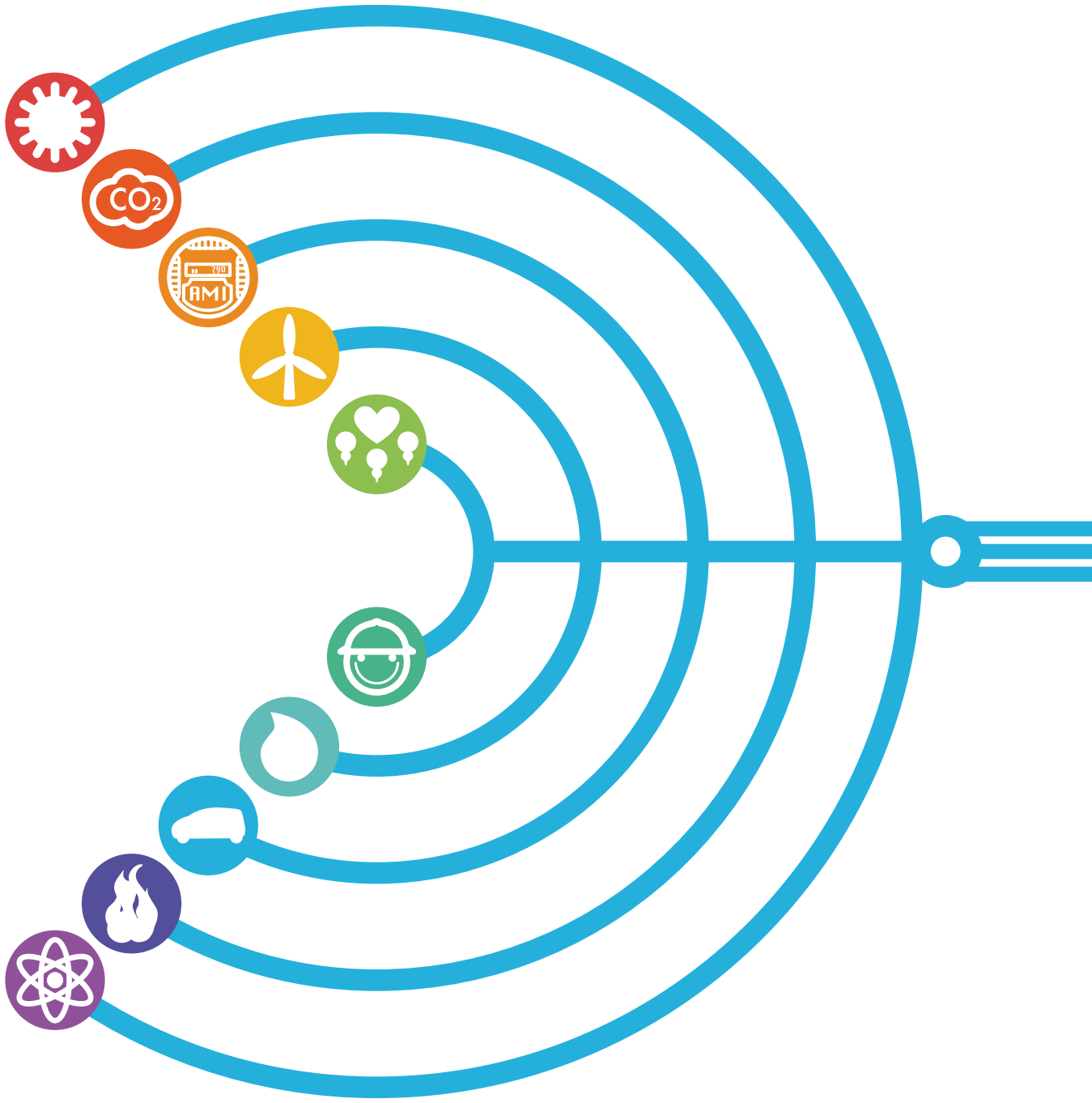
Taiwan Power Company Sustainability Report

2012



Taiwan Power Company Sustainability Report

Editorial Policy

This is the sixth issue of the annual Sustainability Report published by the Taiwan Power Company ("Taipower"). This edition of the report follows the G3.1 guidelines of the Global Reporting Initiative (GRI) as well as the accountability principle standard (APS) set forth in AA 1000 APS (2008). The information compiled and disclosed here is based on three principles: inclusivity, materiality and responsiveness.

