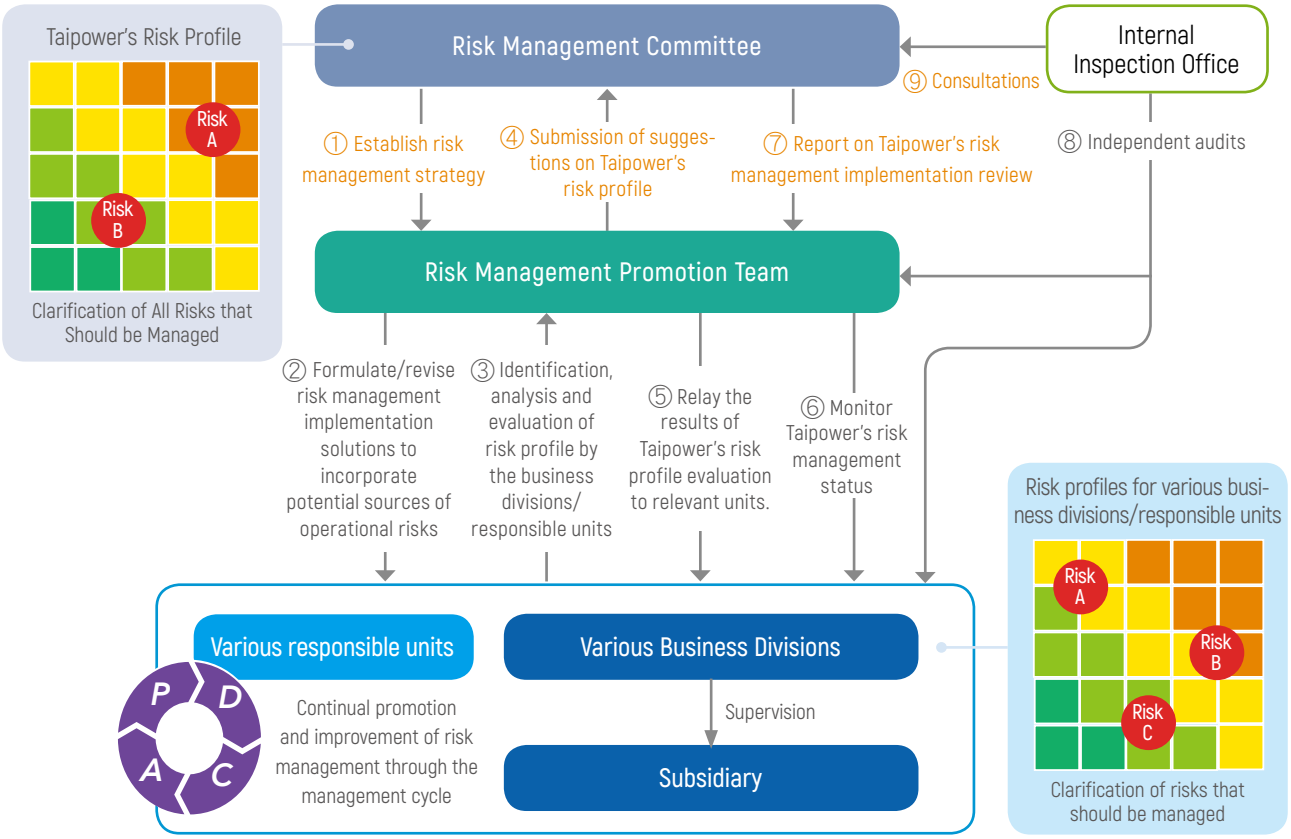
Taipower's Risk Management Organization Structure



Risk Management Process

Taipower's risk management process begins with strategies established by the Risk Management Committee. Subsequently, the Risk Management Promotion Team formulates corresponding risk management implementation solutions to be delivered to relevant first-tier units before they are analyzed and converted into the company's risk profiles. These risk profiles are then compiled by the Risk Management Promotion Team into a company-wide risk profile to be submitted to the Risk Management Committee for review. After the review, the Risk Management Promotion Team will relay the results of the review to all supervisory units for risk control.

The Risk Management Promotion Team is also responsible for monitoring Taipower's overall risk management status and reporting periodically to the Risk Management Committee. The Department of Corporate Planning and relevant supervisory unit will carry out inspection visits to audit the implementation of risk management at relevant first-tier units and departments in accordance with the audit system. Each year, the Risk Management Promotion Team reports on risk handling and control results. These reports are reviewed by the Risk Management Committee. Depending on changes in the internal and external environments, risk management policies can be subjected to review and revision.



Risk Assessment - Considerations for Risk Identification

During the process of risk identification and profile analysis, Taipower will take the following factors into consideration:

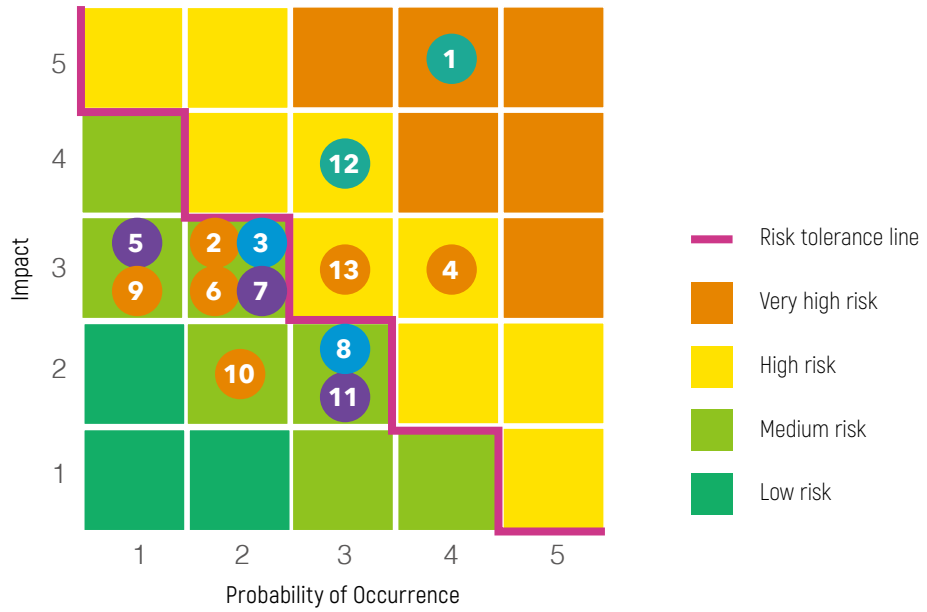
- Issues that pertains to Taipower's stakeholders.
- Major issues that may affect the company's operations or safety.
- Major incidents stemming from new policies or changes.
- Incidents tracked by supervisory units or affairs that have warranted specific attention from division management.

1.6.2 Risk Profile and Counter Measures

Taipower uses a risk profile to monitor potential risk items that the Company may face. When the risk level of an incident has been identified as extremely high, the risk will be given top priority for rectification; risks of high risk indicators come next in terms of priority and may require specific plans to be drafted and resources to be in place before they are handled. Risks at the medium level do not require prioritized rectification but are monitored continually by the responsible departments. Low-level risk indicators are handled in accordance with the company's general procedures.

The risk profile for Taipower's sustainable management in 2018 is shown below. Among the risks identified, "increasing accrual of losses", "power supply shortage", "hindered power plans" and "hindered power line projects" have been identified as high-risk items that Taipower has to handle with prudent planning. Through adequate assessment and analysis of risk and sustainability issues, Taipower will enhance its capacity to reduce risks and capitalize on opportunities so as to achieve its vision of sustainable management.

Distribution

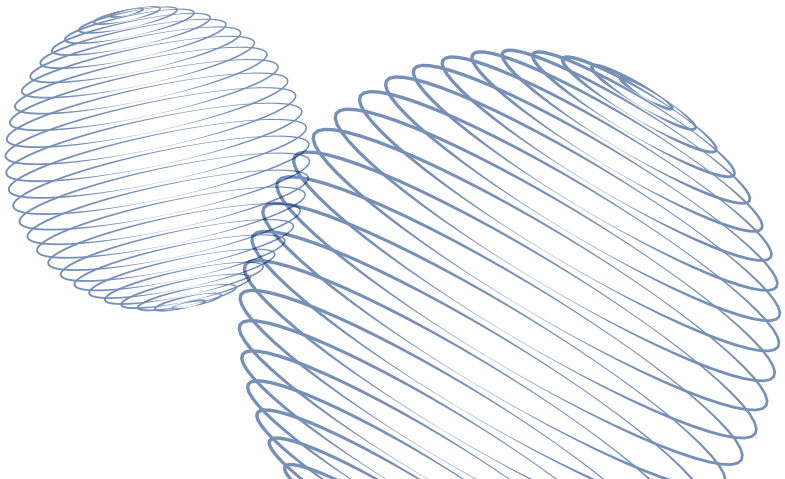


Risk Category	Risk Identified by Taipower
Strategic and Financial Risks	1. Accrual of losses resulting in greater impact on the Company's operations 12. Power plans hindered, affecting the company's power supply capabilities
Operational Risks	2. Aging workforce structure impeding the passing on of techniques 4. Power supply shortages affecting system stability and safety 6. Incidents of EHS resulting in asset loss and damaged reputation for the company 9. Hacking of the company's information systems 10. Outbreaks of labor-management disputes and employee protests 13. Obstructions to grid construction affecting grid power supply
Legal Compliance Risks	3. Incidents of employee corruption 8. Negative publicity having an adverse impact on company image
Environment and Climate Change Risks	5. Natural disasters leading to accidents at nuclear Power Plants 7. Environmental issues having adverse impact on company image 11. Damage to power equipment caused by natural disasters

Risk Scenarios and Responses for Very High Risk Items

Extremely High/High Risk Items	Risk Scenario	Control Measure
Accrual of losses resulting in greater impacts on the company's operations	1. Increases in tariffs were limited by the relevant mechanism to restrict increased margin, resulting in a failure to reflect the cost of power supply. 2. Handling of NNP4 assets resulting in damages that result in substantial tax losses 3. As the costs of nuclear back-end decommissioning cannot be consolidated into the cost of electricity sales and recovered through tariffs, it leads to decreased profits or increased deficits 4. Huge capital is needed for power construction but self-owned capital insufficient	1. Vie for reasonable adjustments to tariffs through the appropriate tariff formula 2. Reduce losses by using assets invested in NPP4 for other purposes or by transfering assets to be used at other Power Plants 3. Petition the government for a commitment to allow Taipower to recoup losses from NPP4 asset impairment through tariffs should such impairment occur. 4. Vie for means to offset losses from the handling of NPP4 through a reduction of sales tax or other taxes to improve the Company's financial structure. 5. Advocate the safe storage of used nuclear fuel in indoor dry storage/storage in RC casks and seek support from the general public to prevent the choice of metallic casks over dry storage as proposed by specific proponents to prevent additional costs from being incurred. 6. Ensure the prudent distribution of the capital/expenditure budget and implement relevant control measures to facilitate stringent control of remaining funds from projects, and interest accrued during the span of projects and through general constructions/equipment purchasing plans. 7. Conduct annual reviews of demand and changes in long-term capital/expenses for all business divisions and systems to ensure long-term financial structure security for the Company. 8. Strengthen the control and use of remaining funds from the annual budget to alleviate the demand for funding
Power supply shortage affecting system stability and safety	1. Large Power Plants in operation are rendered unavailable for power generation 2. Damages to key extra high voltage earthing switches (E/S) or disruptions of the north-south ultra high voltage transmission line 3. Failure of power supply equipment in high-tech parks resulting in power outages 4. Disruptions or shortages of fuel supply, leading to power rationing 5. Key power facilities, reservoirs and dams sabotaged by terrorist organizations 6. Relevant measures implemented by environmental protection agencies to restrict coal combustion or improve air quality resulting in power supply shortages 7. Inability to obtain approval to reinitiate reactor number 2 at NPP2 for operation	1. Implement a "Taipower and CPC natural gas supply contact and preemptive warning system" and a "Taipower and CPC fuel oil supply contact and preemptive warning system" by staying in close contact with CPC to monitor the status of fuel required for power generation. 2. Conduct routine simulations and drills for scenarios of large power plant failures. 3. In order to prevent a crisis of power rationing and mitigate its impact, Taipower will adhere to pertinent regulations spelled out in the "Compilation of rules and regulations on power system operation" and "Procedure for power rationing in the event of inadequate power." 4. Respond by reporting and establishing response teams in accordance with the mechanisms spelled out in the "Immediate reporting for disaster and emergency" and "Guidelines on establishing emergency response teams." 5. Conduct one large-scale or high-tech park power outage exercise every 6 months 6. Implement a "Taipower and CPC natural gas supply contact and preemptive warning system" and conduct quarterly coordination meetings to strengthen communication between both parties, thereby minimizing the risks of natural gas supply disruption or shortage. 7. Implement a "Taipower and CPC fuel oil supply contact and preemptive warning system." 8. Focus primarily on fixed-term contracts and supplement them with procurement; leverage the ±20% privilege for buyers in fixed-term contracts for greater versatility. 9. Formulate a "Taipower Major man-made hazard incident or terrorist attack response plan" in accordance with the MOEA's "Financial facility/infrastructure major man-made hazard incident or terrorist attack response plan" as a basis for relevant tasks. 10. Implement emission reduction and load reduction measures in accordance with the "Air quality severe deterioration emergency prevention procedure" promulgated by the EPA, Executive Yuan. 11. The repairs on malfunctioning equipment at NPP2 have been completed, with an AEC report review and Legislative Yuan approval for Taipower's activation application pending.

Extremely High/High Risk Items	Risk Scenario	Control Measure
Power plans hindered, affecting the company's power supply capabilities	1. Projects under construction 2. New projects 3. Renewable energy plans	1. Convene routine/ad-hoc construction review meetings to formulate corresponding strategies to resolve bottlenecks, significant difficulties or items that require coordination for projects/programs undertaken. 2. Petition to obtain approval for "Early implementation in 2018 and reapply for budget approval in 2019." Refer to the "Implementation guideline for the simplification of permit approval for major public infrastructure projects" to coordinate and speed up the process of permit approval. 3. Submit a petition to the "Office of Energy and Carbon Reduction, Executive Yuan" for support and assistance with relevant administrative procedures to facilitate punctual completion of projects. 4. Host communication meetings with bid winners to exchange thoughts and discuss key issues such as project costs, construction, risks and so forth in order to prevent conflicting views and minimize the gaps between project budgets and tenders proposed by the bid winners. 5. Implement project revision, increase relevant budgets and change the duration of relevant projects while continuing to monitor the status of project revisions. 6. Establish annual occupational safety and health management plans and occupational safety audit plans while following and reviewing relevant items. 7. Continue to strengthen occupational safety training and promotion for employees and subcontractor workers in order to boost their awareness and knowledge of occupational safety.
Obstruction to grid construction affecting grid power supply	1. Failure to incorporate the Tongxiao-Yihe 345kV power lines into the system as scheduled 2. Failure to incorporate the Taiwan-Penghu 161kV cable lines into the system as scheduled 3. Failure to incorporate the Dalin-Kaohsiung Harbor 345kV power lines into the system as scheduled 4. Accidents in construction that affect progress	1. Convene project control and work review meetings to ensure effective control over project progress. 2. Strengthen communication with proprietors and residents in close proximity to power lines in conjunction with negotiations for right-of-way by offering adequate explanations from a technical perspective and exchanging opinions; make relevant changes to the design within reasonable scope in order to gain support and assistance. 3. Actively communicate with local governments, local fishermen's associations, representative, village/borough chiefs, opinion leaders, members of self-help organizations and residents. Explain the necessity of projects. 4. Examine the feasibility of changes in construction techniques by making slight changes in the path of land lines on Taiwan proper for ocean cables to mitigate the impact of construction and to speed up the process. 5. Make suitable arrangements for cable construction priorities and schedules to ensure continuous operation while avoiding waiting periods that will impact productivity. 6. Strengthen relevant monitoring in the process of construction, such as excavation monitoring, surface subsidence monitoring, truss support monitoring, to acquire early warnings and prevent construction hazards.



1.6.3 Opportunity Management and Response

Risks and opportunities are two sides of the same coin. If we can monitor potential risks, we will be in a position to create opportunities. Through the comprehensive risk management system described in previous section, Taipower is able to better appreciate and grasp trends in sustainable development from around the world and, in turn, to seek out potential opportunities for Taipower to further develop. For instance, we have summarized the opportunities and financial impacts that climate change could bring by referring to a publication by the Task Force on Climate-related Financial Disclosures (TCFD) and by utilizing the SDG Industry Matrix – Energy, Nature, Resources, Chemicals published by the UN. These resources have allowed us to identify opportunities brought to the energy industry by the SDGs.

In order to effectively leverage the opportunities identified, Taipower has established “New venture proposition review and promotion guidelines.” The guidelines create a mechanism for dealing with new propositions and their reviews so that, once reviewed by a review team, they can be submitted to the president. The president can then appoint responsible personnel for the promotion of the project to ensure due development of the given opportunities. In order to motivate employees and units to come up with creative ideas for development, employees whose propositions receive approval in initial/secondary reviews may receive appropriate incentives (as spelled out in the guidelines). This will help Taipower to make the most out of its own creativity and build upon its competitiveness in sustainable operations.

The opportunities that have been identified through the preliminary process are listed below:

Potential Opportunities	Reason	Counter-Measure	Corresponding SDGs
Amendments of the Electricity Act – Enabling power wheeling with renewable energy	Enabling power wheeling from renewable energy symbolizes the first step in the reform of Taiwan's power industry. It also ushers in a new operating and service model for Taipower by enabling Taipower to make reasonable profits through power wheeling. By integrating various private renewable energy grids, we will be able to diversify a portion of the power consumption risks.	Formulate regulations for governing transmission and distribution for power wheeling and contracts and commission relevant studies on contract/regulation drafting for power wheeling, power transmission rules, distribution fees and so forth, while carrying out renewable energy grid integration technology research.	 Through power wheeling, we will be able to ensure that customers with a need for renewable energy can receive their power directly through Taipower. Through innovation and creativity, we will construct the requisite infrastructure for renewable energy grid integration.
Global development trends for renewable energy and domestic demand for renewable energy technologies	Commitments from major global companies such as Apple and Google to increase renewable power generation, coupled with the latest developments in renewable energy technologies will allow Taipower to take advantage of the nuclear-free homeland policy by preemptively venturing into the development and construction of renewable energy facilities. This will help the company prepare for an open market and customers with green power demands. As more global companies and domestic proprietors move into the domain of renewable energy, Taipower can rely on its experience and the technical edge it has developed over the years (especially its know-how related to offshore wind farms) and offer services for "wind power training."	In the next 15 years, Taipower is looking to invest over NT$ 400 billion into renewable power generation to secure its leading status in renew-able power generation capabilities in Taiwan. At the same time, Taipower has also started the Taiwan International Windpower Training Corporation as a way to utilize our knowledge in the domain to create new value for the company.	 The development of renewable energy will assist everyone to acquire clean power while reducing carbon emissions and mitigating the impacts of climate change.
Smart IoT and big data development	As new and improved methods of big data analysis become available and smart meter and IoT technologies mature, Taipower will be able to achieve more precise power supply and demand forecasts and incorporate relevant data into the company's demand-based bidding. Using real-time power consumption system analysis, the system will be able to automatically process potential system risks by effectively reducing power consumption and lowering the risks of power rationing/grid disruption.	· Introduce wireless communication technology for IoT. · Complete Taipower's short/mid-term wind power generation smart prediction system's construction. · Launch smart meter installations for high/low-voltage customers.	 Through smart power grids, we will be able to effectively improve the resilience of existing grids and mitigate the potential impact from extreme climate

2

Provider of High Quality Power Services

Performance Highlights

- Promote responses to the recent amendments to the ***Electricity Act*** and overcome the ***five challenges to Taipower's management***
- Established ***corporate transition promotion reporting*** as a platform for the headquarters and business divisions to reach consensus
- Established ***9,953*** feeder lines in Taiwan, Penghu, Kinmen and Matsu to achieve ***99.99%*** power availability.
- Customer satisfaction survey score for 2017 was ***96***, a new record for Taipower.
- The 4th Anniversary of Taipower TV – ***"Little People, Big Stories"***

Role and Contribution

In the past, Taipower acted solely as a power provider. But with new developments in the domestic environment and economy, Taipower is transforming into a company that provides high-quality power service in addition to generating power. This change means the company is striving to satisfy customers' demands for power safety and reliability as well as focusing on the diversity of its power sources so that it can create a more resilient power value chain. In addition to hardware improvement, this will also entail smooth and creative bi-lateral communications to facilitate mutual understanding between Taipower and its external stakeholders. This communication will allow the company to provide power services that are better aligned with customer needs. As the organization transforms, Taipower continues to enhance its high-quality power services despite in an ever-changing external environment.

SDGs	Correlation to Taipower	Corresponding Chapters/Issues
1 NO POVERTY	Taipower will continue to improve the accessibility, stability and reliability of power services and ensure that all users (including residents in remote areas and disadvantaged minorities) may enjoy equal access to power services	– High Quality and Reliable Power Supply – Enhancing the Accessibility of Power Services
7 AFFORDABLE AND CLEAN ENERGY	Increase the ratio of renewable sources in power generation. Improve operational and energy efficiency and ensure that all users have access to affordable, reliable and clean power services	– High Quality and Reliable Power Supply – Enhanced Accessibility of Power Services – Adjustments to Power Structure
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	Improve the energy efficiency and recovery for fundamental power equipment; adopt clean technology and improve the infrastructure for a renewable energy grid so as to enhance grid resilience and reliability while facilitating innovative development of environmentally friendly technologies	– Future Prospects for Development of the Four Divisions – Response to The Electricity Act – Adjustment to Grid Structure – Transmission System Division –Fleshing Out Operational Functions
13 CLIMATE ACTION	Provide high-quality, stable power supply services in response to the impacts of climate change	– High Quality and Reliable Power Supply – Urgent Repairs after Disasters
16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Emphasize corporate governance, integrity management and information disclosure while ensuring various communication channels operate smoothly; ensure that all relevant decisions at all levels are inclusive and representative	– Power Industry Liberalization Coping Strategy Task Force

Sustainable Trends and Challenges

As a result of amendments to the Electricity Act, Taipower faces some drastic challenges to its operations. The question of how to respond to power structure transformation while preparing for competition from a gradually liberalized market is one that Taipower must consider while maintaining its high quality power service. Taipower continues to manage various aspects of its business: its operation model, customer demands, and public relations. Another crucial issue is the need to maintain the stability and resilience of the power grid in the midst of severe climate change. Moreover, Taipower will face the challenge of transforming into a holding company with a divisional structure so that it can achieve sustainable operations by becoming a globalized power utility group.

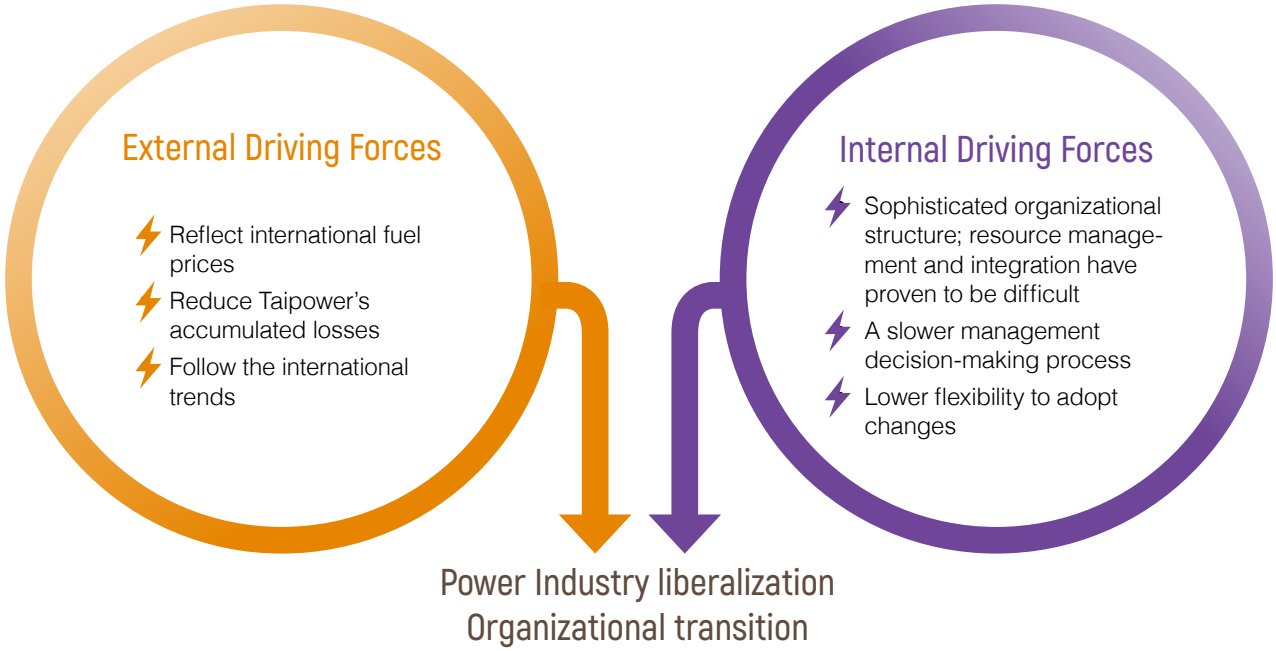
Solutions Planned for the Future

- Plan a three-stage corporate transformation that will transform the company into a parent holding company with two subordinate companies that handle power generation and power transmission and distribution respectively.
- Better understand the government's plan for energy transition in order to promote renewable energy and natural gas power generation
- Invest more than NT$ 400 billion in lowcarbon power generation facilities in the next 15 years.
- Formulate and propose a "Power Line Fortification for Disaster Prevention and Resilience Plan" to construct a distribution network that is resilient to the weather

2.1 Re-engineering the Company

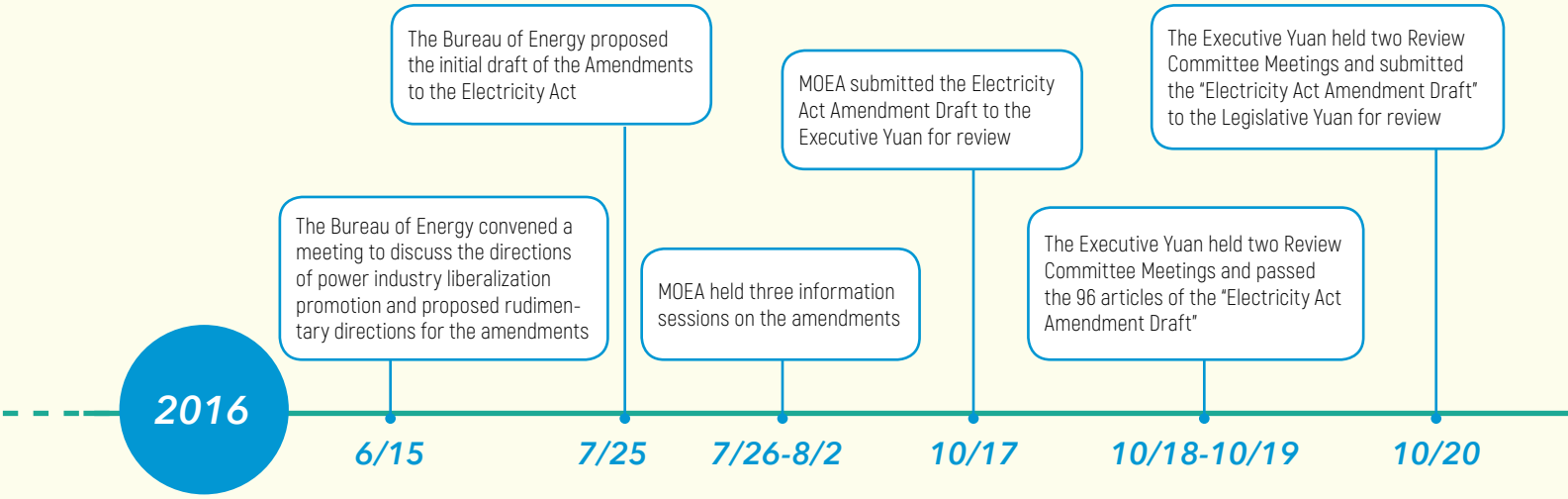
The promulgation of amendments to the Electricity Act in 2017 marked an important milestone in the liberalization of Taiwan's power industry. In response to the trend of power industry liberalization and the public's expectations, Taipower has endeavored to achieve the goals of improving overall management performance and enhancing its operations to promote corporate reengineering. In 2015, Taipower completed all preparations for an organizational transformation, including "separation of generation and grid functions" and "accounting separation." On January 1, 2016, Taipower was officially transformed into a divisional organization. In the future, Taipower will stay true to its management philosophy of pursuing growth as the company evolves from an "agency" to a "corporate entity." By carrying out corporate sustainable development planning, we will gradually fulfill our vision of becoming a globalized power utility group.

2.1.1 Driving Forces for Organizational Transition



The Major External Driving Force in 2017 - The Passage of Amendments to the Electricity Act

The Legislative Yuan completed amendments to the Electricity Act on January 11, 2017. The entire (97 articles) amended Electricity Act was published on January 26 with Presidential Decree Hua-Tsung No. 10600011591. The amendment process for the Electricity Act is presented in the following table:



Implications of the Electricity Act's Amendments and Taipower's Response

Within a year after the amendment took effect

- Liberalize the market and open access to renewable energy wheeling, distribution and sales.
- Open access to traditional power industry on the condition of exclusive sale rights for Taipower
- Central governing authority will designate the regulatory body in charge of utilities.
- Taipower maintains its existing operations but will implement accounting separation when running different types of power businesses.
- Open full access to green power for all customers.

Six years after the amendment took effect

- Taipower's headquarters will be transformed into a holding company
- Two subsidiaries will be responsible for power generation and transmission/distribution/sales of power.

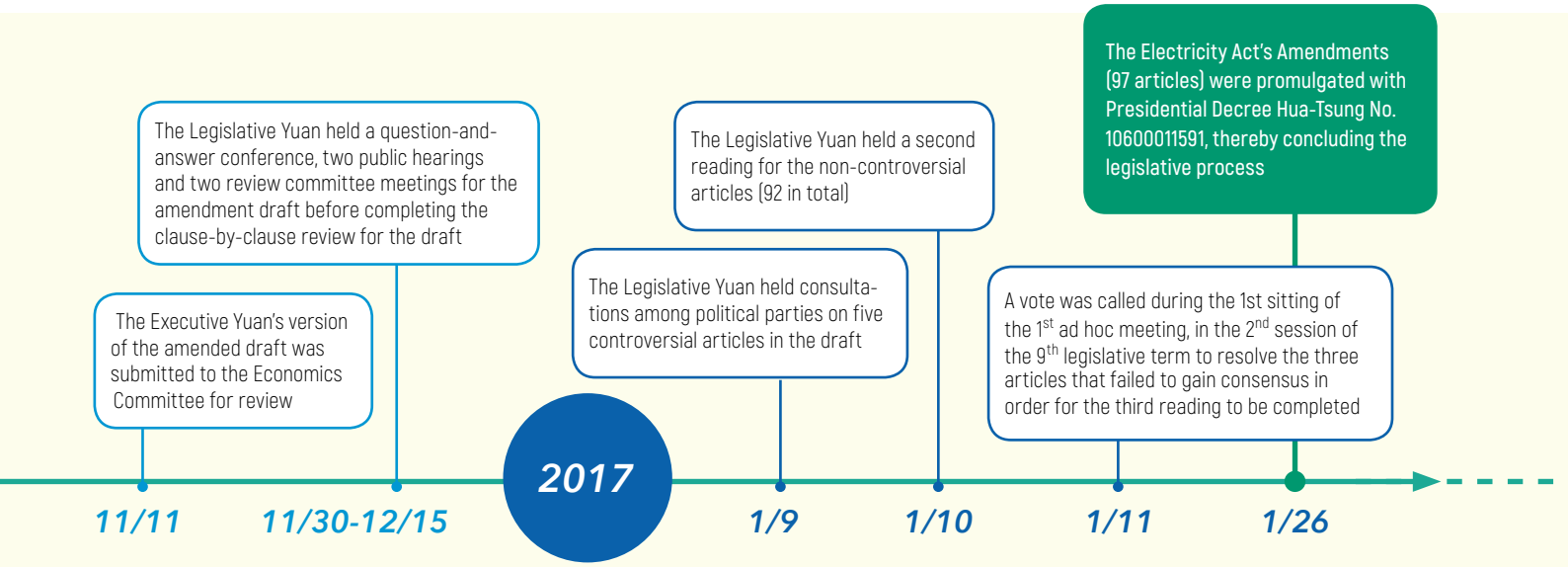
Achieve "nuclear-free homeland" by 2025

The Impact of the Electricity Act's Amendments on Taipower

With the amendments to the Electricity Act in effect, regulations will steer Taiwan along a path of energy transition and hopefully take us to the goals of promoting renewable power development, increasing gas-fired power plants and reducing coal-fired power plants and a nuclear-free homeland by 2025. By adjusting the structure of the domestic power market, the amendments set a specific period of time for Taipower to become a holding company. As such, the amendments brought a series of challenges in various aspects. After internal evaluation, the challenges for Taipower can be summarized as follows:

① **Ensure reliable power supply**

During the process of energy transition, there is a risk of power shortage because of the shutdown of nuclear units and of power distribution problems due to air pollution, which in turn affects power reliability. Available power must be supplemented with gas and renewables. The intermittence of renewable generation means it is necessary to increase the reserve margin and operating reserve. In contrast, the development of gas-fired power generation requires LNG reception and storage capabilities. Taipower will invest substantially in power development to ensure a reliable power supply.



② **Adjustments to grid planning**

Pursuant to the Electricity Act, priority has been given to grid integration and dispatch for green energy. Before installations for renewable energy can be integrated into the existing grid on a massive scale, planning must be done for shared storage for different energy types, distributed storage and regional distribution and integration of various features of energy storage systems, smart meters, demand-based management measures and so forth. This will be done through the use of ICT to improve energy efficiency and grid stability. This will, in turn, make the reduction of peak loads feasible and create a green energy, low-carbon power grid.

③ **Establish operations for accounting separation**

Taipower has been working on the separation of its business divisions since 2013 (with emphasis on cost separation). However, the requirements for accounting separation as required by the Electricity Act mean that there are many items that must still be clarified. These include the separation of assets, debts and revenues (by industry). Clarification must be made on these items before the company is able to effectively and accurately compute the profits and deficits for each segment of the power industry. In addition, Taipower has the impairment of NPP4's assets and substantial accumulated losses to account for and both will demand deliberate and thorough planning in order for the company to smoothly transition into a holding company in the future.

④ **Steady promotion of corporate transition**

Pursuant to the Electricity Act, Taipower is required to complete its transition to a holding company by 2023 (this can be extended up to no later than 2026). Although the company preemptively adopted the business division system back in 2016 and separated its core operations into four major divisions, the company's massive organizational structure and intricate functional designs mean the existing model of mixed power industry operations now requires substantial revamping. Taipower has first conducted a pilot study for relevant analysis and chosen to take firm strides in planning with the goal of completing its corporate transition and reengineering before the given deadline.

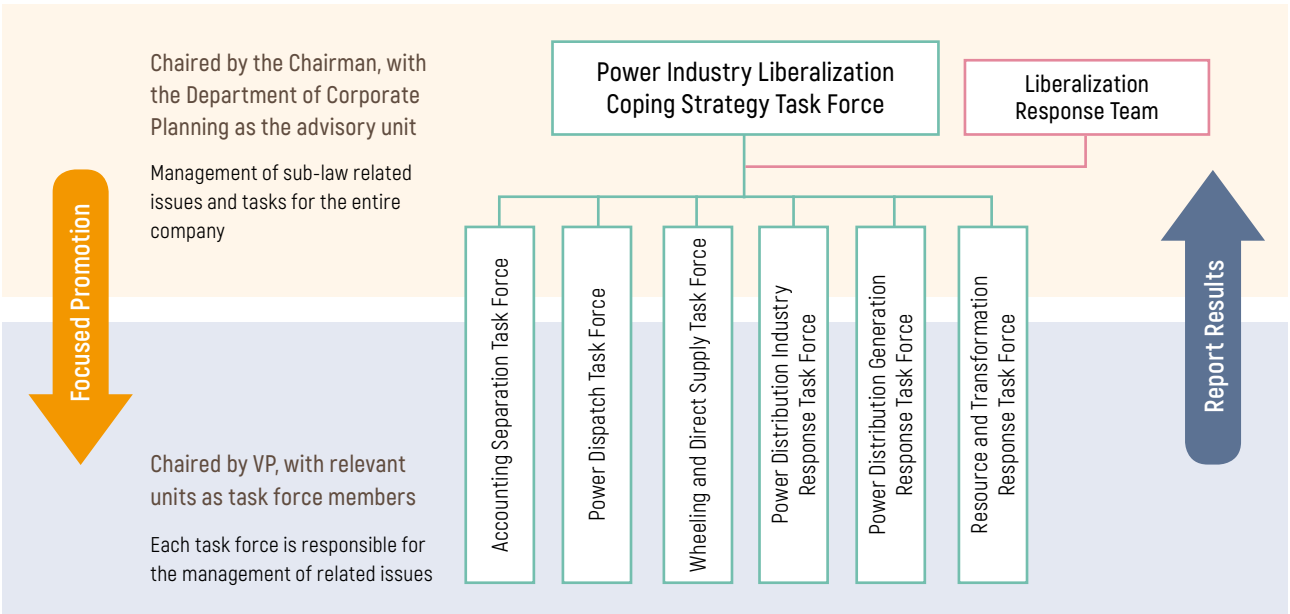
Taipower's Response

Facing these aforementioned challenges, we are now undertaking the planning and preparation of complementary measures to transform our organizational structure and to prepare the holding company for its trial operations. These measures include:

① **Establishing relevant task forces to promote corresponding affairs**

Taipower has adjusted its preparations in accordance with the Electricity Act and established its Power Industry Liberalization Response Task Force, which is headed personally by the Chairman with the Department of Corporate Planning functioning as the advisory unit. The task force has six subordinate task forces: "Power Generation Industry Response," "Power Distribution Industry Response," "Wheeling and Direct Supply," "Power Dispatch," "Accounting Separation" and "Resource and Transition Planning." These task forces are responsible for carrying out relevant tasks concurrently. In 2017, the head task force held sixteen meetings to discuss and plan the preparations to be made.

The Power Industry Liberalization Response Task Force



② **Introducing R&D to commission research projects**

Presently, Taipower has launched a program for "Research on Taipower's Strategy, Response and Planning for Power Industry Liberalization" and in 2017, the company commissioned seven separated studies (financial planning, wheeling contracts and regulations, power dispatch regulations, dispatch fee calculation, responding as a public power distributor, power plant operating model improvement and transformation of the headquarters into a holding company) to external parties to facilitate the promotion of relevant affairs and tasks.

③ **Active participation in the amendment of sub-laws**

With regards to the regulation of the Electricity Act and its related announcements (45 items in total), Taipower has adopted the principle of "Vying for fair and reasonable treatment first; actively taking part in discussion during the process and due implementation after the process." This has led the company to actively take part in the process of sub-law amendments by competent authorities to help in the creation of a fair and reasonable model of operation. Discussion meetings for relevant sub-laws include meetings chaired by the Deputy Minister of MOEA, meetings chaired by Taipower's senior managers, preliminary meetings by organizers of pertinent sub-laws, Bureau of Energy stakeholder meetings and so forth. Taipower has attended more than 100 meetings for pertinent sub-laws.

④ **Actively analyzing and implement corporate transition planning**

At the end of 2016, Taipower had identified 11 key issues for the corporate transition and sought the help of domestic and foreign research institutions to carry out prospective studies by reviewing the Electricity Act, the system of state-owned enterprises and domestic/foreign case studies. After consulting with experts and scholars, the Department of Corporate Planning proposed ideas to be discussed by the "Senior Management Decision Meeting of Holding Company Transition" to verify the feasibility of ideas before they were sent to subordinate units for further planning and implementation.

In July 2017, Taipower took a step further by initiating corporate transition reporting to take responsibility for the planning and transformation of the headquarters (including the Taipower Research Institute) and the business divisions/systems into a parent company with subsidiaries. The platform serves as a meeting point for the headquarters and divisions to foster consensus. A transition task force for each business division and system has also been established with a supervisor/VP/CEO as chairperson to be responsible for practical planning and promotion of operations they are in charge of. With a three-stage schedule for transition, Taipower will gradually achieve transition as required by the Electricity Act.

⑤ **Continuing to facilitate internal communication within the company**

The impact of transition on our employees cannot be ignored and, as such, we have resorted to different ways of relating the impact of amendments to the Electricity Act on Taipower. The following efforts were made in 2017:

(1) Island-wide communication and information sessions: From March 16 to September 21, 2017, Taipower held 21 communication and information sessions at various units (including 5 sessions on offshore facilities) across Taiwan.

(2) Union communication: At seven meetings such as the "Labor education and training seminar" organized for the Taipower Labor Union and at the "Key labor-management meeting," Taipower has made presentations on the progress of the Electricity Act amendments and its major contents and communicated with participants on relevant key issues.

(3) Communication through diverse means: Taipower has produced a training video containing highlights of the key points of the Electricity Act to be played at the training center. In addition, senior managers including the VP have offered courses on responding to amendments to the Electricity Act and company transition for senior executives/middle management/basic supervisors. There were a total of 17 sessions held in addition to two batches of "Power industry liberalization seminars" in May and November 2017.

(4) Provision of digital information: "Dynamic information on the Electricity Act" was set up on Taipower's intranet to provide the latest updates on the progress of relevant sub-laws along with relevant presentations to be perused by employees.

2.1.2 Organizational Transition Planning

The Electricity Act Amendments took effect on January 26, 2017. Article 6 of the Act states that "Taipower Company will be divided into an Electricity Generating Enterprise and an Electricity Transmission and Distribution Enterprise, and will transform into a holding company that includes Electricity Generating Enterprises and Electricity Transmission and Distribution Enterprises as subsidiaries." In light of this, Taipower has already commissioned consultant firms to carry out studies on business strategies, countermeasures and implementation plans for the Taiwan Power Company in a liberalized electricity market and planning of Taipower's Transition into a holding company. At the same time, Taipower's HQ and various business divisions will also formulate their future roles and planning for transition, and once completed, they will be incorporated into the aforementioned studies for integration and serve as a reference for Taipower's transition in the future.

2.2 Enhancing Reliability of the Power Supply

2.2.1 Adjusting the Energy Mix

The Function of Taipower's Power Development

1st Stage - The supplier of electricity in Taiwan

Since its beginnings in 1946, Taipower has shouldered the responsibility of supplying power across Taiwan and engaged in long-term power development. During this stage, Taipower's system was essentially the power supply system for all of Taiwan.

2nd Stage - Purchasing power as supplementary generation

- The Energy Administration Act was passed in 1980
- Cogeneration System Promotion Measures were promulgated in 1988 for the promotion of cogeneration system construction
- In 1994, private operators were given permission to apply to establish power plants
- Independent power plants were gradually integrated into Taipower's system between 1999-2009

After 1990, in addition to Taipower's system, private contributions from cogeneration.

3rd Stage – Navigating into a low-carbon future with green power

In keeping with the government's vision for a nuclear-free homeland and the goal of adjusting the energy generation mix to 50% LNG, 30% coal, 20% renewable energy by 2025, Taipower will actively promote renewable energy and LNG generation so as to create a friendly environment for grid integration and to facilitate energy transition.

For many years, Taipower's power generation structure has undergone constant adjustment in response to changes in government policies and the needs of economic development. In the future, Taipower will continue to adhere to the government's energy policies by adjusting its energy generation structure to 50% LNG and 20% renewable energy. Taipower will also actively promote the construction of LNG receiving terminals and the procurement of LNG while expanding its renewable energy generation facilities to boost its managed capacity and maintain power supply stability. Taipower will continue to work towards sound corporate governance and to disclose relevant power development solution statistics and data after thorough assessments have been made.

The Directions of Power Structure Adjustment

Direction I: A Nuclear-free Homeland

As part of the "nuclear-free homeland" policy, the government plans to achieve an energy generation mix of 50% LNG, 30% coal and 20% renewable energy by 2025. Taipower is operating in compliance with the policy by devising long-term solutions for power development. With the exception of nuclear power plants (which are due for decommissioning) Taipower will fully promote renewable energy generation in the future and emphasize LNG generation to create a friendly environment for grid integration while ensuring a smooth energy transition without compromising the power supply in Taiwan.

Direction II: Lower carbon power

In light of the trends in international power industry development and domestic policies, Taipower is committed to delivering high-quality green energy and low-carbon energy. In the next 14 years, Taipower plans to invest NT$ 400 billion to achieve the objectives of increasing the installed capacity for renewable generation (including hydro power) to 5,400 MW. This will consist of 1,800 MW of offshore wind power, 1,000 MW of solar power, 600 MW of inland wind power, 100 MW of geothermal power and 1,900 MW of hydro power by 2030. Furthermore, Taipower will increase the ratio of low-carbon generation by focusing on the development of various gas projects while actively promoting the construction of LNG receiving terminals in Taichung and Xiehe to ensure a sufficient supply of LNG and improve supply reliability.

Direction III: Response to the Electricity Act Amendments

With the Electricity Act amendments in effect, we are gradually headed for a liberalized power industry. However, with renewable energy generation at the early stages of open access and power consumption by specific units for self-use, the percentage of energy contributed by Taipower to the national power generation system will decrease. Consequently, the long-term power development plans that Taipower has in place will not be able to account for the actual power supply and demand across Taiwan. Nevertheless, Taipower will actively monitor the status of power generation planning in the private sector and collaborate with the private sector to achieve its low-carbon power goal.