The focus of Taipower Sustainability Report 2012 is on "Sustainability Issues". The purpose of this report is to demonstrate to the public and the stakeholders Taipower's dedication and achievements in the management and implementation of sustainability through the following 3 aspects: management economy, social responsibility, and environmental sustainability.

Period Covered by the Report

From January 1 to December 31, 2011 (for the sake of complete disclosure, some major issues in this report also cover data in 2010 and part of 2012).

Scope of the Report

This report contains data and information regarding sustainability issues and achievements within the areas of management economy, social responsibility, and environmental sustainability. Taipower has voluntarily adopted the GRI G3.1 Guidelines and AA 1000 standard for the preparation of this report and this report has been confirmed by SGS-Taiwan to conform to GRI level A+ requirements.

Inquiries

This report is available in both Chinese and English. The complete report (in the PDF format) can be downloaded from the Taipower website (http://www.taipower.com.tw/). In addition, Taipower has a dedicated webpage of Sustainable Development to communicate with stakeholders about our performance in related sustainability issues. Our next sustainability report is planned for publication in the third quarter of 2013.

Taipower sincerely hopes that the publication of this report will provide interested parties with a better understanding of Taipower's sustainability efforts. Your suggestions or comments regarding this report are welcomed by Taipower and you may contact us through one of the following methods:

Taiwan Power Company

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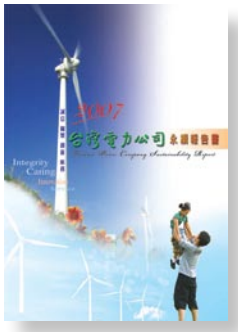
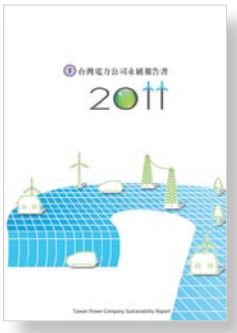


2007 Sustainability Report/
Published in August 2007

2008 Sustainability Report/
Published in August 2008

2009 Sustainability Report/
Published in August 2009

2010 Sustainability Report/
Published in August 2010



2011 Sustainability Report/
Published in August 2011

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Table of Content

Profile of Taipower

The Taiwan Power Company ("Taipower") was established on May 1, 1946. It is a vertically integrated power utility. Its business scope includes: power generation, power transmission, power distribution and power sales. It's the sole power sales company in Taiwan. The electricity produced by independent power producers (IPPs) and cogeneration is sold in bulk to Taipower, who in turn sell this to the customer.

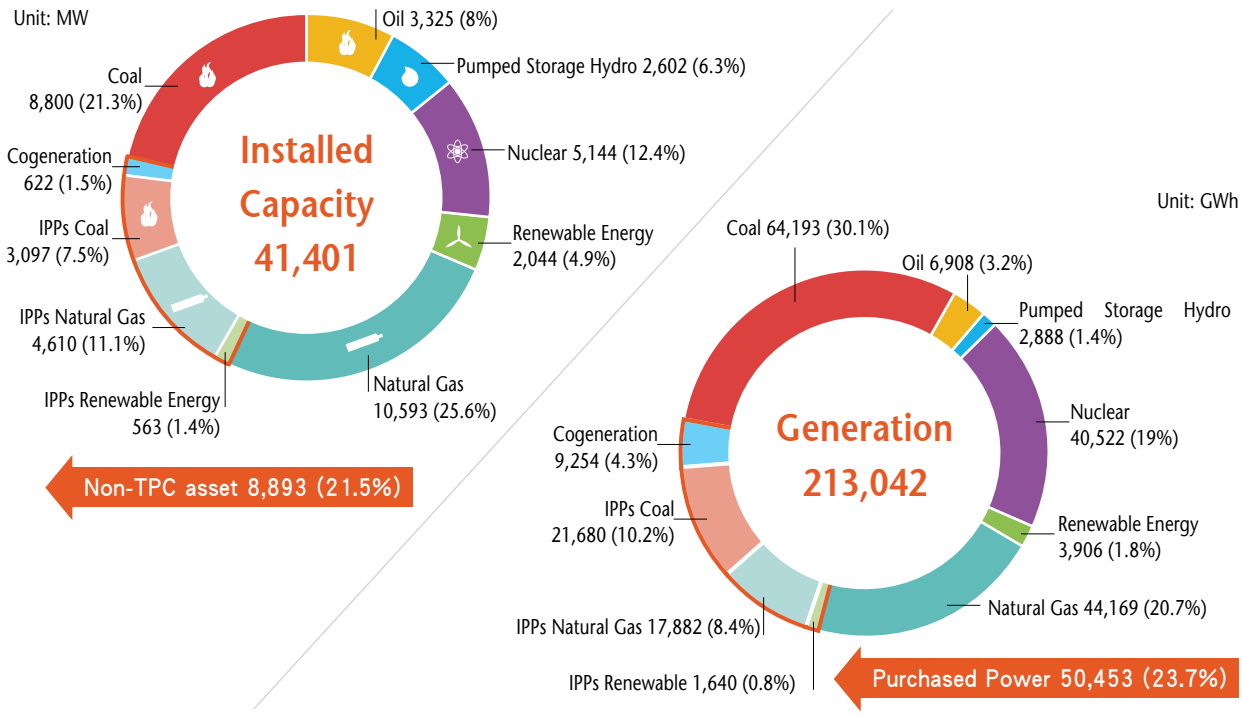
As of the end of 2011, the total installed capacity of Taiwan's power system reached 41,401 MW, of which Taipower accounted for 32,508MW and Non-Taipower assets for 8,893 MW. The major energy sources comprise hydro, thermal, nuclear, and renewable. The power grid includes 584 substations and transmission & distribution lines totaling 357,000 KM, providing electricity to a population of 23 million people in Taiwan, and the offshore islets of Penghu, Kinmen, and Mazu.

Taipower is a public utility shouldering the obligation of power supply. To meet future power demand and ensure sufficient power sources, in recent years, Taipower has been actively promoting various large-scale power development projects in the hope that the generation mix of base, mid, and peak loads can be improved and the reasonable reserve margin target figure of 16% can be maintained. To establish a sound power grid, the implementation of the Seventh Power Transmission and Substation Project will continue. In addition, a smart power grid will be developed in phases to cope with the requirements of high-tech industries for power quality.

Taipower understands quite well that it will confront challenges from competition in its near future after the liberalization of the power market. A broader international vision, a combination of more efficient management technologies and management strategies that focus on social responsibility and sustainable development will all be keys for Taipower to maintain its sustainable growth and improvements.

Recently, Energy Conservation and Carbon Reduction have become important management issues for the global power industry. In order to demonstrate its concern about the global warming issue, and to comply with the government's Sustainable Energy Guidelines, Taipower has formulated the Greenhouse Gas Regulation Strategy to undertake the measures of greenhouse gas reduction and inventory monitoring, increase its ratio of renewable energy, and promote green electricity to fulfill its responsibility as a corporate citizen in the international power industry.

Installed Capacity and Generation Mix in 2011



Founded: May 1, 1946

Coverage: Taiwan, Penghu, Kinmen, Matsu areas

Capital: NT$330 billion

Stock: 96.92% government-owned, 3.08% public-owned

Total assets: NT$1,629.7 billion

Employees: 27,261

Customers: 12.77 million

Resident	11,398,498 household	Industrial	210,288 household
Commercial	988,827 household	Others	170,431 household

Installed capacity: Taipower System: 41,401 MW,
(32,508 MW Taipower-owned)

Power generated and purchased: 213,042 GWh

Energy sales: 198,637 GWh

Taipower Management Philosophy

Integrity
To provide accurate information to customers, employees and shareholders.

Innovation
To create customer value and enhance corporate competitiveness.

Caring
To work whole-heartedly and proactively for the benefit of the public.

Service
To fulfill internal and external customer demand based on the "customer first" concept.

Taiwan Power Company's corporate culture is "people-first" and "the pursuit of excellence", "integrity" and "caring" are the management philosophy of "people-first", "innovation" and "service" are the management philosophy of "the pursuit of excellence".