Improving the Energy Mix - Short, Medium and Long-term Planning

Short-term measures

On November 8, 2017, the Executive Yuan held the "Removal of Investment Obstacles – Strategies to Maintain Reliable Power Supply Press Conference" and announced the three major policies of a nuclear-free homeland, a stable power supply and improvements in air pollution. These policies will be achieved through achieving a 15% reserve capacity and 10% operating reserve by 2019 without compromising the stability of the power supply and improving the air quality in different areas. Due to high population density in Taiwan, acquiring land for power plants and cable connections has proven to be difficult. The challenge is further exacerbated by the "Not in my backyard (NIMBY)" effect and overwhelming public concern about greenhouse gas emissions in recent years. With such daunting obstacles, the construction of power plants has become extremely difficult and cannot be accomplished in the short term. At the same time, the early shut down of some nuclear power plants has resulted in a power shortage that cannot be filled by planning new traditional thermal power plants in the short term. In order to accomplish the aforementioned objectives, Taipower has formulated the following short-term response measures:

- Strengthen various demand management measures to mitigate the demand for peak load.
- Assess and evaluate dated units to be used as emergency backup units.
- Ensure stable operation for existing units in operation and that units under construction are ready for power generation as scheduled.
- Implement various new LNG power generation projects ahead of time.

Planning for the mid- to long-term

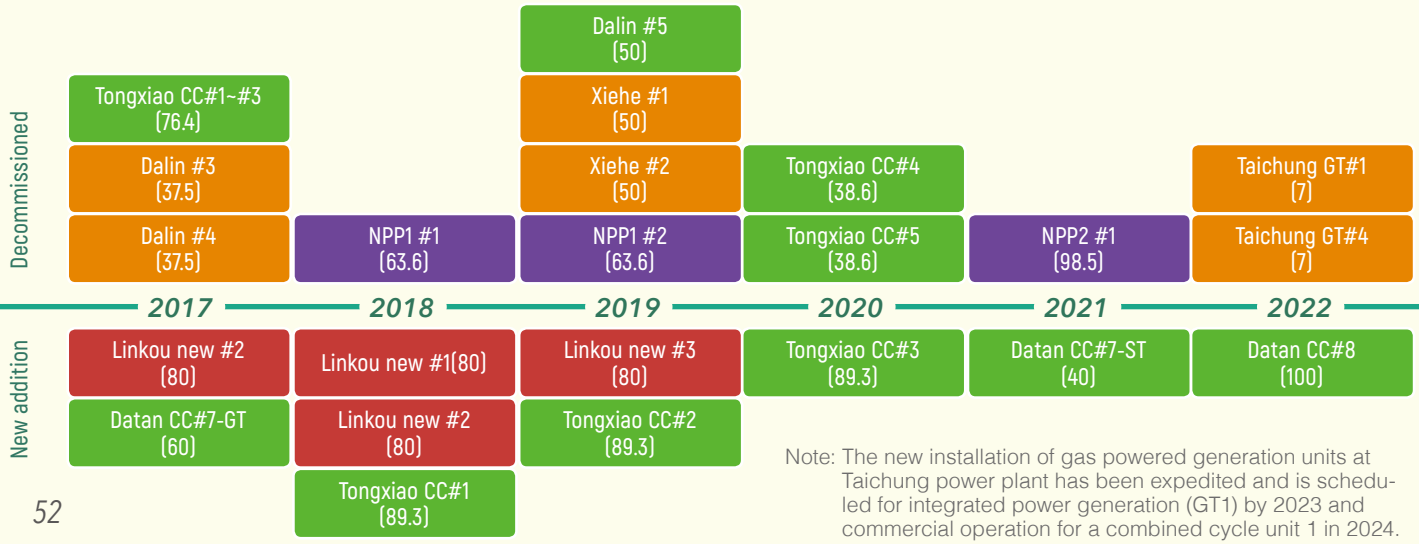
Taipower's planning for long-term power development is done on a yearly basis and takes various factors into consideration. These include the government's economic forecasts, the development of industrial structure, demand-based management measures, population growth, tariff pricing, climate and so forth. As part of the process, Taipower also seeks the advice and input of scholars and experts on long-term load prediction. In conjunction with the government's policy goals for 2025, Taipower's mid/long-term response solutions are as follows:

- **Prioritize the development of renewable energy and a grid integration environment**
  Taipower will actively construct facilities for renewable power generation including offshore and in-land wind farm, solar power sites, geothermal power plants and micro hydro facilities and so forth. The company will also continue to create a friendly environment for green energy grid integration by assisting the private sector in applying for and setting up renewable power generating facilities in order to smoothly integrate generation/transmission/distribution resources and increase the ratio of renewable energy in the energy structure.
- **Actively expand the scale of natural gas power generation and the construction of LNG receiving terminals**
  In order to accomplish the target ratio of LNG power generation, Taipower will be working from two specific angles: constructing new power plants while replacing old facilities with new units and the expansion of natural gas power generation. According to Taipower's future power development plans, with the exception of Dalin and Linkou (both of which are under construction) and the approved Shenao Project (all of which are coal fueled units), all currently planned projects are natural gas units. These include Datan power plant's new unit installation project, Tongxiao power plant's Phase 1 & 2 renewal project, Xiehe's renewal project, Xinda's fuel combined cycle unit, Taichung power plant's new unit installation project and so forth. Second, Taipower will construct and assist in the construction of Xiehe and Port of Taichung LNG receiving terminals and their associated facilities to enhance the handling capacities and increased safe inventory of LNG. In addition to the LNG receiving terminal expansion project promoted by CPC, Taipower has been actively planning the construction of its own LNG receiving terminals at the Port of Taichung and next to Xiehe power plant. The storage capacity for natural gas is planned to last for 25 days. This capacity will allow for the mitigation of risks associated with receiving station over-usage in Taiwan and will also help to increase the storage volume of natural gas. This will in turn improve Taiwan's LNG supply stability and thereby improve power supply safety.
- **Maintain an appropriate ratio of coal power generation**
  Given the demand for a stable power supply, building energy diversity is also important as diverse power generation serves as the basis of ensuring power supply resilience and dispatch capacity. As such, coal power generation remains an important component of base load power. Since this carries an unavoidable environmental consequence, Taipower will concurrently strive to replace coal fueled power plants with ultra-supercritical power generation units and continue to assess the feasibility of implementing early replacement of existing facilities in order to dramatically reduce air pollution caused by emission.

Long-Term Power Development

Two major factors are expected to influence long-term power development. The first is the high likelihood of continual growth of power demand in the future. The second is that as much as 14.75 GW of installed capacity from large thermal and nuclear units will be removed from the system as the units are scheduled for decommissioning between 2017~2028. To meet these challenges, Taipower has made the following plans for long-term power development:

Status of Large Thermal and Nuclear Unit Decommissioning and New Unit Installations Between 2017~2028

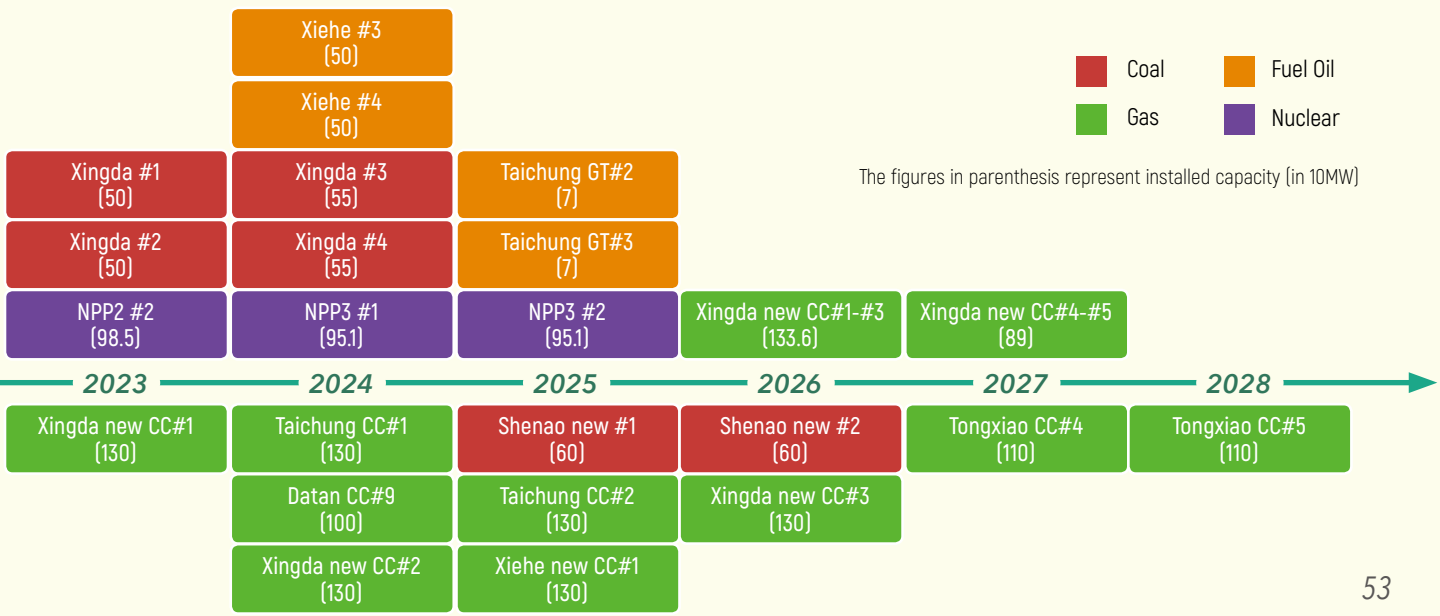


Note: The new installation of gas powered generation units at Taichung power plant has been expedited and is scheduled for integrated power generation (GT1) by 2023 and commercial operation for a combined cycle unit 1 in 2024.

Generation project renewal and expansion plans

To facilitate a balanced regional power supply in Taiwan, improve generation efficiency and comply with the government's policy of energy transition, Taipower's current plans for power plant decommissioning, renewal and expansion are as follows: (for details on renewable energy plans, please refer to "Section 5.3 Renewable Energy Development"):

Type of Generation	Project	Description	Performance and status of implementation in 2017
Nuclear Power Plant Project	Lungmen Unit 1 and Unit 2 Project	• Construction of two, single advanced Boiling Water Reactor Units of 1.35 GW each, with a combined annual power generation capacity of 19.3 TWh. As an alternative to coal-fired power generation, these units will allow for a reduction of 16.2 million metric tons of CO2e per year. • In accordance with the government's order that stated "Work on Reactor No.1 of Lungmen will be halted and safety inspections will be conducted; after that, the unit will be sealed and all operations of Reactor No.2 shall be halted," Taipower has made relevant preparations for the shutdown and sealing activities. On August 29, 2014, the Executive Yuan approved the shutdown and sealing implementation plans with the mothball operation tentatively planned in 3 years and pending further instructions from the competent authorities to take follow-up action.	• To achieve the administrative target of a "nuclear-free homeland" by 2025, the government has explicitly instructed the sealing and non-operation of the Lungmen Nuclear Power Plant. That policy has been resolved by the Legislative Yuan. As such, Taipower has reassessed and significantly altered the status of the Lungmen Nuclear Power Plant by moving the facility into asset maintenance and management. This plan was submitted to the MOEA on November 21, 2016 and subsequently submitted to the Executive Yuan. Per correspondence from MOEA dated January 26, 2017, the submitted proposal had already been approved by the Executive Yuan. The aforementioned project will be implemented with a budget and rolling review undertaken on a yearly basis until the handling of NPP4 has been finalized. • The plan was formulated to preserve relevant equipment and assets at Lungmen at their maximum value. For 2017, the plan outlined Taipower's intention to maintain various equipment in operating condition with relevant maintenance, servicing and testing operations carried out on safety related structures, systems and equipment components at the lowest possible cost. These tasks were performed under the premise of maintaining asset quality during the period of extension to ensure that all structures, systems, equipment components remained in satisfactory condition, with all quality records properly preserved and managed to ensure adequate preservation of the Lungmen assets.
Thermal Power Plant Project	Dalin Power Plant Renewal Project	• Units 1 and 2 have been in operation for more than 46 years and have been chosen for renewal and modification. Taipower will be installing two, single ultra-super-critical pressure coal-fired units of 800 MW capacities that cost approximately NT$ 104 billion in investments. • Unit 1 is scheduled for grid integration on June 15, 2017 and commercial operation on February 13, 2018. Unit 2 is scheduled for grid integration on February 20, 2018 and commercial operations on July 15, 2018.	• New unit 1 of the project was integrated into the grid on June 15, 2017. • By the end of 2017, construction progress was at 93.6%.



Type of Generation	Project	Description	Performance and status of implementation in 2017
Thermal Power Plant Project	Linkou Power Plant Renewal and Expansion Project	• Taipower will be installing three single ultra-supercritical pressure coal-fired units with 800 MW capacities. The units cost approximately NT$ 152.5 billion. • Units 1 and 2 began commercial operation on October 6, 2016 and March 24, 2017 respectively. • Unit 3 is scheduled to begin commercial operation on July 1 2019.	• The license for Unit 2 was renewed on March 24, 2017 to increase the unit capacity for Linkou's Unit 2 ahead of schedule (originally scheduled on April 1, 2017). • By the end of 2017, construction progress was at 85.51%.
	Tongxiao Power Plant Renewal and Expansion Project	• In conjunction with the government's policy of prioritizing LNG generation, Taipower will be replacing the existing generators that have been in operation for more than 50 years. Taipower will be installing three gas combined cycle units with 892.6 MW capacities that cost approximately NT$ 79.557 billion. • Units 1, 2 and 3 were originally scheduled for commercial operation in July 2017, January 2018 and July 2018 respectively. However, progress on the construction of the ocean pipeline was adversely affected by climate and bad weather, so commercial operation was been rescheduled for February 1, 2018 (new unit 1), June 1, 2018 (new unit 2) and July 1, 2018 (new unit 3). The date of project completion was adjusted to the end of 2020. The extension has already been approved by MOEA. As climate and bad weather have affected the progress of unit 2's ocean pipeline construction, the Executive Yuan's Secretary-General instructed Taipower to re-evaluate the schedule for the three units' commercial operation. Consequently, Taipower submitted a new commercial operation schedule as follows: new unit 1 – February 27, 2018 (already in commercial operation), new unit 2 – January 31, 2019 and new unit 3 – March 15, 2019.	• Water reception had already been initiated on August 1, 2017 for new unit 1, with ignition completed on August 2 and grid integration on September 15 (2GT+1ST) to an output of 874 MW. Dispatch for power from the unit began on January 15, 2018 and commercial operation started on February 27. • By the end of 2017, construction progress was at 78.21%.
	Datan Power Plant Combined Cycle Generation Unit Construction Project	• Taipower planned to install combined cycle units with total a capacity of between 2.88-3.168 GW at the existing site (based on current market status, the 3 additional units will be sufficient to reach the intended installed capacity) • The investment will come to approximately NT$ 110.5 billion, and the three units will be scheduled to begin commercial operations in July 2022, January 2023, July 2023 and July 2023, respectively.	• A transition plan was initiated with the installation of two gas turbine units to accommodate the summer peak load in 2017. • The initial draft for EPC primary generation equipment subcontractor qualifications was completed on November 22, 2017. • The application for special construction was submitted to the MOEA on December 25, 2017 to be reviewed and approved by the Executive Yuan. • The tender for the transmission line 161kV Dinghudong - Nankan 3 conductor trial excavation and drilling project was closed on September 21 2017. • The project progress came to 0.16% by the end of December 2017.
	Installation of a New Combined Gas Cycle Unit (Unit 7) at Datan Power Plant – phase 1 Gas Simple Cycle Unit	• The growth in domestic power consumption and disruption of nuclear power units has led to a gap in power supply that could have directly lead to power shortages in 2017. In accordance with the resolutions and instructions of the "MOEA power supply stabilization coordination meeting" (held on August 29, 2016) and "Short-term power stability solution report" (held on September 14, 2016), Taipower has initiated an emergency power generation plan. • Within the capacity that was approved in the environmental impact for "Addition of gas combined cycle unit installation at Datan power plant project," Taipower has completed the early installation of two phase 1 gas simple cycle units (300 MW per unit) at the designated site with a total installed capacity of 600 MW. • Taipower run in All-Turnkey mode for the first time. • The total invested amount came to NT$ 9.5 billion.	• The project was contingent on a very tight schedule. It was submitted to the Chairman for review in October 2016 and later approved by the Executive Yuan on November 18, 2016 for bidding to be implemented, pursuant to subparagraph 3, paragraph 1, article 22 of the Government Procurement Act. • Once a construction permit was issued on December 6, 2016, the foundation pile/foundation design and construction of the gas turbine unit promptly commenced and application was made for relevant licenses and permits. • The two units were integrated into the grid in August and September of 2017 respectively. They were ready for dispatch in September and October of 2017 and their efficiency tests were completed in October and November of 2017. The MOEA consented to the renewal of the license on March 28, 2018 so that the #7 simple cycle unit could begin commercial operation.

Type of Generation	Project	Description	Performance and status of implementation in 2017
Thermal Power Plant Project	Shenao Power Plant Renewal and Expansion Project	• To make up for the power gap in the north and stabilize the regional power supply, Taipower has planned the installation of two single ultra-supercritical pressure coal-fired units with 600 MW capacities at the power plant. • The investment will come to approximately NT$ 104.9 billion. The two units are scheduled to begin commercial operations in July 2025 and July 2026, respectively. • The report analyzing the differences between the pre- and post- development environments for this project was reviewed, revised and approved during the environment assessment meeting held by the EPA on March 14, 2018. (EPA has yet to issue the documents for consent)	• The revision of the project was approved by the Executive Yuan on August 23, 2017.
	New gas Unit Installation Project at the Taichung Power Plant	• The plan involves the installation of two gas combined cycle units at the vacant lot on the south side of generators No.9 and 10 at Taichung power plant. Each unit has an approximate installed capacity of between 1GW-1.3GW, with a combined installed capacity of 2-2.6 GW. • The investment will come to approximately NT$ 118.1 billion. The two units are scheduled for commercial operations in March 2024 and January 2025, respectively.	• The project was approved by Taipower's board of directors' meeting at the end of September 2017, and was submitted to the MOEA and approved by the Executive Yuan on March 14, 2018. • Presently, Taipower is in the process of conducting open bidding for technical service procurement for the LNG receiving terminal and the construction of the gas turbine unit for this project.
	Xiehe Power Plant Overhaul Project	• Four existing units of fuel oil generators at Xiehe power plant have been scheduled for decommissioning starting from 2019. The facility will undergo renewal into a gas power plant with two units of 1-1.3 GW gas combined cycle generators, complete with a supplementary LNG receiving terminal to supply the gas for the units. The first unit is expected to enter commercial operation in July 2025 and the second unit is scheduled to begin commercial operation in July 2030.	• The feasibility study and report were submitted to the MOEA on November 30, 2017, and Taipower is expecting approval from the Executive Yuan in June 2018.
Hydro Power Plant Project	Liyutan Dam Jingshan Hydro Power Project	• Installed one mounted vertical axis Francis type turbine generator with 4MW installed capacity at the Liyutan Dam in Miaoli.	• The subcontracting tender documents, engineering diagrams and relevant specifications were completed, with the bidding completed in October 2017.
	Small Hydro Project	• Taipower had already planned the construction of small hydro projects at the Hushan reservoir, Jiji Weir south bank 1 and Jiji Weir south bank 2. These will have a combined installed capacity of 5,450 KW. • The island-wide small hydro project feasibility study had its stage 1 island-wide small hydro assessment screening final report completed on January 10 2017, with 20 potential sites identified to accommodate a combined installed capacity of 23,820 KW. The projects are scheduled for implementation on a three-phase program, and currently the feasibility study for phase 1 has been completed for a total installed capacity of 16,240 KW. The plan was approved by the board of directors in January 2018 and is being reviewed by the MOEA. Phases 2 and 3 of the project are scheduled for implementation from 2018-2019 and commercial operation will being from 2022-2023. In order to encourage private participation in small hydro development, part of the Phase 2 and 3 projects will be open to private proprietors.	• For phase 1, priorities were given to the 7 small hydro plants at the facilities under the management of the Water Resource Agencies in corresponding regions. The feasibility study and report were approved by Taipower's board of directors on January 26, 2018 and submitted to the MOEA for review on March 16, 2018. • The two small hydro projects at Hushan reservoir and Jiji Weir south bank 2 were approved by the MOEA on November 14, 2017 and are scheduled for preliminary construction and preparation in July 2018 and commercial operation in July 2021.
Offshore Wind Power Project	Offshore Wind Farm Project Phase I	• Taipower plans to install 21 wind turbines in Changhua County with a total capacity 109.2 MW. These could generate over 360 GWh each year.	• Completed the "revision plan" and procurement

Long-term power capacity planning

Installed System Capacity Planning from 2017 to 2028

Unit: 10 MW

Unit Type	End of 2016		New-installed Capacity in 2017				Retired Capacity	Retired Capacity	
	Capacity	%	Under Construction	Under Planning	Total	%		Capacity	%
Pumped storage hydro	260.2	6.2	0.0	0.0	0.0	0.0	0.0	260.2	5.2
Renewables	432.1	10.3	30.0	192.0	222.0	9.9	0.0	654.1	13.2
- Hydro	208.9	5.0	0.9	6.9	7.8	0.3	0.0	216.7	4.4
- Other *	223.2	5.3	29.0	185.2	214.2	9.6	0.0	437.4	8.8
Thermal	3,006.5	71.4	1,010.4	1,000.7	2,011.1	90.1	960.6	4,057.0	81.6
- Coal	1,149.7	27.3	440.0	0.0	440.0	19.7	210.0	1,379.7	27.8
- Fuel oil	332.3	7.9	2.6	0.7	3.3	0.1	324.5	11.2	0.2
- LNG	1,524.5	36.2	567.8	1,000.0	1,567.8	70.2	426.2	2,666.1	53.6
Nuclear	514.4	12.2	0.0	0.0	0.0	0.0	514.4	0.0	0.0
Total	4,213.3	100**	1,040.3	1,192.8	2,233.1	100	1,475.0	4,971.3	100

Note: * Other renewable energy includes wind, solar power, geothermal and biomass (waste and biogas from cogeneration).
** Discrepancy in figures' decimal point is due to rounding.

Electricity Procurement Measures

The construction of new power plants has proven to be difficult, so Taipower has been procuring power from independent power plant (IPP) operators and qualified cogeneration operators to ensure a reliable power supply. Taipower procured a total of 50.592 TWh in 2017, which constituted 21.9% of its total supply for the year (a decrease from 22.8% in the previous year). This has become an important power source in Taipower's system for reducing the ratio of fuel oil and LNG generation (both are costly), thereby reducing generation costs. Power procurement enables Taipower to achieve two objectives: 1) improve its energy mix, 2) enhance its management efficacy. Taipower's current power purchase structure is as follows:

- Independent Power Plants (IPPs): by the end of 2017, nine private power plants have signed power purchase agreements (PPA) with Taipower, with an available capacity of 7.652 GW.
- Cogeneration: by the end of 2017, Taipower had contracts with 52 providers for a total installed capacity of 5.504 GW and a guaranteed peak capacity of 1.953 GW.

As amendments to Electricity Act come into effect, open access will be granted to the renewable energy generation industry. As such, Taipower is also planning for collaboration models in the hopes of drawing in more low-carbon renewable energy to fulfill its corporate mission of being environmentally friendly.

2.2.2 High Quality and Reliable Power Supply

As a high-quality power service provider, the delivery of reliable and safe power embodies the fundamental requirement of our services. And as such, Taipower has established comprehensive power supply reliability management mechanisms and created specific performance indicators for power supply reliability (average interruption duration and average frequency of power interruption) to evaluate and manage power supply performance and to provide reliable and safe power.

Power Supply Reliability Management Mechanism

Management Mechanism	Action under the Mechanism	Implementation status in 2017
Periodic review and analysis	• Routinely convene Power System Stability and Reliability Improvement Taskforce Meetings. • Routinely convened Electrical Facilities Incident Review Meetings • Establish a "Transmission Line Lightning Hazard Prevention Management Plan" and a "Salt Corrosion Hazard Prevention Management Plan" on a yearly basis to prevent the likelihood of transmission line tripping caused by natural disasters • Periodically review average interruption performance of the distribution system and analyze the causes of major outage incidents to formulate corresponding improvement measures and determine the optimum strategy for each incident	• Power System Stability and Reliability Improvement Taskforce meetings were held once every two months to formulate and discuss measures and actions for improvement. • Monthly meetings were held to review the causes of electromechanical incidents in the previous month, and devise improvement strategies. • Implemented the monthly "one-time system electrical/mechanical incident preview meeting and follow-up reviews of subsequent system electrical/mechanical incidents." • Each month, the Department of Power Supply supervised and audited each power supply branch on its "Annual Underground Transmission Line Accident Prevention Management Plan Performance." The department also organized review meetings in February, April and October. • Performed dissolved gas analysis for oil-filled cables in addition to the quarterly audit/supervision on "anomaly improvement".
Distribution feeder automation	• Undertake accelerated feeder automation engineering, feeder map updating, comprehensive management and control processes for outages, repairs without planned power interruptions and so forth to reduce the scope, duration and frequency of repair-related power interruptions	• By the end of 2017, there were 7,316 feeder automation circuits finished. This represents 73.47% of the total planned automation circuits.
Risk management	• Taipower reviews factors that could affect power supply stability and reliability on a yearly basis and incorporates identified risks into the risk management and control planning for the subsequent year to ensure routine tracking and review of the results of relevant implementations. • Ensure due implementation of the "15 points" of excavation damage prevention for underground transmission lines and gradual implementation of the "5 stage" control while emphasizing hierarchical accountability to ensure power supply safety. • Establish the "TBM-SKY" table for underground transmission line maintenance and measurement system to preemptively detect potential vulnerabilities to achieve preventive controls.	• Organized monthly incident report drills to strengthen the response capabilities of on-duty staff. • Organized report drills at the beginning of each month in accordance with the "Science Park Power Emergency Response and Report Procedure" to strengthen the mechanism of the reporting system.
Training of personnel	• Organize regular education and training of distribution line maintenance staff and dispatchers to enhance their technical skills and maintenance capabilities. • Organize monthly incident report drills to strengthen the response capabilities of on-duty staff • Organize pole climbing training for power supply unit personnel to improve their pole climbing proficiency	• Fourteen on-the-job training sessions were held in 2017. • Taipower organized dispatch personnel status monitoring indicators and operation guide testing in May to ensure that core expertise and know-how are passed down to new employees. • Organized operational safety training for electrical operators on duty for ultra-high voltage users at the Central Taiwan Science Park. There were 40 participants. • Organized operational safety training for electrical operators on duty for ultra-high voltage users at the Hsinchu Science Park on July 20. There were 92 participants. • Organized two sessions (May 22 and June 5) of operational safety training for electric operators on duty for ultra-high voltage users at the Tainan Science Park. There were 90 participants. • Organized four sessions of pole climbing training for power supply unit personnel. There were 110 participants.

Management Mechanism	Action under the Mechanism	Implementation status in 2017
Strengthen auditing	• Implement non-routine audit equipment operation evaluations and supervise each district office to improve accident prevention and improvement plans • Promote the "designated area" system for staff responsible for the maintenance of underground transmission lines and to improve upon patrol operations • Implement various forms of underground transmission line maintenance in accordance with relevant procedures such as the "Transmission Line Patrol Operation Procedure," the "Electrical Test on Cable Over Sheath Operating Procedure" and the "Underground Cable Spot Inspection Guidelines"	• Responsible staff visited each power supply area in rotation on a monthly basis to perform audits for the "Salt spray hazard prevention management plan and lightning hazard prevention management plan." A total of 12 audits were completed throughout the year. • Responsible staff visited each power supply area on a monthly rotation to perform audits for the "Annual Underground Transmission Line Accident Prevention Management Plan Performance." A total of 12 audits were performed throughout the year. • Implemented four follow-ups on "Dissolved Gas Analysis Anomaly for Oil-Filled Cable" audits • Conducted power transmission equipment safety inspections at the Hsinchu Science Park, the Central Taiwan Science Park and the Tainan Science Park and identified a total of 40 vulnerabilities, all of which have been rectified. • Implemented at least one off-line cleaning during the salt spray corrosion season and established insulator salt test points to carry out night insulator leakage observation. If necessary, mobile insulator cleaning will be performed as well.

Targets and Performance for Power Supply Reliability

Performance		2013		2014		2015		2016		2017	
		Target	Performance	Target	Performance	Target	Performance	Target	Performance	Target	Performance
Average power outage duration min/household · year	Performance of forced outage	13.469	13.141	13.290	12.713	12.731	12.321	12.711	12.223	12.727	12.355
	Unexpected outage	5.531	4.945	4.960	4.783	5.019	3.947	4.819	4.051	4.753	4.543
	Total	**19.000**	**18.086**	**18.250**	**17.496**	**17.750**	**16.268**	**17.530**	**16.274**	**17.48**	**49.470 (16.898*)**
System average interruption times/household · year	Performance of forced outage	0.068	0.064	0.068	0.064	0.064	0.058	0.065	0.058	0.063	0.057
	Unexpected outage	0.212	0.200	0.222	0.200	0.216	0.163	0.216	0.150	0.207	0.155
	Total	**0.280**	**0.264**	**0.290**	**0.264**	**0.280**	**0.220**	**0.280**	**0.208**	**0.270**	**0.765 (0.212**)**

Note:

- Average power outage duration (min/household · year) = system-wide duration of power interruptions ÷ total number of customers
- Average frequency of power interruptions (times/customer · year) = system-wide number of power interruptions ÷ total number of customers

* As the blackout on August 15 was primarily caused by the unexpected disruption in gas supply from CPC, the average power outage duration would come to 16.898 (min/household · year) if the blackout on August 15 were excluded.

** As the blackout on August 15 was primarily caused by the unexpected disruption in gas supply from CPC, the system average interruption duration would come to 0.212 (time/household · year) if the blackout on August 15 were excluded.

For many years, maintaining stable power supply has been an important management objective for Taipower in setting goals each year. In recent years, the average power outage duration has fallen from 18.086 (min/household•year) in 2013 to 16.274 (min/household•year) in 2016. As we gradually shorten the duration of power outages for users, we have come closer than ever to the level of advanced international power systems. This reflects the success of Taipower's efforts in this area. However, the August 15 blackout in 2017 dramatically increased the average power outage duration per household to 49.470 (min/household•year). If the blackout incident were excluded, the actual average power outage duration per household in 2017 would have been 16.898 (min/household•year) – a level that would have met the target for the year.

According to the "August 15th power outage investigation report by the Executive Yuan," the cause of the outage was an unexpected disruption of the LNG supply from CPC. The report also stated that Taipower's response complied with the requirements for system safety with no mishandling, and the incident was not the responsibility of Taipower. Nevertheless, Taipower learned from the incident and will follow measures for continual improvement as provided in the report by focusing on three specific directions of "ensuring due onsite inspection and auditing of key equipment and facilities," "controlling relevant down time scheduling for projects to ensure construction work is performed during the same block of time" and "cause identification for electrical/mechanical incidents to facilitate continual improvement and prevent power outages."

Furthermore, in recent years the effects of global warming have led to extreme weather in different regions. This weather has caused more and more damage and loss; thus, Taipower proposed a "Distribution Line Disaster Proof Resilience Enhancement Plan" in December of 2016. The plan was submitted to the State-Owned Enterprise Commission for approval. The plan outlined three major directives:

- Revision of power pole purchase regulations
- Application of various construction techniques to improve existing overhead lines including pole foundation improvement, pole joining, reduced pole-planting distance, H-pole use, installation of branch lines, power pole replacement, pole position adjustment, change of installation methods and so forth
- Implementation of disaster proof undergrounding for distribution lines. Taipower will lay approximately 463 km of underground distribution lines between 2017 and 2019 with a budget of NT$ 7.4 billion. This will be subjected to yearly rolling reviews during the project

Through the three mechanisms, we hope to construct a distribution network that is climate resilient and can effectively mitigate losses in the event of disasters to improve the reliability of the distribution system power supply and thereby deliver high-quality, reliable power service to customers.

Communicating About Power Supply and Demand – Platform Meetings

A stable power supply is a key element in economic production and it has a profound impact on the competi-tiveness of domestic industries. To help major domestic power customers better understand issues related to the supply and demand of power in the near future, Taipower, the Bureau of Energy (MOEA), Taiwan Semiconductor Industry Association and The Allied Association for Science Park Industries have come together to establish a communication platform for power supply and demand. The function of the platform is to facilitate communication on power issues in conjunction with Taipower's formulation of long-term power development solutions. In 2017, four communication meetings were held in June and November.

The platform meetings were organized to cover specific topics of interest, including the "Status of power supply in summer of 2017", "Analysis and measures on power supply status for the next decade", the "Risk control mechanism of fuel supply for power generation", "Natural disaster risk assessment and strategies for transmission and substation facilities", the "August 15 power outage incident report" and so forth. In addition, the organizers engaged major power customers in deep discussion and answered all relevant questions in great detail. Both the Taiwan Semiconductor Industry Association and The Allied Association for Science Park Industries have expressed highly positive responses to the communication platform and both parties expressed expectations of Taipower company's continued provision of reliable power in the future. This will satisfy the growth in power demand for relevant industries and ensure investments from the industries. Both parties hope to continue these communications in the future and have committed equal emphasis to energy transition and economic development.

2.3 Enhancing the Accessibility of Power Services

To fulfill Taipower's corporate social responsibilities and ensure the public's access to power services, Taipower has long maintained 24 branch offices and 269 service stations in Taiwan, Penghu, Kinmen and Matsu along with 9,953 feeder lines in these areas to achieve 99.99% power availability. The company also reviews the performance of its district offices on a yearly basis and convenes a "Distribution Technology Review Meeting" in the following month to ensure continuous improvements to the accessibility, stability and reliability of power services. These measures fulfill the UN's sustainable development goals (SDG) by ensuring that all users (including residents of remote areas and disadvantaged minorities) have equal access to needed power services.

Offshore Power Accessibility

As offshore islands are not connected to the power grid in Taiwan, it challenging and expensive to ensure they have a stable power supply. Nonetheless, Taipower has not neglected the rights of residents in offshore areas, and in order to provide electricity services that are equivalent to those available in Taiwan, the company has applied tariff rates based on the regulations stipulated by the "Offshore Islands Development Act" and the "Subsidy Regulations on Losses of Electric Utility Operator for Offshore Islands." Between April 2000 and the end of 2017, the accumulated losses from the subsidies came to NT$ 79.502 billion.

Urgent Repairs and Rebuilding

Management Guidelines

Natural disasters pose major challenges to Taipower's operations. With regards to internal management, Taipower has a comprehensive system for disaster prevention and emergency response. Having established policies and regulations, including the "Disaster Prevention and Rescue Guidelines," the "Extreme Disaster and Handling Guidelines," "Various Disaster and Emergency Reporting Procedures" and the "Disaster Prevention and Emergency Response Standard Operating Procedures" to serve as the basis for appropriate response, all units will be able to respond to natural disasters and major power accidents in an effective and timely manner. In addition, Taipower has a well-organized emergency response system in accordance with disaster prevention policies and regulations to ensure prompt natural disaster responses.

Management Guidelines and Implementation Responsibilities for Urgent Repairs after Disasters

Management Strategies and Improvement Measures	Time of Implementation	Implementation Unit
Convene "Extreme Disaster Prevention and Review Meetings" to review shortcomings in disaster prevention, repair operations in the previous year and items that require improvement while establishing a disaster prevention plan for the current year and verifying details such as disaster prevention and repair organization and the command and the dispatch system.	Each year in January and April	Branch offices in each district
Conduct various disaster prevention/repair training exercises, education sessions, drills and so forth to help employees become familiar with relevant disaster prevention/repair operations.	Each year in May	Branch offices in each district
Check disaster repair resources including contractors, human resources, vehicles and equipment to ensure appropriate deployment and dispatch.	Each year in May	The Department of Power Distribution
During Pre-typhoon Preparation Meetings, Taipower examines specific mountainous areas and offshore islands that may become inaccessible due to road blockage/disrupted ferry services due to the typhoon as identified by forecasts from the government (i.e., path of landing and intensity of typhoons) to make pre-emptive deployments of personnel, equipment and materials so that prompt repair of power facilities and reduced losses from the disaster can be achieved.	Prior to typhoons	Branch offices in each district
Establish an "Emergency Response Team" and activate mutual support mechanisms (when appropriate) to rapidly deploy personnel and equipment for disaster repair and power restoration operations while responding to central/local government disaster rescue needs by setting up forward command posts to handle relevant responses in close proximity to affected areas. In addition, Taipower will also offer relevant information such as disaster data, repair status updates and tasks requiring customer cooperation as a reference to local governments and opinion leaders so that appropriate measures can be taken and needed assistance to shorten the disaster recovery period can be provided.	During disasters	The Department of Power Distribution and branch offices in each district
Taipower establishes forward disaster command posts at various township/district offices in special municipalities and county governments to obtain a full grasp of the number of households without power and areas that have been blocked off. This reduces the need for surveying odd households while immediately verifying the areas with access cut off and allows for the improved efficiency of recovery operations.	During disasters	Branch offices in each district
Strengthen distribution system hazard reporting and information sharing operations; organize various disaster and emergency quick reporting training sessions and carry out inspections (without pre-warning) to improve the speed of disaster reporting.	Year round, without pre-warning	The Department of Power Distribution

In terms of external responses, Taipower is well aware that the engagement of stakeholders is closely related to the effectiveness of emergency response. And as such, during a typhoon (before, during and after), each district office will publish no less than one local press release to remind the local population of disaster preparations, and to make people aware that, in the event of a power outage, they may report the outage through Taipower's 1911 customer service hotline or through Taipower's "Typhoon Power Outage/Recovery Information System" website. In order to obtain external information and receive disaster updates, each branch office strengthens its communication with the local population and establishes contact groups in accordance with the region's characteristics. Branch offices access communication channels such as community contacts, telephone and fax numbers, and email addresses to closely monitor and verify which households are still suffering from power outages so that branch offices can deal with the situation within the shortest possible time.

The Hoping Transmission Tower Incident and Reliable Power Supply

On July 29, 2017, Typhoon Nesat caused transmission tower #72 on the Hoping-Dongshan Transmission Line under the Hoping Power Plant to collapse. Consequently, Taipower's system faced an immediate 1,300 MW reduction in power supply. As it was mid-summer, the reduction only further exacerbated an already-tight power load.

Because of the incident, the Executive Yuan, Minister of Economic Affairs and Chairman Yang (then Deputy Minister of Economic Affairs) convened an emergency response meeting to have Taipower review in detail and assist in the emergency repair plan for the Hoping Power Plant with emphasis on wasting no time and getting the power supply restored as soon as possible. Chairman Yang and former Chairman Chu also visited the site to learn about the status of repairs on August 2. A LINE group was created for repair status to be reported three times per day along with photo attachments for accurate assessment of the progress of repairs. In addition, a forward command center was established at the site to enable immediate coordination in the event of cross-departmental issues that needed to be discussed. This case clearly illustrates Taipower's capabilities in handling emergency responses.

Shortly after, Chairman Yang and former Chairman Chu headed to Dongao where the incident took place. As the makeshift road was not fully completed, the path was still covered in mud. But as Taipower's senior management were committed to seeing power supply restored as soon as possible, they scaled the path and made their way to the summit to issue instructions on the repair work. Apart from supervising the schedule of the repair, the senior management also reminded everyone at the site to be mindful of safety during repairs to prevent accidents from happening.

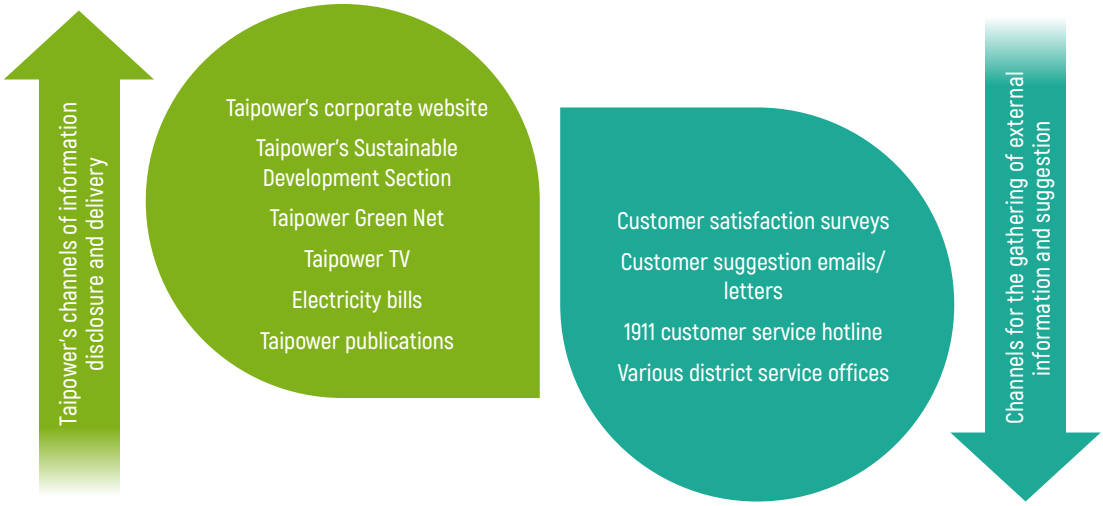
As the repairs continued, Chairman Yang visited the site once again on August 9 to again check on the progress of the repair. Accompanied by chief engineer Hsiao, the Chairman made inquiries to onsite personnel about specific details of the repairs and their progress while offering beverages as a gesture of appreciation for their hard work.

With a full commitment from Taipower to complete the repairs as quickly as possible, the repairs were finished four days ahead of the original schedule and the power sup-ply was restored on August 12. With the transmission tower repaired, the crisis of power rationing across Taiwan has been effectively resolved.

2.4 Creating Customer Satisfaction

2.4.1 Diverse Channels for Engagement and Communication

Taipower values the quality of its customer service and as a provider of high-quality power services, the company maintains a high-level of bilateral communications with the public through a variety of channels. In addition to publishing relevant Taipower information through the Sustainable Development Section, the company has sought to collect relevant information from the public through customer service emails and other avenues to facilitate communication with customers. This has allowed us to improve service quality through customer suggestions. To facilitate customer inclusiveness, Taipower has also made an effort to resolve all hindrances to service caused by language, culture and literacy-related issues. Taipower's customer service is now available in Chinese, Taiwanese and English so as to cater to customers' power service needs in the language of their preference.

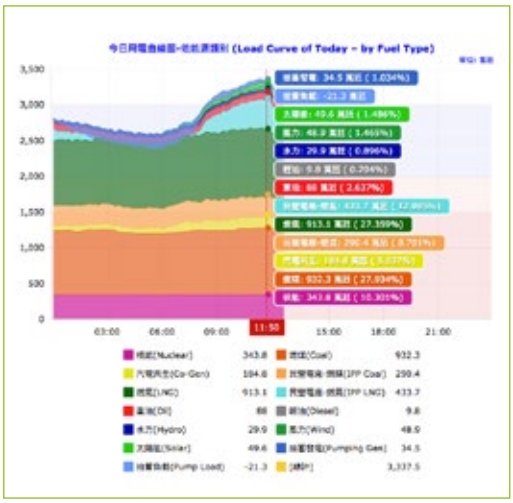


Taipower's Channels of Information Disclosure and Delivery

Taipower's Website

By the end of 2017, Taipower had completed a responsive web design (RWD) for its entire website, which officially went online in February 2018. This development helped to accommodate the public's need to view information from different devices. The information disclosure section, which generates the most views, will continue to provide the latest and most comprehensive information regarding 29 topics under six dimensions of operations. New additions include measures taken to improve air quality, the real-time display of thermal power plant load reduction and other improvements to help the general public better appreciate Taipower's dedication to improving social awareness through continually improved visual presentation of information in keeping with the principles of open information.

www.taipower.com.tw



Taipower Sustainable Development Website

The Taipower website was revamped in 2017 to emphasize the company's sustainability performance. Apart from offering previous "Taiwan Power Company Sustainability Reports" for download in both Chinese and English, the page has also adopted five major development image frameworks in conjunction with the topics of the sustainability reports. Moreover, the website now also offers a site map to make it easier for visitors to search for information relating to sustainable development. The Taipower sustainability website is also linked to other related sites such as Taipower's Green Net. This enriches the content and diversity of the company information disclosures.

csr.taipower.com.tw

Taipower Green Net

To promote our philosophy of being environmental friendly, Taipower's Green Net was officially launched on December 28, 2016. The Green Net serves as a platform on which Taipower promotes eco-friendliness through means of awards, competitions and so forth. The company's engineers can use the platform to demonstrate their achievements in a casual but rewarding setting – by sharing stories of their eco-friendly activities. Through the power of internet broadcasting, the platform not only inspires employees to pay attention to eco-friendly ideas in their work within the company but also enables the general public to see the efforts and changes that Taipower has been making.

In 2017, Taipower's Green Net held three large online events, including the "Like Green Net and Win a Lucky Draw" that involved sharing articles on Green Net; the "Taipower Green Action Snapshot" that involved taking pictures of Taipower's efforts in environmental friendliness and the "My Power Saving Idea" that focused on creative proposals for energy-saving concepts. Through these events, the website served as a vessel for employees and the public to interact on environment related issues.

greennet.taipower.com.tw

Taipower TV

Since May 1, 2013, Taipower TV has produced at least one video each day in a format that is suitable for online viewing. In addition to functioning as a record of true, beautiful and compassionate stories about Taipower, the service serves as a means for the general public to better understand the company's operations. These videos have been viewed about 1.8 million times and referenced by the public media. With the continual development of multimedia, Taipower will continue to strengthen its communication capacities through multi-media in order to attract the attention of stakeholders.

tv.taipower.com.tw Youtube: TaipowerTV

Taipower Electricity Bills

Since 2015, Taipower has promoted energy conservation and carbon reduction awareness through electricity bills that include a range of specific information in addition to displaying data about power usage and fees. Additional information details CO_2 emission, average power consumption by the same building or buildings in the same 5-digit postal code during the same period (and power consumption category). Furthermore, fuel costs are updated along with adjustments in electricity pricing to encourage the public to manage its power consumption more wisely while engaging in external communications to create social and environmental values.