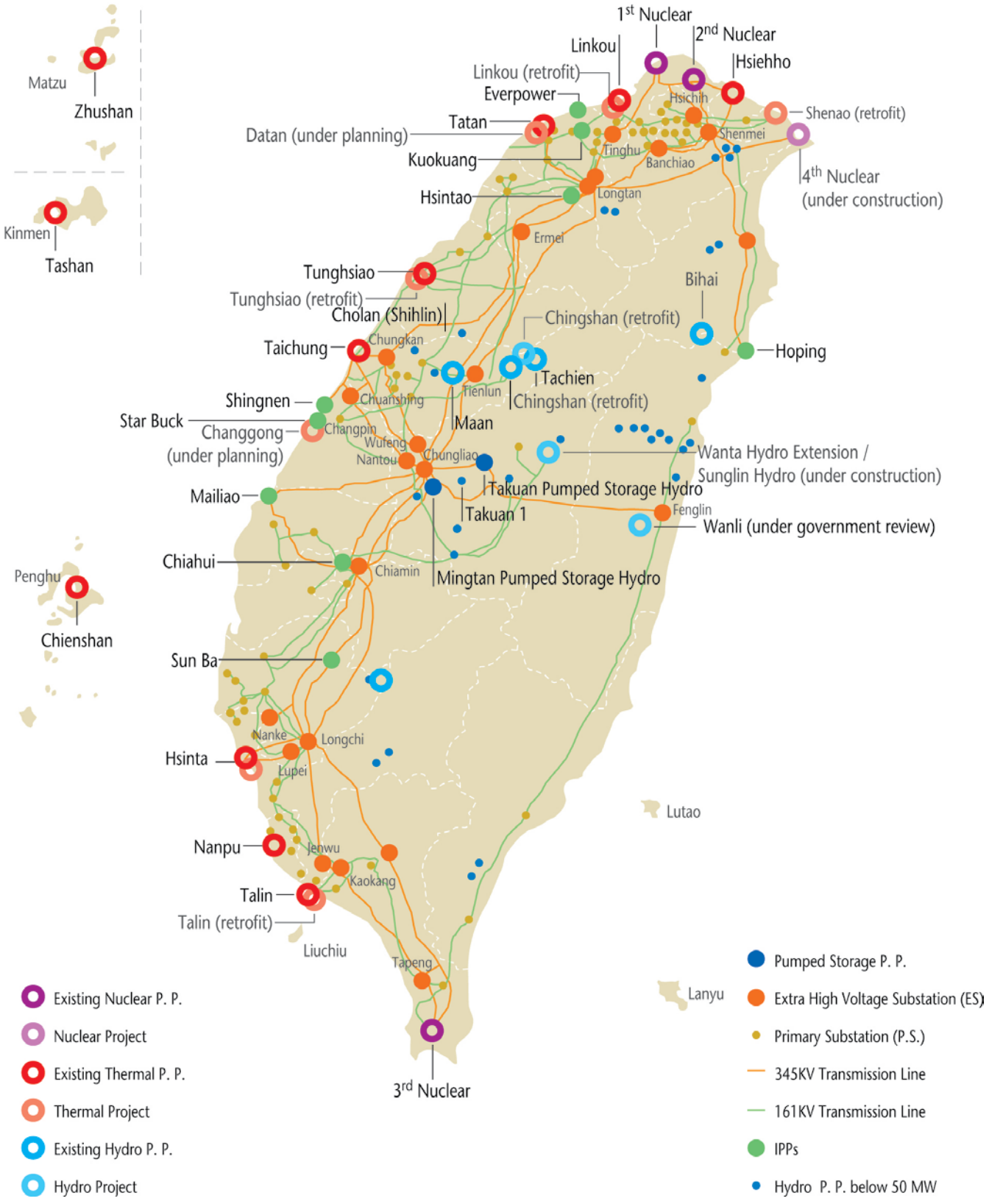
Taipower Mission

To offer diverse services to satisfy our customers' demands, to promote the nation's competitiveness, and to protect the interests of our employees and shareholders.