Taipower Publications

aipower continues to release publications including the Monthly Journal of Taipower, Taipower's Bimonthly Heart-to-Heart and other similar journals that communicate with employees regarding important company policies and updates on important developments while offering inspirational stories that nurture the personal growth of employees. The publication of occupational competence materials, such as the monthly Taipower Engineering and the Nuclear Journal, serves as means for the company to introduce the latest technological developments as well as practical experiences to help employees achieve growth in their expertise. Taipower also publishes the Yuan magazine, which covers local history, classic stories, people, culture, and the power industry. It introduces the richness of Taiwan along with Taipower's management principles of "honesty, caring, service and innovation."

Collecting External Information and Suggestions

Feedback Channels

For information on corruption, anti-corruption and cases reported and investigated in 2017, please refer to "Chapter 6 – Practitioner of Corporate Social Responsibility." For suggestions on topics/issues connected to environmental or human rights and social impacts (such as the impact of Taipower's operations on local communities), the public can use a variety of convenient complaint lodging channels provided by Taipower, in addition to sending letters:

Service center	1911 (toll-free)
Customer opinion box	https://csms.taipower.com.tw/TPuser (the "Suggestion Mailbox" located at the top of Taipower's homepage)

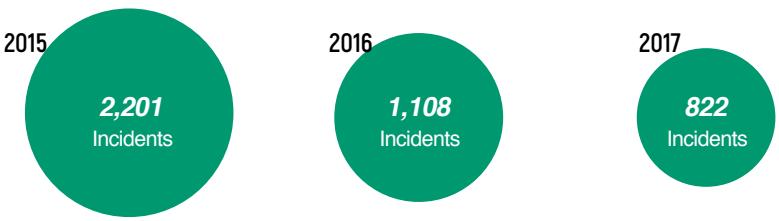
In 2017, Taipower received a total of 30 suggestions and items of feedback from the public relating to the environment and nuclear power. All issues were resolved and closed by the end of 2017. With regards to suggestions and feedback from the public, Taipower relays complaints to relevant units depending on the nature of the complaint. This ensures the appropriate professional handling and response of each issue.

Customer feedback

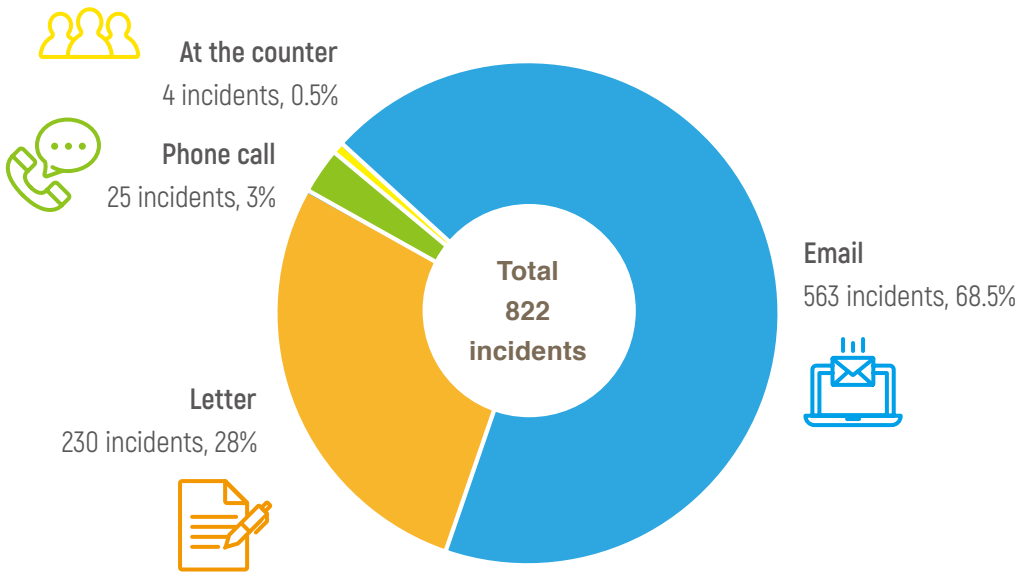
Customer satisfaction is crucial to Taipower's sustainable management. To safeguard customers' rights, Taipower has established regulations to guarantee that suggestions and feedback from customers are handled in a fair and proper manner. After the feedback has been received through one of many different channels, the unit responsible for the situation creates a corresponding case file for management and follows-up on the status of the feedback.

In 2017, Taipower received 822 items of customer feedback. The number of suggestions has been steadily decreasing in the last three years, which reflects Taipower's effectiveness in handling relevant feedback. Most of the feedback is related to line relocation (129 feedbacks; 15.7%) and power supply quality (103 feedbacks; 12.5%). These serve as important basis for Taipower's continual improvement of power services.

Number of Customer Comments from 2015-2017



Sources of Customer Feedback in 2017



Visit Customers

To improve Taipower's customer-oriented services, the company dispatches designated personnel to visit customers. Through routine visits to high-voltage customers, village (borough) offices and national power industry associations, Taipower delivers power consumption technical consultation services while gaining a better understanding of customers' needs and opinions. This helps the company to establish sound bilateral communications with its customers. Moreover, customer opinions serve as the basis for future improvements to customer services. Taipower's key customer service performances for 2017 are as follows:

Stakeholder concerned	Channels of communication and frequency	Achievements and outcomes in 2017
Private organizations	Telephone/visit by personnel	Made a total of 190 visits to national power industry associations
Customers (general and large customers)	• Telephone/visit by personnel • Service hotline • Suggestion mailbox	• Made a total of 40,779 visits to customers • The 1911 customer service hotline received more than 1.92 million calls, with 93.8% of customer calls answered by service representatives within 20 seconds • Received a total of 4,667 emails in the customer suggestion mailbox
Residents/general public		

District Service Offices

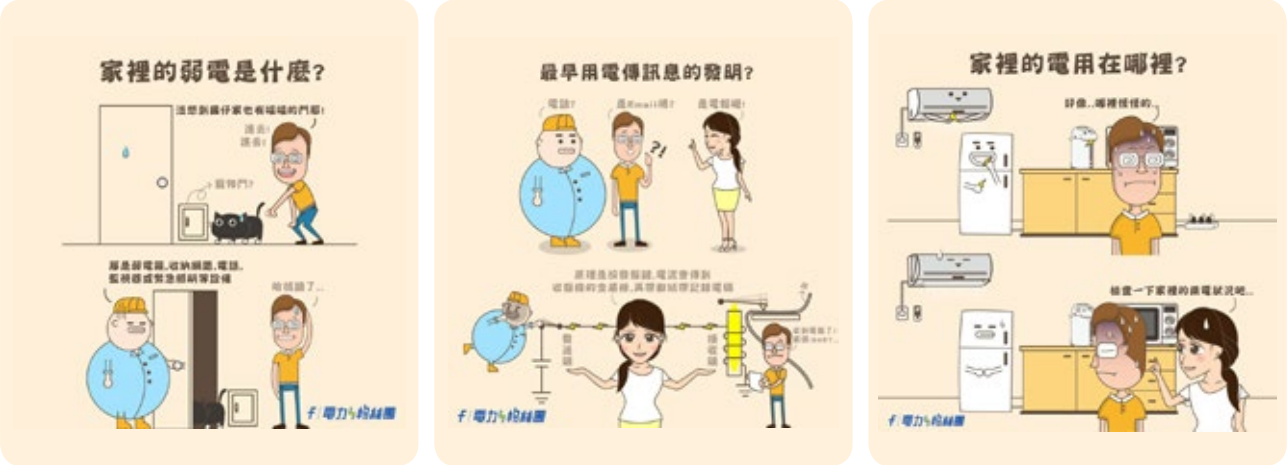
As a provider of high-quality power services, Taipower has established a close-knit service network across Taiwan that offers over-the-counter applications for various power and consultation services to customers. These service offices are responsible for the construction and maintenance of power supply lines within their service areas and for accommodating customers' needs anytime with speedy and convenient services.

To strives to boost the quality of employees' service and professional skills as well as to organize routine on the job training and utilizes performance reviews to ensure the smooth performance of tasks assigned to service stations. The company has also established diverse channels such as the 1911 customer service center, the online counter, and the Taipower e-Counter App to fulfill different customers' needs for a variety of services. The placement of existing service locations and their functions are subject to organizational transformation and adjustments as deemed necessary by the company as new technologies develop and the power industry liberalizes.

2.4.2 Creative Communication

Taipower on Facebook

In 2015, Taipower initiated a “New Media Task Force” to promote a vivid and more enthusiastic way of disclosing information and to boost the Taipower’s capacity for external communications while reshaping the company’s image in a more humane way. The company added a professional art editor and statistical staff to the team in 2016 to boost its communication capabilities with images and articles. This move has enhanced communication with the communities. In 2017, Taipower continued to employ interesting and informative ways of presenting power related knowledge so that more people could learn about the company through social media. Taipower’s Facebook page features themes such as power conservation and safe power use that are updated on a monthly or quarterly basis with content that ties into current hot topics. In 2017, the number of Taipower’s Facebook page followers grew to 180,000 and the page accumulated 37 million views in 2017 (compared to approximately 6.4 million views in 2015 and 14 million views in 2016). These figures aptly reflect the success that Taipower’s Facebook page administrators have achieved in their creative communication and management.



Taipower Hackathon

To establish smoother communication with the public and improve information openness and transparency, Taipower has invited citizen groups connected to energy and environmental protection issues along with fans of information science to participate in Hackathons. These events establish a platform of communication and demonstrate Taipower’s open philosophy. The goal is to help the public to become more aware of Taiwan’s current status in terms of power supply and demand while better understanding the needs of the public and Taipower’s shortcomings so that appropriate improvements can be made.

Following the success of the Hackathon in 2016, the third Taipower Energy Sustainability Hackathon, in 2017, focused on “energy conservation, green energy and open innovation.” Based on the three main topics of the event, members of the general public who were interested in analyzing Taipower data and applications, professional companies and research institutions were invited to present their ideas and search for opportunities that could propel the development of sustainable energy in Taiwan through open collaboration. After Taipower gained a better understanding of the public’s needs for information and data, additional information such as the renewable energy grid’s integration capacity, power plant smokestack monitoring data and so forth were also available to the participants. Such events allow for the pooling of collective wisdom and utilize open data to achieve the objectives of developing green energy, facilitating energy conservation and opening the door to creative ideas.

The 3rd Taipower Hackathon concluded with three award winners: “Netizen Buys Green Power,” “Green Campus Energy-Saving Project” and the “U-Optimizer.” The top prize was awarded to the team that created the “Netizen Buys Green Power” mobile phone APP, which was created from the perspective of total support for green power development with the integration of relevant data from Taipower. The APP serves as a platform of communication for Taipower, green energy investors and supporters in the hope of creating “Win-Win-Win” situations.

Note: Hackathon: a special event that involves a group of participants collaborating intensively on a subject within a given time frame

For more information, please refer to QR code for the event description ▶

Little People, Big Stories - The Unsung Heroes of Power Stabilization

As we enjoy the convenience of electricity, we often forget how it comes about and overlook the endless transmission lines that must run along hills, mountains and other hard-to-traverse terrain in order to deliver power to us. The truth is, every time we flip a switch, there is a group of diligent employees from Taipower who are standing by their stations at various power plants across Taiwan. As we supply power to each and every corner of the island and bring light to all citizens, we would like to deliver their stories to other users.

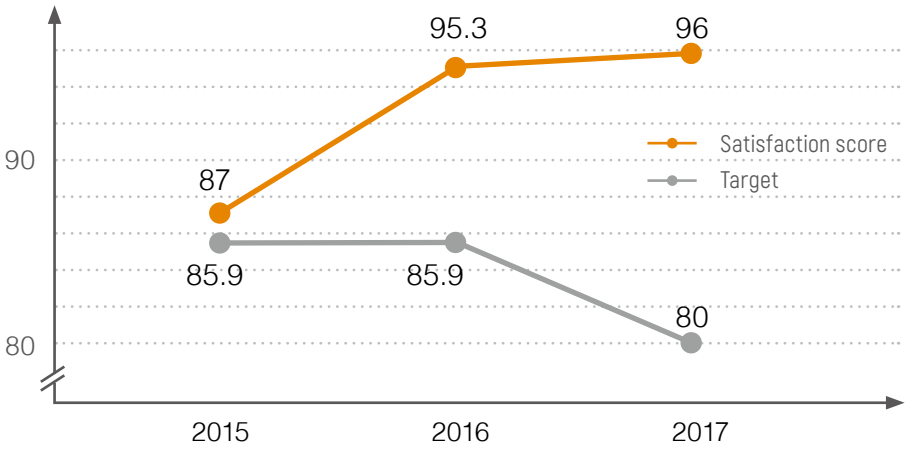
Taipower has numerous professional staff members with specializations in different fields of expertise. Their passion, focus and dedication to their craft make up the foundation of Taipower's sustainable operations. On the 4th anniversary of Taipower TV, we compiled snippets of various Taipower staff at work and through their simple but sincere greetings and smiles, one could easily appreciate the efforts and contributions that Taipower has put forth to achieve sustainable power. These stories of specialists who dedicate their lives and passions to the utility service in Taiwan serve as a way for the general public to realize that Taiwan has achieved an impressive 99.99% power supply coverage, shorter average power outage durations compared to other developed nations around the world, rapid post-disaster power service recovery capabilities and a healthy environment. Taiwan's power industries have received international recognition on a yearly basis. All of this is due to the unwavering contributions and efforts of Taipower's employees. It is the objective of Taipower TV to bring these captivating stories of unsung heroes to public attention so they will not be forgotten through the passage of time. By presenting these unsung heroes to the public and sharing their stories, viewers will not only learn about Taipower's history but will also see a side of Taipower's employees that is truthful, kind and beautiful.

2.4.3 Customer Satisfaction

Each year, Taipower conducts customer satisfaction surveys through an external agency to gain insight into the public's level of satisfaction with Taipower and its opinions about the company in terms of "service quality," "corporate image," "customer feedback handling" and "overall customer satisfaction." This examination is required by the State-Owned Enterprise Commission of the MOEA. The results of the survey and feedback gained from customers are analyzed and reviewed so that responsible units can draft improvement solutions that allow Taipower to satisfy its customers' needs and expectations. Taipower sets a specific target for customer satisfaction scores on a yearly basis in conjunction with continual efforts to improve customer communications and customer service quality.

In 2017, Taipower scored 96 points in customer satisfaction surveys and achieved its target of scoring 80 points for customer satisfaction that year. The company has achieved improvements in customer satisfaction scores for three consecutive years. This reflects the fact that Taipower's efforts at customer engagement have been duly acknowledged.

Customer Satisfaction Scores from 2015~2017



Note: The decrease in target score for 2017 was the result of scoring item adjustments. The target was adjusted after assessment.

3

Intergrator of Energy Networks

Performance Highlights

- Implemented a ***balanced scorecard management system***
- Achieved ***100%*** of annual targets for heat rate.
- Pre-tax profit of NT$ ***20.465 billion***
- Net profit from business diversification at NT$ ***1.547 billion*** (***178%*** of the annual target)
- Generated NT$ ***58.8 million*** from fiber circuit rental (a ***37%*** of annual growth rate)

Role and Contribution

Recently, Taipower has been actively involved in corporate and energy system transitions. In consideration of the potential changes facing the energy industry, Taipower has oriented itself towards becoming “an integrator of energy networks.” This role will entail improving the efficiency of operation, purchasing and power generation, but will also require the strengthening of general management within the energy network and within partnerships in order to make the existing energy network smarter while optimizing the effectiveness of our corporate operations. This will, in turn, enable the Company to continue reliably delivering power.

SDGs	Correlation to Taipower	Corresponding Chapters/Issues
1 NO POVERTY	Continuous improvement of accessibility to power service, stability and reliability and endeavor to ensure that all customers (including those in remote areas and disadvantaged minorities) have access to equal power services	– Tariff reductions – Offshore island subsidies – Fuel management (stable and reliable power)
7 AFFORDABLE AND CLEAN ENERGY	Increase the ratio of renewable energy and energy efficiency while ensuring that all customers have access to affordable, reliable and clean power services	
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	Improve the energy efficiency and recovery of fundamental power equipment; adopt clean technology and improve the infrastructure for a renewable energy grid so as to enhance grid resilience and reliability while facilitating innovative development of environmentally friendly technologies	– Electricity tariff rationalization – Thermal unit operational efficiency – Nuclear unit operational efficiency – Renewable energy operational efficiency
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Improve the overall energy efficiency and required resources for the overall generation/transmission/distribution in order to reduce the environmental footprint for power supply	
16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Emphasize corporate governance, integrity management and information disclosure while ensuring various communication channels operate smoothly; ensure that all relevant decisions at all levels are inclusive and representative	– Land Vitalization Taskforce – Coal Procurement Review Taskforce

Sustainable Trends and Challenges

In light of reforms to the structure of the power industry following amendments to the Electricity Act and various global trends within the power industry, the improvement of Taipower's operational management has emerged as a crucial challenge for the company in its path towards becoming a world-class power utility. This goal must be achieved while maintaining the delicate balance between corporate performance in management and other factors such as minority access to power services and environmental protection.

Solutions Planned for the Future

- New targets for business diversification - foraying into cultural and creative businesses within a circular economy
- Establishing an offshore wind power training company with wind power operators
- Plan and independently construct LNG receiving stations at the Taichung and Xiehe power plants to reduce the cost of fuel purchasing while improving the stability and safety of the LNG supply
- Offer relevant information and suggestions on the tariff formula's definition to promote tariff rationalization
- Make relevant adjustments to collaborative relationships between Taipower and IPPs .

3.1 Transition of Energy Services

3.1.1 Driving Operational Improvement

In order to mitigate the impact of soaring international fuel prices on Taiwan's domestic oil and power industries, the MOEA established a "Taipower and CPC Operational Improvement Taskforce" in early 2012. One of the goals of this taskforce was to strengthen Taipower's financial structure.

Taipower also established taskforces for the following seven areas of concern: "Coal Procurement Review," "Land Vitalization," "Materials Control," "Long-Term Financial Planning and Capital Expenditure Control," "Human Resources Development," "Power Planning," and "Power Industry Liberalization Coping Strategies." Each of these groups holds meetings periodically to improve Taipower's performance.

Apart from relying on the seven taskforces to improve performance, Taipower will make adjustments to the Company's operational strategies and management directions in accordance with major domestic/international trends. With the promulgation of amendments to the Electricity Act on January 26, 2017 by Presidential Decree, Taipower initiated its corporate transition strategies to respond to changes in power industry's market structure. In addition, Taipower has adopted a balanced scorecard to define specific developmental objectives and KPIs for each of the company's four major aspects of operation (i.e., financial performance, learning and growth, customer satisfaction, and internal control). This allows the company to look beyond improvements in short-term financial performance and toward the creation of long-term values and non-financial performance criteria for Taipower.

Taipower's Management Objectives and Performance Evaluation – Balanced Scorecard

Dimension	Objectives	Key operational performance indicators for 2017
Financial	• Improve cost structure • Increase business revenues • Improve financial efficacy	① Pre-tax income ② Develop diversified businesses ③ Fuel procurement performance ④ Power purchase control ⑤ Operations and maintenance fee control
Customers	• Improve quality and service • Boost corporate image • Enhance customer satisfaction	⑥ Social communications ⑦ Customer satisfaction ⑧ Power supply reliability – period of forced outages ⑨ Energy operations performance
Internal Business Processes	• Lower operational costs • Create a zero occupational-hazard environment • Shape Taipower's image as a green company • Improve overall productivity • Implement power industry reform and energy transition	⑩ Renewable energy generation ⑪ Major construction control ⑫ Improve the operational performance of units ⑬ Response to the Electricity Act Amendments ⑭ Occupational safety performance ⑮ Nuclear safety performance – indicator signals ⑯ Greenhouse gas control performance ⑰ Energy saving performance ⑱ Promote green power tariffs (no. of subscriptions)
Learning and Growth	• Develop human resources • Benefits from R&D	⑲ Enhance human resources ⑳ Significant R&D results (milestones and contributions) ㉑ Learning and growth performance

2017 Key Performance Overview - Targets and Results

The following table is a summary of KPIs derived from Taipower's Balanced Scorecards. It highlights the status of achievements in 2017 and target values for 2018.

Dimension		Key Performance Indicators	2017 Target	2017 Performance	Target Achievement Rate	2018 Target
Financial	①	**Pre-tax income** (NT$ 100 million)	≧ –130	231	100%	≧ –295
	②	**Business diversification**** Net profit from business diversification (NT$ 100 million)	≧ 8.69	15.47	100%	≧ 12.20
		Income from fiber circuit rental (NT$ 100 million)	≧ 0.47	0.588	100%	≧ 0.52***
	③	**Fuel procurement performance** Coal procurement performance (%)	≧ –5.82	–8.23	100%	≦ –5.03
		Maintain sufficient coal inventory (no. of days)	30~33.5	33	100%	30~33.5***
		Ratio of collective asset procurement (%)	≧ 9.6	22.78	100%	≧ 17
		Ratio of asset procurement cost reduction (%)	≧ 11.59	20.02	100%	≧ 11.60
		Maintain sufficient materials inventory (NT$ 100 million)	≦ 168.69	160.31	100%	≦ 180.4***
	④	**Power purchase control** IPP coal-fired fuel costs (100 GWh)	≧ 207.23	209.96	100%	**
		IPP fuel costs (100 GWh)	≧ 177.05	198.84	100%	**
		Co-generation power costs (100 GWh)	≧ 65.95	66.37	100%	**
	⑤	**Operation and maintenance fees** (score/kWh)	≦ 37.19	35.71	100%	≦ 40.34
Customers	⑥	**Social communication** Nuclear issues International Nuclear Issues Forum (events)	2	2	100%	2***
		Communications and advocacy production (no. of types)	≧ 15	16	100%	**
		Communications with the public (events)	≧ 180	197	100%	≧ 200
		Power issues advocacy Campus issues advocacy (events)	≧ 110	112	100%	≧ 110***
		Online issues advocacy (entries)	≧ 24	29	100%	≧ 24***
		Media communications Positive news coverage (items)	≧ 80	95	100%	≧ 85
		Media conferences (events)	≧ 4	6	100%	≧ 5
		Open information session (events)	≧ 2	4	100%	≧ 2
	⑦	**Customer satisfaction (score)**	≧ 80	96	100%	≧ 86.5
	⑧	**Power supply reliability – period of forced outages** (min/customer · year)	≦ 17.480	16.898	100%	≦ 17.23***
	⑨	**Energy operations performance** Line loss rate (%)	≦ 4.35	3.82	100%	≦ 4.48
		Economic dispatch performance (NT$/kWh)	≦ 1.29	1.22	100%	***
Internal Business Processes	⑩	**Renewable energy generation** Hydro unit availability (base load/peak load) (%)	Base load ≧ 96.55 eak load ≧ 94.09	98.48 96.31	100%	Base load ≧ 96.83 Peak load ≧ 95.25
		Wind unit annual availability (%)	≧ 93	93.02	100%	≧ 93
		Solar power generation	≧ 0.235	0.241	100%	≧ 0.235
		New addition to renewable energy installed capacity achievement rate (%)	*	*	*	≧ 95

Dimension		Key Performance Indicators	2017 Target	2017 Performance	Target Achievement Rate	2018 Target
Internal Business Processes	⑪	**Major Construction Control** Length of underground transmission line deployment for disaster prevention (km)	≧ 140	165.21	100%	≧ 153.81
	⑫	**Improved unit operating performance** Improved thermal unit operating performance Heat consumption for coal-fired units (kcal./kWh)	≦ 2,356	2,351	100%	***
		Heat consumption for fuel combined cycle units (kcal./kWh)	≦ 1,923	1,915	100%	***
		Heat consumption for thermal units (kcal./kWh)	≦ 2,207	2,183	100%	≦ 2,161
		Improve nuclear power generation performance (excluding overhaul capacity factor) (%)	≧ 98.88	100.12	100%	≧ 98.88
	⑭	**Occupational safety performance** Occupational injury incidence rate	≦ 0.29	0.21	100%	≦ 0.26
		Occupational injury severity rate	≦ 125	114	100%	≦ 117
		Occupational injury incidence rate of contractors	≦ 0.32	0.41	78.05%	≦ 0.37
		Major occupational incidents of contractors	≦ 5	2	100%	≦ 5
	⑮	**Nuclear safety performance - indicator signals** (events)	White lights ≦ 2 Yellow lights = 0 Red lights = 0	White lights = 0 Yellow lights = 0 Red lights = 0	100%	White lights ≦ 2 Yellow lights = 0 Red lights = 0
	⑯	**Greenhouse gas control performance** Total generation emission intensity (g/kWh)	≦ 592	554	100%	≦ 670
		Thermal unit emission intensity (g/kWh)	≦ 709	665	100%	***
		Air pollution improvement and control performance SOx emission per GWh of power generated (kg/GWh)	*	*	*	≦ 255
		NOx emission per GWh of power generated (kg/GWh)	*	*	*	≦ 254
		Particulate matter (PM) emission per GWh of power generated (kg/GWh)	*	*	*	≦ 22
	⑰	**Energy saving performance** Production power reduction (MWh)	≧ 4,994	10,500	100%	**
		Peak load capacity for demand-based bidding (GW)	≧ 60	124	100%	≧ 65
		Accelerate AMI deployment (units)	≧ 70,000	2,000	2.86%	≧ 200,000
		Energy conservation plan achievement rate (%)	*	*	*	≧ 95
	⑱	**Promotion of green power tariff** (no. of subscriptions)	≧ 10,000	15,787	100%	**
Learning and Growth	⑳	**Significant R&D results** Amount contributed to research and development (NT$ 1 million)	≧ 5,401	6,022	97%	≧ 5,501
		Contributions made to energy saving, carbon reduction and green power industry development Research report (cases)	≧ 20	31	100%	≧ 30
		Thesis publication (articles)	≧ 15	20	100%	≧ 20
		Eight core business implementation milestone achievement rate (%)	100	97	97%	**
		Research affair-related satisfaction (%)	≧ 90	93.2	100%	**
		Testing affair-related satisfaction (%)	≧ 90	98.8	100%	**
		No. of international power industry forums hosted (events)	*	*	*	≧ 1
		No. of articles published at international forums and symposiums (articles)	*	*	*	≧ 10

Dimension	Key Performance Indicators	2017 Target	2017 Performance	Target Achievement Rate	2018 Target
Learning and Growth	㉑ **Learning and growth performance** Employee proposals (cases)	≧ 815	1,364	100%	≧ 825
	Proposal implementation rate (grade 6 and over) (%)	≧ 80	95	100%	≧ 80
	Average number of digital learning hours completed by employees (hours/person)	≧ 6	11	100%	≧ 6
	Average number of internal and external learning hours for employees (hours/person)	≧ 45	59.4	100%	≧ 45

Note: 1.*Denotes new items added in 2018 (7 items in total), **Denotes items deleted in 2018 (9 items in total). The addition/deletion of relevant KPI items were made to reflect the Company's operational focus for the year.

2. *** Denotes items adjusted for 2018, with concise descriptions below:
   - " ② Income from fiber circuit rental (in NT$ 100 million)" was adjusted to "External business income (primarily from fiber circuit rental) (in NT$ 100 million)"
   - " ③ Maintain sufficient coal inventory (no. of days) and Maintain sufficient material inventory (in NT$ 100 million)" were adjusted to "Coal inventory duration (no. of days) and Material inventory amount (in NT$ 100 million)."
   - " ⑥ International nuclear issues forum (events), Campus issues advocacy (events), Online issues advocacy (entries)" were adjusted to "Decommissioning related issues forum (events), Campus issue dissemination (events), Online issues dissemination (entries)."
   - " ⑧ Power supply reliability – period of forced outages (minutes/household. year)" was adjusted to "Average duration of power outage (minutes/household. year)"
   - " ⑨ Economic dispatch performance (NT$/kWh)" was adjusted to "Dispatch performance – system control efficacy indicator (CPS)," the target for 2018 is "100% ≦ CPS ≦ 120%."
   - " ⑫ Heat consumption for coal-fired units (kcal. /kWh)" and "Heat consumption for fuel combined cycle units (kcal. /kWh) were consolidated as "Heat consumption for thermal units (kcal. /kWh) for control.
   - " ⑯ Thermal unit emission intensity (g/kWh)" was consolidated into "Total generation emission intensity (g/kWh); excluding nuclear power generation" for control.

3. ⑪ Major construction control, ⑬ Response to the Electricity Act Amendments and ⑲ Strengthening human resources all fell under qualitative indicators and as such were excluded from this table of quantified performance. For relevant contents, please refer to CH2.2.1 Adjusting the Energy Mix, CH2.1.1 Driving Force for Corporate transition and CH6.2 Building a Sound Working Environment.

3.1.2 Strengthening Financial Management

Long-term Financial Planning

In order to effectively utilize and allocate financial resources, Taipower has established a "Long-term Financial Planning and Capital Expenditure Control Taskforce." The taskforce proposed and implemented a control mechanism for the purchase of fixed assets with three control steps: 1) Conduct budget control and establish an annual budget investment scale along with a top-down resource allocation system prior to the purchase; 2) During purchases, the taskforce controls capital expenditure and establishes control schemes for tender surpluses and interest revenue recovery; 3) After purchases have been made, the taskforce activates the control system for closing operations.

Despite these efforts, Taipower continues to incur substantial accumulated losses and significant interest expenses that must be covered each year. Coupled with the uncertainty surrounding the future of NPP4, these factors significantly influence Taipower's financial planning. Consequently, financial planning – for things like fund allocation, financing strategies, asset re-appraisal and risk aversion – remains pressing issues in need of resolution. When the aforementioned taskforce completed its mission in 2016, it was transformed into a "Long-Term Financial Planning Taskforce" and became responsible for the establishment of Taipower's capital expense control mechanisms along with the analysis of other issues such as total rear-end operating costs, rationalization of decommissioning debt appraisal, ideal development models of green accounting for Taipower and so forth.

In 2017, Taipower took a step further by combining the Long-Term Financial Planning and New Business and Reinvestment Planning Taskforces into a new Long-Term Financial and Reinvestment Planning Team. This new team is tasked with carrying out the overall planning and review of Taipower's finances and relevant re-investments to strengthen Taipower's financial allocation capacity. In addition to discussing affairs pertaining to coal mines and floating storage liquefied natural gas receiving stations, the taskforce has also been actively looking into the expansion of business diversification, such as reinvestments in the ocean freight shipping business, offshore wind power safety training services and so forth. In the future, the team will continue to explore other possibilities for Taipower's financial and reinvestment planning.

Boosting Fund-raising Capabilities

In addition to ensuring the effective allocation of existing financial resources, Taipower is committed to improving its fundraising capabilities. The company has held monthly meetings on cash flow estimation where rolling reviews of funding gaps serve to keep liquidity risks under control. With a desire to reduce interest risks and fund costs, Taipower has flexibly leveraged the spreads between long- and short-term interest rates while ensuring that long- and short-term funding are in line with changes in the financial markets.

Raising long-term funds

Taipower seized an opportunity in the domestic capital market when capital was abundant and interest rates were low. In 2017, the company took advantage of changes in the bond market and raised funds through fixed-rate loans of NT$ 22 billion and a NT$ 57.7 billion issue of unsecured fixed-rate corporate bonds (including the company's first issue of green bonds at a value of NT$ 8.3 billion). These moves sought to avert future risks from rising interest rates. The Company also made a loan of NT$ 43.5 billion at the medium-to-long-term floating-rate to banks through competitive bidding processes to bring down its borrowing rates. As a result, the Company's average interest rates on current loans stood at 1.41% in 2017 – lower than its putative budget interest rate of 1.5% as set by the Legislative Yuan.

Raising short-term funds

Driven by the objectives of ensuring financial security while lowering capital costs, Taipower has endeavored to seek new sources of funding and attempted to issue commercial papers and raise short-term bank loans through open tenders. It has also prioritized fund allocations based on relevant demands in order to secure lower-cost funding for operational uses. In 2017, Taipower raised a total of NT$ 170.64 billion in short-term loans and funds, issued NT$ 449.9 billion worth of commercial paper and managed to reduce the average annual interest for its short-term loans to 0.49% – a rate far lower than its putative budget interest rate of 0.63% as set by the Legislative Yuan.

Improving Credit Ratings

In October 2016, Fitch Ratings followed the footsteps of Taiwan Ratings by adjusting Taipower's credit rating from "A+" to "AA-" and its outlook from "positive" to "stable."

In May 2017, Fitch Ratings verified Taipower's credit rating would be maintained at the highest domestic rating with a long-term "AAA (twn)," an outlook rating of "Stable" and a short-term rating of "F1+ (twn)." Concerning international ratings, the outcome was identical to the Taiwan Ratings score of "AA-" over the long-term with an outlook rating of (Stable) and a short-term rating of "F1+."

3.1.3 Optimum Use of Diversified Management

Guided by the strategy of "expanding the power business, strengthening asset revitalization, and exploiting derivative businesses," Taipower has been dealing with a number of challenges from the impending liberalization of the power industry and its corporate transition. In addition to our original responsibility of supply reliable power, we have also been actively seeking new opportunities for new business development. Rather than focusing solely on profit-making, Taipower will also put its corporate social responsibilities into effect for both society and the company.

Presently, Taipower has been actively developing new businesses, including the activation of real estate, optical fiber rentals, turbine blade repair, cultural and creative businesses and so forth. Taipower expects to realize NT$ 1.22 billion in revenues from its diversified businesses in 2018.

Promoting Real Estate Activation

Due to changes in power automation, transportation and other economic factors, a portion of Taipower's real estate is no longer required for power-related operations. As such, Taipower has established a "Land Vitalization Taskforce" to take charge of asset vitalization.

The Land Vitalization Taskforce is primarily responsible for the review of projects involving land use and the promotion, supervision and review of land vitalization case planning and solicitations through taskforce meetings. At present, the taskforce strives to achieve land vitalization through pushing leftover land mergers in urban areas, urban renewal, and bidding on large areas of land to secure land surface rights. In 2017, the taskforce held one consultation meeting and four taskforce meetings, two land examination meetings and two board of directors meetings with the following results:

Real estate rental

- Temporary parking lot rental: generated a combined annual revenue of NT$ 240 million.
- Income from other real estate rentals came to NT$ 169 million.
- Sale of co-constructed distribution houses: increased the profit from asset vitalization by approximately NT$ 114 million and saved approximately NT$ 4.57 million in commission fees (4% of the closing price).
- Filed for land value tax reductions: reduced the payable taxes by NT$ 63.16 million.
- Renovation and reuse of an old building on Hangzhou South Road: after a year of restoration and repairs by the lessee, the building was reborn as a tea classroom in November 2017. The site will now instill new cultural value to the building through cultural activities.
- Qingtian street historical building solicitation and revitalization: renovations on the old building were completed in 2017. The property is now the site of promotional activities associated with tea lifestyle and culture. It is used by enthusiasts seeking to recover and preserve memories of the past at the historical site.

Promotion of educational/recreational affairs

Taipower Hotels had an occupancy rate of 35.4% in 2017 and yielded NT$ 23.58 million in revenue.

Land development and utilization

In accordance with the government's policy of asset vitalization, urban renewal and the non-sale of large tracts of state-owned land, Taipower has created superficies as a means of land development vitalization. In 2017, Taipower has completed the following:

- An open tender was adopted for a "Joint Construction Project for the Vacant Lot on Guanghui Road in Muzha."
- Adjustments were made to the main project and details for the "Northern Distribution Center Urban Renewal" and the "Department of Maintenance's Urban Renewal" in accordance with Taipei City Government's East District Gateway Development Project. This allowed Taipower to sign a memorandum of understanding with the Taipei City Government.
- The proposal to draft an agreement to incorporate the vacant lot to the north of Daan Extra High Voltage Earthing Switches (E/S) in an urban renewal project was undertaken by Shih-Da Construction Co., Ltd. and was approved by the Board of Directors.
- The Kaohsiung Special Commercial Zone III Development Project was submitted to the board for review. The board subsequently approved the collaboration with Kaohsiung City Government as a public project of urban renewal with a shared land arrangement for feedback funds and contributions. The Kaohsiung City Government will serve as the organizer for relevant business solicitations.

In 2018, Taipower will continue to boost asset revitalization and appraise land with low usage and engage in the signing of agreements with implementation units responsible for the urban renewal of land for a hair salon at the headquarters and a temporary parking lot at Section 2 of Xinyi Road. The company will also conduct open bidding for the tender of Kaohsiung Special Commercial Zone III Development Project, open bidding for the tender of Baoqing Street's urban renewal and bidding for Northern Distribution Center's Urban Renewal consulting firm.

Promotion of Cultural and Creative Businesses

Taipower's cultural and creative businesses will place circular economy at their core by integrating elements of power industry culture with the creation of special products bearing Taipower's logo, images and symbols to be distributed via online platforms, through physical stores and trademark licensing. By interacting with consumers through product marketing, we will be able to present Taipower's corporate values and philosophy of cultural and creative development by establishing closer ties between the general public and Taipower in day-to-day life.

In 2017, Taipower had already commenced the design of its cultural and creative trademarks with the plans to create novelty products through its cultural and creative businesses. The products bear various images of coal ash and waste insulators that people will associate with Taipower. In 2018, Taipower's goal is to establish its own online shopping platform to search for young creative design teams and studios with a passion for cultural innovation and collaboration in the development of novelty products with Taipower's images and icons.

Optical Fiber Line Leasing

Under the premise of maintaining a safe and reliable power supply, Taipower strives to promote management model versatility and the development of domestic telecommunication infrastructure by launching an optical fiber leasing service.

In 2017, Taipower completed the 96-core optical fiber construction project that ran from Wugu to the Dalin Section of National Highway No. 1. The completion of the project strengthened Taipower's backbone infrastructure for internal communications, improved communication system reliability, and optimized power dispatch and power supply quality control. Taipower also obtained the National Communications Commission (NCC)'s approval for commercial operations to increase Taipower's non-operating revenues.

Taipower yielded NT$ 58.85 million in revenues from optical fiber line leasing in 2017 and surpassed the given target of NT$ 47 million for the year. Compared to 2016, there was a NT$ 15.99 million increase, thus reflecting Taipower's success in the expansion of this business.

With regards to strategies for optical fiber line leasing in the future, the company will continue to check the newly established, dedicated optical fiber network for communication. It will also split the remaining lines and apply to the NCC for a network scale expansion. Moreover, Taipower will be focusing on developing more potential customers and reviewing existing subscription packages in order to respond to customers' expectations while paying attention to the development of the telecommunication service market so as to formulate new business models and create more opportunities and increase revenues.

Re-Invested Enterprises

Since 1962, Taipower has participated in a number of private business investments in an effort to stay in line with relevant government policies. As of the end of 2017, Taipower had four reinvestment ventures, including the Taiwan Stock Exchange Corporation Ltd., the Taiwan Cogeneration Corporation Ltd., the Bengalla Mining Company Pty. Ltd., and the Bengalla Coal Sales Company in conjunction with the Bengalla mine development project in Australia. Taipower had invested a total of NT$ 1.275 billion and generated a total of NT$ 294 million in profit in 2017.

In addition, in order to provide full support for the government's policy of developing offshore wind power, Taipower has been collaborating with domestic and international offshore wind power proprietors to jointly set up a new spin-off business in the wind power training industry. It is expected that the new company will complete its registration and training center construction in 2018 and will commence official operations and open enrollment by 2019.

In the future, Taipower will continue to expand various new businesses in hopes of strengthening the Company's foundation for sustainable operations. Potential investment items for Taipower include energy service businesses, coal ash resource utilization, telecom asset vitalization, offshore energy and minerals, construction of fleets, participation in international power utility maintenance and forays into the construction of offshore power plants.

Old History, New Business – The Guardian of History and Culture

Apart from its many years as the sole supplier of power for Taiwan, Taipower has a profound history and is in possession of many buildings that have many stories and rich historical values. An example would be the residence along Hangzhou South Road in Taipei City. The building used to be the Chairman's residence during Taipower's early years but with the passage of time, the residence was left vacant and remained so for many years. In time, the roof had collapsed and the floors had deteriorated significantly. In the original planning, the residence was designated to become a parking lot as a means of increasing the Company's profits. But after further deliberation by Taipower, the residence was recognized as a rare architectural feature with unique spatial aesthetics and a close proximity to many small alleys and lanes in a cluster of traditional residences for officials. With much greenery in the neighboring environment, it is a residence in a quiet lane that is "urban without the hustle of the city." The cultural and local historical value of the residence makes it that much more precious. Taipower made an open offer to seek out a design team that would be responsible for the restoration and reuse of the building. With a budget of approximately NT$ 15 million and after a year of repairs, the residence had received a major facelift and been transformed into a tea classroom in November 2017. A trial tea gathering was held recently to invite Taipower employees to experience the culture of tea brewing and appreciation. The event presented an intriguing and rich cultural experience for the participants while serving as a prime example of Taipower's restoration and reuse of historic buildings.

Another historic building that was renovated recently by Taipower is located at No.10, Lane 8 on Qingtian Street. It was a wooden Japanese building that was built in the 1930s. It was originally the residence of a Japanese professor by the name of Mio Ryojirou and later came under the possession of Taiwan Power Stock Company in 1943. When Taipower Company took over in 1946, the residence became a dormitory for employees. In the 1990s, the venue was transformed into a secret meeting room where major national energy policies were discussed. It was also used as a venue for Taipower's senior management meetings and even meetings for the NPP4 strategic taskforce. After 2000, the residence was vacant and unused for many years. Eventually, the "Old House Cultural Movement" was organized by the Department of Cultural Affairs in 2014 with the objective of "repairing the old houses and retaining their original looks." An external design team completed the restoration of the building in 2017. During the restoration, Taipower actively sought out information on the people that have resided in the building and stories of the building from the Japanese colonial period to more recent years by contacting the various units that had been responsible for the building's management at different periods. We have also sought retired Taipower employees and external cultural historians and a documentary production studio to recover and preserve the memories of the past that belonged to the old house. The Company renamed the building "HeHeQingTian" and in the future, it will be used as a base for the promotion of tea lifestyle and culture. Taipower will work together with the users to maintain this historical building with its rich history by continuing its story that has yet to end as visitors enjoy sips of tea.

Through the preservation of historical buildings, Taipower has improved the environment for neighboring communities and earned the recognition of community residents. By high-lighting the cultural values of these old buildings through cultural events, Taipower illustrates its dedication to the improvement of its asset management and corporate image. Taipower's value extends beyond its role as the protector of Taiwan's power supply to guardian of the culture and history of Taiwan.

3.1.4 Promoting Tariff Rationalization

While Taipower is working to ensure a reliable power supply and the sustainable management of the power industry, the company is cognizant of the need for inter-generational justice. Today's losses, caused by unreasonably cheap rates, should not be left to future generations. This is the reason Taipower has been pursuing tariff rationalization in the hopes of generating reasonable profits that can cover accumulated losses. This will require, on one hand, a new tariff formula that is a fair, open and transparent mechanism for the professional review and setting of tariffs and on the other hand, relieving Taipower of its policy burden.

The tariff formula that was passed by the Legislative Yuan in January 2015 expired in January 2017 and the amendments to The Electricity Act were passed with a 3rd reading on January 11, 2017 and announced by the President on January 26, 2017. Pursuant to Article 49 of The Electricity Act following the amendments, the tariff formula for publicly sold electricity will be established by the competent central authority. The competent authority subsequently established a

formula for the tariff of publicly sold electricity and the mechanism for tariff adjustment. The new formula was announced on November 6, 2017 and according to the regulation, the tariff will be reviewed once every six months. During these reviews, Taipower will formulate a proposal for tariff adjustment and submit it for review and approved by the Electricity Tariff Review Committee. If approved, the tariff will be adjusted to more properly reflect the fluctuations in international fuel prices and Taipower's corporate management performance. This will be done while ensuring reasonable reflection is made on power industry management costs.

Objectives of Tariff Design

The Electricity tariff should be set in a way that ensures the sale of electricity will not only cover the operating costs for the power industry but also ensure that the power industry can earn reasonable profits and gain sufficient funds for power related investments and construction.

Tariff Formula and Operating Mechanisms of Tariff Review and Adjustment

Pursuant to the announcement by MOEA on November 6 2017, the tariff formula for publicly sold electricity is as follows:

$$\text{Average price per kWh} = \frac{\text{Electricity Purchase Expenditure (including profit)} + \text{Transmission / Distribution / Expenditure (including profit)} + \text{Electricity Sales} + \text{Reasonable Profit for Publicly Sold Electricity}}{\text{Energy Sold}}$$

Note: The reasonable profit for each business should be calculated by computing the reasonable profit for the entire company before deriving the reasonable profit for each business based on its corresponding baseline and number of employees (half and half).

Reasonable Profit = Base Rate X Return on Investment

Base rate = (Replacement value of fixed asset currently in use + fixed assets currently in construction + operating fund) × suitable self-owned capital rate (30%)

Operating Fund: NT$ 30.3 billion

Return on Investment: 3%~5% (with accumulated losses in place, the cap on the return on investment is 5% and the ROI will go towards covering the losses in full. Once the company has made up for all its accumulated losses the ROI will be reduced to 3%)

In principle, the cap on tariff increases and decreases will be no more than 3 percent. In the event of continued, significant increases or declines in the cost of power supply, the Electricity Tariff Review Committee may make appropriate adjustments to the tariff based on the status of tariff stabilization fund usage.

Operations and Adjustments to the Tariff Formula

The tariff formula for publicly sold electricity was announced and promulgated on November 6, 2017. The Electricity Tariff Review Committee held a review on current tariffs in March 2018. In the future, Taipower will strengthen its disclosure of information in an open and transparent manner in order to help the general public better understand the state of tariff adjustment.

Tariff Adjustments– Taipower's Communication and Engagement

Pursuant to Article 49 of the amended Electricity Act, the tariff formula for publicly sold electricity shall be established by the competent central authority. In an effort to make the tariff more accurately reflect the actual costs and promote tariff rationalization, Taipower has referred to its previous experiences in the formulation and application of previous formulas and provided the following suggestions to the competent authority for reference purposes:

- For the formula, Taipower suggested the incorporation of fixed assets currently in use into the base rate formula to account for the process of energy transition.
- Other power business management related costs such as disaster losses have also been included as part of the tariff cost.
- Methods of allotting reasonable profits for power generation/transmission/ sales as separate businesses.
- Taipower suggested the addition of a cap on the decline of tariffs to make the mechanism more comprehensive.

The competent authority has already accepted Taipower's suggestions and incorporated them in the new tariff formula.

Future Development for Tariff Adjustments

The tariff formula for publicly sold electricity has already been established and promulgated by the competent central authority and, pursuant to the regulations, the tariff shall be subjected to review every six months. Taipower shall refer to pertinent regulations when drafting proposals for tariff adjustment and submit a draft to the Electricity Tariff Review Committee so that it can determine the average tariff and adjustments in order to achieve the goal of tariff rationalization.

3.1.5 Pursuing Relaxation of Policy Burden

Tariff Reductions

Taipower has offered tariff reductions in accordance with pertinent laws and regulations. These reductions extend to electricity for public lighting, public water, electrified railways, educational institutions, farming, offshore islands, social welfare groups and the disabled. In 2017, these reductions totaled NT$ 4.245 billion. In 2017, Taipower requested that the State-Owned Business Commission remind authorities that have yet to allocate a budget to cover tariff reductions to do so as soon as possible. In response to the Electricity Act's amendments, Taipower will actively take part in meetings concerning the Electricity Act and its relevant sub-laws on tariff reduction in order to advocate for articles that work in Taipower's favor and relieve the policy burden on Taipower.

Offshore Island Subsidies

According to the Offshore Island Development Act, losses due to electricity tariffs on Taiwan's offshore islands are set as an average of the rates on Taiwan proper and should be covered by the central government's budget. Despite this, Taipower has never received these subsidies from the government. After many years of effort, the Executive Yuan convened the "Conference on the Policy Burdens of Taiwan Power Company, China Petroleum Company and Taiwan Water Corporation" in 2013 and passed a resolution that policy burdens must be gradually re-incorporated into the budgets of the competent authorities for various industries and domains. Each ministry and council must, within a period of ten years, progressively allocate funding in its budget to bear its fair share of the policy burden.

Nevertheless, with the new tariff formula officially implemented, the Executive Yuan believes that Taipower's tariffs will exceed its power supply costs and, as a result, the company is capable of generating sufficient profits to cover its accumulated losses. Since the calculation of the average price has already taken into account the power supply cost for Taiwan proper and offshore islands, the MOEA will no longer be planning for the subsidy.

By the end of 2017, the accumulated losses from power supply to the offshore islands reached NT$ 79.502 billion. With the subsidy of NT$ 3.497 billion from the Ministry of Economic Affairs in 2017, the remaining deficit that has yet to be subsidized came to NT$ 76.005 billion.

Renewable Energy Subsidies

In accordance with the Renewable Energy Development Act and the Regulations Governing the Application and Approval of Renewable Energy Subsidies, and in line with the government-approved calculation of price difference pay-back on renewable energy wholesale tariffs, Taipower applied for a subsidy for Renewable Energy and was awarded NT$ 6.495 billion in 2017. In addition, the government has subsidized Taipower's purchase and construction of renewable power generation units. This subsidy of NT$ 7 million will be recognized as company income in 2017.

Governmental Subsidies in 2016~2017

Unit: NT$ 100 million

Subsidized Item	Amount in 2016	Amount in 2017
Subsidies on renewable energy	45.89	64.95
Subsidies on offshore islands electricity tariff losses	18.86	0.00
Subsidies on renewable energy generation equipment and construction	0.11	0.07
Other government subsidies	0.02	0.02
Total	64.88	65.04

Note: While figures of Taipower's financial report have been determined based on the final audit accounts of the National Audit Office, the subsidies in 2017 have yet to be reviewed by the National Audit Office and are therefore reported by Taipower.

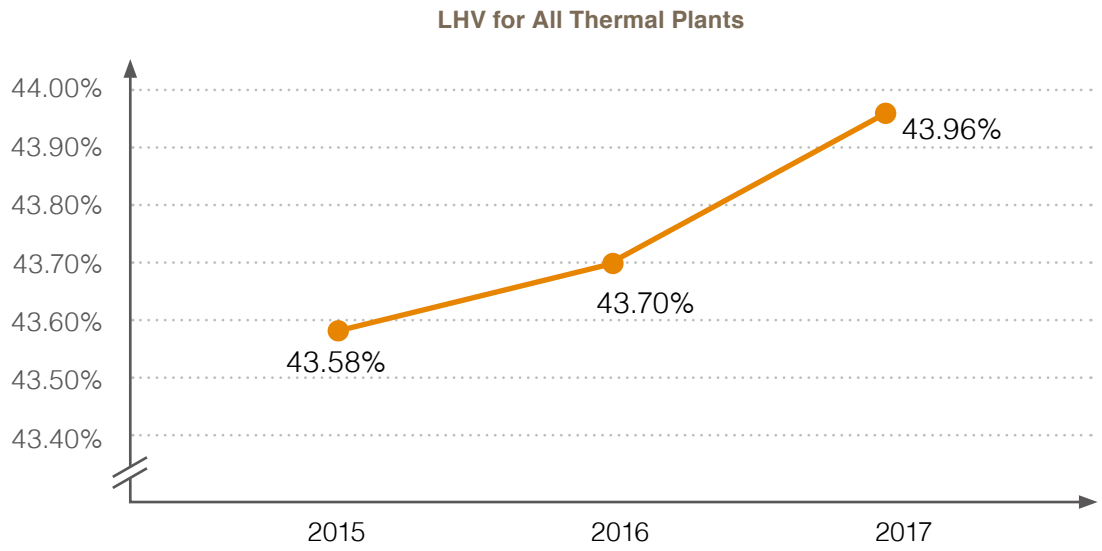
3.2 Improving Power Generation Capabilities

With the establishment of Taipower's four major divisions, operations relating to power generation will fall under the management of the Power Generation and Nuclear Power Divisions. The former will be responsible for the management of the thermal and renewable energy unit operational efficiency while the latter will oversee the operating performance of nuclear units. As a high-efficiency power utility operator, the effective improvement in resources and energy conversion efficiency to boost generation efficacy has become a vital issue for Taipower.

3.2.1 Thermal Units' Operating Performance

To effectively manage thermal unit operations, Taipower has established the "Key Component Maintenance Strategy" and maintenance guidelines. In addition, Taipower has established an operators' license system and a re-training system to ensure the stability of daily operations. To raise power generation efficiency and reduce generation costs while complying with the government's policies of energy diversification, energy conservation and carbon reduction, Taipower has also planned to replace old units with high-efficiency generation units. For example, the Linkou and Dalin plants (under construction) have adopted high-efficiency super-critical pressure coal-fire units while the Tongxiao plant has installed high-efficiency fuel combined cycle units. Once these new units become operational, they will improve Taipower's overall energy efficiency and effectively reduce pollution.

In addition, through various operations and maintenance measures that enhance the energy usage efficiency of existing units, the LHV Gross efficiency rates of thermal plants rose from 43.70% in 2016 to 43.96% in 2017. Taipower will continue to strengthen its participation in international collaboration in order to introduce relevant know-how and techniques for power and environmentally friendly technologies.



3.2.2 Operating Performance of Nuclear Units

With regards to the improvements in the operating performance of nuclear units and lowering their generation costs, Taipower's primary management measures include:

- Auditing each of the nuclear power plant to identify operational vulnerabilities for analysis and review
- Strengthening observation and management of operations during major repairs
- Improving and renewing equipment
- Reviewing unexpected events each year and analyzing methods of improvement

The net generation of nuclear power in 2017 reached 21,560 GWh, with an average utilization rate at 46.79%. (Note: excluding the non-operation of NPP1's reactor 1 and NPP2's reactor 2 due to policy factors, the actual utilization rate would come to 70.19%).

Apart from the units that were non-operational due to policy factors, the events that occurred to cause shutdowns at the nuclear power plants this year are as follows:

- The primary cause of non-operation for NPP1's reactor 2 was the hindrance of dry storage facilities by the New Taipei City Government. The city government did not issue a "Water and Soil Preservation Facility Completion Certificate." Without the certificate, Taipower is unable to continue with the construction and replacement of fuel rods and consequently, the unit was not operational in 2017. In light of the demands for optimal power dispatch, Taipower was asked to maintain a 75% operating load starting from April 29, 2017 but due to the torrential rains of June 2 (with accumulated precipitation exceeding 600mm for the day), one of the three transmission towers connecting the main transformer collapsed and caused the generator to trip and reactor to scram. The reactor remained in safe shutdown until June 11 and the EOC-28 major overhaul for the reactor began on June 12th.
- For NPP2's reactor 1, a delay of the overhaul of fuel rack until June 9 2017 lowered the capacity factor for the year as compared to previous years.
- The major overhaul of NPP3's reactor 2 was originally scheduled to take place over 41 days (April 7th to May 17th). However, due to damage to the control rod guide tube and more frequent inspections by the Atomic Energy Council, the duration of the major overhaul at NPP3 was actually 69.68 days, thereby causing the average availability of reactor 2 to be reduced.

Utilization Rates of Nuclear Power Plants Between 2015 and 2017

Unit: %

Year	Nuclear Power Plant No.1			Nuclear Power Plant No.2			Nuclear Power Plant No.3			Average
	Reactor 1	Reactor 2	Average	Reactor 1	Reactor 2	Average	Reactor 1	Reactor 2	Average	
2015	0	90.19	45.1	89.13	100.00	94.57	91.74	80.48	86.11	75.26
2016	0	96.58	48.29	90.85	27.88	59.37	88.80	96.46	92.63	66.76
2017	0	41.76	20.88	56.12	0	28.06	99.12	80.17	89.64	46.19
Accumulated utilization rate after commercial operation	78.19	84.94	81.54	84.32	82.64	83.49	83.09	86.29	84.67	83.15

Note: 1. Utilization rates of nuclear power plants = No. of hours of power generation per year/No. of total hours in that year

2. Although the damage on the connecting hardware for the water channel on atrium 10 fuel at nuclear power plant No.1's reactor 1 in 2015 had been repaired by February 2015, the Legislative Yuan's Education and Culture Committee resolved on March 17, 2015 that the Atomic Energy Council has to complete its report on the incident before Taipower will be permitted to apply for nuclear power plant no.1 to resume operations. Although the Atomic Energy Council has made numerous applications to present its report, the Education and Culture Committee did not include the report in its schedule. Consequently, nuclear power plant No.1 remained non-operational for the entire year of 2016.

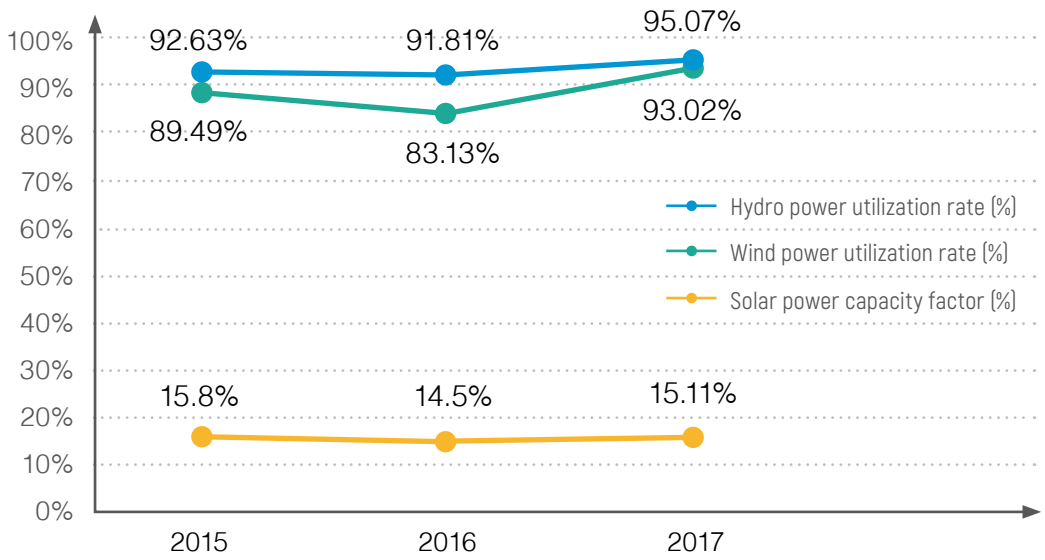
3. The generator in reactor 2 at nuclear power plant No. 2 tripped on May 16, 2016 due to a lightning arrestor malfunction. All repair, inspection and testing on the unit had been completed on June 27, 2016. At this time, the Atomic Energy Council has yet to present a report on the incident to the Legislative Yuan and as such, the unit is still non-operational as of the writing of this report

4. Reactor 2 at nuclear power plant No.1 was shut down on June 2, 2017, as the fuel rod pool had reached its maximum capacity. The construction of a dry storage facility cannot commence until a "Water and Soil Preservation Facility Completion Certificate" is issued by the New Taipei City Government. As the Company has yet to receive a "Water and Soil Preservation Facility Completion Certificate" from the New Taipei City Government, the reactor cannot be re-initiated for operation due to the inability to replace fuel rods.

3.2.2 Renewable Energy Operational Performance

The following table shows Taipower's various renewable energy generation efficiencies in recent years. At present, Taipower's primary focus on renewable energy is set on expanding its total installed capacity and the company's main response to improving efficiency is to upgrade to newer units of higher efficiency. Due to the fact that the generation efficiency (utilization rate) for renewable energy units is correlated to their physical locations, the type of unit installed, and careful environmental impact analysis, Taipower will continue to assess feasible areas with potential for renewable energy generation and strive to improve overall renewable energy efficiency by increasing unit operational efficiency.

Renewable Energy Operational Efficiency



Note: 1. Annual wind power utilization rate = hours of unit operation (including standby)/total number of hours in the year

2. Solar power capacity factor= total amount of power generated in the year/installed capacity x total number of hours in the year
   Since the Longjing 2nd phase Solar Power Plant only started operations in August 2014, it has been excluded from the capacity factor

3. Hydro Unit Availability = (Operational Period + No. of Standby Hours)/ total number of hours in the year

3.3 Procurement of Materials

3.3.1 Fuel Control

Taipower adheres to the following strategies to ensure its fuel supply is stable, sufficient, timely, cost-effective and qualified:

Energy Supply Diversification

Coal

- Setting caps per country and per supplier for long-term coal contracts
- Investing in offshore mining operations

LNG

- Exclusive supply of LNG by CPC; efforts will be made to track CPC's sources of supply
- CPC has long-term contracts with Malaysia, Indonesia, Qatar, Australia, Papua New Guinea and the United States to achieve energy supply diversification

Nuclear

- Spreading out nuclear fuel processing to 2-3 suppliers

Fixed-Term Supply Contracts

By signing various fixed-term contracts, Taipower is able to reduce the uncertainty in procurement and thus achieve a steady fuel supply.

Coal

- Fixed-term contracts at 70-80%, with the remainder achieved through spot contracts

LNG

- Signing fixed-term contract with CPC
- Taipower plans to independently construct LNG receiving stations at Taichung and Xiehe power plants and to independently import LNG to be used by some of the newly constructed gas units.

Nuclear

- Pursuant to Article 95 of The Electricity Act “The nuclear-energy-based power-generating facilities shall wholly stop running by 2025,” as long-term contracts and existing inventories are sufficient to accommodate demand, uranium procurement has already ceased.
- Signing long-term contracts for all nuclear fuel enrichment services

Fuel oil

- Fuel oil is procured from local suppliers through fixed-term contracts to guarantee supply safety

Safe Inventories

Coal

- By law, coal inventory must be sufficient for 30 days
- Taipower adopted 33.5 days of inventory as its target for 2018

LNG

- In accordance with the stipulations of the "Taipower and CPC Contract and Early-Warning Mechanism for LNG Supply and Demand,” inventories of LNG are kept at the Yongan and Taichung Plants at 50,000 and 80,000 tons, respectively
- Together with CPC, Taipower has planned for corresponding responses in the event of accidents and established terms of coordination that both parties have to abide by

Nuclear

- The safe inventory level for uranium is set at three year's usage volume
- All units at the nuclear power plant require one batch of nuclear fuel component in the inventory

Fuel oil

- The operating reserve for fuel oil was 18±4(w) kl
- The Diesel inventory was established in accordance with the specific supply and transmission conditions at various power plants

Stable Coal Transportation

Taipower currently owns 6 coal carriers, which transported 6.83 million tons of coal or a 23.25% shipping ratio in 2017.

← Coal Bunker in Power Plant

↓ Operation of Bunker Conveyor

Raising Fuel Procurement Performance

In addition to ensuring a steady fuel supply for power generation, Taipower has actively liberalized procurement restrictions and coal sources to make bids more competitive. By making good use of market fluctuations to procure coal on the spot market, Taipower was able to reduce the cost for fuel procurement. Taipower has also been collaborating with the Taipower and CPB Business Improvement Taskforce of the MOEA to improve the company's fuel procurement performance.

For coal procurement, Taipower has established a Coal Procurement Review Taskforce, with members consisting of personnel from the materials, procurement regulation enforcement, procurement and legal affairs departments. Through various meetings with external experts and scholars on energy and economics, the taskforce is responsible for formulating flexible coal procurement strategies. In 2017, the committee held 3 meetings in response to market changes and completed an annual procurement plan. Concerning Taipower's procurement performance for 2017, Taipower was able to save approximately NT$ 5.527 billion more than possible through coal prices in the Asia-Pacific Market at the time.

As for the procurement of natural gas, Taipower will spread out its sources of supply in the future. Apart from purchasing LNG from CPC, Taipower also plans to construct its own LNG receiving stations at the Taichung and Xiehe power plants and has obtained the government's approval to purchase LNG from the international market to be used by newly constructed gas units at Taichung, Tongxiao and Xiehe power plants. This not only enables Taipower to have greater autonomy over its sources of LNG in order to reduce the overall costs of fuel procurement but also works in favor of Taipower's power dispatch needs and system characteristics to increase LNG supply stability and safety.

3.3.2 Materials Control

Taipower established a “Material Control Taskforce” in August 2012. The taskforce includes the Chairman, President and VP, who will personally supervise and oversee the improvement of the systems for material procurement and inventory management along with the review of implementation results. Special emphasis has been placed on the elimination of old power cables and material inventories, improving the activation rate of distribution transformers and power meters that have been maintained, establishing safety inventory and reserve baselines for generator components/parts and periodical reviews of the inventory elimination for the Longmen power plant. At the same time, scholars and experts in material management and purchasing have been invited to take part in meetings in order to introduce prudent management tools and approaches to assist with reviews and the achievement of control objectives.

Maintain Sufficient Inventory

In order to lower operational risks, starting from 2017, Taipower’s control for material inventory amount will focus on maintaining appropriate inventory levels as its objective. Through system design and Enterprise Resource Planning (ERP), Taipower improved the accuracy of its front-end fuel demand estimates. The Company also used open contracts as a flexible delivery tool to achieve inventory optimization. In addition, in an effort to facilitate better management and control of inventories of special components and spare parts used in power plants and power generation turbines, every supervised department oversaw power plants reviews of the quantities of spare parts used for safety and overhaul purposes. The Company was able to reduce its inventory to NT$ 1.762 billion as of the end of 2017.

It is important to note that inventory and reserve shall take factors such as supply chain overall cost optimization and power supply stability into consideration. Apart from the costs from inventory interests, we must also factor in other costs and make a conscious effort to have specific quantities of materials as reserves in the inventory in order to accommodate the demand for emergency repairs in the event of natural disasters such as typhoons and earthquakes.

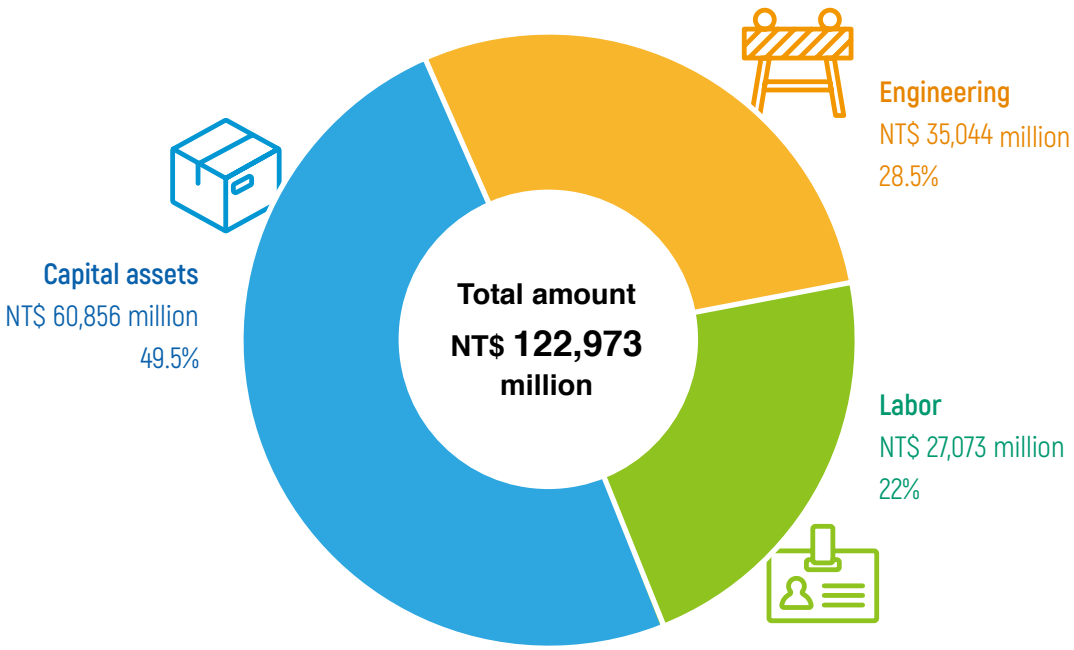
Reducing Materials Procurement Costs

Collective procurement makes it possible to determine pricing based on quantity through economy of scale and enables Taipower to negotiate for better prices and reduce its material purchasing costs. To this end, Taipower has established “Collective Procurement Management Guidelines” to screen and select items and assign units to take charge of procurement for the selected items for the respective units to reduce the number of purchasing operations and overall costs. In 2017, the number of collective procurement items came to 3,640, with approximately 2,500 items from contracts that are still in effect. The contracts amounted to approximately NT$ 1.927 billion. Taipower saved approximately NT$ 8.7 billion for all company procurements in 2017. Taipower is expecting to increase the number of collective procurement items in 2018 to approximately 2,800 after incorporating new units in collective procurement.

Company-Level Materials Management

To enhance the effectiveness of its management and control, Taipower adheres to the principle of collective management, referring to materials that are annually used in large quantities or in many units, which are selected and reviewed for collective requisition, procurement, inspection and storage to cut down on the costs of procurement, transportation and storage. In 2017, the total value of company-level materials came to NT$ 11.645 billion, with an average inventory of NT$ 2.515 billion and a turnover rate of 4.63 times – higher than Taipower's operational materials turnover rate of 4.10 times. To support the upgrading of the Company's grid, the expansion of distribution lines remained ongoing and the Company continued its practice of inventory management and control. The value of Taipower's average inventory gradually fell from NT$ 3.074 billion in 2006 to NT$ 2.515 billion in 2017.

Real Expenditures to Suppliers in 2017



Note: 1. Source downloaded from the Government e-Procurement System website
2. Total amount for financial related expenditure excluding fuel

Supplier Classification System

In 2016, Taipower implemented its internal "Economic Reform 2.0 for Bottleneck Breakthrough" initiative, which involved Taipower's supply chain management unit (Department of Materials) launching a Supplier Classification System. The system was created to facilitate mutually beneficial partnerships for Taipower and its suppliers in accordance with the stipulations of the Government Procurement Act so that the company can work together with its suppliers to improve the vital quality of power generating equipment in pursuit of goals including zero-incidents during the lifespan of materials and reduction of line loss rates, extending operating lifecycles for equipment and lowering the likelihood of operation related incidents for equipment while encouraging positive competition among qualified collaborating suppliers.

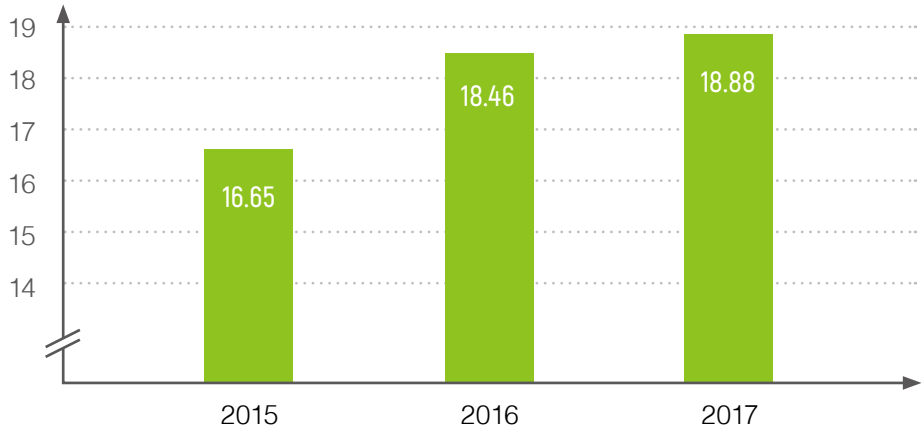
Initially planned in 2016, the bidding for the Company-Level Materials Category I "25kV XLPE power cable" was closed on January 10, 2017 in a 2-year open contract. Taipower is expected to perform a full review of the case by the end of 2018. At the same time, the Company will be promoting the Category II equipment "distribution transformer" in 2018.

3.3.3 Procured Power

Following the rapid development of Taiwan's economy and the increasing demand for power, as well as the growing difficulty of power development, the government has permitted the private sector to operate power sources that Taipower had yet to develop in order to ensure a stable and reliable supply of power across the nation. Taipower has complied with MOEA's "Operation Directions for a Deregulated Power Supply Industry" and "the Private Power Plant Establishment Plan" for its IPP purchases and signing of contracts with IPP operators. To ensure stable operations and secure financing opportunities for IPP, the duration of contracts span 25 years, with terms that prescribe fixed rates (i.e. they do not adjust according to floating interest rates) for capital expenses in purchase prices. In addition, the contracts also clearly define periodic adjustment schemes for fuel costs, maintenance fees and subsidies.

Despite the continuous decline of market interest rates since 1993, Taipower was not able to adjust its capital expenses in accordance with the falling interest rates due to contract restrictions. As such, Taipower has attempted numerous negotiations with IPPs and sought the assistance of the Energy Bureau of the MOEA for mediation but failed to reach consensus with the IPPs to amend the terms of contracts. Consequently, Taipower filed a lawsuit and a complaint with the Fair Trade Commission. After the Legislative Yuan decreased the budget for power purchase due to public pressure, the IPPs yielded and agreed to resolve the dispute by amending their contracts. In 2013, Taipower managed to revise contracts with 9 IPPs and adopted the status of power generation and the market interest rate in 2011 as the basis for calculation. In the future, Taipower will be able to reduce its power purchase expenditures by approximately 1.54 billion per year, amounting to a total of NT$ 24.9 billion during the span of the contracts.

Actual Annual Savings on Power Purchases from 2015 to 2017 Unit: NT$ 100 million



The first IPP contract that Taipower signed will expire in 2024 and two years prior to the contract's expiry, the contract may be extended with mutual agreement from both parties. Each contract extension may be no longer than five years. With the amendments to the Electricity Act taking effect after January 2017, Taipower will need to evaluate its need for power purchase in order to achieve the legally required reserve capacity. This will be done in accordance with the "Total power capacity quota for parties with obligation to provide reserve capacity" to be announced by the competent authority for power industries and in adherence to the Government Procurement Act for power purchases from IPPs.

4 Adopter of Smart Living

Performance Highlights

- Deployment of ***67 km*** of dedicated optical fiber lines and ***393 units*** of optical fiber communication systems
- Completed the 1-48 hour ***generation forecast system*** for private wind farms
- Completed the installation of power meters and family communication modules for a total of ***1000 households*** in the Xiulang and Xinfeng public housing developments, the Tainan City Government dormitory, the Taipower Fengshan dormitory and the Jiankang public housing development
- Increased the number of newly installed automated switches for monitoring to ***552***
- Facilitated ***2.37 million tons*** of carbon reduction in 2017 through energy-saving incentives

Role and Contribution

For many years, Taipower's corporate role closely mirrored the adadge "Taipower powers Taiwan." The company's activities closely traced the island's development through the pursuit of modernization, stabilization and intelligentization of the power industry. Taipower has incrementally led the development of the electricity industry and the power grid in Taiwan. In keeping with trends in technological development and digitization, and by improving power supply reliability, Taipower has been actively promoting the construction of smart grids in Taiwan while planning relevant innovative services for specific applications that will result in smart lifestyles. These innovations are intended to propel Taiwan towards the next-generation of energy consumption patterns. Moving forward, Taipower will continue to move towards its goal of becoming an indispensable power distributor by utilizing smart technology applications and staying true to the spirit of powering Taiwan.

SDGs	Correlation to Taipower	Corresponding Chapters/Issues
7 AFFORDABLE AND CLEAN ENERGY	Increase the ratio of renewable power generation, operational and energy efficiency and ensure that all users have access to affordable, reliable, sustainable and modern power services	– Renewable energy policy – Smart grid development
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	Improve energy efficiency and recovery for infrastructure; adopt clean technologies and improve infrastructure for renewable energy grids so as to enhance the resilience and reliability of the power grid while advancing the innovative development of eco-friendly technologies	– Smart Grid Master Plan
13 CLIMATE ACTION	Strengthen all disaster recovery capabilities and capacities to adapt to natural disaster and climate-related risks	– Plan to improve the disaster resilience of existing grids

Sustainable Trends and Challenges

The current trend in the global power industry is to develop smart power. This allows energy providers to achieve more effective management and better system resilience. In recent years, Taipower has continued to develop smart meters and grid technologies in addition to promoting management mechanisms such as demand-based management, time-of-use rates and so forth. The high expectations the general public has for Taipower's management of the overall power grid and smart power have not only been a source of pressure but a driving force for the company. Incidentally, international power operators have perceived potential threats of network security to smart power systems as one of the many challenges in the path of smart power development. With regards to smart power developments, Taipower will draw on the momentum of research and development from the Taiwan Power Research Institute and a "learn-by-doing" approach to propel relevant industries into becoming the cornerstones of a reliable power supply for Taiwan.

Solutions Planned for the Future

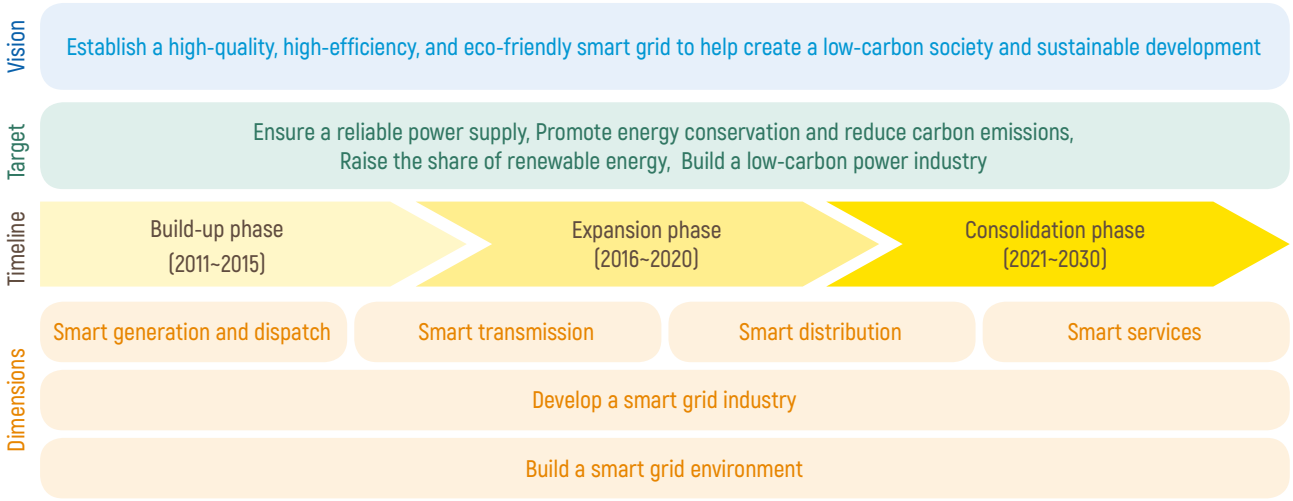
- With regards to the integration of renewable energy into the grid, incorporate digital weather forecasting and conduct solar power forecasting technology studies
- Complete the construction of a micro grid in Qimei
- Conduct regional solar power real-time generation assessment studies
- Implement wireless communication technologies for IoT
- Conduct pilot runs of the aggregator demand-based response solution for small and low-voltage users

4.1 Smart Grids Deployment

The robust ICT industry in Taiwan has made the smart development of power systems a focus of public expectation. Through the construction of infrastructure such as smart grids and meters, smart cities and lifestyles will soon become a reality. By integrating telecommunication technologies such as big data and APPs, Taipower will be able to provide consumers with diverse, convenient and innovative value-added services (i.e., smart energy management). These services will in turn serve to strengthen the company's competitive edge in the market and help it to become a power grid provider that is keeping pace with the times.

4.1.1 Smart Power System

By following the blueprint laid out in the "Smart Grid Master Plan" from the Bureau of Energy and by staying true to Taipower's vision of "Building a high-quality, high-efficiency, and eco-friendly smart grid to help create a low-carbon society and a sustainable environment," the company has continued to promote the construction of smart grids in Taiwan. The program of promotion for smart-grids is divided into a short-term/introduction phase (2011-2015), a medium-term/growth phase (2016-2020), and a long-term/consolidation phase (2021-2030). The plan will promote smart generation and dispatch, transmission, distribution and services. The National Smart Grid Master Plan aims to achieve the targets of "ensuring power supply reliability, facilitating energy conservation and emission reduction, raising the use of green energy and leading in low-carbon industries."



Smart Grid Targets

Target	Target	Target for 2017	2017 Performance	Target for 2018	2020 Target
Ensure power reliability	SAIDI (min/household · year)	16.75	16.898* (49.470)	16.25	16
	Line loss rate (%)	4.35	3.82	4.48	4.54
	Number of smart substations (stations)	55	55	55	303

Note:* 16.898 was the value without taking the August 15 incident into account; the value would be 49.470 if the August 15 incident is included

Smart Generation, Transmission and Dispatch

To accelerate the implementation of smart generation, transmission and dispatch grids in Taiwan and to achieve effective management of losses while boosting efficacy, Taipower has identified four major dimensions for smart power development: smart generation and dispatch, smart transmission, smart distribution and smart services. Relevant measures taken include online ES monitoring, the installation of CB status and discharge trend diagnostic systems, the utilization of special protection systems for continual monitoring, relay system digitization, feeder line automation to minimize the area of outages resulting from accidents and so forth. These measures will allow Taipower to achieve real-time monitoring of power status and improve situation handling, power supply capacities and efficiency.

	Content Descriptions	Key Promotion and Management Guidelines	Performance In 2017
Smart Generation and Dispatch	The target of promotion for smart generation and dispatch is to "enhance usage efficiency."	• Increase the ratio of renewable energy • Improve power plant operational efficiency	• Deployment of 67 km of dedicated optical fiber lines and 393 units of optical fiber communication systems • Completed the 1-48 hour generation forecast system for private wind farms • Completed a study on the impact of massive renewable energy on reserve capacity when integrated with the grid • Constructed a reliable, interconnected dispatch communication system • Conducted a study on testing the IEC 61850 Standard communication protocol • Completed the installation of a pilot IEC 61850 system at Xinshe Distributed Substation for a trial run
	Future Plans	• Conduct regional solar power real-time assessment studies	
Smart Transmission	The development of smart transmission offers real time power system monitoring and analysis in addition to assessment and handling in the event of system anomalies.	• Improve transmission efficiency • Enhance transmi-ssion management	• Replacement of thermal insulated lines in specific regions • Constructed a special protection system; incorporated an advanced malfunction distance measure function tab in the next-generation transmission equipment maintenance system for internal testing. • The replacement of transmission protection relays reached an 89% completion rate. • Transmission line DTR monitoring and data analysis experiments.
	Future Plans	• Introduce wireless communication technology for IoT • Complete planning for the Dinghu ES demonstration facility and promote results in other substations • The replacement of transmission protection relays reached a 91% completion rate in 2018.	
Smart Distribution	This includes advanced distribution system feeder automation, distributed energy integration development and applications.	• Improve distribution safety and efficiency • Strengthen distri-buted energy integration	• Feeder automation – as of 2017, a total of 552 new automation switch units have been incorporated into monitoring. • Completed an evaluative study of ideal sites and pilot construction for a micro grid demonstration site; expanded the scale of renewable energy usage in conjunction with the integration of micro grids to reduce the costs for generation/transmission/dispatch investments and carbon dioxide emissions.
	Future Plans	• Micro grid: completed the construction of micro grid in Qimei in collaboration with MOST • Smart grid in Kinmen: 1. To improve the overall measurement, monitoring, control, dispatch and operational efficacy of the Kinmen power grid 2. Completed the smart grid demonstration site as an example for expanded implementation	
Smart Service	Advanced Metering Infra-structure (AMI) comprises smart meters, communication systems and meter information management systems. In addition to replacing manual meter reading, AMI can also support various dynamic tariffs and load manage-ment approaches. AMI can be used to encourage customers to con-serve energy while assisting Taipower in taking relevant measures to reduce peak load.	• Construct customer/ terminal data • Prospective customer service planning	• Implemented the "Demonstration project for smart meters and user integration for 1000 households" research and completed the installation of power meters and family communication modules for a total of 1000 households at Xiulang, Xinfeng and Jiankang public housing projects along with the Tainan City Government dormitory and the Taipower Fengshan dormitory • Demand-base bidding 1. Lengthen implementation period to January through December 2. Incorporated an on-the-day notification system to get the most out of user participation and achieved real-time responses to emergency peak loads 3. Offered better incentives and introduced the concept of implementation rates while offering better rewards for higher implementation rates 4. Incorporate joint solution and make customer group application available. • Completed the construction of Advanced Metering Infrastructure (AMI) for high voltage users prior to the decommissioning of 2G telecommunication on June 30 2017, with 25,014 households upgraded to 4G telecommunication with verification • Assisted in the establishment of new module meter technical specification regulations and completed the performance and acceptance test for the first batch of 2000 units
	Future Plans	• Demand-based bidding 1. Improved the method of notification and enabled users to choose the method of notification for bid-winning 2. Added a criterion bidding, price editing interface for personnel of the Department of System Operations to change the price segments at any time to accommodate load dispatch demands 3. Improved the user management interface for headquarters and regional branch office employees to check customer histories for implementation efficiency • Customer group representative system 1. Explored the integration of Taipower's existing "demand-based response load management measures" with the system's aggregator model in order to determine a suitable approach for Taiwan. 2. Conducted pilot runs the aggregator demand-based response solution for small and low-voltage users and evaluated its feasibility and benefits. • Explored the potential ways in which high-voltage users can participate in demand-based response solutions • Expanded experimental equipment and acceptance testing capabilities in conjunction with the new modular meter assessment. • Planned the laboratory, onsite testing and acceptance testing for new modular meter communication components.	

4.1.2 Smart Power, Forecasting and Management

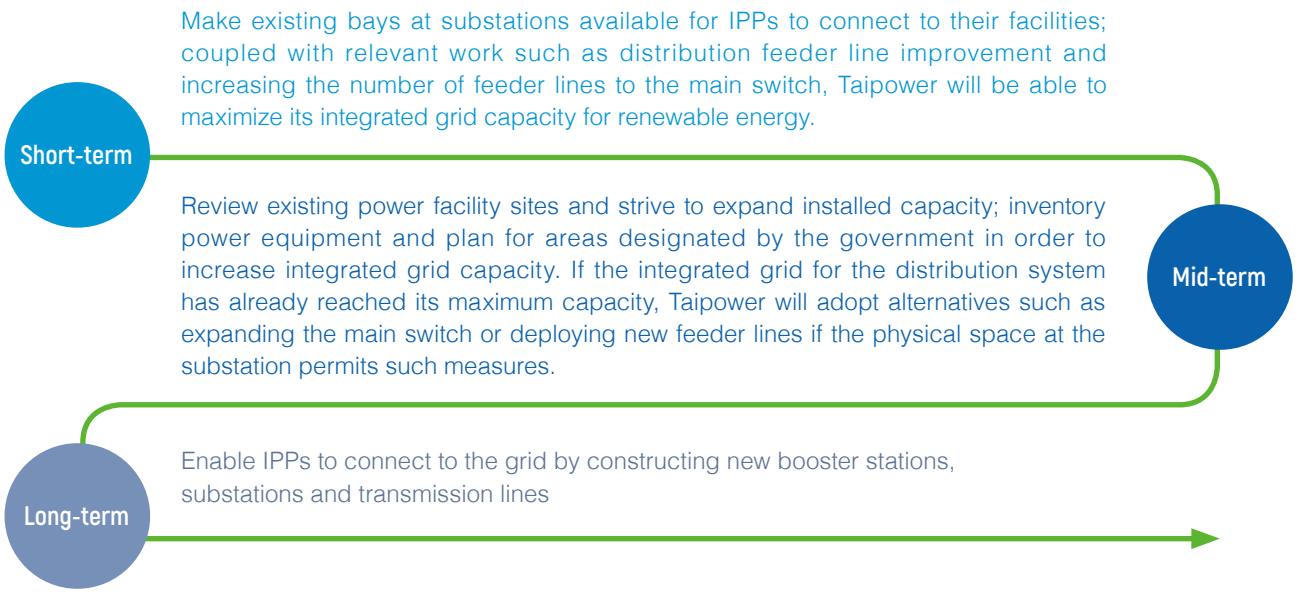
Taipower has effectively introduced renewable energy into the power generation structure through smart grids and central dispatch control centers. This allows the company to immediately distribute non-storable energy to customers and to facilitate the exchange of power between areas of electricity shortage or surplus. In this way, the company can effectively manage and match supply and demand, thereby improving the efficiency of energy use.

Incorporating Renewable Energy Generation

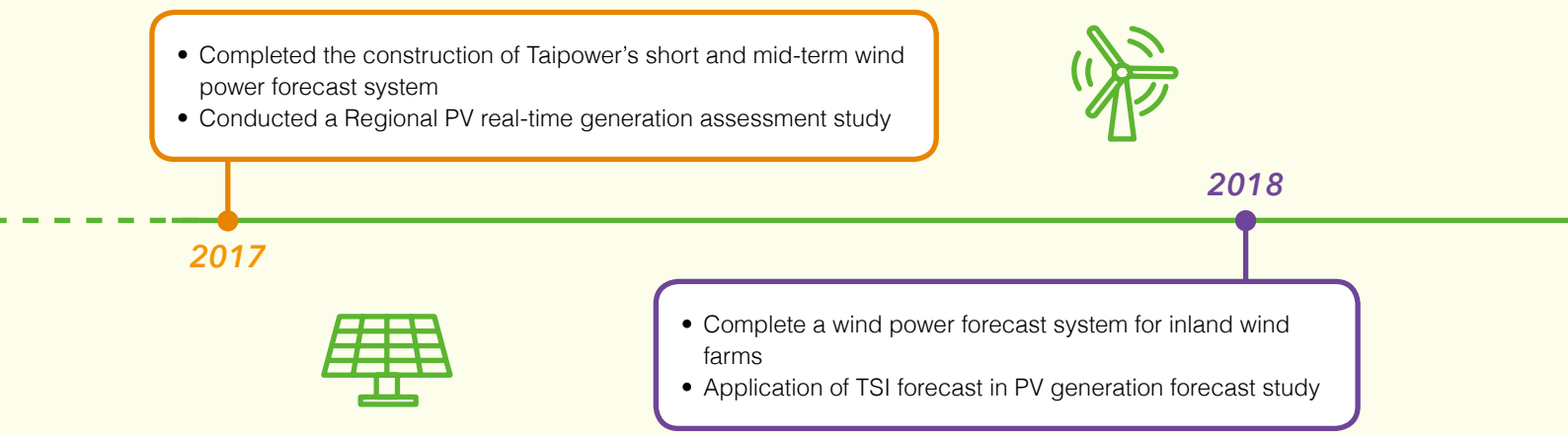
In conjunction with the government's million rooftop solar panel policy, Taipower officially implemented a "Rooftop PV Grid Integration Measure" in 2015 to facilitate solar energy grid integration by encouraging the general public to work alongside Taipower in green energy transition. In 2017, there were 3,546 applications for PV integration, with a purchased capacity of 450 MW. As of the end of 2017, the total purchased capacity came to 13,600 MW. As the door to renewable energy continues to open folliwng changes to the Electricity Act, Taipower needs to become more aggressive in building its capacity for smart dispatch in order to ensure effective grid integration and usage of renewable energy.