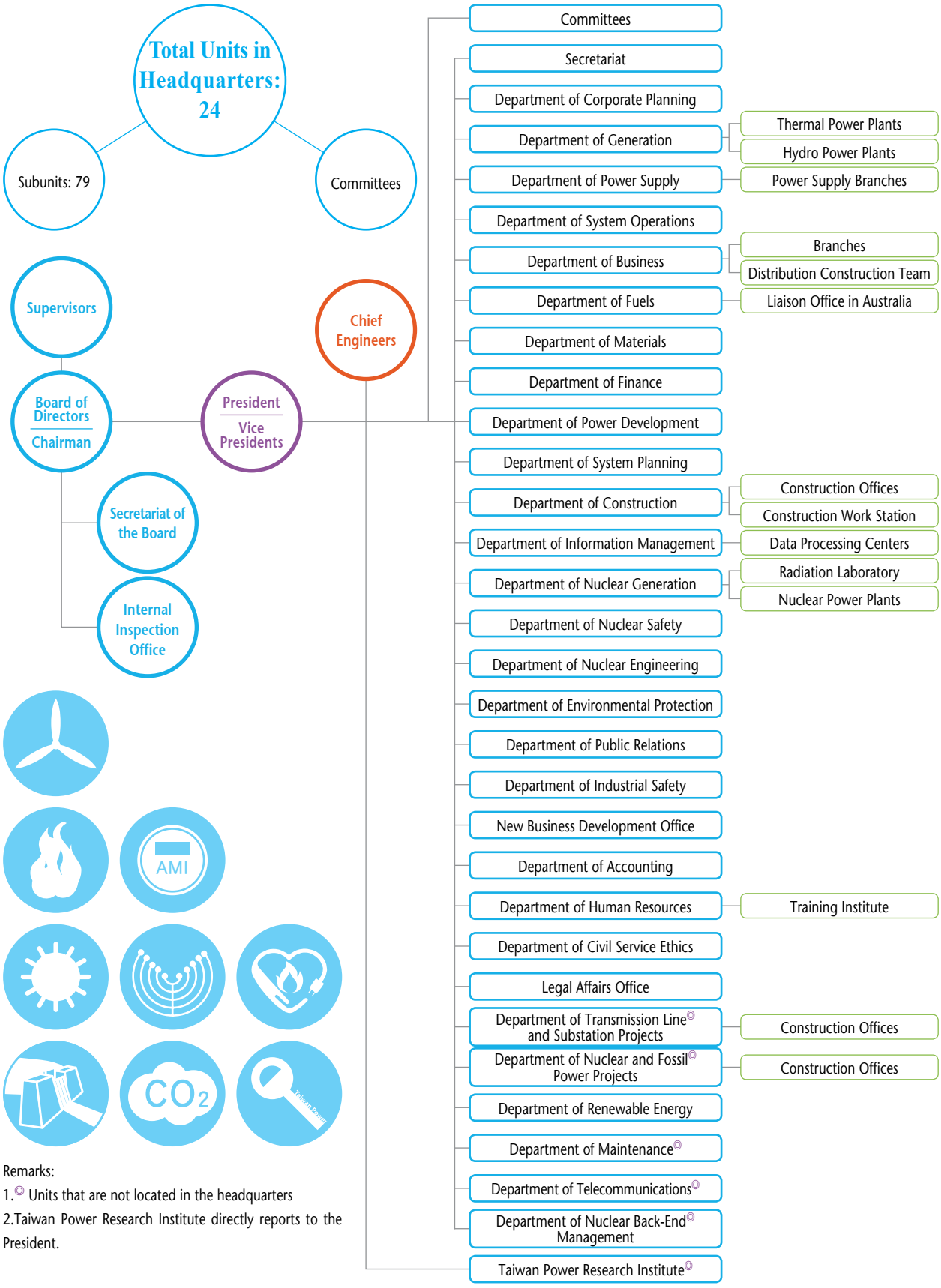
Taipower Vision

To become a prestigious and world-class power utility group.

Power Development and Power Grid Map



Taipower Organization Chart



Remarks:

1.© Units that are not located in the headquarters

2.Taiwan Power Research Institute directly reports to the President.