In order to meet the government's goal of achieving a capacity of 20 GW of PV generation by 2025, Taipower must accomplish a series of goals. The company must formulate renewable energy grid integration management guidelines, construct a renewable energy forecast system and improve grid construction in order to satisfy the demands of grid integration. Taipower must also improve its regional dispatch capabilities and ensure system reliability so it can overcome grid integration challenges.

Renewable Energy Grid Integration Management Guideline Planning



Renewable Energy Generation System Roadmap



Disaster-Proof Micro grid

Distributed power grids have many benefits – they improve energy efficiency and strengthen grid resilience and dispatch capacity – that have contributed to their popularity within the international power industry. One of the most significant benefits, the "disaster-proof" nature of micro grids, led Taipower to develop its first micro grid for the Fushan Tribe in the Wulai district of New Taipei City in 2016. Equipped with a 29 kW PV system, in the event of a natural disaster the grid is able to supply power for up to 14 days and will prevent the area from suffering extended power outages. As the project was designed for demonstration, Taipower is currently assessing the feasibility of implementing a more widespread adoption of similar systems. The company is also exploring additional supplementary measures such as coordinating with local governments to incorporate evacuation facilities in remote townships into the public building rooftop PV network. Taipower is also seeking collaboration with research institutions to assist in the expansion of micro grid systems in order that promote green energy and boost disaster prevention in remote townships. These measures will provide relevant experience in the construction of broader a power grid that has greater resilience against climate changes.

Fushan Micro Grid

- Complete offshore demo wind farm forecast system construction
- Integrate numerical weather prediction into the development of PV generation forecast technology and studies

2019

2020

- Integration and construction of wind power forecast systems for both inland and offshore demo wind farms.
- Development of short-term PV generation forecasting technology and studies

4.2 Enhancing Power Supply Infrastructures

4.2.1 Improving Transmission and Substation System

7th Transmission and Substation System Improvement Plan

To meet increased load demands while dealing with the issues of high utilization of power equipment and an inability to supply power from nuclear sources, Taipower is continuing the implementation of its 7th Transmission and Substation Project. This project will improve both the supply capacity and quality of the transmission system. The sum of investment in the 7th Transmission and Substation Project comes to approximately NT$ 236.871 billion. The project will run from 2010 to the end of 2021 and will include 103 new substations with a total capacity of 18,554 MVA and 1,966 circuit kilometers (CKM). Refer to the table below for the completion rates of the project in 2017.

Annual Completion Rates of the 7th Transmission and Substation Project for 2017

Item	2017 Target	2017 Performance	2017 Completion Rate
Circuit construction (CKM)	113.77	108.23	95.12%
Substation construction (MVA)	548.09	602.25	109.88%
Budget depletion (NT$ 100 million)	95.74	92.99	97.13%

Note: Statistical data covers January through December 2017

Accumulative Completion Rates of the 7th Transmission and Substation Project

Item	2021 Target	2017 Target	2017 Performance	Overall Completion Rate
Circuit construction (CKM)	1,966.19	1,702.99	1,596.26	81.19%
Substation construction (MVA)	18,554.15	13,528.57	14,599.49	78.69%
Budget depletion (NT$ 100 million)	2,368.71	1,692.00	1,689.25	71.32%

Transmission System Planning and Management

The stability of the transmission system is an issue of crucial concern for both customers and Taipower. To ensure a smooth supply of power, Taipower established a “line loss rate” for transmission lines as an indicator for monitoring power supply reliability. In consideration of transmission system adaptability and wheeling capabilities in the event of emergencies, Taipower has also drafted distribution system planning guidelines and established a management target of “reducing feeder lines with currents exceeding 300A” as a basis for distribution line performance evaluation.

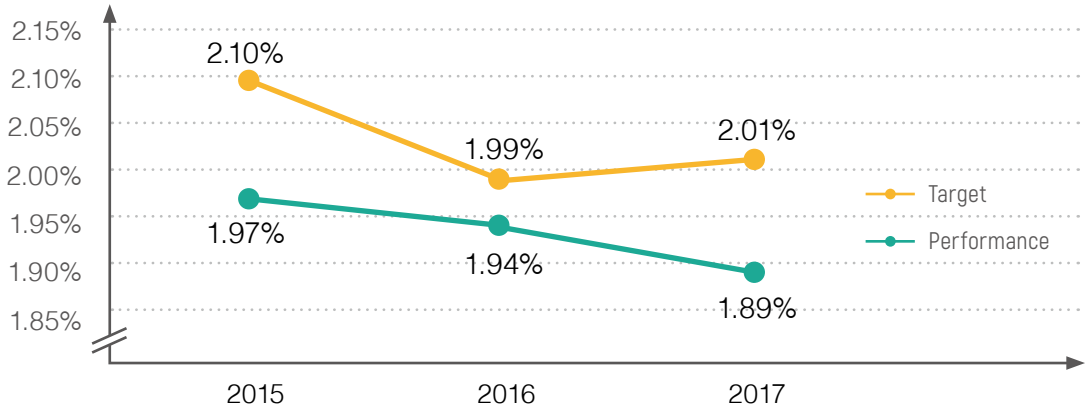
Taipower has also established a “Taipower Transmission System Division Engineering Unit and Branch Construction Office Disaster and Emergency Response Standard Operating Procedure.” This will help to ensure prompt reporting via different communications tools to the competent authorities and supervisors in the event of disasters and incidents. The reporting will allow for the monitoring of relevant disaster information and will boost post-disaster recovery capabilities. These capabilities will, in turn, allow Taipower to achieve fast and effective coordination between relevant departments, reduce losses from disasters and strengthen the overall disaster response capabilities of the system.

In response to global trends toward lower pollution and resource conservation, Taipower is striving to receive either green building certificates or green building labels for its newly constructed substations and is actively developing a power transmission system that facilitates greening, waste reduction and harmony with the environment.

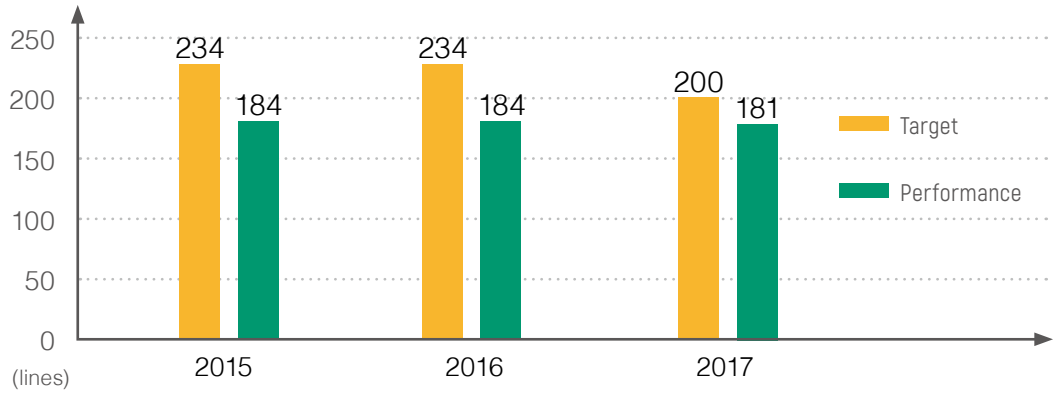
In 2017, Taipower received green building certificates/green building labels for three substations under the distribution system. These include:

- The "Mingtan power plant's Jugong branch plant 161kV switch renewal project" – The facility obtained a green building label by meeting the required scores for 6 indicators (green, water preservation, energy-saving, carbon dioxide reduction, indoor environment and water resources) on November 9, 2017.
- The "Fengzhou D/S new construction project" – The project obtained a green building candidate certificate by meeting the required scores for 3 indicators (green, water preservation and water resources) on August 9, 2017
- The "Jingmao D/S project" – The project obtained a green building label

Line Loss Rate between 2015~2017

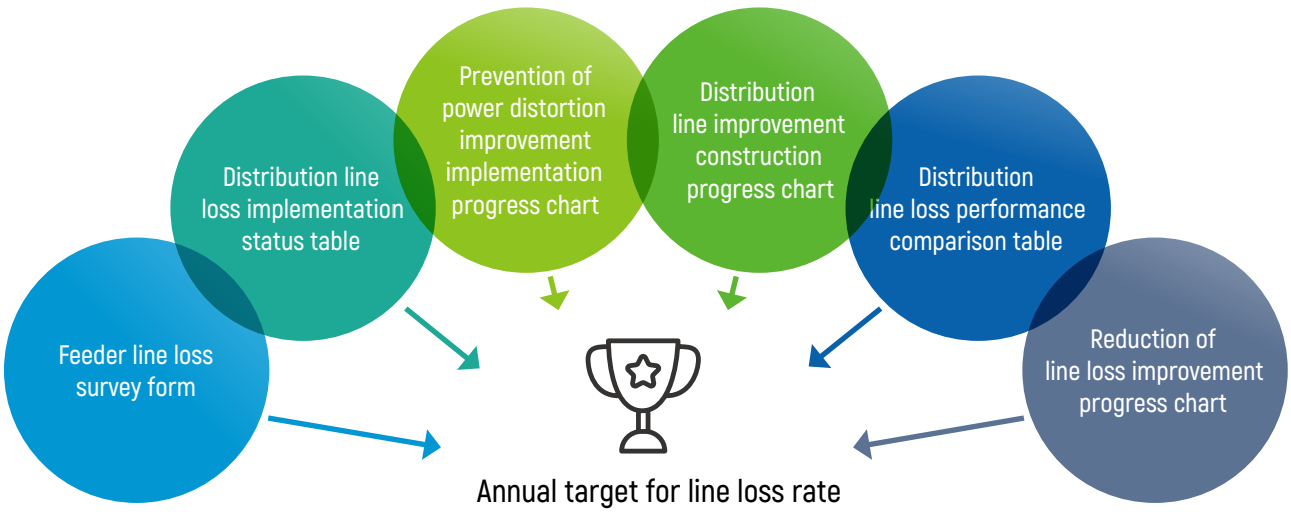


Implementation Performance for the Reduction of Feeder Lines with Currents Exceeding 300A



Distribution and Sales System Improvement

Distribution Line Loss Improvement Management Procedure



Enhancing Power Distribution and Supply Efficacy Through Geographical Information Systems

Taipower has been using its Distribution Construction Information System (DCIS) for more than 30 years. As time passes and rapid advancements in information technology are made, it has become much harder to maintain the programs used by the DCIS. Apart from its inability to add or expand application features, the programs also suffer from incompatibility for integration with other application systems. As a result, Taipower actively launched and promoted its New Distribution Construction Information System (NDCIS) and launched it for operation at the Company's 24 branch offices across Taiwan in 2017.

The NDCIS covers multiple sub-systems within distribution system operations, with a special emphasis on design and material sub-systems. In the design sub-system, the Google Earth suite was incorporated so that the serial number of power poles under construction could be combined with Google's geographical map information for the system to automatically compute the distance between poles. This reduces the discrepancies between design and actual material usage in construction. The Google map information and GPS also work well together as a source of data for the onsite construction reporting mobile application (i.e., reporting for emergency occupational safety accidents, positioning of the construction site, reporting for important equipment installations and so forth).

The NDCIS has also incorporated relevant application services for mobile devices to improve system accessibility while enhancing employees' productivity by offering greater convenience with follow-up data analysis and statistics. Contractors and employees will be able to use their own smart phones and tablets provided for the project to perform tasks such as construction progress reports, inspection assistance, and occupational safety audits with mobile applications. Data can then be sent back in real time to reduce the time cost for data recording at a later time.

By utilizing the updated smart system and geographical information system, we are able to achieve greater information transparency for the various departments and subcontractors that are responsible for power distribution. Coupled with early-warning control mechanisms, Taipower will be able to strengthen its power distribution and supply efficacy and create a win-win situation for the company and its subcontractors while enhancing the overall competitiveness and operational efficacy of the power distribution and sales business.

4.2.2 Maintaining Power Supply Reliability

Smart Power Supply System

Smart systems, in addition to achieving more precise demand forecasts, help Taipower stay updated on the latest situations and respond promptly. This allows the company to minimize the extent of impact and ensure a reliable power supply. In light of the demand for smart grid development embodied withing the Bureau of Energy's "Smart Grid Master Plan," Taipower accelerated the pace of feeder automation installation to improve power supply quality. Once completed, the system will be able to perform malfunction detection and remotely operate automatic line switching. This makes it possible to isolate an area of incident in the shortest possible time and to restore the power supply in unaffected areas, thereby minimizing the overall area of power outage. Presently, Taipower has commenced feeder automation operations in industrial areas, key metropolitan areas and remote areas where emergency repairs are difficult to carry out.

In response to the anticipated growth in power grid load in northern Taiwan by 2019, Taipower has launched the "North Region First Phase Power Grid Plan" as a way of addressing bottlenecks in the power supply. The project is expected to accommodate regional power demand for the "Taipei Far Eastern Telecom Park," "Fuzhou Public Housing" and "Jiangcui North-side Development Project" in New Taipei City as well as the "Bade Urban Plan" in Taoyuan City. With wisdom and planning, Taipower will be able to achieve its long-term goal of delivering a reliable power supply.

Distribution Feeder Automation Installation between 2015~2017

Performance	2015	2016	2017
Automated feeder lines	6,899 lines	7,080 lines	7,316 lines
No. of automated switches	555 new units	529 new units	552 new units

In the future, Taipower will continue to promote distributed feeder automation and raise the target value to at least 500 units per year, with annual reviews of the locations of installations. This will improve the existing feeder structure and achieve help the company in its adoption of a smart grid.

4.3 Demand Management

4.3.1 Demand Response Measures

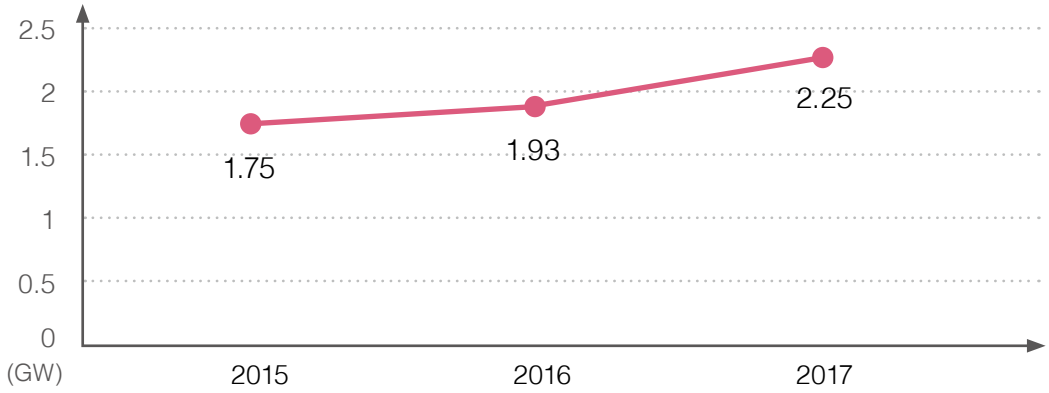
Taipower has practiced load management for more than 30 years and has taken on the responsibility of ensuring a reliable power supply across Taiwan. Demand management involves the use of price incentives to change customer power consumption behavior so as to ensure power supply reliability while reducing peak loads. Measures that Taipower has implemented so far include: seasonal rates, time-of-use rates, ice storage central air-conditioning system off-peak electricity use, central air conditioner duty cycling load control measures, electricity use reduction measures, demand-based bidding and so forth. In the future, Taipower will further integrate statistics and research through AMI construction so as to promote more beneficial time-of-use rates and energy saving measures.

Load Management

Demand Response Measures and Results

Measure		Description	Applicable Customer	Results
Implementing "Time-of-Use Rates" since 1979		Reflect the cost of electricity during different time periods. Encourage off-peak hour electricity use to reduce peak load.	Optional for Meter Rate Lighting and low voltage customers; Applicable to all high voltage customers	Reduced the daily peak load in 2017 by an estimated 3,880 MW
Launched "Residential/ Commercial Customer Simple Time-of-Use Rate" in 2016		In order to provide more diverse rates for residential/commercial customers, Taipower has used pricing indicators as a reminder for customers to reduce power use during peak hours so as to achieve the goal of reducing peak load.	Available for customers in residential housing and proprietors of small stores	
Demand-Response Load Management Measures	Implementing "Central Air Conditioner Duty Cycling Load Control Measure" since 1991	Rotation of central air-conditioning system with 60 mins on and 15mins off. Rotation of package air conditioning system with 22 mins on and 8 mins off.	Non-productive customers (i.e. office buildings, schools and so forth)	
	Implementing "Electricity use reduction measures" since 1987	Provide reduced rates to mitigate peak load and transfer to off-peak hours.	100kW customers and schools (depending on the contract; factories, educational institutions, etc.)	Daily peak load reduced by 1180 MW in 2017 on August 15th
	Implementing "Demand-Based Bidding Measure" since 2015	Through the customer-declared feed-back pricing method, Taipower bestows more autonomy to customers so as to inspire their power-consumption mitigation potentials and to improve system load, thereby mitigating the demands for new power development and reducing the risks of power shortages.	Customers of high-voltage or higher power demand	
	Implementing "Joint Solution" as a new demand-based bidding measure in 2017	Enable customers to apply for demand-based bidding as groups	Customers of high-voltage or higher power demand	

Applied Capacity for Peak Load in 2015~2017



Demand-base bidding

Taipower has achieved moderate successes wih demand-based bidding since its introduction in 2015. In 2017, Taipower's target for demand-based bidding was set to 600 MW and through measures such as screening potential target customers, establishing project teams, visiting energy-intensive associations and actively promoting the measure, the company was able to see a gradual monthly growth in the number of customers applying for demand-based bidding. As of December 2017, as many as 857 customers were applying for demand-based bidding in a single month, with a monthly peak load reduction capacity at 1,240 MW. In the month with the highest peak load (August), the applied capacity reached 880 MW.

In addition, Taipower completed the construction of a demand-based bidding platform in April 2016. The platform was designed to make it easier for customers to participate, receive quotations and obtain relevant bidding information. At the same time, customers could visit the "High-voltage customer service portal website" to access features such as customer information, power management, demand-based response load management measures, calculations and so forth. As of the end of 2017, 21,475 customers have registered on the website. To encourage more users to take part in demand-based bidding, Taipower will adopt smart management to reduce the costs of relevant investments and operations pertaining to peak load consumption. Through continual improvement and promotion, the company will continue to strengthen its power demand management.

Time-of-use rate

In an effort to provide more diverse pricing options while increasing subscriptions for time-of-use pricing, Taipower launched "simple time-of-use pricing for residential/commercial customers" in 2016 for households and small business customers. Through the use of pricing signals, Taipower hopes to encourage customers to reduce power usage during peak periods so as to achieve the goal of reducing peak load. In 2017, a total of 27,000 users adopted time-of-use rates and the participation was fairly enthusiastic.

4.3.2 Energy Saving Incentives

Taipower has been introducing energy-saving incentives since July 2008. The incentive package has been renewed over the years as a way of maintaining customers' drive to save energy. The incentives for 2017 were offered in the form of discounts. The discounts were calculated based on customers' actual power consumption (NT$ 0.6 per kWh) and in order to encourage the average customer to keep up their energy-saving habits, we guaranteed a minimum discount of NT$ 84 for each billing period.

In response to the tight power supply situation in 2017, Taipower organized an energy saving campaign by introducing "Summer Energy-Saving Incentives." Customers who registered to be part of the event received an additional NT$ 0.2 as a way to encourage more members of the general public to join in energy-conservation and carbon reduction efforts.

Energy Saved by the Energy-Saving Incentive and Discounts between 2015~2017

Year	Electricity Saved (100GWh)	Money Saved (NT$ 100 million)	CO_2 Emission Reduced (10,000 metric tons)	Annual CO_2 Absorption for Daan Forest Park (no.)
2015	47.4	36.4	250	6,769
2016	33.6	27.5	178	4,803
2017	44.9	35.4	237	6,415

Note: Calculations are made using the national electricity emission factor of 529g/ CO_2e/kWh as published by the EPA in 2016 and the annual CO_2 absorption of Daan Forest Park at 370 metric tons, which was taken from a report published by the Bureau of Energy in 2011.

4.3.3 Community-Based Energy Saving

In response to the government's policy of carbon reduction, Taipower offers free community services to promote energy conservation. The program encourages the sharing of relevant tips and experiences with saving energy to promote effective energy saving techniques and the use of high energy efficiency products in addition. Suggestions are also made for power usage in public facilities. In 2017, Taipower held a total of 237 events that drew 11,004 participants.

5 Agent of Environmental Friendliness

Performance Highlights

- Obtained ***9*** cases of carbon offset registration from the EPA in 2017
- Increased wind power generation to ***745.8 GWh***, solar power generation to ***24.1 GWh***, conventional hydro power generation to ***4,502.7 GWh***, bringing Taipower's ratio of independent renewable energy to ***2%*** (5% with IPPs included)
- Issued green bonds of ***NT$ 8.3 billion*** for the first time
- Promote ***circular economic projects***
- Taipower spent ***NT$ 19.76 billion*** on environmental protection and approximately ***NT$ 26.16 billion*** on EHS expenditures in 2017

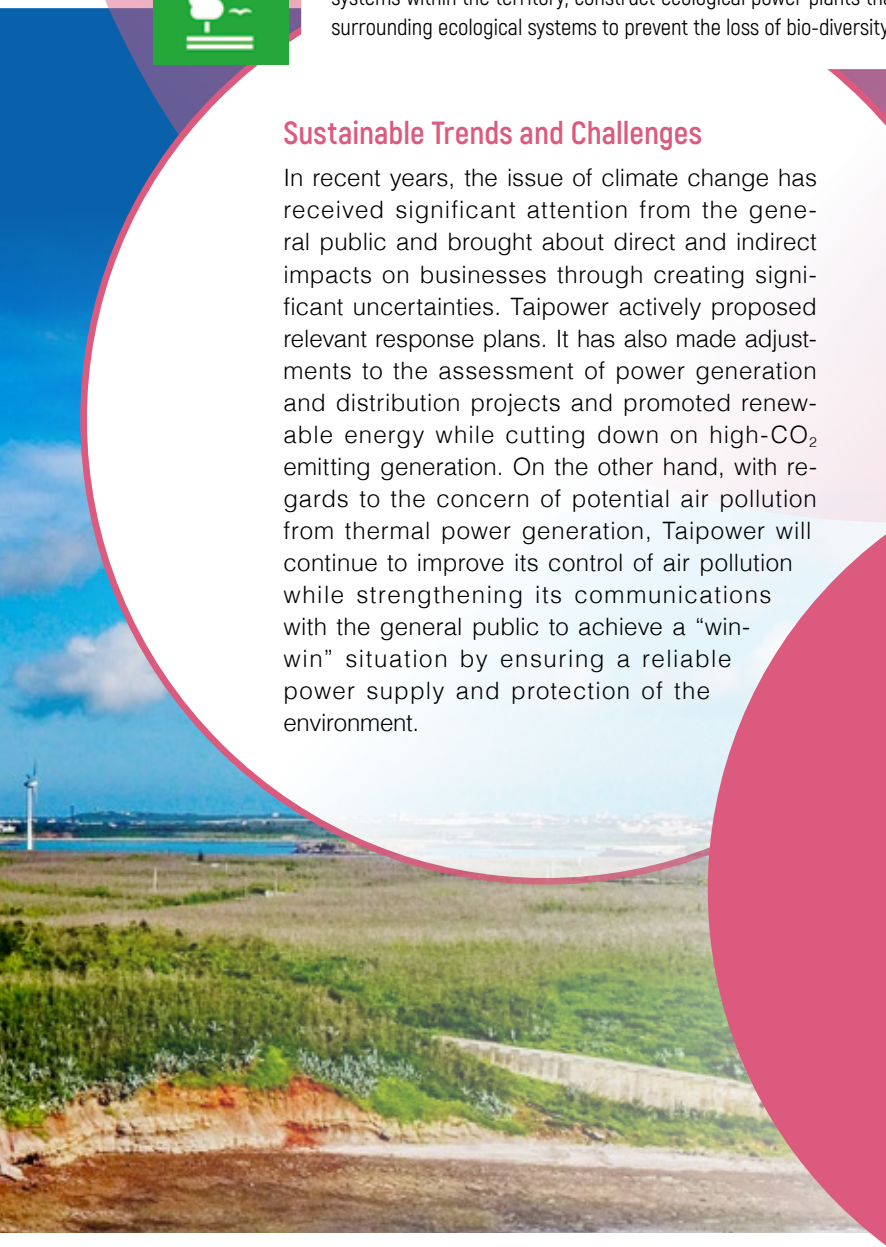
Role and Contribution

For many years, Taipower has paid great attention to environmental issues and has continued to support environmental protection by means of communicating with the general public, conducting prudent assessments, monitoring and preventing environmental impact, ensuring information transparency and reducing its environmental footprint. In addition, Taipower has sought to contribute to the environment by promoting different environmentally-friendly projects. Taipower was the first corporation in Taiwan to establish a dedicated department for environmental protection and that department celebrated its 30th anniversary in 2016. These achievements reflect the contributions that Taipower has made towards sustainable environmental development in the past. Today, the company continues to pursue its aim of becoming an agent of environmental friendliness.

SDGs	Correlation to Taipower	Corresponding Chapters/Issues
6 CLEAN WATER AND SANITATION	Continue to promote footprint inventories for power generation and water usage and inspections of water usage status at various power plants to enhance water usage efficiency; Taipower will also ensure that wastewater discharged (including warm wastewater) is compliant with pertinent regulations to maintain the quality of water resources in the proximity of the power plants.	– Adopt stricter effluent standards – Zero wastewater discharge target – Water footprint inventory
11 SUSTAINABLE CITIES AND COMMUNITIES	Mitigate the urban impact on the natural environment while focusing on the improvement of air pollution and the reduction of waste.	– Air pollution management – Waste management
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Improve the overall energy efficiency and required resources for overall generation / transmission / and distribution in order to reduce the environmental footprint of the power supply.	– Improve power generation efficiency
13 CLIMATE ACTION	Actively participate in adaptation plans and mitigation actions while improving energy efficiency, developing renewable energies and enhance existing power generation systems' climate resilience and adaptability	– Climate change adaptation plan – Flood simulation analysis for extreme weather incidents – Climate change adaptation research program by Taipei Power Supply Branch
15 LIFE ON LAND	Protect, maintain and promote the sustainable development of ecological systems within the territory; construct ecological power plants that protect the surrounding ecological systems to prevent the loss of bio-diversity	– Promote ecological power plants

Sustainable Trends and Challenges

In recent years, the issue of climate change has received significant attention from the general public and brought about direct and indirect impacts on businesses through creating significant uncertainties. Taipower actively proposed relevant response plans. It has also made adjustments to the assessment of power generation and distribution projects and promoted renewable energy while cutting down on high-CO_2 emitting generation. On the other hand, with regards to the concern of potential air pollution from thermal power generation, Taipower will continue to improve its control of air pollution while strengthening its communications with the general public to achieve a "win-win" situation by ensuring a reliable power supply and protection of the environment.



Solutions Planned for the Future

- Continue to improve upon thermal power generation efficiency
- Promote offshore wind power generation and solar power project Phases 3 and 4
- Introduce power generation from deep geothermal energy and marine energy
- Carry out climate change adaptation research for distribution/service systems
- Continue to promote the development of Taipower's circular economy

5.1 Response to Climate Change

The International Paris Climate Agreement came in effect at the end of 2015. Concurrently, Taiwan passed a "Greenhouse Gas Reduction and Management Act" domestically. These regulations show that people around the world have become aware of the risks that climate change poses to societies around the world. As Taiwan's main power supplier, Taipower has been fulfilling its environmental responsibilities by reducing greenhouse gas emissions while planning to adapt to climate changes and gradually strengthen the resilience of its power system in order to minimize impact on the environment and to ensure sustainable operations.

5.1.1 Mitigating Climate Change

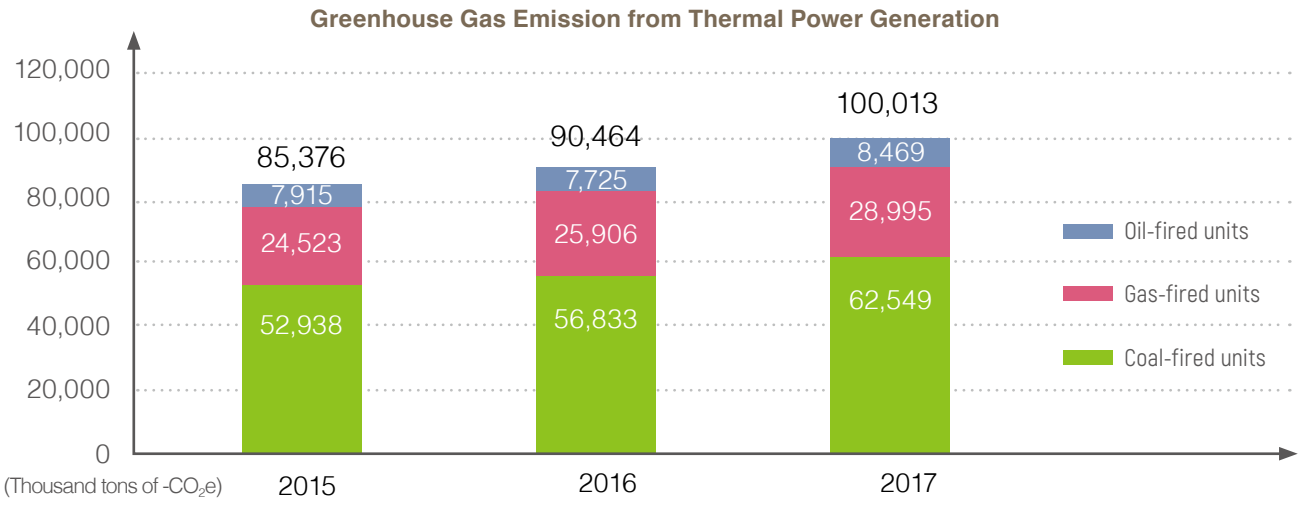
As a state-owned business, Taipower is required to follow national policies and to implement various power development and greenhouse gas reduction operations. Apart from shouldering the mission of delivering power and ensuring power quality, Taipower has also been committed to the promotion of greenhouse gas control strategies, including inventories of greenhouse gas emissions, deployment of diverse reduction measures (i.e., transferring to low-carbon fuels, improving energy efficiency, promoting energy conservation and renewable energy development plans) in addition to planning for carbon credit management in order to reduce emissions as directed by the government.

Greenhouse Gas (GHG) Inventory

Taipower's main sources of GHG emission include thermal power generation, coal yards, transportation vehicles, insulation gas used for switch gear, freezers and air-conditioning facilities. The GHG emission volumes disclosed in this report are all Scope I emission volumes. To prevent the repetitive calculation of Taipower's GHG emissions, the inventory will focus on Taipower's Scope I emissions volume only, without accounting for Scope II emissions. In a related note, for data on Taipower and Taiwan's power emission intensity, please refer to the "Government Open Data Platform – Taipower's Greenhouse Gas Emission Factor."

Greenhouse Gas Emission by Taipower in Past Years Unit: Thousand tons of -CO_2e

	CO_2	CH_4	N_2O	SF_6	HFC	Total
2013	81,682	65	300	147	58	**82,252**
2014	84,896	70	322	121	18	**85,427**
2015	85,361	175	293	118	20	**85,967**
2016	90,447	223	300	78	12	**91,060**
2017	100,042	262	331	75	12	**100,722**



Management and the Reduction of SF_6

Most of Taipower's generation facilities (including switchyards, substations and distribution lines) use SF_6 for switchgear equipment insulation, with the quantity of equipment being large and varied. And as such, Taipower has asked its subordinate units to effectively reduce SF_6 escape through proper operation, maintenance and management of relevant generation equipment. Additionally, the company has achieved precise control of SF_6 use and emission with a SF_6 reporting and management information system. For SF_6 in lower concentrations, Taipower has also requested that responsible units recycle the gas in empty cylinders by storing and delivering them to the Taiwan Power Research Institute for refining before being transferred to for reuse. This helps to increase the life span of SF_6 and reduces greenhouse gas emissions.

Outcome of Emission Offset Promotion

Following the promulgation of the "Greenhouse Gas Reduction and Management Act" on July 1, 2015, regulatory goals have been set in stages on a five-year basis in order to affect long-term national GHG emission reduction goals. In order to encourage businesses to carry out greenhouse gas reduction as soon as possible, the Act also provided measures such as greenhouse gas offset programs and so forth that allow businesses to earn emission credit incentives through actual reductions so as to gradually establish total volume control and trading schemes. In following the "Regulations Governing Greenhouse Gas Emission Offset Program Management," Taipower screens power development projects and major improvement projects with notable carbon reduction benefits as candidates for carbon emission offset applications. Once registration has been approved, Taipower performs relevant validation procedures before submitting offset credits to the EPA to accrue reduction allowances, thereby working towards the fulfillment of Taipower's reduction responsibilities and preparing for the implementation of total greenhouse gas emission control in the future.

As of the end of 2017, Taipower has submitted 15 carbon offset applications to the EPA. Nine of these have been reviewed by the EPA with relevant reduction allowance verifications being carried out. Among the remaining 6 applications, one has passed its review by EPA and Taipower has received approximately 22,800 tons of offset credits.

5.1.2 Adapting to Climate Change

Due to radical changes in the global climate, the risks of extreme climate have been steadily on the rise with both the frequency and scale of natural disasters gradually increasing. Thus, preparations should be made for the potential impact of climate changes in the future to mitigate potential damage to power facilities and minimize the impact of power shortage risks on the nation, businesses and private assets. Taipower has devised two strategies for adaptation to climate changes:

Active Participation in the "Climate Change Adaptation Strategies and Counseling for Energy Departments" Program

Starting in 2010, Taipower has been actively participating in the "Climate Change Adaptation Strategies and Counseling for Energy Departments" program organized by the Bureau of Energy by completing adaptation action plans for the power generation systems at the Xingda, Datan, Mingtan, Jianshan, Dalin and Tongxiao power plants along with climate change impact analysis and vulnerability assessments for its transmission and distribution systems. In addition, Taipower completed "flood simulation analysis and disaster potential mapping" for the Dalin and Taichung power plants.

Apart from conventional power plants, in 2017, the Bureau of Energy has designated the Longjing solar power field a site for climate change adaptation counseling to reflect the fact that solar power will become an increasingly important source of power in the future. Taipower also continued its rolling reviews of adaptation measures taken in the past and facilitated the integration of relevant information. Presently, the Company established an extreme climate monitoring and assessment mechanism at the Taichung power plant to evaluate the potential impact of extreme temperatures on the power system.

In the future, in addition to working with the government to carry out parallel adaptation studies, Taipower will continue to pay attention to the latest updates on relevant domestic and international studies along with conducting rolling reviews in order to formulate appropriate strategies and guidelines.

Promotion of Climate Change Adaptation Research

Starting in 2016, Taipower independently launched a two-year "Taipei Power Supply Branch Climate Change Adaptation Research Project." The company also completed hazard and vulnerability analyses in 2017 to identify equipment and facilities at high-risk. Based on the possibility of occurrence, the identified high-risk facilities were categorized as either "intolerable" or "tolerable." Facilities categorized as "intolerable" were included in a list of prioritized items that require immediate adaptive actions to be taken; facilities categorized as "tolerable" had corresponding short, medium and long-term adaptation measures formulated based on their respective costs.

After completing the power plant and transmission system adaptation case studies, Taipower will initiate climate change adaptation research for its distribution systems. The research will proceed in the sequence of "generation, transmission, and distribution" system adaptations so as to respond preemptively to climate changes and improve system resilience.

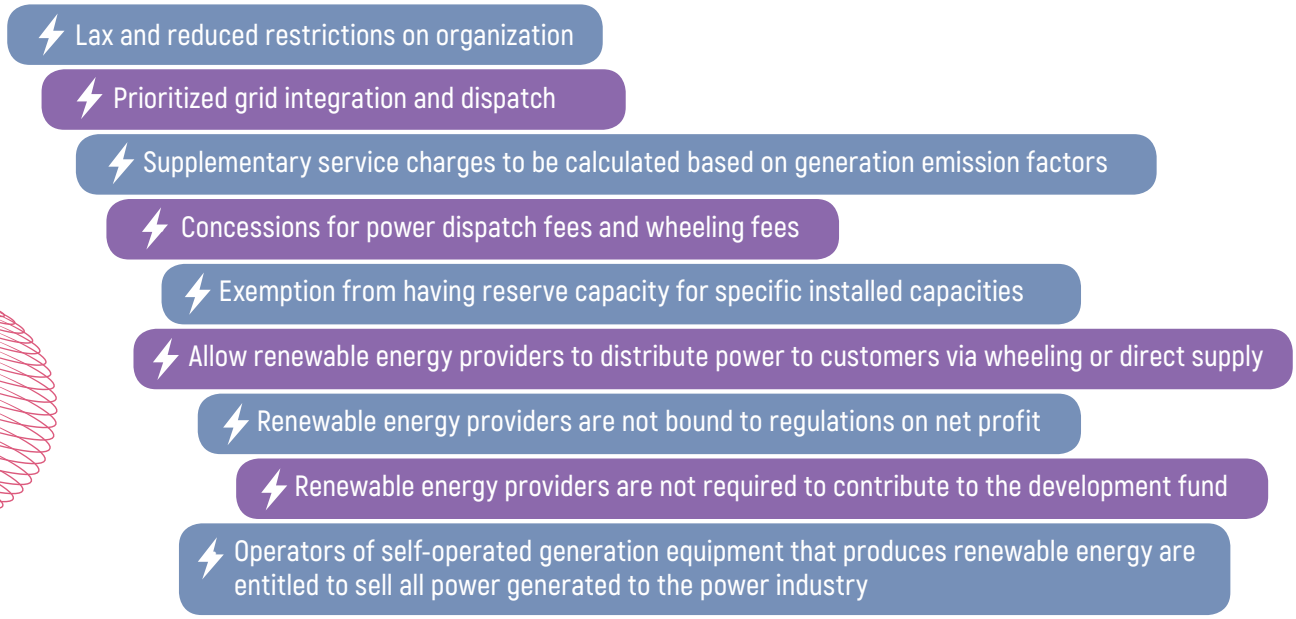
5.2 Renewable Energy Development

In light of recent developments and investments in renewable energy around the world and the renewable energy policies of Taiwan, Taipower began to development wind power generation as early as 2002 and launched Phase 1 of its solar project in 2008. Later, in 2011, Taipower also established a Department of Renewable Energy to take charge of the entire process of planning, tendering, construction supervision and operational maintenance. In 2016, the company set up an Offshore Wind Power Construction Office to oversee Taipower's offshore wind power construction and actively expand the company's installed capacity for renewable energies. More recently, in 2017, Taipower completed three feasibility studies for Solar Power Phases 3, 4 and 5.

5.2.1 Impact of Amendments to the Electricity Act

With amendments to The Electricity Act in 2016, customers were given more diverse access channels to renewable energy generation and service providers. The amendments had a significant impact on the domestic development of renewable energy. Concessions for renewable energy are summarized as shown in the diagram below. Taipower formulated strategies in 2017 in order to maintain its competitiveness and promote the development of renewable energy in Taiwan.

The New Electricity Act and Scopes Related to Renewable Energy



Presently, the government has set the goal of achieving a nuclear-free homeland and increasing the ratio of renewable energy generation to 20% by 2025. In 2017, the ratio of renewable energy generation (including hydro, wind power, solar power, waste and landfill gas, biomass and etc.) came to approximately 4.9% (5.1% in 2016), with the ratio of installed capacity at roughly 11.4% (10.3% in 2016) as Taipower gradually moves forward towards the given target.

Renewable Energy Promotion Targets for the Government and Taipower

	Government's Target				Taipower's Target			
Time	2020		2025		2025		2030	
Item of promotion	Capacity (MW)	Power Generated (TWh)	Capacity (MW)	Power Generated (TWh)	Capacity (MW)	Power Generated (TWh)	Capacity (MW)	Power Generated (TWh)
Hydro power	2,100	4.7	2,150	4.8	1,813	4.45	1,896	4.65
Onshore wind power	814	1.9	1,200	2.9	443	1.08	593	1.48
Offshore wind power	520	1.9	5,500	11.1	710	2.3.	1,804	5.85
Solar power	6,500	8.1	20,000	25.0	674	0.83	1,024	1.26
Geothermal power	150	1.0	200	1.3	50	0.26	100	0.53
Fuel cells	22.5	0.2	60	0.5	-	-	-	-
Biomass energy	768	5.6	813	5.9	-	-	-	-
Total	**10,875**	**23.4**	**27,423**	**51.5**	**3,690**	**8.9**	**5,417**	**13.8**

5.2.2 Status of Renewable Energy

Presently, Taipower's performance in renewable energy promotion is shown as follows:

Status of Renewable Energy Development (as of the end of 2017)

	Deployments	Installed capacity (MW)	Generation in 2017 (GWh)	Number of households accommodated
Wind Power	161 units across 16 sites	294.0	745.8	207,159
IPP Wind Power	-	-	951.6	264,333
Solar Power	16	18.2	24.1	6,706
IPP Solar Power	-	1,368.7	1,596.8	443,545

Note: The calculation is based on Taipower's open data statistics, derived from the average monthly power consumption for a typical residential customer at 300 kWh per month and 3600 kWh per year.

Carbon Reduction Achieved Through Renewable Energy Generation in 2017

Type of Renewable Energy		Generation (GWh)	Carbon Reduction (Thousand tons)	Reforestation (Thousand hectares)
Taipower	**Wind Power**	745.8	394.5	39.8
	Solar Power	24.1	12.8	1.3
	Hydro power	5,277.5	2,791.8	282.0
IPP	**Wind Power**	951.6	503.4	50.8
	Solar Power	1,596.8	844.7	85.3
Total		**8,595.8**	**4,547.2**	**459.2**

Note: Carbon reduction by reforestation is calculated based on a study commissioned by the Forestry Bureau. According to this study, as of 2010, each hectare of forest absorbs 9.9 metric tons of carbon dioxide per year.
Carbon reduction is derived from the amount of renewable energy generation times the electricity emission factor.
The electricity emission factor (0.529kg CO2/kWh) is based on data published by the Bureau of Energy in 2016.

Onshore Wind Power

Taipower has continued to promote Phase 5 of its Wind Project and obtained the MOEA's approval on October 6, 2016 to install 18 units of 2MW wind turbines in locations including the Changhua Coastal Industrial Park, Yongxing (Changhua), Taixi (Yunlin) and Budai Port (Chiayi) with a total installed capacity of 36 MW. These units are scheduled to begin commercial operations in 2020.

Offshore Wind Power

In order to effectively promote offshore wind power generation, Taipower established an Offshore Wind Power Construction Office in August 2016. The office will take charge of offshore wind farm construction and project inspection/supervision. Taipower's phase 1 wind power demo site is situated off the coast of Fangwan Township in Changhua County, 7.2 kilometers away from the nearest shoreline. The planned total installed capacity for the project will fall between 108 and 110 MW and the project was approved by the Executive Yuan on March 31, 2015. An electricity developer permit was obtained on December 8, 2017, and the bid was successfully awarded on February 13, 2018.

The chosen site for the phase 2 wind power project is the number 26 potential site announced by the Bureau of Energy. The site is located off the coast of Lukang and Fangwan Townships, in Changhua County. A feasibility study for the project was initiated in 2016 and preliminary planning will involve the installation of a single 8 MW wind turbine unit with a total installed capacity at approximately 720 MW. The project passed its Environmental Impact Assessment (EIA) at the beginning of 2018 and has been submitted to the competent authority for review.

Solar Power

Taipower has spared no effort in its promotion of solar power, and details of the progression are shown in the diagram below.

Phase 1 (2008-2014)	• Installation at the ponds in Taichung Longjin, Taichung Power Plant and Xingda Power Plant • Completed a total of 18 MW installed capacity
Phase 2 (2017-2020)	• Installation on the rooftops of buildings owned by Taipower: Kaohsiung Substation, Yenchao Warehouse and so forth • Reserved site that has yet to be developed: large land surface system such as Cigu in Tainan • The total installed capacity will increase by 11 MW
Phase 3 (2017-2019)	• Utilize the reserved site for the Changhua Thermal Power Plant Project that has been put on hold • The installed capacity is expected to reach 100 MW
Phase 4 (2018-2020)	• Collaborate with the Taiwan Water Corporation for the installation of a water surface solar power facility • The installed capacity is expected to reach 11 MW
Phase 5 (2018~2020)	• Develop 15 MW of installed capacity in the salt fields of Jiangjun District in Tainan
Phase 6	• Continue to utilize lands, unused sites for substations, decommissioned nuclear power plants and so forth

In conjunction with the government's two-year promotion plan for solar power, Taipower has planned the largest ground type solar power demonstration site in Taiwan with 150 MW installed capacity at the Tainan salt fields. Apart from focusing on the economic benefits, the project has also incorporated icons and local symbols in its landscape design as a way to attract tourists while using overhead solar panels to reduce sunlight penetration and create shade to make the environment more habitable for fish while suppressing the growth of algae to reduce evaporation and the eutrophication of the water. This will in turn benefit local aquaculture businesses and lead to synergistic outcomes by offering both economic and ecological value.

Geothermal Power

Pursuant to the "Directions Governing Applications for Geothermal Power Generation Experimental Project Application" promulgated by the MOEA in 2015, Taipower submitted an application for the "Ludao Geothermal Unit Experimental Project." The project was approved and is scheduled for completion in 2019. Taipower has signed a cooperation agreement with the Industrial Technology Research Institute (ITRI) for the project whereby Taipower will be responsible for the drilling of the well and production capacity testing while ITRI will provide the Rankine Cycle Low-Temperature Unit that it independently developed to complete the experimental project. Taipower is scheduled to complete the drilling for two experimental wells in 2018.

With the enthusiastic anticipation of domestic legislators, Taipower, the CPC and other units have established a national geothermal power development team to work in collaboration and develop Taiwan's first geothermal power plant at Renze in Yilan. Taipower and the CPC have arranged to sign an MOU in the first half of 2018. That agreement will make the CPC responsible for the drilling of geothermal wells, carrying out production capacity tests and performing relevant well maintenance while Taipower will take charge of power plant planning, construction, operation and maintenance. By the second half of 2018, two experimental wells will be completed for production capacity testing. Meanwhile, Taipower will initiate a feasibility study for Renze geothermal power plant (estimated at an installed capacity 2MW) and complete the study in 2019.

5.2.3 Green Power Purchases

In conjunction with the "Pilot Program for the Voluntary Purchase of Green Power" implemented by the MOEA in 2014, and to facilitate further promotion in 2017 by changing the pilot program into an administrative project for continued implementation, Taipower launched a number of relevant services including the processing of applications for green power subscriptions, collection of additional fees for green power, the issuing of green power purchase certificates and so forth. These measures are intended to boost the general public's awareness of environmental protection and enhance its understanding of renewable energy. In order to promote green power purchases, different units at Taipower have established specific green power promotion targets and encouraged local major corporations/organizations, collaborating upstream/downstream suppliers and various entities to purchase green power. Through different media campaigns and events featuring celebrities and renowned organizations, Taipower has sought to promote green power adoption with concrete actions that support the cause of energy-conservation and carbon reduction. In 2017, the target for green power subscriptions was 10,000 customers, and the number of actual subscriptions came to 15,787. This contributed to 199,404,300 kWh of green power, with actual amount purchased amounting to 195,506,646 kWh of power. The pre-tax revenue from green power purchases totaled NT$ 197,336,689.

With the amendments to the Electricity Act finalized in 2017, IPPs of renewable energy will be able to offer energy wheeling and distribution or to sell power through renewable energy businesses that have been certified by the National Renewable Energy Certification Center (T-REC). This not only promotes the development of renewable energy but also satisfies the needs for green power from businesses. As the objective of the "Voluntary Green Power Purchasing Project" has already been met, the MOEA concluded the project in 2018 and Taipower will no longer accept applications from customers or promote green power purchasing.

5.2.4 Future Development Plan for Renewable Energy

The principles of "energy transition and prioritizing green energy" define the policies that the government has been aggressively promoting. Taipower will adhere to the policy by actively involving itself in relevant development while facilitating the incorporation of eco-friendly green energy into the grid so as to enable the government's vision of being nuclear-free and reducing carbon emissions in order to propel the development of a domestic green power industry.

Taipower is planning to invest NT$ 400 billion over the next 15 years to achieve the objectives of generating 1,800 MW of offshore wind power, 1,000 MW of solar power, 600 MW of onshore wind power and 100 MW of geothermal power. Should all these projects be completed as scheduled, Taipower will be able to increase the capacity of green power by 8,400 GWh as compared to 2016. According to estimates, Taipower will be able to contribute approximately 8,970 GWh of green power by 2025, which is roughly equivalent to 17.42% of the entire island's annual green power generation (including Taipower and IPPs) of 51,500 GWh (estimate), thereby reducing carbon dioxide emission by 4,736 thousand metric tons.

Active Development

- Emphasize the development of facilities with higher technological levels
- Introduce generation of deep geothermal energy and marine energy
- Increase the installed capacity of green energ to 1.8GW by 2025 and 3.5GW by 2030 (both excluding hydro power)

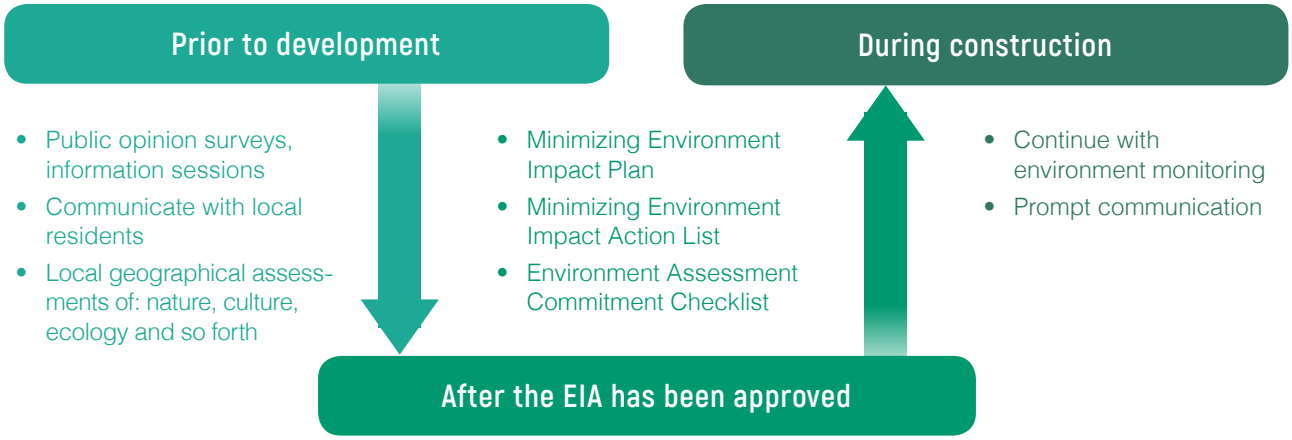
Friendly Grid Integration

- Plan for renewable energy distribution lines for the next decade
- Improve the grid for solar power and expand integrated grid capacity
- In conjunction with the development of offshore wind power in Changhua County, a portion of the lines were replaced with high capacity lines
- Meet the demands of grid integration with the newly constructed Changhua Booster Station, Changhua No.1 and Yongxing Switches for offshore wind power

5.3 Mitigating Environmental Impact

5.3.1 Environmental Impact Assessment Management

Taipower's facilities and operations may impact local communities through water, air, soil pollution and noise pollution as well as through the creation of vibrations, odors, waste, toxic substances, land subsidence and radioactive contamination or through damage to natural resources, the landscape and the social/cultural/economic environment. Taipower has taken necessary steps to minimize the impact of its development on the environment and surrounding communities through a framework of pre-development assessment and communication, post-assessment improvements and continual monitoring during construction. The framework is illustrated as shown below.



In 2017, Taipower engaged in communication with local residents, and achieved the following EIA results:

Development Project	Environmental Impact Assessment Achievement
New installation of generators 9 and 10 at the Tashan power plant in Kinmen	In order to accommodate Kinmen County's power demands, Taipower has planned the additional installation of two generators at the Tashan power plant, with each unit operating at capacities of between 9,500 and 11,500 kW. On September 15, 2017, Taipower held an open session on the "New Installation of Reactors 9 and 10 at the Kinmen Tashan Power Plant" prior to the construction to present the contents of the project, status of the environment and relevant environmental protection measures to the residents while listening to the residents regarding issues of concern for them.
New 161kV transmission line construction at the Dawu Substation	Taipower has been working with the Taiwan Railways Administration on the electrification of the south-link line. The plan involves the construction of a 161kV transmission line to connect Taitung (P/S) to Dawu (D/S) and another 161kV transmission line to TRA Dawu Substation (C/S). On October 5, 2017, Taipower held an open session regarding the environmental impact statement for the "New 161kV Transmission Line Construction at the MOTC's TRA Dawu Substation." The event enabled Taipower to brief relevant stakeholders on the contents and items of the environmental impact assessment and provided an opportunity for Taipower to learn about the local communities' opinions and suggestions on the project.

5.3.2. Air Pollution Management

In recent years, the hazards of smog have caused significant concern within the public. As a response, Taipower implemented various plans to optimize the company's management of air pollution and lowered thermal generation loads during periods of poor air quality to alleviate the public's concern about related health risks.

Taipower's operations do not emit persistent organic pollutants (POP), volatile organic compounds (VOC) or hazardous air pollutants (HAP). As for the treatment of sulphur oxide (SOX), nitrogen oxide (NOX), and particulate pollutants (PM), Taipower controls the air pollutant emissions from each power plant by opting to use low ash, sulphur, and nitrogen fuels or by switching to clean energy generated with LNG. Moreover, Taipower installed a Continuous

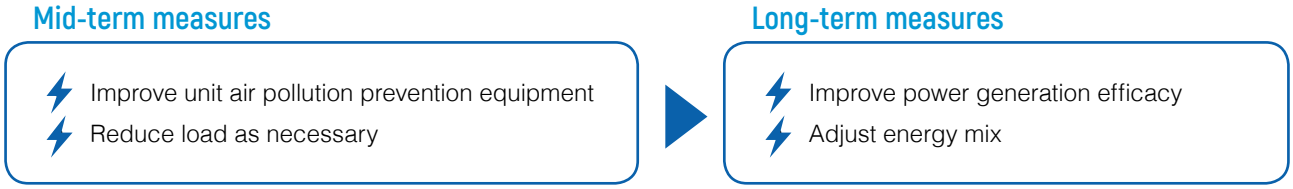
Emission Monitoring System (CEMS) on the chimney of each thermal power plant to determine the concentration of pollutants in the smoke discharged. These installations also enable Taipower to keep relevant equipment operating at optimal conditions and to reduce the discharge of pollutants in the smoke to minimal levels, even to the point of surpassing the legal requirements.

Major Air Pollutant Actual Values and Legal Requirements from 2015 - 2017 Unit: Kg/GWh

	PM		SO_x		NO_x	
	Actual value	Legal requirement	Actual value	Legal requirement	Actual value	Legal requirement
2015	26	96	315	652	307	410
2016	22	67	306	587	308	416
2017	21	52	296	552	270	416

Note: 1. The value for legal requirements is derived from the emission standards for each power plant multiplied by the volume of gaseous exhaust from the units and the utilization rate in order to obtain the emission of pollutants, which is divided by the power generated by the units to obtain the emission intensity of specific pollutants.
2. The actual value is derived from the emission concentration for each power plant multiplied by the volume of gaseous exhaust from the unit and its utilization rate to obtain the emission of pollutants, which is divided by the power generated by the unit to obtain the emission intensity of specific pollutants.

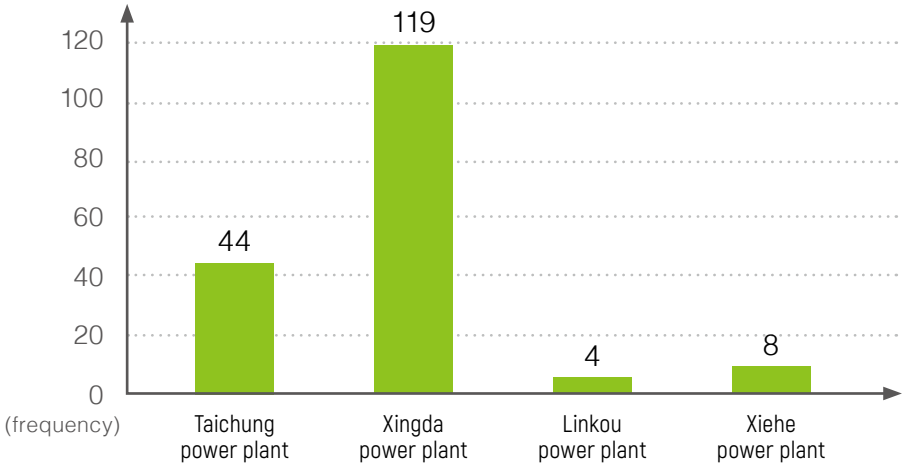
Taipower's Mid-Term & Long-Term Response Strategies to Air Pollution



Taipower implemented load reductions at power plants to cut down on emissions starting in 2015 by scaling back on coal fired unit generation during periods of poor air quality and prioritizing the dispatch of gas generation units. In 2017, Taipower took a step further to expand the scale of implementation in conjunction with EPA policies by establishing specific levels of load reduction. When the air quality forecast reaches red level early warning, Taipower will preemptively reduce its load between 00:00 and 07:00AM. If one third of the air quality real-time monitoring stations reach red alert, Taipower will initiate automatic load reduction. The relevant measures are described as follows:

Load reduction actions	Criteria	Planning
Friendly load reduction	According to the EPA's Taiwan Air Quality Monitoring Network website, the air quality index (AQI) forecast for the following day will be published at 16:30PM. This action will be initiated if the AQI forecast reaches red level early warning or higher (i.e., AQI>150).	Under the premise of no impact to power supply safety, Taipower will arrange for coal fired power plants in the designated zones and upwind areas to implement load reduction during off-peak hours at night (i.e., between 00:00 and 07:00AM).
Automatic load reduction	Based on the EPA's Taiwan Air Quality Monitoring Network website, when one third or more air monitoring stations at various areas have reached red alert early warning, this action will be initiated.	Under the premise of no impact to power supply safety, Taipower will arrange for coal and oil-fired power plants in the designated areas to implement load reduction.
Mandatory load reduction	When the air quality index reaches the worst level (i.e., AQI> 200, 300 or 400).	Each power plant shall reduce emissions as stipulated in the Emergency Response Procedure for Air Quality Deterioration and reduce actual daily emission by 10%, 20% or 40%.

Taipower's Recent Load Reductions due to Air Pollution



For more information on Taipower's response to air pollution and load reduction, visit Taipower's information disclosure section:

Beyond Supplying Power – The Air Pollution Improvement Plan at the Taichung Power Plant

Since beginning operations in 1991, the Taichung power plant has facilitated the economic growth of Taiwan. Presently, 1 out of every 5kWh generated in Taiwan comes from the Taichung power plant. Today, power plants have missions that go beyond producing a reliable power supply and also encompass aspects of symbiosis with society and the promotion of environmental protection. Taipower has been working on the continual improvement of its environmental protection equipment at the Taichung power plant in order to strengthen air pollution and emission reductions. Compared to the past, the Taichung power plant has reduced its SOx, NOx and PM emission by 80%, 50% and 50% respectively.

As we face changes in society and the environment, the Taichung power plant will continue to shoulder its responsibilities to supplying power to Taiwan and become more environmentally friendly.

2017
- Invested NT$150 billion in improvement of environmentally friendly emission equipment
- Reduced PM emission by 20%
- Reduced NO_x emission by 35%
- Reduced SO_x emission by 50%

2018
- Performed major overhauls on units 5-10 to reduce the generation of PM and NO_x

2021
- Completed the construction of an indoor coal silo to reduce dust particles

2023
- Installed new LNG units to facilitate energy transition

5.3.3. Waste Management

Waste Management System

In addition to the Waste Disposal Act, Taipower established a "Coal Ash Resource Reuse Promotion Taskforce" in 2015 to take charge of the research and promotion of coal ash use. The taskforce was later expanded to become the "By-product Resource Reuse Promotion Taskforce," which is primarily responsible for coordinating cross-unit collaboration to formulate by-product resource reuse optimization strategies and response solutions, including closeout strategies and the use of coal ash and gypsum. The taskforce also reviews existing coal ash sales regulations at power plants, the promotion of green label certification for fly ash and gypsum products and planning of relevant incentive schemes to encourage all units to increase their fly ash concrete use. Information on nuclear wastes is covered in Chapter 6.4.4.

Re-use of Industrial Waste

Re-use of Coal Ash

Taipower has encouraged its engineering units to reuse fly ash in civil construction projects, where it is used to fill trenches. This raises the volume and utilization rate of the fly ash and reduces its environmental burden. In 2017, coal ash production was at 2.429 million tons, of which 1.954 million tons, or 80.4%, was reused. The total sales revenues came to NT$ 648 million.

Re-use of Gypsum

To improve air quality, coal-fired power plants are outfitted with flue gas desulfurization installations, which remove sulfur oxides from the flue gas. Limestone slurry is then used to create gypsum through the chemical processes of absorption, neutralization, oxidation and crystallization. The resultant raw gypsum ($CaSO_4 \cdot 2H_2O$) can be re-used by local cement makers and fire retardant board makers. Taipower produced approximately 478.9 thousand tons of gypsum in 2017.

Bidding for Industrial Waste

Other industrial wastes, such as waste wires and cables, and metal scraps generated during Taipower's operations are re-used through waste disposal contractors that acquire the materials through an open bidding process. In accordance with government regulations, bidding contractors must be qualified "Industrial Waste Processors" and perform their reuse operations according to regulations to reduce the environmental risks involved in waste treatment.

Coal Ash Sales Quantity and Amount

Item	2015	2016	2017
Coal ash production volume (thousand tons)	2,007	2,217	2,429
Coal ash bidding volume (thousand tons)	1,628	1,848	1,954
Coal ash bidding price (NT$ 100 million)	4.06	6.02	6.48
Waste wires, cables and metal scrap bidding volume (thousand tons)	5.24	4.95	5.12
Waste wires, cables and scrap metal bidding price (NT$ 100 million)	6.41	5.33	6.58

Note: 1. The remaining amount of coal ash produced and the bidding volume were been used by Taipower for various purposes in accordance with pertinent regulations.
2. The definition of metal from waste wires and cables is waste distribution and dispatch wires that contains copper (including 600v low-voltage cables)
3. All of the waste wires and cables produced by Taipower were sold (i.e., 100%)

Promotion of the Circular Economy

The circular economy has received significant attention from the government this year and some businesses have already picked up on this innovative concept and initiated reform in energy resource utilization. Taipower has also been actively implementing "Assessment and Planning for the Circular Economy for Zero Waste Generation" and has already performed preliminary explorations of key materials that will enable Taipower to implement a circular economy through expert consultation meetings. The company has also formulated various action plans for specific key materials and will make corresponding arrangements for each action plan. Current measures of promotion include:

5.4 Energy Resource Management

In order to facilitate the effective management of resources, Taipower established a company-wide material flow management system that is used by a total of 52 units including hydro, thermal, nuclear, supply and distribution systems. The material flow system allows for the rapid control of raw material utilization, pollutant emissions, recycling, and the sale of by-products, based on the concept of balancing "inputs and outputs." The system has been tracked to gain insights into usage patterns, levels of efficiency and to seek out areas for improvement. It enables Taipower to reduce and optimize the use of materials and resources.

5.4.1 Energy Management

Energy Management System Implementation

Starting in 2015, Taipower implemented the use of its Energy Management Systems at different power plants. The system received certification from the British Standards Institution (BSI) in 2015 and again in 2016 at the Datan and the Xingda power plants. For 2017, Taipower continued to expand on its past experiences and constructed Energy Management Systems at the Nanbu, Dajiaxi and Daguan power plants by having personnel from Taipower's Department of Environmental Protection assist by organizing training, conducting energy reviews, performing energy-saving diagnostics, formulating action plans and organizing discussions so as to help the power plants to become certified by BSI and SGS.

Power Plant Efficiency Improvement

Power consumption is defined as the power consumed in the operation of generation units (also referred to as "production power"). In principle, the production power consumption of new units is identified upon installation. As units age, their power consumption will gradually increase. Nevertheless, through skillful operation, repair and maintenance, power consumption can be kept in check.

Thermal Power Generation

Taipower endeavors to manage production power quantities and set specific targets for production power use, which may not exceed the average of the most recent three years. Taipower will gradually phase out its older units that are due for decommissioning while introducing high-efficiency generation units. In addition, through the improvement of various operations and maintenance measures, Taipower aims to improve the energy usage efficiency of its existing units and equipment. In recent years, Taipower's thermal plants have diligently worked to improve their efficiencies and strengthen international exchanges and collaborations in order to introduce relevant knowledge and technologies for power generation and eco-friendly technologies.

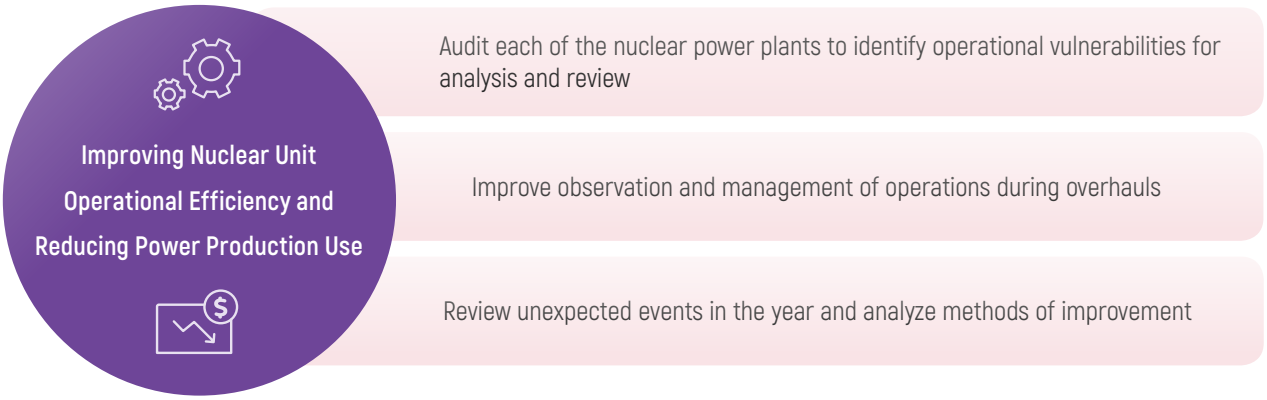
Production Power Use by Thermal Power Plants in 2015~2017

	Power consumption (100GWh)	Power consumption target (%)	Actual power consumption (%)
2015	46.59	≦ 3.97%	3.56%
2016	50.27	≦ 3.60%	3.62%
2017	55.27	≦ 3.60%	3.55%

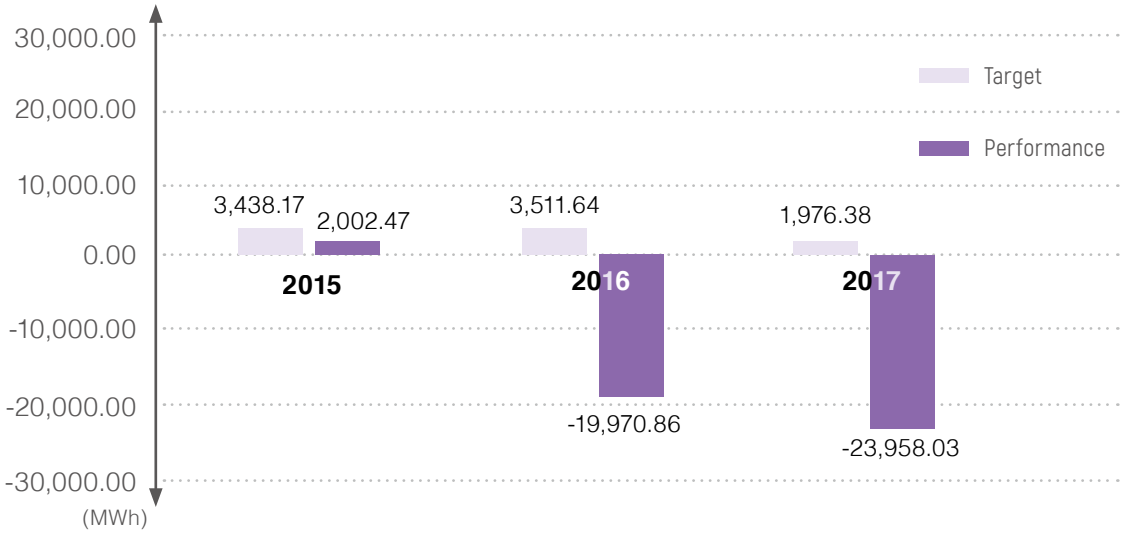
Nuclear Power Plants

The power conservation target for nuclear power production has been set to a 0.2% reduction (for periods of non-major repair) and a 0.01% reduction (during major repairs). Relevant power conservation promotion and control measures have been implemented at the Radiation Laboratories, NPP1, NPP2 and NPP3. These measures are coupled with power equipment replacement and other energy-saving measures at each power plant. Taipower will continue to endeavor to achieve its power conservation targets.

Key Measures to Improving Nuclear Unit Operational Efficiency and Reducing Power Production Use



Nuclear Power Plant Production Power Use Conservation Targets and Performance from 2015~2017



Note:1. The reason that the target for production power use conservation in 2017 was not met was the reduction in power generation and the increase in power consumption.

2. Production power use conservation is derived by subtracting "Production power use performance" from a "Production power use baseline." The baseline value will be adjusted in the event of reduced power generation (caused by factors such as load reduction, shut-downs for inspection/maintenance, high seawater temperatures affecting thermal efficiency and so forth). Other circumstances of increased power usage, such as operating additional equipment, will result in an increase in "Production power use performance."

3. The reasons that led to Taipower's failure to meet the production power use conservation target for 2017 are as follows:
   a. NPP1's reactor 2 had an emergency shutdown triggered by action 86-GP on 6/2 10:13. This led to reduced power generation.
   b. Due to the impacts of typhoons Nesat and Haitang, NPP2 and NPP3 were subjected to load reduction/ desynchronization, thereby resulting in reduced power generation.
   c. Due to the high seawater temperatures during summer, Taipower encountered difficulty in maintaining the vacuum for the condenser at NPP2. The continual operation of the thermal dilution pump at NPP3 and the operation of an additional unit of the central water cooler led to increased power consumption at the plant.
   d. NPP3's reactor 2's RCP unit A C-phase differential relay tripped on 7/23 and caused the reactor to shutdown, leading to reduced power generation.
   e. NPP2's reactor 1 unit A's RFPT lubricant pump was scheduled for inspection in December and this led to reduced power generation.
   f. NPP3's reactor 2 was scheduled for desynchronization and inspection in December to rectify the issue of low coolant flow for the bottom bearing of coolant pump B for the reactor and this led to reduced power generation.

5.4.2 Water Resources Management

Water Inventory and Management

Water Use

Taipower sets targets for water use and water footprints at thermal power plants to facilitate water resource management. The water consumption of thermal power plants in recent years is shown in the table below:

Thermal Power Plant Water Consumption and Targets Unit: 10 thousand tons

Item	2015	2016	2017	2017 Efficiency Target	2017 Efficiency Performance
Running Water Use	1,041	1,081	1,142.8	≦ 83.7 tons/GWh	≦ 77.3 tons/GWh
Well, River, and Sea Water Use	6.3	6.7	6.7		
Total Water Use	1,047.3	1,087.7	1,149.5		

Water Footprint Inventory

Taipower has continued to promote water footprint inventories by examining the status of water usage at various power plants and improving water use efficiency. In 2017, the Datan and Nanbu power plants were audited for their water footprint inventories, with the performance validated by TÜV certifications.

Taipower's Water Footprint Inventory

Power Plant	Datan	Nanbu	Taichung	Mingtan	NPP3
Water Footprint Coefficient	0.113118 m^3/H_2O_e	0.120230 m^3/H_2O_e	0.06736 m^3/H_2O_e	2.458 m^3/H_2O_e	0.005574 m^3/H_2O_e
Date of Certification	2017/05/26	2017/11/06	2016/11/17	2016/12/05	2016/12/09

Wastewater Treatment and Control

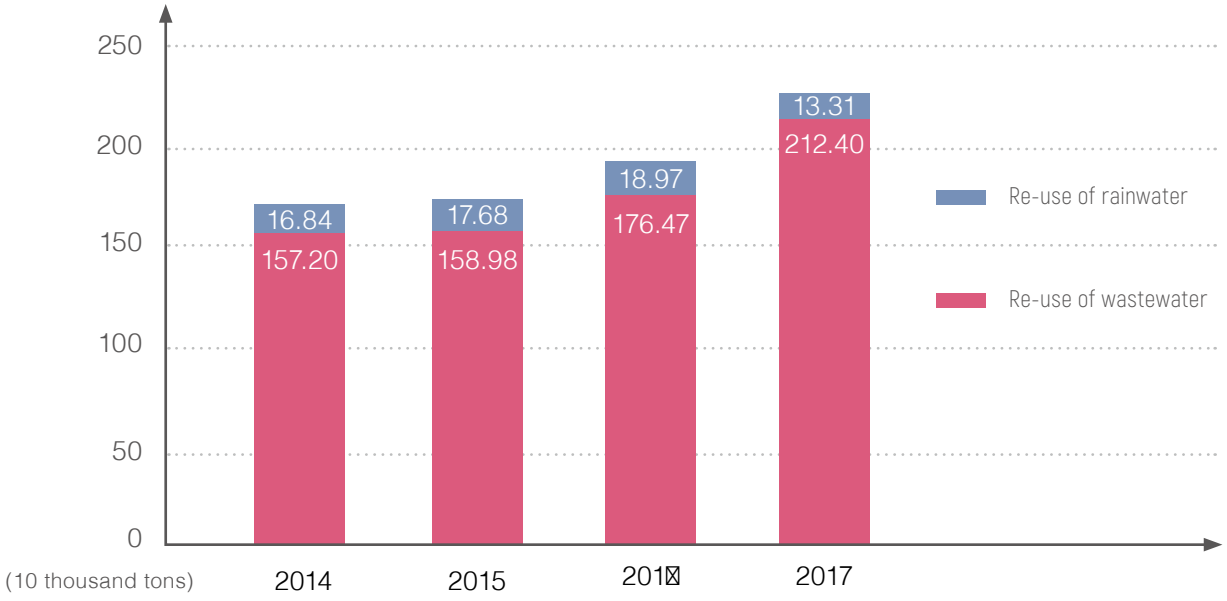
While adhering to the concept of water conservation, Taipower has been actively pursuing the goal of zero wastewater discharge. Rainwater collection (at power plants and dormitories) and wastewater reuse projects have also been promoted to reduce the use of tap water inside the power plants. In addition, Taipower recycles wastewater from power generation as much as possible, and tracks its wastewater recycling rate on a monthly basis. Wastewater is discharged in accordance with the Water Pollution Control Act and its sub-laws through approved outlets. The quality of the effluent is monitored by a certification body commissioned for the purpose.

Regarding the management of warm wastewater from nuclear power plants, Taipower has drawn up operational procedures for its nuclear power plants in accordance with its Effluent Standards. These operational procedures clearly stipulate that the temperature difference of surface water 500m from the discharge point must be ≤ 4°C and water temperature at the discharge point must be ≤ 42°C. All the plants have installed temperature sensors and monitoring alerts at their wastewater outlets in the sea. Whenever the temperature of the effluent water approaches the limit values, response measures are taken in accordance with the power plant's operational procedures to reduce the temperature of the effluent.

Wastewater Re-use

Taipower's main wastewater recycling applications for thermal power plants are boiler sealing, demineralizing water and containing coal dust. The total water recycling rate for thermal power plants in 2017 came to 73.36%.

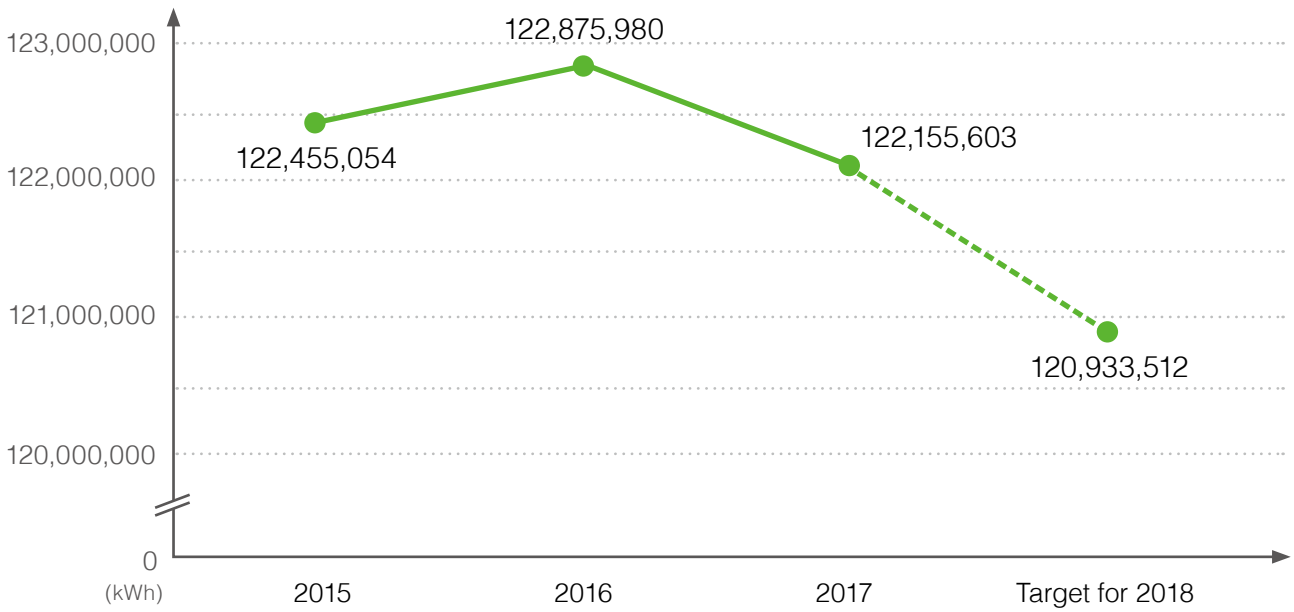
Thermal Power Plant Wastewater Re-use



5.4.3 Non-Production Resource Management

In 2017, Taipower continued to promote energy and oil conservation in conjunction with the Executive Yuan's "Government Agencies and Educational Institution Energy Conservation Action Plan" by setting an annual target of reducing the consumption of power and oil by 1% compared to the previous year. Taipower has also been promoting water conservation in accordance with the MOEA's "Normalized Action Plan for Water Conservation" by setting an annual target of reducing the consumption of water by 1.5% compared to the previous year. The company encourages all branches and power plants to save energy and reduce emissions. Taipower has also been tracking the monthly usage of energy (water, electricity and oil) while implementing annual evaluations to identify units with outstanding performances.

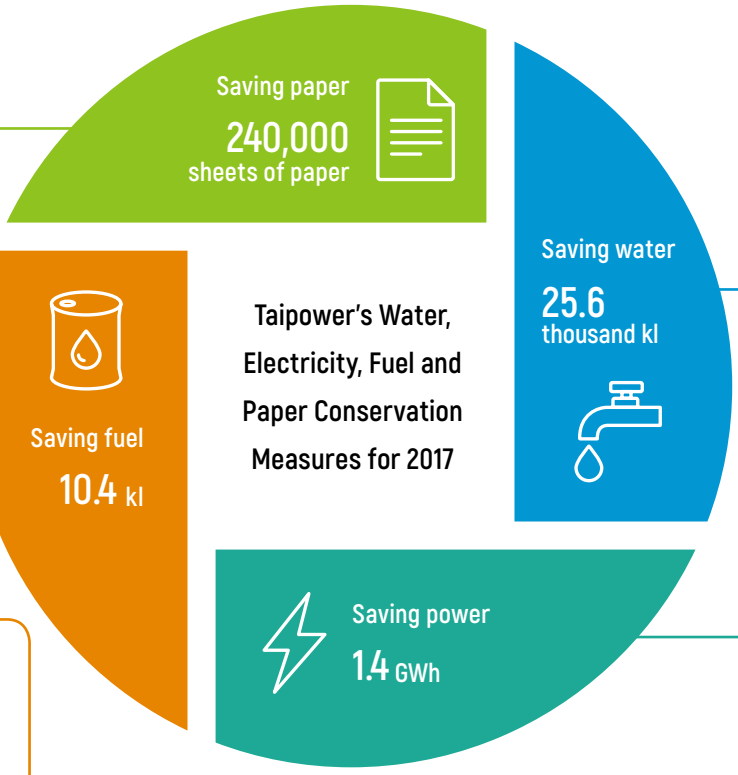
The Non-Production Power Consumption of Taipower Offices from 2015-2017



Taipower's Measures for Non-Production Resource Management

- Taipower encouraged all units to switch to online document approval systems to handle official documents and correspondence of simple cases and for reference purposes.

- Actively used recovery systems for rainwater that is used for watering plants and cleaning floors; additional plans are being made to use the collected rainwater to flush toilets.
- Completed the renovation of washrooms on all floors by installing dual-flush toilets, urinals with flush sensors and faucets equipped with water-saving nozzles and so forth.

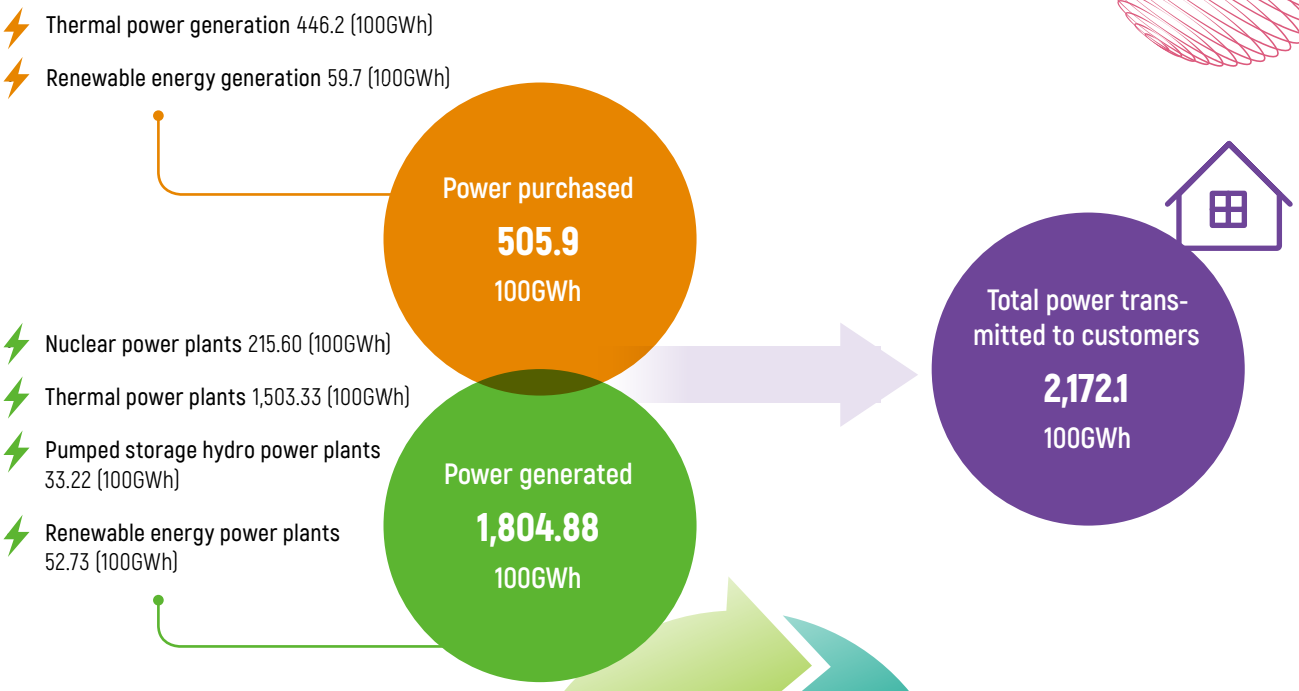


- Encouraged car-pooling and improved vehicle maintenance to improve fuel mileage.

- Kept indoor temperatures between 26-28°C and installed circulating fans on the ceilings of each floor to increase occupants' comfort while reducing water-chiller load.
- Adopted computerized operations for elevators in the building with energy-saving modes; some elevators do not operate during off-peak periods during office hours, off-hours and holidays.
- Relevant power-consuming equipment in the buildings have been incorporated into the central monitoring system for scheduled operations with power-saving modes (i.e. automatically cutting off power to water coolers during off-hours and holidays to save power from equipment on standby.
- Completed the IT Department's server room transition to a smart server room with outstanding energy-saving performance at the headquarters building.
- Participated in demand-based bidding to reduce air-conditioning usage and improve energy-saving performance in conjunction with the peak load mitigation measures for summer.

5.5 Environmental Footprints

5.5.1 Environmental Footprints of Taipower Operations



input

output

Energy consumed for generation

- **Coal:** 28.97 million tons
- **Natural gas:** 1411.3 billion m^3
- **Heavy oil:** 2660 thousand Kl
- **Light oil:** 130 thousand Kl
- **Uranium fuel (U_3O_8):** 676.1 thousand pounds

Water Use for generation

- **Water consumed by thermal power plants:**

  11.495 million tons

Company-wide office energy usage

- **Power consumption:** 122.1 GWh
- **Oil consumption:** 1,181.5 Kl
- **Water use:** 1,253.8 KWH

Gas emissions

- **CO_2e:** 100,722 thousand tons
- **SOx:** 44,380 metric tons
- **NOx:** 40,162 metric tons
- **PM:** 3,142 metric tons

Waste cables

- **Waste cables:** 5120 metric tons

By-products from power generation

- **Coal ash:** 2,429 thousand tons
- **Gypsum:** 479 thousand tons
- **Low-level radioactive waste:** 183 barrels
- **Used nuclear fuel:** 54.7 metric tons (244 rods)

5.5.2 Environmental Accounting

From 2008 onward, Taipower employed an environmental accounting system (EAS) which requires employees to input corresponding environmental accounting codes for specific tasks or activities such as purchase requisitions, purchasing, reimbursements and so forth through their business or accounting system. All operations are managed and compiled by Taipower's EAS in order to compute the costs of environmental protection, occupational safety and health for each unit. All environmental expenditures from 2015-2017 are listed below:

Environmental Expenditure 2015~2017

Unit: NT$ 100 million

	Environmental protection	Occupational safety	Health	Total
2015	183.0	56.6	13.1	**252.7**
2016	180.0	50.4	13.2	**243.6**
2017	197.6	51.0	13.0	**261.6**

In the future, Taipower will continue to improve upon its EAS by expanding its scope and depth of coverage. Apart from offering training to improve employees' awareness of environmental accounting and their capacity to utilize it, the company will strengthen its environmental performance quantification and disclosure so as to propose counterstrategies for potential environmental risks and to showcase its efforts in environmental protection, occupational safety and health to the general public.

6 Practitioner of Corporate Social Responsibility

Performance Highlights

- In 2017, Taipower made tours of inspections at ***66*** units and ***30*** projects.
- In 2017, Taipower's target for penalized environmental incidents was set to below 15 incidents. The actual number of penalized environmental incidents was ***7***.
- Taipower trainees participated in a total of ***62,642*** related training sessions.
- Taipower held a total of ***12*** collective bargaining meetings in 2017.
- The company followed through with ***nuclear power plant decommissioning planning***.

Role and Contribution

Taipower aspires to fulfill its corporate social responsibilities in various ways. The company's operations are based on principles of integrity management derived pertinent regulations and social values. The company offers comprehensive employee benefits that help to cultivate talent and strengthen occupational safety and health. Taipower also pays close attention to supply chain management in the hopes of incorporating more participants in a sustainably developed value chain.

One of the most significant matters of social responsibility faced by the company is the issue of nuclear power. This has been a crucial topic for Taipower, and the company has consistently attempted to communicate about the topic with its stakeholders over the years. The company has also established relevant guidelines for communicating on nuclear power safety and nuclear waste with the public. Given the government's vision of achieving "nuclear-free homeland" by 2025, Taipower will continue to act as a front runner in promoting these policies.

SDGs	Correlation to Taipower	Corresponding Chapters/Issues
8 DECENT WORK AND ECONOMIC GROWTH	Achieve fully productive employment so that all employees, even younger ones and those with disabilities, may be entitled to similar positions and wages. In addition to offering decent job opportunities, Taipower will facilitate improved safety in the work environment so as to safeguard labor rights.	– Achieve full compliance with the "People with Disabilities Rights Protection Act" and "Indigenous Peoples Employment Rights Protection Act" – Improve the working environment.
16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Emphasize corporate governance, integrity management and information disclosure and ensure that various communication channels operate smoothly	– Integrity management – Anti-corruption guidelines – Internal inspection system

Sustainable Trends and Challenges

Communication with stakeholders has always been regarded as important by Taipower. The company is well aware of the profound influence it has on society, and as such, aspires to become a model of corporate social responsibility in Taiwan through its integrity management and continuous improvements while satisfying public expectations and promoting government policies. With regards to nuclear energy related issues, Taipower will conduct nuclear power decommissioning planning and nuclear waste handling with prudence while ensuring reliable power supply and nuclear power safety. Concurrently, the company will disclose information to allay public doubts about nuclear and environmental safety.

Solutions Planned for the Future

- Continue to promote management measures in material conservation and to establish specific targets.
- Plan for the classification of suppliers in "distribution transformer" procurement.
- Improve the company's nuclear safety culture and ensure safe and stable unit operations to boost operational performance.
- Continue to promote five-year operation plans for nuclear power.
- Improve upon inspections and existing mechanisms for experience feedback to reduce operational errors by employees.

6.1 Integrity Management and Legal Compliance

6.1.1 Integrity Management

Taipower believes in integrity management and has made a conscious effort to adhere to the principle of "authentic leadership and autonomous management." This has led the company to promote codes of ethics and to optimize its internal control mechanisms while ensuring legal compliance and fulfilling its corporate social responsibilities.

Ethical Code

Personnel	All Taipower employees shall abide by laws and regulations such as the "Ethics Code for Personnel under the Ministry of Economic Affairs and Directions on Lobby Registration and Checks for the Executive Yuan and its Subordinate Agencies." Any employee who requires clarification on any ethics issue or has legal compliance related questions may consult specialists from Taipower's integrity unit, with full protection of their rights and interests.
Procurement Personnel	Taipower's procurement personnel abide by the Company's "Ethical Guidelines for Procurement Personnel," and the "Points of Attention for Interaction between Procurement Personnel and other Businesses." The company offers frequent training to its procurement personnel to help them perform their duties in compliance with pertinent laws in a manner that is fair and honest without giving, asking, or expecting favors. Taipower has also established Anti-Corruption and Legal Affairs Offices to offer consultation services. The company emphasizes fair and open procurement processes so as to improve procurement efficiency, performance and quality.
Management	Taipower maintains clearly defined rules for the governance of administrative liability. Both personnel involved in fraud/bribery and their managing supervisors will be held accountable to facilitate the development of stricter integrity management.

Internal Risk Control

The goal of internal control and inspection is to ensure Taipower's BOD and management can review and gain insights into internal control deficiencies and gauge the company's operational efficacy. By offering timely suggestions for improvement, Taipower will be able to ensure the effective operation of its internal control system.