Letter from the Chairman

How time flies, it has been one year since our last report. As always, we uphold an attitude of integrity to enhance the transparency of our operation, continue to communicate with our stakeholders, and construct a viable system of corporate governance. There is one thing worth mentioning in 2011 that the "2011 Taiwan Power Company Sustainability Report" was conferred the Gold Award of the "Taiwan CSR Awards" by the Taiwan Institute for Sustainable Energy(TAISE). This award symbolizes the recognition of Taiwan Power Company of its effort in the disclosure of corporate information and communication with society so that the stakeholders can understand the endeavor of Taipower in economic, environmental, and social aspects.

Looking back over the past year, 2011 was the year full of challenges and trials. The tariffs did not reasonably reflect the operating costs, and Taipower's financial soundness and sustainable development were impacted. The launch of the power infrastructure projects was blocked, which significantly affected the capacity of power generation in the future. Climate change challenged the capacity of the electrical industry in carbon reduction and its preparedness in the prevention of disasters. International fuel prices stayed high, which significantly affected the security and stability of fuel supply. The 311 nuclear disasters at Fukushima, Japan stunned the whole world and compelled people to pay the utmost attention to the nuclear safety. The announcement of a new energy policy by the government of the ROC in November 2011 set forth the principle of "no rationing of power supply, maintaining tariffs at a reasonable level, and attuning to international carbon reduction commitment" thereby triggered the vision of energy development under "assurance of nuclear safety, reduction of nuclear energy in stable paces, create a low carbon environment, moving towards a nuclear-free homeland gradually". These are the new challenges that Taipower has yet to tackle.

In response, Taipower takes proactive action in examining the overall safety of the nuclear power plants and seeks to upgrade nuclear safety comprehensively in order to enhance its productivity and operation capacity. In addition, Taipower also proactively seeks to develop renewable energy, improves the energy source mixture, and also fortifies its customer service to provide quality power more efficiently. In the long run, Taipower expects to establish a tariff review mechanism in order to ease its financial burden. In 2011, Taipower still performed well in sustainable management, including:

1. Completed the construction of a hydroelectric power facility at Bihai of Heping River, phase I of solar power generation (Xingda raw water pool and the solar power facility in the Yongan salt precipitation zone), turbine No. 4 to No. 8 for wind power generation at Datan, wind power generation facilities at Wanggong, Changhua and Linkou for renewable energy generation. In addition, Taipower enhanced its capacity in low carbon power generation, and the power generation by natural gas in 2011 increased by 2,553 GWh in comparison with the 2010 level.

2. In supporting of the "Voluntary Reduction of Greenhouse Gas Emission by the Energy Industry Project" advocated by the government, Taipower achieved total reduction volume by more than 98% of the plan supervised by the Energy Bureau. In 2011, Taipower had reduced carbon emission by 6.76 million tons of CO_2e, which was recognized under the ISO 14064-2 standard. As of December 31 2011, Taipower has accumulated the verification amount of 12.85 million tons of CO_2e.

3. In supporting of the government policy of energy saving and carbon reduction, Taipower continued to launch the "Power Tariff Discounts Incentive for Energy Conservation" and energy conservation competitions in the counties and cities. Under such incentive, 3,791 GWh of electricity supply has been saved amounting to tariff discounts of NT$7.932 billion.

4. Taipower continued its effort in social charities, such as "Light up for love – Cares for the single senior citizens at year end" and scholarship for the students from poor and low income families in the surrounding area of power generation facilitates. Furthermore, Taipower also launched the "I Love Mammy Earth" campaign in the kindergartens in Taipei, New Taipei City, and Keelung to educate young children in energy conservation through storytelling and help them to nurture the idea of energy saving from a very young age. These young children were encouraged to bring the idea of energy conservation home to share with their parents in their daily lives.

Taipower has been recognized in its management operation, including the Gold Award of the "Best Innovative Power Generation Technology of the Year" from 2011 Asia Electrical Power Contest with its "Application of Google Map Application of information platform of lightning shock", and the Silver Award of the Asian Power Awards 2011 with its thermal power generation scheme with gas at Datan. These recognitions contributed to the upgrade of its international image and broadened its horizons worldwide.