In 2017, Taipower made inspection tours of 66 units and conducted 30 project inspections. In response to a request from its independent director, the company also modified the design of its internal control system. Specifically, the company established "Directions on Tiered Inspection" along with an "Internal Control Self-Evaluation and Inspection Report Analysis Search Platform" and a "Directors' Occupational Safety Inspection Platform."

In conjunction with the establishment of Taipower's new business divisions, the Planning Office of each division has been entrusted with relevant auditing tasks to facilitate thorough reviews of the company's new organizational structure and to improve relevant internal control procedures.

Three Lines of Defense for Internal Auditing and Control

Improve the quality of internal control self-evaluation implementation by units

Since 2015, Taipower has conducted quarterly and yearly self-evaluations for all units.

Establish internal control system platforms for all units

To enhance the efficiency of the quarterly self-evaluation by units, the process is conducted online through a platform that supervisory units can also use for verification.

Revise the job descriptions of unit supervisors and responsible personnel

Duties and responsibilities will be included in job descriptions for unit supervisors and responsible personnel to enhance the design, implementation, and control of the internal control system.

Tours of inspection

The tours of inspection consider factors such as risk characteristics, items of concern to the management and the nature of business operations of inspected units prior to inspection visits. This allows inspectors to determine appropriate audit items before visits. Since the Internal Inspection Office functions as a subordinate unit of the BOD, the office will adhere to the instructions of the Audit Committee and focus on internal control management, self-regulatory mechanisms, internal risk assessments, legal compliance issues, key operations and information communication mechanisms as required by the FSC's key audit points.

Implement an internal control system promotion seminar

Taipower organized a 2-day training session for all unit supervisors and personnel responsible for internal control. The session invited experts to host sessions so as to improve the trainees' knowledge and ability to implement internal controls, thereby helping them to become more competent in the task.

Strengthen the internal control operations of all units

In addition to implementing the routine inspections, the internal audit unit is responsible for paying close attention to the company's internal control operations and has taken the initiative to request that all relevant units strengthen their internal controls.

Complaint Mechanisms for Unethical or Illegal Conduct

In the event of a breach of ethics or illegal conduct, employees must immediately notify their supervisors. The public and business partners may also use the ethics hotline, email, or contact the ethics officer of the department concerned, to report cases and provide relevant information. Our ethics reporting channels are as follows:

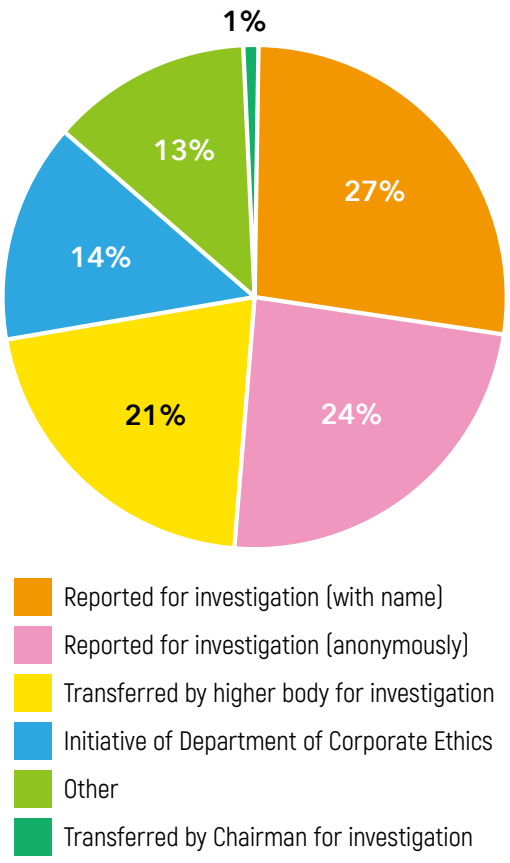
Telephone	(02) 2366-7364
Fax	(02) 2368-1674
Email	d0570302@taipower.com.tw

In addition, regarding unethical or illegal conduct related to procurement, Taipower has established relevant internal and external reporting mechanisms. The company's tender documents also feature a notice stating "The tenderer may report any unlawful situation in our company's tender process to the Investigation Bureau of the Ministry of Justice, MOEA's procurement Audit Unit, PCC's Central Procurement Audit Unit and the Agency against Corruption. The Investigation Department (Team Desk) at the location of the tender-issuing unit is the point of entry for such reports." The team desk can also inform the reporter of the organization's reporting process and approach.

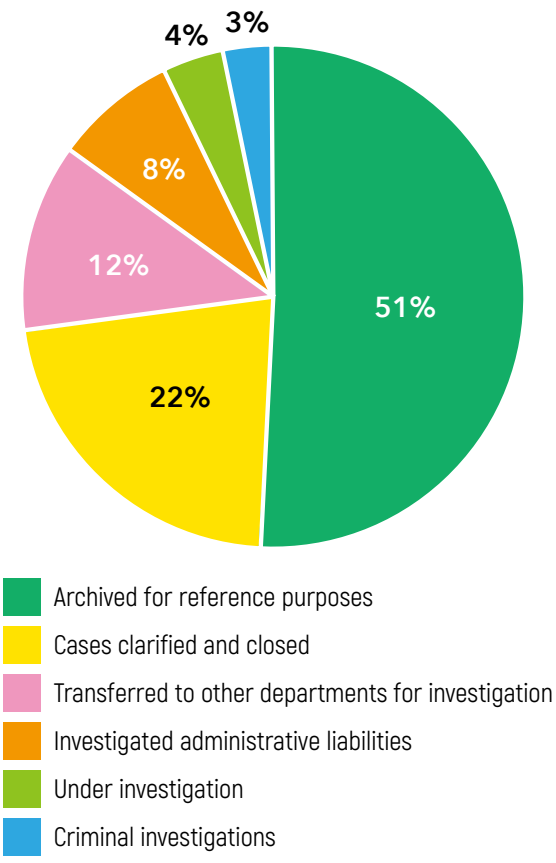
Cases Investigated in 2017

A total of 387 ethics related cases were closed in 2017. The figure below shows the breakdown of the sources of the cases. The figure illustrates the fact that anonymous reports still contribute a significant percentage of cases filed at 24.29%. By their nature, such reports often lacked a means of verification and this in turn often affects the results of investigations. Nevertheless, all reports that include concrete, verifiable information or data are handled in a prudent and unbiased manner, regardless of whether they are submitted by anonymous or named sources.

Sources of Corporate Ethics Cases in 2017



Handling of Corporate Ethics Cases in 2017



Taipower had no employees charged with violations of pertinent regulations in 2017. In 2016, a storekeeper at a power plant failed to provide the correct quotations as required by the SOP and was indicted by the New Taipei District Prosecutors Office for misuse of public power. The defendant was found guilty in the court of the first instance in 2017. The case is currently being reviewed in the second instance court of appeals.

In 2017, Taipower had four cases of affirmed conviction for bribery:

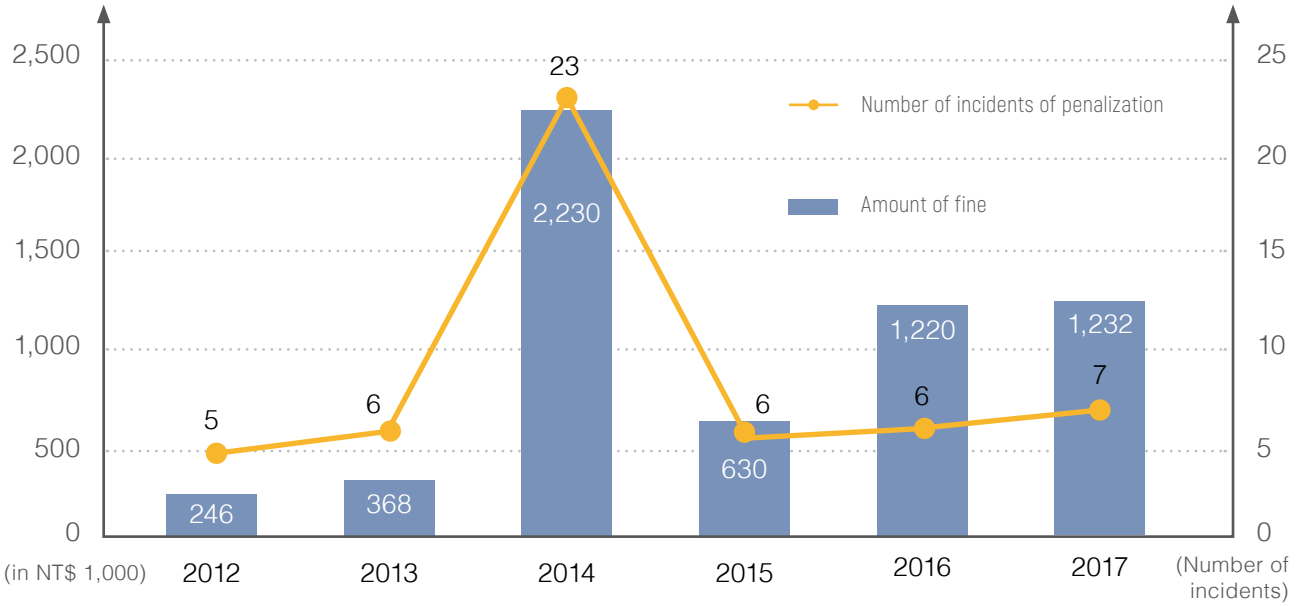
1. Former chief engineer Hsu was found to be involved in accepting bribes in the 6th Transmission and Substation Project. The Supreme Court dismissed the defendant's appeal and affirmed his conviction on March 30, 2017.
2. An employee surnamed Luo who was working at the district construction office responsible for the "Longtan E/S 345KV cable modification and low-voltage auxiliary electrical and mechanical subcontracting project," was allegedly involved in a case of assessment fraud that benefited a specific Korean firm. The employy was charged with multiple counts of breaching official duties by accepting bribes. The Supreme Court dismissed the defendant's appeal and affirmed his conviction on March 30, 2017.
3. Employees Chen, Lai and Wang from a Taipower district office were charged with benefiting a vendor in an electric meter repair project. The Supreme Court dismissed the defendants' appeal and affirmed their convictions on April 12, 2017.
4. Several employees from one unit sought bribes from a vendor and demanded entertainment at nightclubs. Eight employees were found guilty in the court of the first instance. Three of them filed for second instance appeals but employee Lu withdrew his appeal and six of the defendants had their convictions affirmed on April 11, 2017. The remaining two defendants are still in the appeal process.

6.1.2 Legal Compliance

Penalization for Environmental Incidents

Taipower takes environmental protection seriously and has specifically sought to limit the number and size of fines paid as penalization for pollution and environmental incidents. In 2017, Taipower's target for penalized environmental incidents was set to less than 15 incidents with a total of no more than NT$ 2.46 million in fines. The actual number of penalized environmental incidents was 7, with fines totaling NT$ 1.232 million. The results reflect Taipower's efforts in achieving its environmental protection objectives.

Number of Environmental Protection Laws and Regulations Violations in 2012~2017



To ensure that Taipower fulfills its mission to promote environmentally friendly development, the company has conducted thorough reviews of the violations of environmental law and proposed the following measures:

A system for supervision and control

- Increase unannounced inspections and supervision of environmental protection procedures.
- Conduct thorough reviews of EIA conclusions and the pledges that have been approved. Request that all responsible units carry out relevant tasks in accordance with said conclusions and pledges.
- Strengthen inspection, guidance, management, and control related to environmental protection.

Education and training

- Offer more training sessions in compliance with environmental regulations and investigations.
- Arrange for environmental protection related personnel to participate in training provided by EPA representatives.
- Each unit shall foster and strengthen its interaction with the competent environmental protection authorities and auditors while participating in relevant training sessions provided by the competent authorities to enhance employees' knowledge of environmental related laws and regulations.

Supplier Management

- In contractor selection, bidders' environmental protection capacities and organization shall be taken into consideration.
- As a precautionary measure, the penalties (fines) prescribed in the Guidelines on Fines for Breaching the Contract Violation of Environmental Protection Regulations shall be increased for Taipower's suppliers.

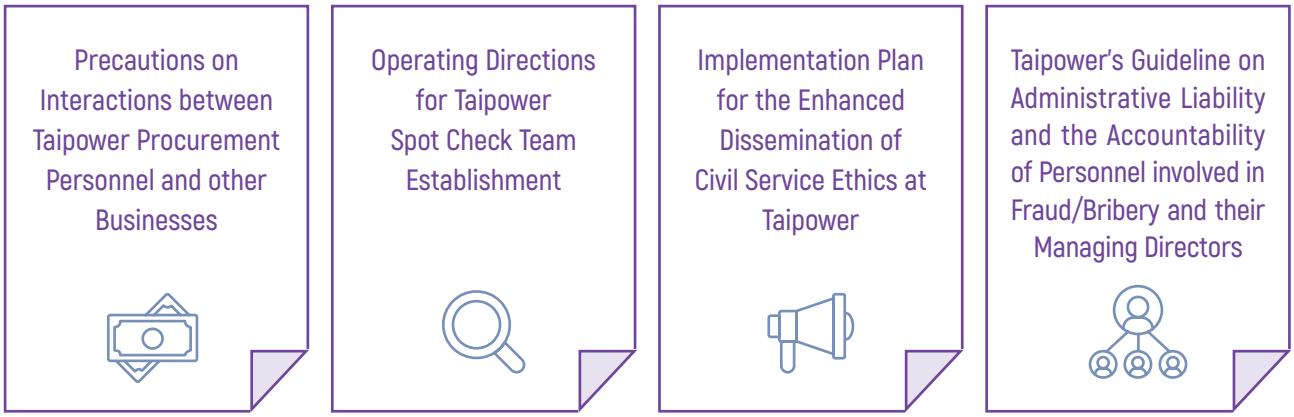
Other responses and measures

- Ensure synergy and coordination between Taipower's environmental management system and actual operations while strengthening the company's environmental protection regulation compliance audits.
- In the absence of environmental protection related departments in various management divisions, considerations shall be made for the establishment of a designated department or position.
- Pursue quotations on environmental protection facilities and ensure due implementation.
- Implement environmental protection law reviews and projects for the analysis of penalized environmental incidents.
- Encourage employees at various facilities to participate in EPA legal dissemination seminars.
- Parallel development of penalized environmental incidents for the year.
- Promptly carry out air pollution improvement for existing units.
- Shorten the timeline for the rectification of environment-related flaws at construction sites.

Anti-corruption Measures

Integrity management and legal compliance are the most fundamental principles that the company operates by. In accordance with specific policies and measures from the "National Integrity Building Action Plan," Taipower has implemented the planning and promotion of various civil service ethics.

Taipower's Anti-Corruption Regulations



Taipower continues to improve its training on civil service ethics and to disseminate conflict of interest aversion practices for employees in accordance with the "Implementation Plans on Enhancing Civil Service Ethics Dissemination at Current Stage." To boost awareness of anti-corruption practices for middle and senior management personnel at our suppliers and vendors, Taipower promoted a social participation and civil service ethics dissemination implementation plan in 2017. Five vendor/supplier civil service ethics seminars were subsequently held at the Taichung power plant, the North construction office, the Keelung office, the Hsinchu office and the Chiayi office to foster consensus on fighting corruption. In addition, the Department of Civil Service Ethics compiled the "Stories of Civil Service Ethics" – a collection of outstanding ethics stories from various units and "Civil Service Ethics Case Studies" that featured actual cases of common violations, both of which are sent to all employees weekly. This is to ensure that all employees are equipped with the knowledge of civil service ethics regulations and the potential consequences of their violation, so that employees can avoid making the same mistakes or violations.

Product Responsibility

Taipower's main product is electricity. Electricity prices follow government laws, regulations, and policy directives. Taipower handles all customer information, electricity payments in arrears and suspension of electricity service in accordance with the Personal Data Protection Act and the Electricity Act. Staff are instructed to follow these laws and regulations to prevent branch employees from unintentionally leaking private customer information. Employees are also supervised as they complete related tasks. Taipower has clearly laid out corresponding methods of verifying applicant's identities and checking identification for all inquiries pertaining to customers' personal information. This includes personal inquiries by the customer, inquiries made by representatives on the behalf of customers, personal visits, telephone (or fax) communications, and online inquiries (or printouts). In 2017, Taipower had no violations relating to the provision of products or services.

6.2 Building a Sound Working Environment

6.2.1 Human Resource Management

In conjunction with events with the power industry's reform and amendments to the Labor Standards Act, Taipower has adhered to a target of "Improvement of Human Resources" in 2017 and has formulated a Response to the Labor Standards Act Amendments. The company has also developed divisional and power industry reform-oriented strategies and action plans for recruitment, utilization, training & development and retention of employees. The targets for specific phases (as shown in the table below) were achieved in 2017.

Overall Target	Target at Different Phase	Date of Completion
Improve human resource—formulated a Response to Labor Standards Act Amendments and Divisional Development and Power Industry Reform-Oriented changes	Formulated human resource strategies and action plans.	2017.2.6
	Submitted the results to the Chairman for approval before further implementation.	2017.4.11
	Reviewed and reported on the implementation outcomes of human resource strategies and action plans for 2017.	2017.12.6
	Formulated "Core Expertise and Human Resource Inventory Outcome Utilization and Improvement" directions for development in the future.	2017.12.20

Human Resource Policy

In conjunction with the amendments to the Electricity Act, trends in energy policy, and the amendments to the Labor Standards Act, Taipower will improve upon its recruitment, utilization, training & development, and retention of human resources while strengthening generational leadership and communication to create organizational value and boost employee productivity.

Four Aspects and Principles of Human Resource Policy

Recruitment

- Balanced and rational human resource planning and systematic appointments
- Diverse personnel recruitment to satisfy human resource demands; increase the channels used in talent recruitment

Utilization

- Improve upon the rationalization of human resource deployment, development and utilization
- Effective distribution and management of personnel appointment budget
- Improve upon existing personnel management systems to make human resource utilization more flexible and effective
- Implement job rotation and performance evaluation
- Make effective use of statistical analysis so that it can serve as a reference for supervisors in their decision-making
- Enhance the performance of division human resource departments

Training & Development

- Fortify the heritage of essential techniques at each division and promote core operations
- Develop an innovative talent nurturing model and improve organizational learning performance
- Promote supervisor succession plans at the company level (including all divisions) and build a talent bank
- Utilize online resources to promote lifelong learning

Retention

- Promote harmony in divisions and enable employees to enjoy their work
- With the implementation of a divisional structure, Taipower will strengthen its existing channels of communication to shape a culture of sharing
- Keep the wage system fair and balanced while amplifying the the effectiveness of relevant bonuses to facilitate the deployment of the divisions
- After the implementation of the division system, Taipower will offer benefits that are more aligned to employees' needs
- Promote recreational activities; strike a balance between work and recreation to make Taipower a happy company and improve employee satisfaction
- Improve care and aid for retired employees

Action Plans

Taipower has formulated corresponding action plans for each of its strategic goal. In 2017, 35 action plans (and 22 highlights) were drafted, along with specific details on the implementation methods, research directions, targets and schedules for each action plan. Important items will gradually be introduced to the rolling review by the "Human Resource Development Taskforce" or to key meetings such as assembly or management meetings to resolve issues pertaining to human resource development while improving the Company's human resources. For more information about employee development and benefits at Taipower, please go to Taipower's Sustainable Development website and refer to the sections on "Human Resource Structure" and "Employee Rights and Benefits."

Employee Performance Evaluation

All employees who have been officially appointed (hired) by Taipower and meet specific requirements (excluding expert head engineers, VPs and personnel of higher rank) shall be subject to performance evaluation as required by Taipower's employee performance evaluation regulations. Supervisors of different ranks are expected to evaluate their subordinates' performance in seven major categories: "professional competence," "work performance," "team spirit," "work attitude," "conduct," "capacity for management" and "leadership talents" and award corresponding grades to each employee being evaluated within the given deadline. This allows Taipower to award performance bonuses according to the results of performance evaluations.

In an effort to boost the performance of human resource development and to improve the efficacy of HR utilization, Taipower has established a "Human Resource Development Taskforce" with the intention of creating comprehensive HR development strategies and solving issues of practical operations. In addition, Taipower has set up a team under the taskforce to foster consensus by meeting at least once per month to discuss issues that relate to the improvement of human resource development. Between 2013 and 2017, excluding declarative and reiterative issues, the team had reached 230 resolutions and completed 215 of those resolutions to achieve a completion rate of 93.5%. This result illustrates that Taipower is gradually succeeding in reforming its human resource system.

Talent Development in 2017

Taipower utilized the "Human Resource Development Taskforce" platform to improve its human resource strategies and policies. From 2012 to 2017, the Company held 11 project meetings and 65 team meetings. For 2017, the company focused on issues such as responding to the Electricity Act Amendments and maintaining the succession of experience in light of a retirement boom. The company held "Future directions and core expertise/human resource inventory utilization and improvement" seminars within its business divisions and systems to ensure that human resource planning for the near future is aligned to the company's long-term development.

Statistics on Taipower Training

Training type	Training item		2017 No. of participants
Development training	New dispatch personnel orientation training		636
	Fundamental development training		717
	Total		1,353
OTJ training	Professional training	Organized by Training Institute	14,055
		Organized by various units	44,682
		External training	1,034
	Total		59,771
Manager training	OTJ training for managers		955
	Cultivation training for managers		556
	Total		1,511
Cooperative education	Recommendations for graduate school	Master's degree program	4
	Total		4
Total			**62,642**

6.2.2 Human Resource Structure

Employee Categories

All Taipower employees are full-time and the Company has hired no foreign employees.

Total Number of Employees and the Ratio of Male/Female Employees in 2015~2017

Year		2015		2016		2017	
Total employees		**26,659**		**26,673**		**26,734**	
Local employees	Male	23,387	87.7%	23,280	87.3%	23,183	86.7%
	Female	3,272	12.3%	3,393	12.7%	3,551	13.3%
Direct personnel	Male	21,909	82.2%	21,680	81.3%	21,526	80.5%
	Female	1,771	6.6%	1,807	6.8%	1,938	7.2%
Indirect personnel	Male	1,478	5.5%	1,598	6.0%	1,657	6.2%
	Female	1,501	5.6%	1,586	5.9%	1,613	6.0%

Note: 1. The cut-off date for the statistics was December 2017
2. Direct employees are personnel who fall under the category of technical employees and sales & marketing employees at onsite departments; indirect employees are personnel responsible for administrative support, including document processing, business affairs, general affairs, accounting and so forth
3. The decimal point is rounded off

Employee Recruitment/Departure Statistics in 2015~2017

		2015		2016		2017	
		Male	Female	Male	Female	Male	Female
Number of new employees		**1,650**		**1,641**		**1,608**	
Age	Below 30	696	195	715	196	818	191
	Between 31-45	589	140	563	125	404	162
	Over 46	29	1	39	3	24	9
	Total	**1,314**	**336**	**1,317**	**324**	**1,246**	**362**
Number of employees who left the Company		**1,530**		**1,630**		**1,543**	
Age	Below 30	123	28	81	22	105	27
	Between 31-40	99	56	81	70	95	77
	Between 41-50	28	3	27	4	23	5
	Over 51	1,097	96	1,239	106	1,117	94
	Total	**1,347**	**183**	**1,428**	**202**	**1,340**	**203**

Note: The duration of service for new employees and departing employees at Taipower is calculated based on their first day at work and the last day after their resignation/dismissal procedure has been completed.

Sub-Contractors

Taipower's outsourced human resources from sub-contractors are separated into "manual dispatched labor" and "manual and service contract labor." The division is based on the nature of the tasks performed. In 2017, the numbers of Taipower's sub-contracted personnel are as follows:

Type of employment	No.
Manual dispatched labor	209
Manual and service contract labor	1,070

Note: 1. Manual dispatched labor refers to work performed by outsourced personnel dispatched at Taipower and therefore subject to the supervision of relevant units. It is used to fulfill business needs by hiring engineers with technical expertise and managers with management expertise in procurement and contract management.
2. Manual and service contract labor refers to tasks such as cleaning, janitorial services, document processing, call center agents, drivers and so forth.
3. The statistics above do not include work load.
4. The cut-off date for the statistics was the end of December 2017.

Equality in the Workplace

Gender equality, employment, and equal protection are all key items in the sustainable development goals established by the UN. Taipower promotes relevant measures towards these ends to create a friendly and sustainable workplace.

Gender Equality

The recruitment and appointment of all personnel at Taipower is governed by a clearly–defined and consistent system of administration. Employees are never subjected to different standards of evaluation because of gender differences. Taipower also offers relevant equipment and takes relevant measures in accordance with pertinent regulations such as the Act of Gender Equality in Employment. The company reports periodically to competent authorities to submit the latest employee gender distribution and relevant statistics while offering information on relevant events or disseminating relevant policies to employees.

Equality for Disadvantaged Minorities

Taipower actively protects the right of disadvantaged minorities to equal employment opportunities. As such, the company hires and recruits employees with disabilities and indigenous people in accordance with "People with Disabilities Rights Protection Act" and "Indigenous Peoples Employment Rights Protection Act."

In 2017, Taipower was asked to recruit 773 personnel with disabilities but actually recruited 837 people (64 employees in excess) or 8.2% beyond the requirement. In addition, Taipower was required to recruit 3 employees of aborigine ethnicity in 2017 but actually recruited 4, with an excess recruiting percentage of 25%. The Company takes the employment of indigenous peoples and personnel with disabilities seriously and provides such applicants with a boost in written/entrance test scores of 10% to 15%.

Category of Hired Personnel	2015	2016	2017
Total number of personnel with disabilities recruited	770	764	773
Total number of personnel with disabilities recruited (weighted)	883	852	837
Percentage of excess recruitment of personnel with disabilities	14%	11%	8%
Total required number of indigenous personnel recruitment	4	4	3
Total number of indigenous personnel recruited	5	5	4
Percentage of excess recruitment of indigenous personnel	25%	25%	33%

Note: The cut-off date for the statistics was the end of December 2017

6.2.3 Occupational Safety and Health

Taipower has established a safety and health management policy along with a "Declaration of Commitment to Safety." In addition, all relevant units have established detailed management plans and implemented various occupational safety control measures in accordance with Taipower's "Occupational Safety and Health Management Plan."

Taipower's Safety and Health Management Policy

Taipower's expenditures on occupational safety and health came to NT$ 343,933,000 in 2017. The company follows three approaches in prioritizing the lives and the occupational safety of its employees: making equipment safer, establishing standard operating procedures, and promoting better health for all employees. Through these approaches, Taipower is pursuing a goal of zero occupational hazards while creating a safe, healthy and friendly workplace.

In order to minimize the occupational injuries of contractors, the company subcontracts safety and health management for contracted workers and actively assists and supervises contractors in establishing and implementing their own occupational safety management mechanisms. For construction contractors, Taipower has incorporated guidelines on contractor safety and health into its contracts. For public projects that cost more than NT$ 200 million, Taipower asks contractors to set up real-time video surveillance systems to ensure effective supervision and recording of occupational safety status. During construction planning, relevant departments and occupational safety departments perform risk assessments and hazard identification to prevent occupational accidents.

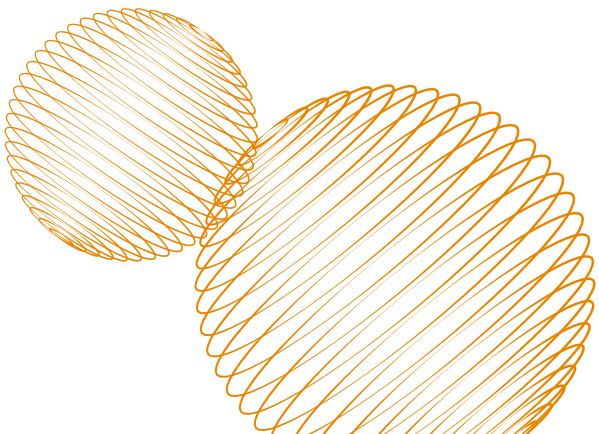
Occupational Safety and Health Organization

Taipower's "Occupational Safety and Health Committee" is responsible for all affairs pertaining to occupational safety. The committee is comprised of 31 members, including the president as chair, vice chairman, and 29 other committee members. In the committee, 14 members (45%) are representatives of Taipower's Labor Union. This keeps the committee compliant with the legally required proportion of no less than 1/3 of the committee.

Occupational Injury Incidents

In accordance with Taipower's "Occupational Safety Accident Handling Procedure," employee/contractor accidents are reported to Taipower within one hour and responsible personnel file an accident reports. Accident reports serve as the basis for the compilation of relevant statistics and analytical reports for the occupational safety management of all units. This information is then used to minimize the likelihood of further occupational accidents. In addition, responsible personnel notify a local labor inspection agency within eight hours of the occurrence of the occupational accident. After an accident has occurred, investigation of the cause and case review are conducted as required by regulations in conjunction with an administrative liability review and disciplinary actions that are taken to prevent similar accidents from happening in the future.

The main causes of injury for Taipowers' workers include traffic accidents, arc discharges, collapsed objects, electric shocks and falls. In 2017, Taipower had a total of 11 occupational accident but all involved injuries and not fatalities. Contractors had 17 occupational safety accidents that resulted in a total of 17 injuries and two deaths (both were male). As the tally of occupational diseases/accidents and attendance is the responsibility of contractors, the Personal Information Protection Act prevents Taipower from obtaining relevant data for the year. Additionally, as most contract workers do not operate on normal work schedules, in the event of occupational accidents, it is impossible to estimate the number of days of delay that result as a consequence. Given these facts, this report doesn't provide the rate of incidence for contractor occupational diseases, absentee rates or days lost along with other relevant data.



Occupational Safety Performance in 2017

Worker category	Gender	Total number of work days	Total number of work hours	Absentee rate	Total number of occupational accidents	Injury rate	Number of days lost	Ratio of days lost
Employees	Male	6,044,937	48,359,495	0.39%	11	0.05	6,391	26.43
	Female	925,701	7,405,605	0.71%	0	0	0	0
	Total	6,970,638	55,765,100	0.44%	11	0.04	6,391	22.92
Construction contractor	Total	No statistical data	45,182,410	No statistical data	17	0.08	No statistical data	No statistical data

Note: 1. Total number of work days: The actual number of work days for employees were provided by the HR Departments at various units.

2. Total number of work hours: The actual number of work days for employees were provided by the HR Departments at various units.

3. Absentee rate (AR) = (No. of days absent from work / total no. of work days) × 100%
(Days absent from work include sick leaves, special sick leaves and occupational sick leaves)

4. Injury rate (IR) = (Total no. of injuries / total no. of work hours) × 200,000
(this is calculated based on a 50 week of work per year, 40 hours of work performed per week per 100 employees)

5. Loss day rate (LDR) = (No. of days lost / total no. of work hours) × 200,000

6. Given GRI's requirements for disclosure, Taipower is not able to achieve full disclosure on occupational safety related data for 2017. In the future, Taipower will continue to improve upon its management and compilation of occupational safety information for employees and contractors

Occupational Safety Experience Sharing—Life Story Sessions

People tend to avoid talking about occupational safety incidents. Taipower's occupational safety department came to the realization that the more people shy away from the subject, the harder it is for employees to learn from experience. And as such, the Company has invited employees who have been victims of occupational accidents to share their accounts and experiences in putting their lives back together following incidents. In 2017, the department held three "Life Story Sessions" around Taiwan. These sessions gave employees, their families and contract workers the opportunity to share their life stories so that their personal accounts would serve as a reminder to employees to pay attention to safety.

One of these sessions featured Mr. Chen from the Hualien Office. Mr. Chen was responsible for substation maintenance until he was involved in an unfortunate electric shock accident. Through a prolonged period of treatment he experienced a terrible mental and physiological ordeal. With the assistance of his superiors, others in the company and his family, he converted his pain into strength by sharing his own experience so that other employees would learn from his mistake.

Another session featured Mr. Lin, an engineer, who previously worked at the Linkou power plant. Mr. Lin suffered an unfortunate fall that left his lower limbs paralyzed. The accident took away his ability to walk and he has to spend the rest of his life in a wheelchair. Despite this, with encouragement from his superiors and assistance from his colleagues, Mr. Lin has found the courage to start his life anew. During the session, he expressed his feeling that no occupational safety instruction can be as persuasive as true stories shared by those who have actually been victims of such incidents. Mr. Lin's talk made clear to all the main purpose of the Life Story Sessions.

Through the sharing of true accounts and stories, Taipower workers were able to gain a better appreciation of the importance of occupational safety. Taipower cares about the life and well-being of all its workers because there can be no reliable power supply without occupational safety in place.

6.2.4 Labor-Management Communication Channels

Communication Performance

Communication Channels	2017 Performance
Labor-management meetings	11 labor-management meetings were held at company and sub-system levels.
Information and discussion sessions	1 information session on major labor-management was held. 20 information sessions on the Electricity Act Amendments were held. 5 information sessions on Labor Standards Act Amendments were held.
Entry-level employee meetings	191 entry-level employee communication meetings were held, where unit supervisors communicated with entry-level employees and listened to their concerns.
Thematic presentations	Taipower held 9 thematic presentations to enable high-ranking supervisors to continue their communication with employees on the company's latest policies in 2017.
Training	Continued to provide various training courses for employees to acquire vocational skills and communicate with the Company
Intranet	In light of the impending retirement boom, the company is making efforts to provide adequate information to employees so relevant planning can be made prior to their retirements. One focus of this effort is the "Retiring Employee Area" of the company's intranet. Additionally, a sub-forum for "Occupational Safety Issues" has been added to the forum as a platform for exchanging opinions on issues related to occupational safety and the creation of a friendly workplace. Employee input is taken as a reference for future improvements. The forum also enables employees to seek clarifications about any doubts they may have regarding company policies and regulations. All relevant inquiries are promptly clarified by responsible units to prevent potential misconceptions from spreading.

Group Agreement Negotiations

On October 24, 2013, Taipower and the Taipower Labor Union (TLU) signed a Collective Bargaining Agreement (CBA). The agreement calls for annual meetings to implement or clarify articles of the signed CBA. To safeguard employees' rights, in accordance with Article 41 of the CBA, Taipower is required to communicate with the TLU regarding the creation, reorganization, and merger of units in advance. In 2017, 12 consultative meetings were held. Since contract personnel are not Taipower employees, the terms of the group agreement negotiations do not apply to them.

Employees Covered by the Collective Bargaining Agreement

Item	2013	2014	2015	2016	2017
Total employees	26,629	26,533	26,659	26,673	26,734
Employees, union members	25,954	26,064	26,284	26,391	26,408
Percentage of employees, union members	97.5%	98.2%	98.6%	98.9%	98.8%

Grievance Complaint System

Taipower's "Working Personnel Difficulty and Matters of Grievance Processing Guidelines" help solve issues that cannot be solved through the company's administrative system. The guidelines cover the following:

1. Adjustment of tasks and transfers to different divisions, units, or districts, for personal or family reasons.
2. Company support in the event of major changes in the family.
3. Handling queries and complaints regarding the company's systems, measures, contracting and oversight of engineering work, financial and procurement matters, and hand-over inspections.
4. Investigations and handling of other complaints.

Grievances and complaints filed by employees shall be handled by the "Working Personnel Difficulty and Grievance Matter Processing Team" of the employee's unit. If the team is unable to handle the grievance or if the outcome is not acceptable to the employee involved, he or she may then file a complaint to the "Working Personnel Difficulty and Matters of Grievance Processing Committee." All employee grievances filed in 2017 were processed by their respective units.

6.3 Supplier Management

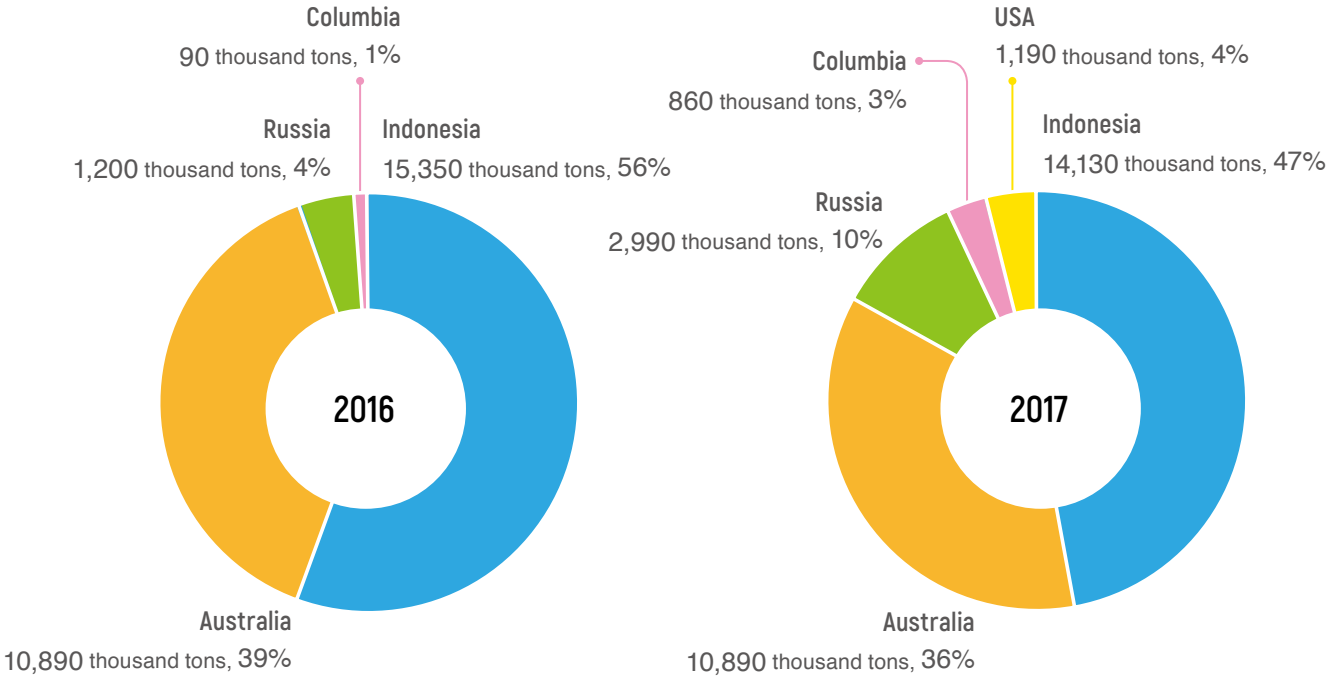
Taipower's supplier management adheres to pertinent regulations. Suppliers must satisfy all legal requirements for all services and materials they provide with regards to environment, society, and management so that Taipower can select appropriate partners during tendering and evaluation stages.

6.3.1 Fuel Suppliers

Coal Procurement

For coal procurement, Taipower established an inter-departmental "Coal Procurement Review Taskforce" to formulate versatile coal procurement strategies to ensure an adequate supply of quality coal to all coal-fired power plants within the limitations of environmental protection.

The Ratio of Coal Procurement from Different Regions and Total Procurement Quantities for 2016 and 2017



In 2017, Taipower's list of qualified, regular suppliers consisted of 43 qualified vendors. This total was composed of 22 vendors from Australia, 13 from Indonesia, 2 from China, 3 from Russia, 1 from South Africa and 2 from Columbia. In addition, one new vendor was added to Taipower's list of qualified vendors in 2017 and the Company has dispatched designated personnel to carry out on-site inspections at that vendor's mines. One of the qualified vendors from the list failed to update information on the lifespans of their mines and as such was removed from the list.

Fuel Oil and Natural Gas Suppliers

Taipower currently purchases fuel oil and natural gas from the CPC and the Formosa Petrochemical Corporation. Both these contractors have supply capability and conform to the relevant governmental laws and regulations. Fuel oil inventory in 2017 was kept between a 10 and 15 day supply, while diesel inventory was established in accordance with the specific supply and transmission conditions at various power plants.

Taipower has been implementing supply chain management in accordance with the "LNG Supply and Demand Communication SOP between Taipower and CPC." This involves communicating with CPC regarding gas demand on a yearly, quarterly, monthly and daily basis to ensure a reliable power supply.

Taipower and the CPC Gas Supply Engagement Mechanism and Frequency

Frequency	Means of communication
Annually	• Each year before August 20, Taipower sends monthly estimates for total gas consumption and the maintenance schedules for all gas units for the following year to the CPC. • Each year before the end of October, Taipower inform the CPC of any revision to the monthly estimates for total gas consumption. • Each year before the end of May, Taipower send revised data to the CPC if monthly estimates for gas consumption in the second half of the year require revision.
Quarterly	• Both parties take part in a quarterly supply coordination meeting to discuss relevant issues on LNG usage
Monthly	• Each month prior to the 10th, Taipower faxes the "Daily LNG Requirement Table" for the subsequent month to the CPC, while the CPC is required to verify prior to the 15th of each month with its international suppliers on "45-day/90-day shipping schedule" to ensure that appropriate dispatch is performed in accordance with Taipower's requests.
Daily	• The CPC update its "LNG usage and inventory notice" no later than 10:30 AM each day (including holidays) and faxes or email it to Taipower. • On each work day prior to 16:00 PM, Taipower faxes its "Daily LNG consumption estimates for the next fortnight" to the CPC. If the gas usage for the next fortnight will affect LNG supply and the shipping schedule cannot be changed, the CPC contacts Taipower and ask Taipower to make appropriate adjustments to the daily estimates on LNG usage for the following two weeks. • Should the CPC's gas pipeline construction affect the normal LNG supply for Taipower, the CPC will try to schedule construction during holidays and send notice to Taipower in advance so that Taipower can make relevant adjustments without compromising power supply safety
Special circumstances	• As Taipower is responsible for supplying power to the CPC's Yongan and Taichung LNG storage systems, in the event of power outage/rationing that will affect the supply of LNG, Taipower coordinates with the CPC first to make optimal arrangements

The Aftermath of the August 15 Power Outage and Communication with the CPC (Supplier)

On August 15, 2017, inappropriate operation by a CPC contractor caused the generators at a Taipower power plant to trip, leading to an island-wide power supply disruption. After the incident, Taipower actively communicated with the CPC and both parties participated in Executive Yuan taskforce meetings to investigate the cause of the incident, relevant liabilities and actions to be taken for improvements in the future. With regards to the incident, Taipower and the CPC's management first worked together to jointly formulate and identify key operations before discussing the corresponding CPC LNG supply station for Taipower's power plants. Relevant rectifications are as follows:

- The addition of new contact regulations in the "LNG Supply and Demand Communication SOP between Taipower and the CPC " to strengthen contact on key equipment/facility maintenance. All CPC LNG supply units are required to inform Taipower's relevant power plant on duty offices and record the full process on video in order to facilitate the clarification of liabilities in the future.
- Both parties have agreed to include two additional clauses on the contact mechanism to make the reporting mechanism more comprehensive:
  - Contact mechanism (X): In order to facilitate power generation safety, Taipower and the CPC shall establish an "LNG Supply Contact Mechanism" for power plants and their corresponding LNG supply centers.
  - Contact mechanism (XI): During periods of power system operation in warning (i.e. operating reserve below 6%), Taipower will issue power system warnings and promptly notify the CPC (Monitoring and Dispatch Center, Storage & Transportation Office, Natural Gas Division) so that both parties can arrange for relevant maintenance operations to prevent additional risks during periods of tight power supply.

In addition, existing regulations also require all gas-fired power plants to include key items such as definitions of key equipment, contact methods and liaisons in their establishment of contact mechanism with their corresponding LNG supply stations. The LNG supply contact mechanisms between all gas-fired power plants and LNG supply stations were fully revised before November 15, 2017.

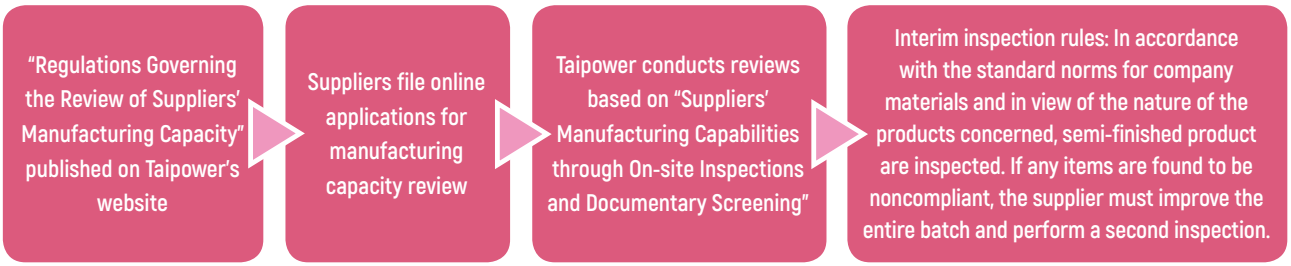
Nuclear Fuel

The procurement of nuclear fuel involves the purchase of uranium and subsequent processing services of conversion, enrichment, and fabrication. Procurement is primarily conducted through long-term contracts (uranium long-term contracts must comprise no less than 50% of Taipower's uranium supply) supplemented with medium-to-short-term and spot contracts. All nuclear fuel processing services are procured via long-term contracts and Taipower maintains 3 years' worth of safe inventory. In light of the government's nuclear-free homeland policy, Taipower has stopped all its uranium procurement.

6.3.2 Suppliers of Materials and Equipment

To enhance the effectiveness of its management and control, Taipower adheres to principles of centralized management for materials that are used in large quantities or by many units. These materials are selected and reviewed for centralized requisition, allocation, and inventory control to allow for greater benefits.