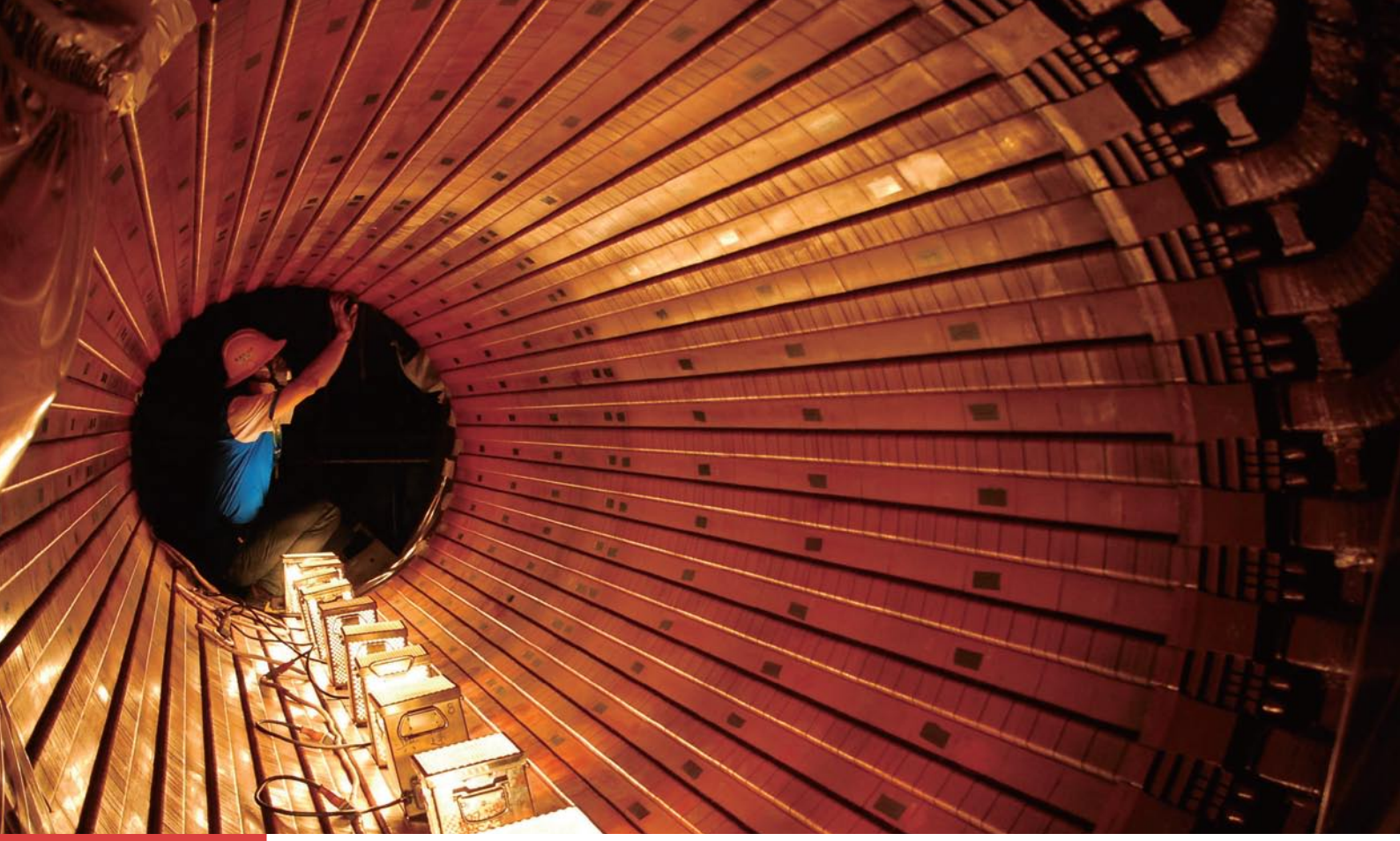
The key issues of sustainability disclosed in the sustainability report of this year include eight issues: improving energy source mixture, developing renewable energy, strengthening nuclear power generation safety, launching smart grid, coping with the climate change and the challenges of greenhouse gas reduction, cultivating electric power professionals, ensuring fuel supply security and stability, and promoting reasonable tariff schedules. We hope to communication our proposed goals with our stakeholders and commit our full efforts with determination to achieve them.