Taipower has established a list of qualified material and equipment suppliers, who are screened according to the following process:



The procurement of electrical equipment (such as cables and gas-insulated switchgear) must comply with pertinent government policies such as the "Power Equipment Localization Policy." Therefore, important components must be produced, assembled, or cut in domestic factories. Taipower will evaluate supplier bids on this basis. In 2017, Taipower had a total of 2792 material procurement tenders, with total bid amount of approximately NT$ 57.5 billion. The bid amount for selective tenders came to roughly NT$ 29.6 billion and constituted approximately 51% of Taipower's total procurement of property. The bid amount for items that fell under the purview of the localization policy came to approximately NT$ 17.7 billion and made up roughly 31% of Taipower's total procurement of property.

6.3.3 Power Suppliers

To ensure a reliable power supply while improving the economic vigor and versatility of the private sector, the government has lifted restrictions on private power development and adopted Taipower's avoidable costs of self-power generation as a basis for its pricing principles. With amendments to the Electricity Act coming into effect in January 2017, in order to maintain a reliable power supply, Taipower will continue to sign contracts with IPPs for power purchase. Under the national green energy policy, there will be other renewable energy generation and power sales industries in Taiwan in the future, and Taipower will no longer be the sole purchaser of green power. Apart from facing competitors, Taipower will be required to take factors such as its carbon emissions and reserve capacities into account in future power procurements.

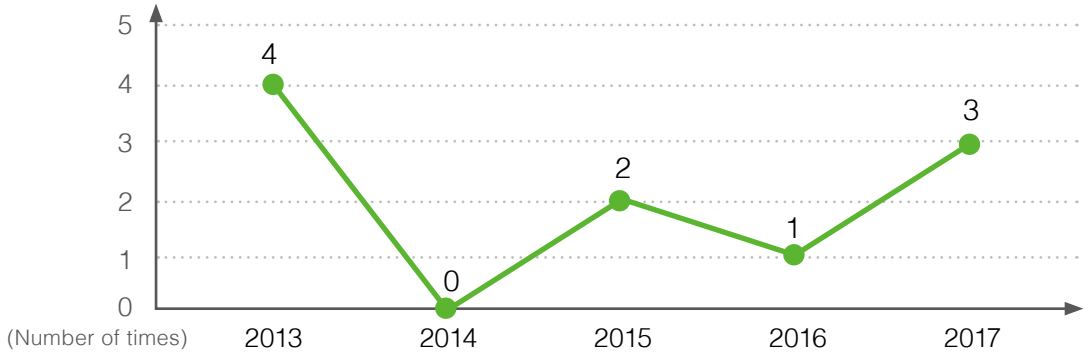
The appraisal process for Taipower's power procurement is based on pertinent regulations such as the "Directions Governing the Deregulation of the Power Industry," "Deregulating Private Power Plant Solution" and "Application Information for Power Plant Construction." The MOEA's Preparatory Taskforce is responsible for the preliminary review. Phases 1 and 2 of the process involve the comparison of tariff pricing, while phase 3 involves the screening of winning bidders based on a first-come, first-serve review of announced prices. For IPP operators that have performed poorly or caused risks for Taipower, penalties will be imposed in accordance with contracts. Poor performance may even result in contract termination. With regards to co-generation, Taipower will initiate its emergency procurement measure when the capacity reserve is estimated to fall below 6% as described in the "Cogeneration System Implementation Measures." This will restore the capacity reserve to 10% or higher. Renewable energy purchases will be made in accordance with the "Renewable Energy Development Act."

By the end of 2017, Taipower had contracts with 9 IPPs, 51 co-generation power providers and a total of 15,458 contracts for renewable energy (including solar power, wind power, hydro power and others). Taipower purchased a total of 50,592 GWh of power from IPPs in 2017 and will procure approximately 48,755 GWh from IPPs in 2018.

6.4 Enhancing Nuclear Communications

In 2017, the six generators at Nuclear Power Plants 1, 2, and 3 generated a total of 21.56 TWh of power, with an average capacity factor of 46.79%. There were also three unexpected automatic emergency shutdowns. The number of unexpected automatic emergency shutdowns in recent years is shown in the figure below.

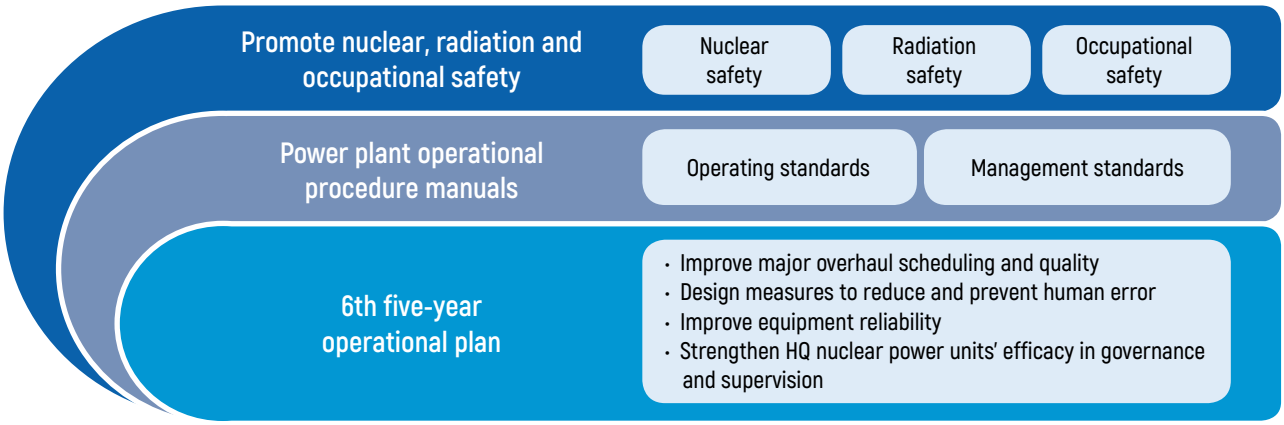
Number of Automatic Emergency Shutdowns at Nuclear Power Plants in 2013~2017



6.4.1 Nuclear Safety and Crisis Response

Planning for Nuclear Safety

Taipower Nuclear Safety Planning Framework



Status of Nuclear Power Plant Annual Overhauls

	From start to end	Description
NPP1 Unit 1	From March, 2015	Regarding the damage on the connecting hardware for the water channel of atrium 10's fuel supply, the Legislative Yuan has yet to approve the AEC's application to report at the Legislative Yuan. Consequently, the unit remains inoperable.
NPP1 Unit 2	From June, 2017	Unit 2 of NPP1 was shut down on June 2, 2017, and the spent fuel pool has reached its maximum capacity. As the Company has yet to receive a "Water and Soil Preservation Facility Completion Certificate" from the New Taipei City Government, the construction of a dry storage facility cannot commence, and the unit remains inoperable due to the inability to replace its fuel rods.
NPP2 Unit 2	April - May, 2016	The generator was de-synchronized on April 12 and later re-synchronized on May 16 for the first time when the major overhaul was completed. However, the generator tripped on May 16, 2016 due to a lightning arrestor malfunction after synchronization. By June 27, 2016, all inspections and testing at NPP2 had been completed. Nevertheless, the unit may only be re-activated after the AEC has presented its report to the Legislative Yuan. And as such, the unit remained inoperable as of the end of 2017.
NPP3 Unit 2	April - June, 2017	A major overhaul of NPP3 was originally scheduled from April 7 - May 17. However, due to damage to the control rod guide tube and more frequent inspections by the Atomic Energy Council, the duration of the major overhaul at NPP3 turn out to be 69.68 days instead of the expected 41 days. .

Emergency Response Mechanism

The AEC gave the green light for the assessment of Taipower's nuclear safety control for all nuclear power plants in operation in 2017. Nuclear power plants in Taiwan feature comprehensive safety considerations and multiple layers of diverse built-in protection measures. Accordingly, the likelihood of accidents is slim. Nonetheless, in an effort to increase precautions, Taipower established the "Taipower Nuclear Reactor Facility Emergency Response Guiding Principles" in accordance with the Nuclear Emergency Response Act as a basis for emergency response operations to be carried out by the Nuclear Power Plant Emergency Planning Executive Committee and respective emergency response organizations at nuclear power plants.

Emergency Response Mechanisms at the Nuclear Power Plant

Regular preparations	Implementing exercises in accordance with emergency response plans	The Nuclear Power Plant Emergency Planning Executive Committee staff receive routine training in accordance with their duties in emergency response. This keeps their expertise up to date. The emergency response training includes biannual general training and annual specialist training.
	Implementing response plan exercises	Every nuclear power plant conducts annual exercises. Taipower, central and local governments, military, police, and medical units all participate in the nuclear safety exercises that are by turn held at different nuclear power plants. In addition to the competent authorities, Taipower also invites professionals and scholars to form an evaluation group that assesses exercises on each response measure to make emergency response plans more effective. In 2017, the "23nd Nuclear Safety Exercise" was held with two emergency drills organized at Nuclear Power Plants No.1 and No.2 in December and July respectively.
	Establishing emergency response readiness performance indicators	Each nuclear power plant collects emergency response readiness KPIs and reports quarterly to the AEC as a part of the control measures of the nuclear safety regulatory organization to ensure the readiness of nuclear units. Related KPIs include: • Drills/exercise performance. • Participation in drills of the emergency response organization. • Reliability of the warning and reporting system.
Response to accidents	Adopting emergency response measures	In the event of a nuclear accident, nuclear power plants shall: • Comply with the relevant procedures and perform specific rescue operations. • Establish the National Nuclear Emergency Response Center, the Radiation Monitoring and Dose Assessment Center, the Regional Nuclear Emergency Response Center, and the Nuclear Emergency Support Center pursuant to the "Nuclear Emergency Response Act" to jointly carry out various rescue operations, keep the public safe, and effectively control the accident and protect neighboring residents and environments that stand to be jeopardized.
Post-accident recovery operations	Damage appraisal and recovery measures	Upon elimination of the causes of nuclear accidents, and the confirmation of completion of every emergency response measure, the National Nuclear Emergency Response Center will relieve various emergency response organizations of their responsibilities. After receiving notification from the Nuclear Emergency Recovery Committee, Taipower assigns tasks to different units to evaluate facility damage and recovery/restoration of the facilities and the neighboring environment. The Emergency Control Chief will evaluate the status of the power plant before issuing the order to set up the plant recovery team and commence recovery operations.

Nuclear Power Plant Decommissioning Planning

In light of the government's goal of achieving a nuclear-free homeland, Taipower has been actively appraising and planning for the decommissioning of power plants to gradually change Taiwan's power structure without compromising power supply reliability and nuclear power safety. As the operating licenses for NPP1 and NNP2 are approaching expiry, Taipower has initiated power plant decommissioning planning to satisfy the requirements for minimizing the generation of radioactive waste from decommissioning operations, ensuring facility stability, and meet the conditions for final disposal. Taipower has also established a "Radiation Characteristics Investigation Team" and a "Systematic Chemical Decontamination Team" to reduce the generation of radioactive wastes. Taipower will develop high integrity containers that can last for 100 years to meet the requirements of final disposal.

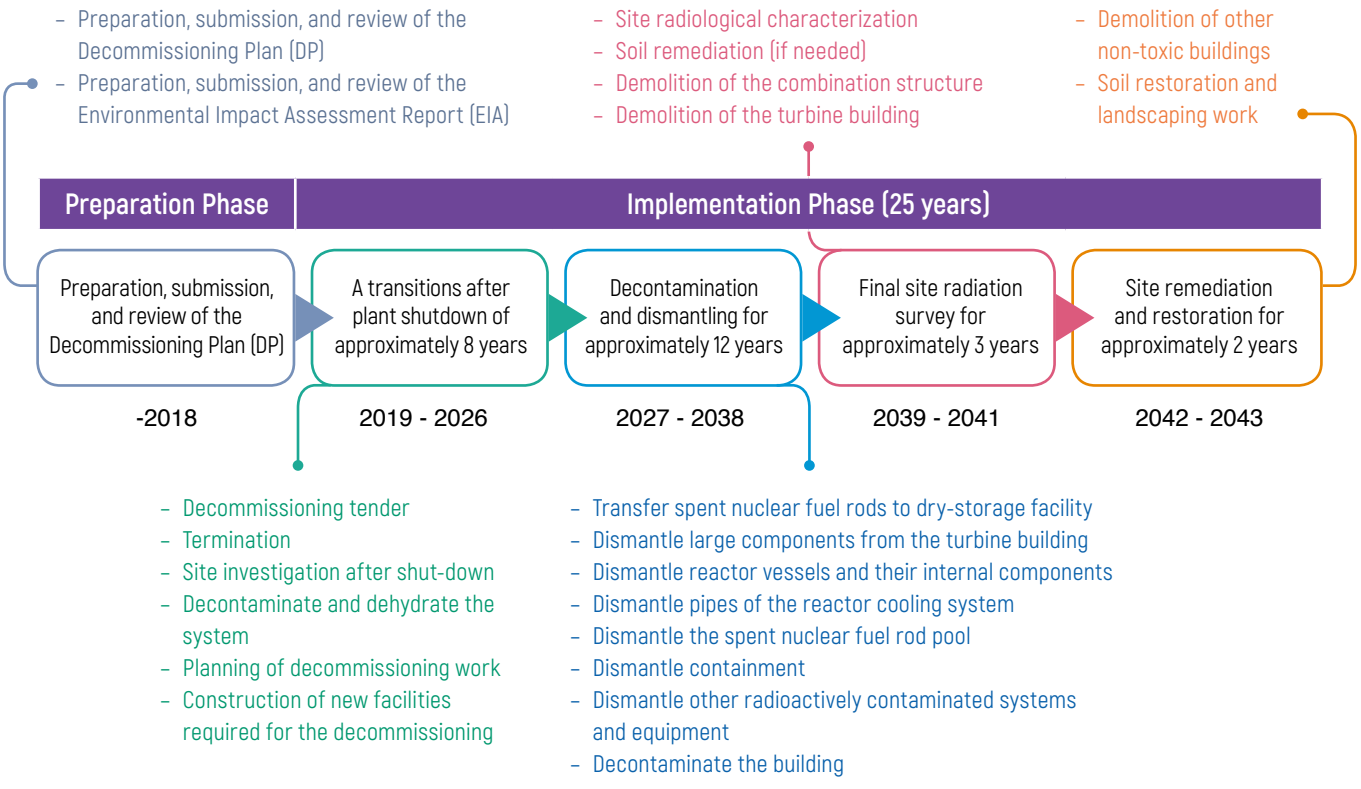
According to the "Nuclear Reactor Facilities Regulation Act," the destruction of a nuclear power plant shall be completed within 25 years of decommissioning. The operator must propose a decommissioning plan three years before the permanent cessation of operations at the nuclear reactor facilities.

Taipower began planning for the decommissioning of Nuclear Power Plant No.1, giving consideration to "the feasibility of technology," "decommissioning safety," "cost-efficiency," and "needs in actual operation." A comprehensive investigation was conducted to ensure that the decommissioning will proceed under optimum conditions. The NPP1 Decommissioning Plan was subsequently submitted to the AEC.

Decommissioning process and progress

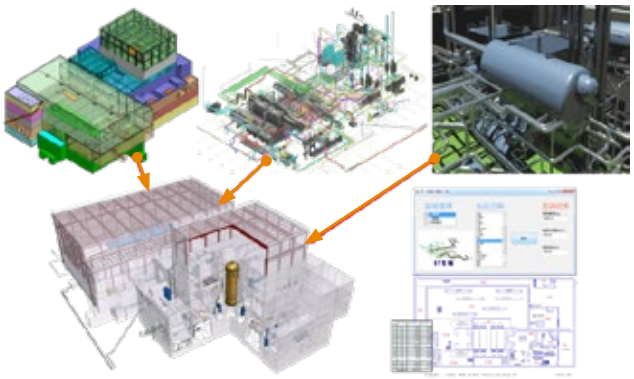
To execute the decommissioning plan, Taipower established an official decommissioning unit under Nuclear Power Back-end Operations Department. The unit coordinated cross-departmental work associated with the decommissioning plan of NPP1 in 2012. In order to achieve continual improvement in decommissioning planning and strengthen practical and technical preparations, the company established a "Decommissioning Taskforce" at NPP1 on August 1, 2016. The taskforce provides an inter-departmental platform for the promotion of decommissioning tasks and monitoring of relevant decision-making processes. Taipower has also actively participated in international organizations such as the Electric Power Research Institute (EPRI). The company has also participated in the Co-operative Program for the Exchange of Scientific and Technical Information Concerning Nuclear Installation Decommissioning Projects (CPD) of the Nuclear Energy Agency (NEA). This organization is the specialized agency within the Organization for Economic Co-operation and Development (OECD) and works with advanced nations by facilitating visits to power plants in various stages of decommissioning, and the collection of decommissioning reports for reference purposes.

Planning of NPP1's Decommissioning Process



Taipower's current decommissioning activities include establishing a quality assurance program, developing a quality assurance manual, completing a strategic analysis and planning (including operation scheduling, organizational and human resource planning) to design the radiological site characterization for the NPP1 site (using the method of the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM; NUREG-1575) of the United States Nuclear Regulatory Commission (USNRC). This will allow the company to confirm the scope and extent of residual radioactive and hazardous substances, map out the decommissioning operation while calculating estimates of radioactive waste volumes. A decommissioning information management system (ongoing) can then be created and a 3D model of the entire facility (ongoing) built.

3D Modeling



Decommissioning Information Management System

Decommissioning costs and sources of funding

The dismantling and decommissioning cost of nuclear power plants are estimated at NT$ 67.5 billion (Nuclear Power Plant No.1: NT$ 18.2 billion; Nuclear Power Plant No.2: NT$ 24.2 billion and Nuclear Power Plant No.3: NT$ 25.1 billion, excluding the final treatment of dismantled materials). Based on the user-pays principle, Taipower has been allocating funding for nuclear energy back-end operations since 1987 with approval from the Executive Yuan. As of the end of 2017, the fund has accumulated to NT$ 310.783 billion. Every five years or whenever there are major changes in technology, regulations or the scale of nuclear power generation, Taipower recalculates the total cost of nuclear back-end operations to ensure that funds for back-end operations are sufficient.

Land re-use after decommissioning

The radiation dosimetry of the site after decommissioning will meet the standards for re-use. With the exception of restricted areas (including the temporary storage facility for radioactive wastes prior to the completion of the final storage facility), the remaining land will be used for power utility related purposes, such as the construction of power facilities.

6.4.2 Response to Nuclear Safety Incidents

The International Nuclear Event Scale (INES) categorizes nuclear safety events into 7 levels depending on the severity of the incident. In 2017, no INES level safety events occurred at Taipower's nuclear power plants nor had there been nuclear safety concerns where the common international inspection standards were applicable.

While repairs on the lightning arrestor at NPP2 were completed by June 27, 2016, the unit may only be re-activated after the AEC's application to present its report on the incident to the Education and Culture Committee at the Legislative Yuan is approved. And as such the unit remained nonoperational in 2017.

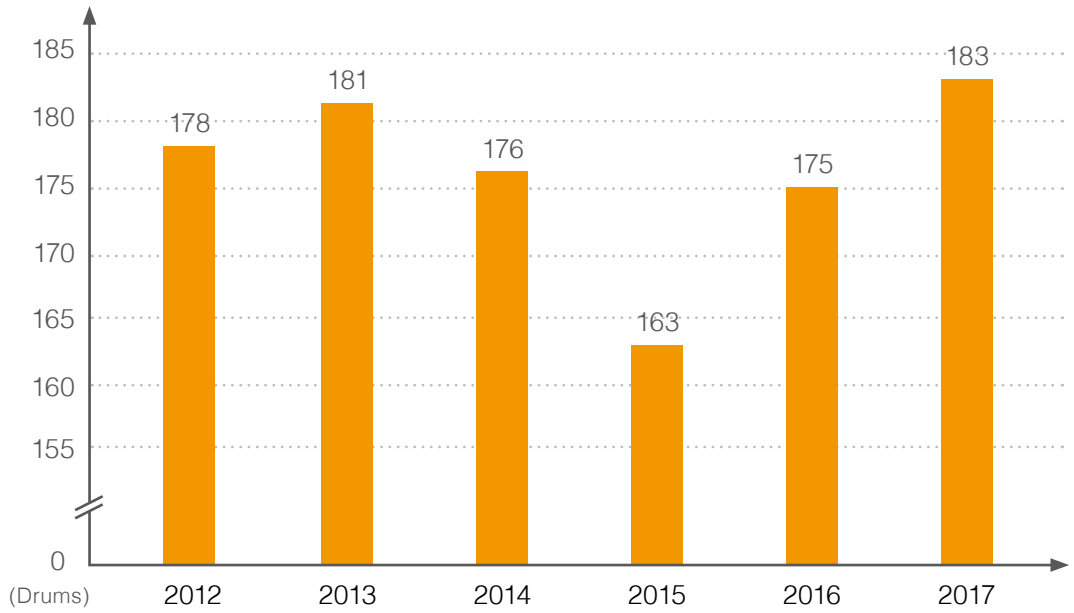
6.4.3 The Issue of Nuclear Power Plant Number 4

With regards to the fate of NPP4, the government's policy of a nuclear-free homeland and its stance of keeping NPP4 unsealed and inoperable has been clearly defined. Therefore, Taipower has adhered to the resolutions reached by the Legislative Yuan to re-assess and substantially modify its Longmen Power Plant Sealing Plan. This involved changing the plan to the "Longmen (NPP4) Power Plant Asset Maintenance Management Plan." Taipower will operate in accordance with the principle of preserving assets and equipment at their maximum value by implementing the most efficient means of maintaining all equipment to keep them operable. Steps will be taken to ensure that all safety related structures, systems, equipment, and components are adequately maintained and tested to the standards of total quality assurance. In addition, all quality records shall be adequately preserved and managed to protect and secure the value of NPP4's assets.

6.4.4 Nuclear Waste Disposal

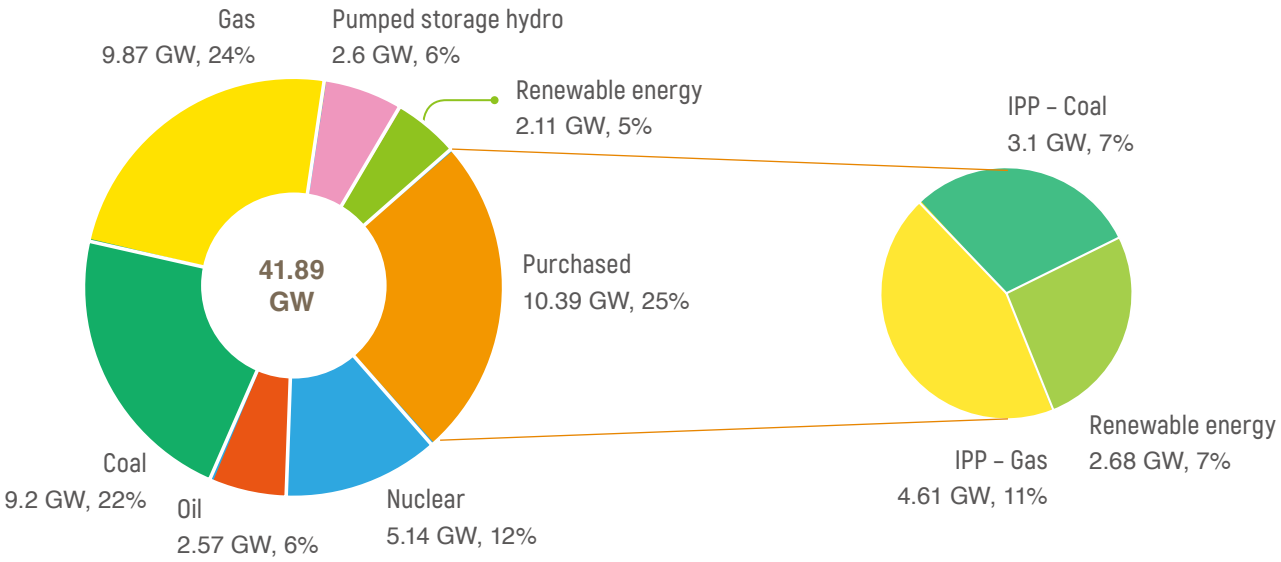
Low-level radioactive wastes generated by nuclear power operations can be incinerated, compressed, or solidified for proper storage in zinc-coated barrels. Under strict control, the total solidified wastes from all Taipower's nuclear power plants came to 183 drums in 2017. To boost the effectiveness of radioactive waste reduction at nuclear power plants, "low-level radioactive waste reduction" was introduced as a key performance indicator starting in 2004. The objective of the 6th five-year operating period (2014-2018) involves the control of solidified waste, dry waste and particulate resin generation. Each nuclear power plant has established a "Low-Level Radioactive Reduction Implementation Plan" so a dedicated taskforce can promote related tasks.

Drums of Low-Level Radioactive Solidified Waste from Nuclear Power Plants in Taiwan from 2012~2017

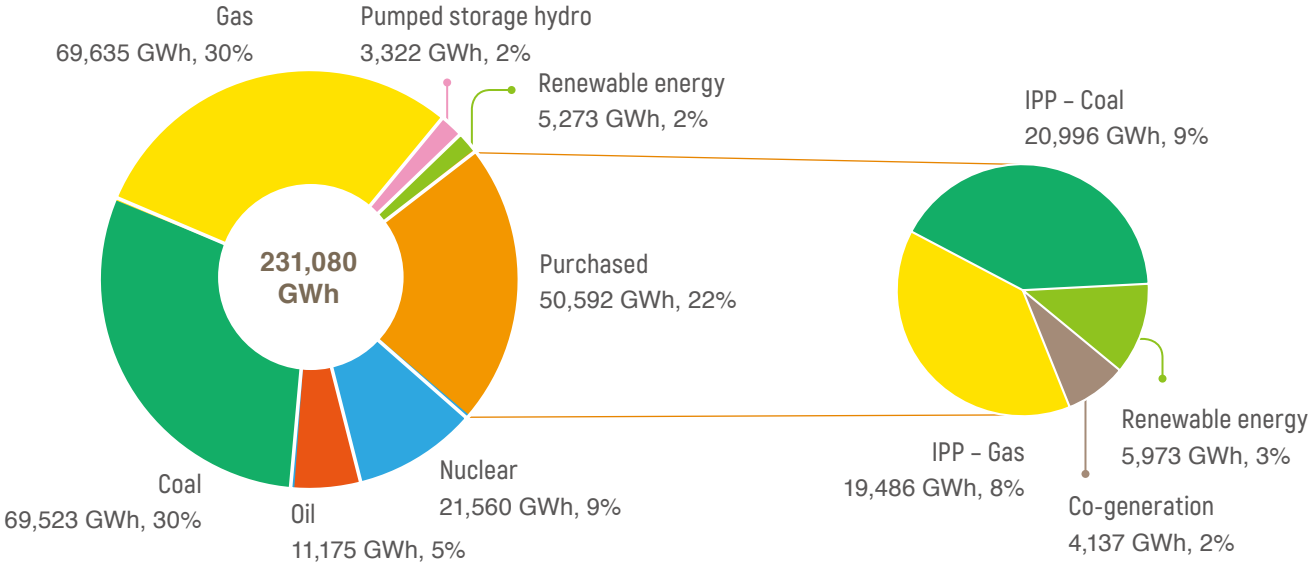


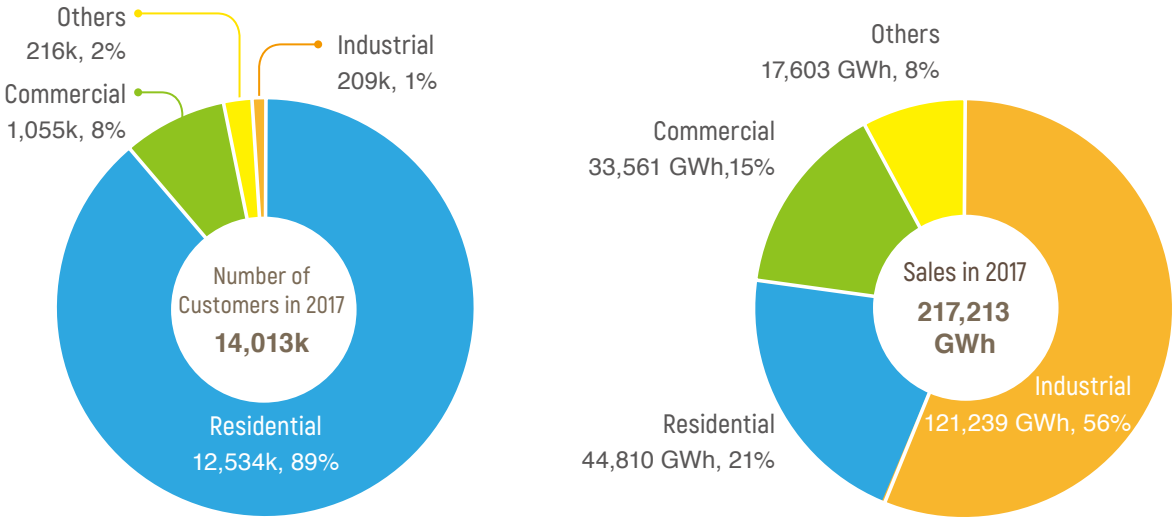
Appendix - Corporate Highlights

2017 Installed Capacity Breakdown

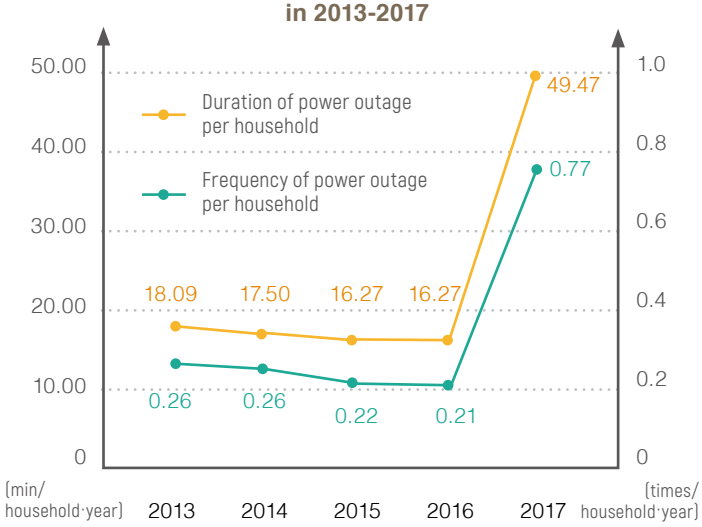


2017 Net Generation and Purchased Power Breakdown

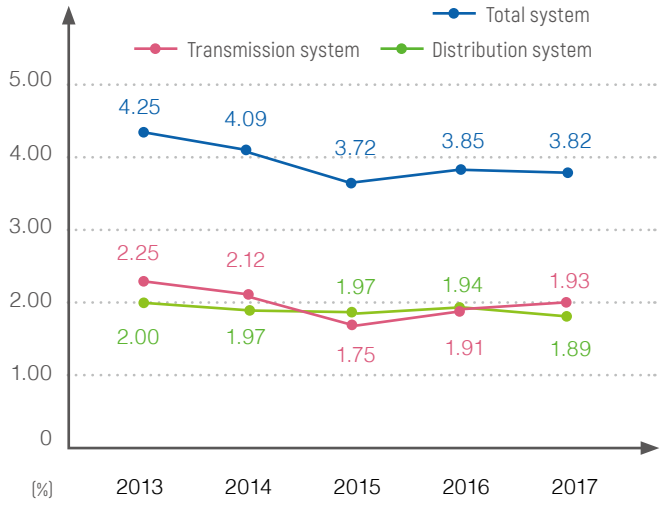




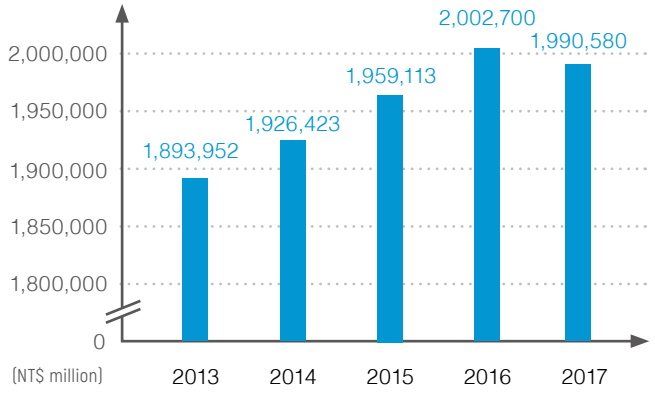
Duration and Frequency of Average Power Outage in 2013-2017



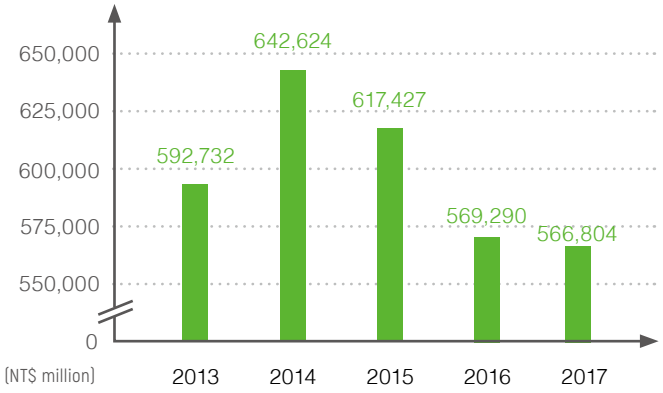
Line Loss Rate in 2013-2017



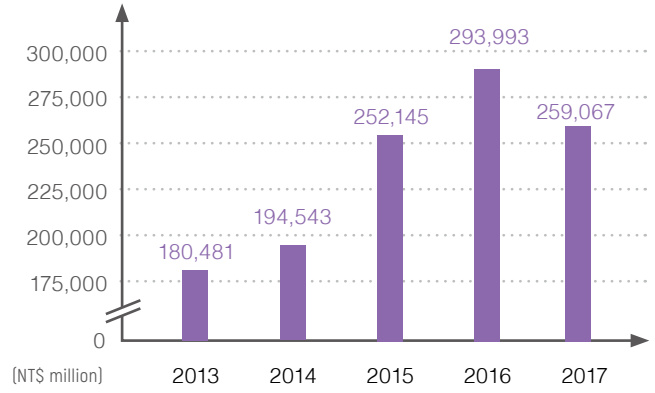
Total Assets



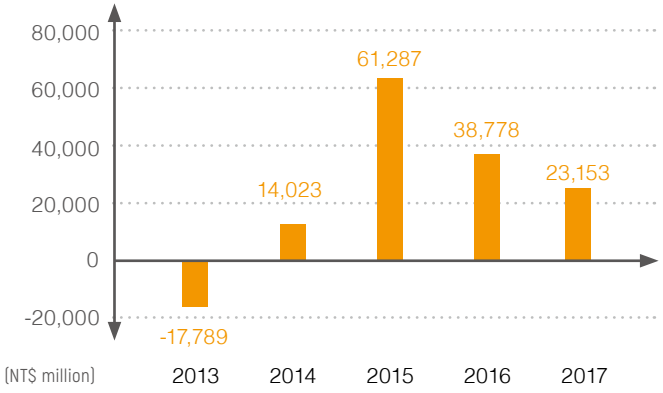
Operating Revenue



Stockholders' Equity



Gains/Losses before Income Tax



Note: Figures above have been audited by accountants using the IFRS that has been in place since 2013.
As a state-owned enterprise, figures in Taipower's financial report are based on the final audit accounts of the National Audit Office. As such, the aforementioned figures of Taipower's assets in 2016 are slightly different from those in the 2017 Sustainability Report.

Financial Performance

Taiwan Power Company – Balance Sheet

Unit: NT$ 1,000

Assets	December 31, 2017 Amount	%	December 31, 2016 Amount	%
Current assets				
Cash and cash equivalents	3,151,146	-	3,818,073	-
Notes receivable	135,759	-	170,032	-
Accounts receivable	39,675,229	3	38,336,350	3
Other receivables	8,322,404	-	6,129,895	-
Inventories	38,386,108	2	34,172,588	2
Prepaid expenses	2,787,365	-	2,296,999	-
Other current assets	168,259	-	153,910	-
Total of current assets	**92,626,270**	**5**	**85,077,847**	**5**
Non-current assets				
Financial assets carried at cost	79,204	-	79,204	-
Investments accounted for by the equity method	2,298,232	-	2,248,554	-
Property, plant and equipment	1,558,912,796	78	1,564,515,283	78
Investment-based real property	15,228,052	1	15,128,556	1
Intangible assets	401,046	-	421,355	-
Deferred income taxes	5,573,338	-	7,795,590	-
Nuclear back-end fund	310,783,289	16	321,987,727	16
Other non-current assets	4,677,318	-	5,445,798	-
Total of non-current assets	**1,897,953,275**	**95**	**1,917,622,067**	**95**
Total assets	**$ 1,990,579,545**	**100**	**$ 2,002,699,914**	**100**
Liabilities and Stockholders' Equity				
Current liabilities				
Short-term debts	72,091,041	4	53,368,331	3
Short-term bills payable, net	157,796,553	8	184,794,870	9
Accounts payable	34,123,998	2	30,836,559	2
Contracts payable	28,838,696	1	37,402,473	2
Other payables	42,445,658	2	72,820,841	4
Current portion of long-term debts	117,550,368	6	118,851,388	6
Other current liabilities	2,565,857	-	2,763,102	-
Total of current liabilities	**455,412,171**	**23**	**500,837,564**	**26**
Non-current liabilities				
Bonds, net of current portion	344,381,559	17	346,231,362	17
Loans, net of current portion	340,313,794	17	332,595,290	17
Liabilities reserve	502,368,839	26	438,193,884	22
Reserve for land value increment tax	56,158,899	3	56,165,452	3
Long-term contracts payable	327,487	-	3,448,558	-
Deferred income	540,265	-	657,602	-
Net confirmed benefit debt	26,593,341	1	25,221,241	1
Other	5,416,621	-	5,356,112	-
Total of non-current liabilities	**1,276,100,805**	**64**	**1,207,869,501**	**60**
Total liabilities	**1,731,512,976**	**87**	**1,708,707,065**	**86**
Stockholders' Equity Attributable to the Company				
Ordinary share capital	330,000,000	17	330,000,000	16
Losses to be compensated	(70,938,037)	(4)	(36,027,779)	(2)
Other interest	4,606	-	20,628	-
Total stockholders' equity	**259,066,569**	**13**	**293,992,849**	**14**
Total liabilities and stockholders' equity	**$ 1,990,579,545**	**100**	**$ 2,002,699,914**	**100**

Taiwan Power Company – Statements of Income

Unit: NT$ 1,000

	2017		2016	
	Amount	%	Amount	%
Operating revenues				
Sales of electricity	552,892,420	98	555,954,164	98
Other operating revenues	13,911,139	2	13,336,312	2
Total operating revenues	**566,803,559**	**100**	**569,290,476**	**100**
Operating costs	522,246,003	92	504,380,930	89
Gross profits	44,557,556	8	64,909,546	11
Operating expenses				
Marketing	6,955,993	1	6,444,992	1
General and administrative	1,809,243	-	2,269,817	-
Research and development	3,961,388	1	3,909,285	1
Total operating expenses	**12,726,624**	**2**	**12,624,094**	**2**
Operating net profits	31,830,932	6	52,285,452	9
Non-operating income and expenses				
Income from interests	4,105,619	1	4,067,176	1
Recovery of the tariff stabilization preparatory fund	3,882,751	1	-	-
Other benefits and losses	2,291,355	-	1,237,946	-
Financial costs	(19,226,024)	(3)	(19,004,312)	(3)
Share of corporate profit or loss recognized using the equity method	268,457	-	191,764	-
Total operating income and expenses	**(8,677,842)**	**(1)**	**(13,507,426)**	**(2)**
Pre-tax profit	23,153,090	5	38,778,026	7
Minus: Income tax payments (returns)	2,438,143	1	(3,750,943)	(1)
Net profit of reporting period	20,714,947	4	42,528,969	8
Other comprehensive income				
Items that will not be reclassified subsequent to profits or losses				
Remeasurement of defined benefit plans	(1,131,162)	-	(965,233)	-
Share of other comprehensive income recognized using the equity method	(5,027)	-	(3,871)	-
Relevant income tax for items that will not be reclassified	192,901	-	291,661	-
Total of items that will not be reclassified subsequent to profits or losses	**(943,288)**	**-**	**(677,443)**	**-**
Items that may be reclassified subsequent to profits or losses				
Share of other comprehensive income recognized using the equity method	(18,207)	-	(4,484)	-
Relevant income taxes for items that may be reclassified subsequently	2,185	-	538	-
Total of items that may be reclassified subsequent to profits or losses	**(16,022)**	**-**	**(3,946)**	**-**
Other comprehensive income for the reporting period	(959,310)	-	(681,389)	-
Total comprehensive profits or losses for the reporting period	$ 19,755,637	4	$ 41,847,580	8
Earnings per share (NT$)	$ 0.63		$ 1.29	

Taiwan Power Corporation Employee Compensation and Benefits

Unit: NT$ 1,000

	2017	2016
Employment retirement benefits		
Defined contribution plan	629,052	633,473
Defined benefit plan	1,421,754	1,307,386
Total of employment retirement	**2,050,806**	**1,940,859**
Other employee benefits		
Payroll expenses	19,880,523	20,580,719
Insurance costs		
Labor and civil servant insurance premium	898,010	826,028
National health insurance premium	1,129,821	1,140,389
Other	11,507,318	11,537,984
Total of other employee benefits	**33,415,672**	**34,085,120**
Total of employee compensation and benefits	$ 35,466,478	$ 36,025,979
functional expenditures		
Operating costs	30,102,262	30,673,900
Operating expenses	5,364,216	5,352,079
Total of employee compensation and benefits	$ 35,466,478	$ 36,025,979

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Assurance Statement

ASSURANCE STATEMENT

SGS TAIWAN LTD.'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE TAIWAN POWER COMPANY's CORPORATE SOCIAL RESPONSIBILITY REPORT FOR 2018

NATURE AND SCOPE OF THE ASSURANCE/VERIFICATION

SGS Taiwan Ltd. (hereinafter referred to as SGS) was commissioned by Taiwan Power Company (hereinafter referred to as TPC) to conduct an independent assurance of the Corporate Social Responsibility Report for 2018 (hereinafter referred to as CSR Report). The scope of the assurance, based on the SGS Sustainability Report Assurance methodology, included the sampled text, and data in accompanying tables, contained in this report.

The information in the TPC's CSR Report of 2018 and its presentation are the responsibility of the management of TPC. SGS has not been involved in the preparation of any of the material included in TPC's CSR Report of 2018.

Our responsibility is to express an opinion on the report content within the scope of verification with the intention to inform all TPC's stakeholders.

The SGS protocols are based upon internationally recognized guidance, including the Principles contained within the Global Reporting Initiative Sustainability Reporting Standards (GRI Standards) 101: Foundation 2016 for accuracy and reliability and the guidance on levels of assurance contained within the AA1000 series of standards and guidance for Assurance Providers.

This report has been assured using our protocols for:

- AA1000 Assurance Standard (2008) Type 1 evaluation of the report content and supporting management systems against the AA1000 Accountability Principles (2008); and
- evaluation of the report against the Global Reporting Initiative Sustainability Reporting Standards (2016)

The assurance comprised a combination of pre-assurance research, interviews with relevant employees, superintendents, CSR committee members and the senior management in Taiwan; documentation and record review and validation with external bodies and/or stakeholders where relevant. Financial data drawn directly from independently audited financial accounts has not been checked back to source as part of this assurance process.

STATEMENT OF INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS affirm our independence from TPC, being free from bias and conflicts of interest with the organisation, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors registered with ISO 26000, ISO 20121, ISO 50001, SA8000, EICC, QMS,

EMS, SMS, GPMS, CFP, WFP, GHG Verification and GHG Validation Lead Auditors and experience on the SRA Assurance service provisions.

VERIFICATION/ ASSURANCE OPINION

On the basis of the methodology described and the verification work performed, we are satisfied that the information and data contained within TPC's CSR Report of 2018 verified is accurate, reliable and provides a fair and balanced representation of TPC sustainability activities in 01/01/2017 to 12/31/2017.

The assurance team is of the opinion that the Report can be used by the Reporting Organisation's Stakeholders. We believe that the organisation has chosen an appropriate level of assurance for this stage in their reporting. In our opinion, the contents of the report meet the requirements of GRI Standards in accordance with Core Option and AA1000 Assurance Standard (2008) Type 1, Moderate level assurance.

AA1000 ACCOUNTABILITY PRINCIPLES (2008) CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

Inclusivity

TPC has demonstrated a good commitment to stakeholder inclusivity and stakeholder engagement. A variety of engagement efforts such as survey and communication to employees, customers, investors, suppliers, CSR experts, and other stakeholders are implemented to underpin the organization's understanding of stakeholder concerns. For future reporting, TPC may proactively consider having more direct two-ways involvement of stakeholders during future engagement.

Materiality

TPC has established effective processes for determining issues that are material to the business. Formal review has identified stakeholders and those issues that are material to each group and the report addresses these at an appropriate level to reflect their importance and priority to these stakeholders.

Responsiveness

The report includes coverage given to stakeholder engagement and channels for stakeholder feedback.

GLOBAL REPORTING INITIATIVE REPORTING STANDARDS (2016) CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

The report, TPC's CSR Report of 2018, is adequately in line with the GRI Standards in accordance with Core Option. The material aspects and their boundaries within and outside of the organization are properly defined in accordance with GRI's Reporting Principles for Defining Report Content. Disclosures of identified material aspects and boundaries, and stakeholder engagement, GRI 102-40 to GRI 102-47, are correctly located in content index and report. For future reporting, it is recommended to have more descriptions of TPC's involvement with the impacts for each material topic (103-1), and how efforts were given to mitigate the impacts. When reporting on goals and targets for each material topic, the expected results are suggested to be set, if applicable, with quantitative objectives

Signed:
For and on behalf of SGS Taiwan Ltd.

David Huang, Director
Taipei, Taiwan
27 June, 2018
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