Looking forward to the future, communication with the public will be the essential issue for Taipower. We will review the performance of Taipower from the point of view of the public with a humble attitude, and will continue to disclose and present relevant information in a way that is easy to be understood by the public. In terms of business operation, Taipower will continue to cultivate positive interactions with stakeholders at all levels, including its customers, shareholders, employees, supply chain partners (upstream vendors, IPP, and renewable energy contractors), contractors, and friendly community and social care groups. Taipower will maintain the symbiotic "partnership" relation with the stakeholders from the perspective of creating value in a joint effort. In addition to the continued publication of the annual sustainability report, Taipower also included the third-party verification this year to demonstrate the validity of its disclosed content.

Taipower vows to be a distinguished corporate citizen and seek to satisfy the needs of society in power consumption, enhance the stability and safety of power supply, and avail itself as the foundation for national economic development. Taipower possesses a thankful heart and will work hand-in-hand with its stakeholders in the realization of a win-win position. Taipower will take action to fulfill its commitment of social concerns in "supplying power as needed with a sense of love and heartiness". We ask for your continued support, encouragement, and advice.

Sincerely,
Chairman

Hwang, Jung-Chiou



Key Issues of Sustainability

The sustainable development philosophy of Taipower is to enhance energy efficiency through continuing improvement in professional knowledge and technologies, using more renewable energy and introducing advanced clean energy technologies to provide the public with reliable, high-quality power service. Taipower believes that the sustainable development of the power industry must give consideration to "energy security", "economic development" and "environmental protection" in order to satisfy the needs of future generations.

Sustainable Development Philosophy

Utilize the Earth's limited natural resources efficiently. Support national economic development and social progress with the minimum power development and highly efficient management performance.	Pay attention to the balanced development of energy security, economic efficiency and environmental quality while engaging in power development projects.	Base decisions on the management philosophy of integrity, caring innovation and service to fulfill corporate social responsibility and share a bright future with stakeholders.

Transparency and Transformation – Create a better Future for Sustainability

In retrospect, Taipower faced severe challenges towards sustainable management in 2011. Yet, we commit to all stakeholders in the following four aspects. In addition to our effort in conducting reviews and seeking improvement, Taipower will maintain high ethical standard and professional attitude in our service to face any hardship, to turn crisis into opportunity, and to create a new epoch for the development of the electricity industry.

1. Full information disclosure: Taipower will make information about tariff, procurement, and fuels cost transparent to the public through related interfaces and channels in its entirety.

2. Effective social communication: Communication does not rely only on language, but also on practice, and attitude. In this consumer-oriented era, Taipower will communicate with the public and the stakeholders in plain and straightforward language and with a direct approach for better understanding and recognition.

3. Conscientious improvement in management performance: The Ministry of Economic Affairs brought together the elite from different social sectors and organized a management performance improvement team. This team has set forth a few key topics while sharing their experience and wisdom with Taipower. Whether they are recommendations or decisions, Taipower should take active action and respond directly to social expectations.

4. Implement corporate social responsibility: In addition to our continuous attention in human resources development, Taipower will also treat its downstream contractors as our own employees, persist in our social care and promote environmentally-friendly campaign.

In the future, Taipower's decision and core mindset must attract more stakeholders' attention and earn their understanding. Taipower is convinced that through transparency and attitude transformation we will gradually achieve the equilibrium of profitability and sustainability. This is the only way to earn the trust of the public and is also critical for Taipower to move towards sustainable management development.

Defining the Sustainability Issues

The emphasis in the Taipower Sustainability Report 2012 is still on the selection of and response to key sustainability issues. We believe this will benefit and help Taipower in its management and its coping with the challenges brought by rapid changes of society and the environment. Through the following 4 stages of discussion, the sustainable issues to be disclosed in this report were identified.

Stage 1 Clarify, comprehend, and compile 2011 information from the following sources:

- Relevant laws and regulations
- Stakeholders' (internal and external) feedback and suggestions
- Media and the Internet reports
- Organizational representatives
- International power industries

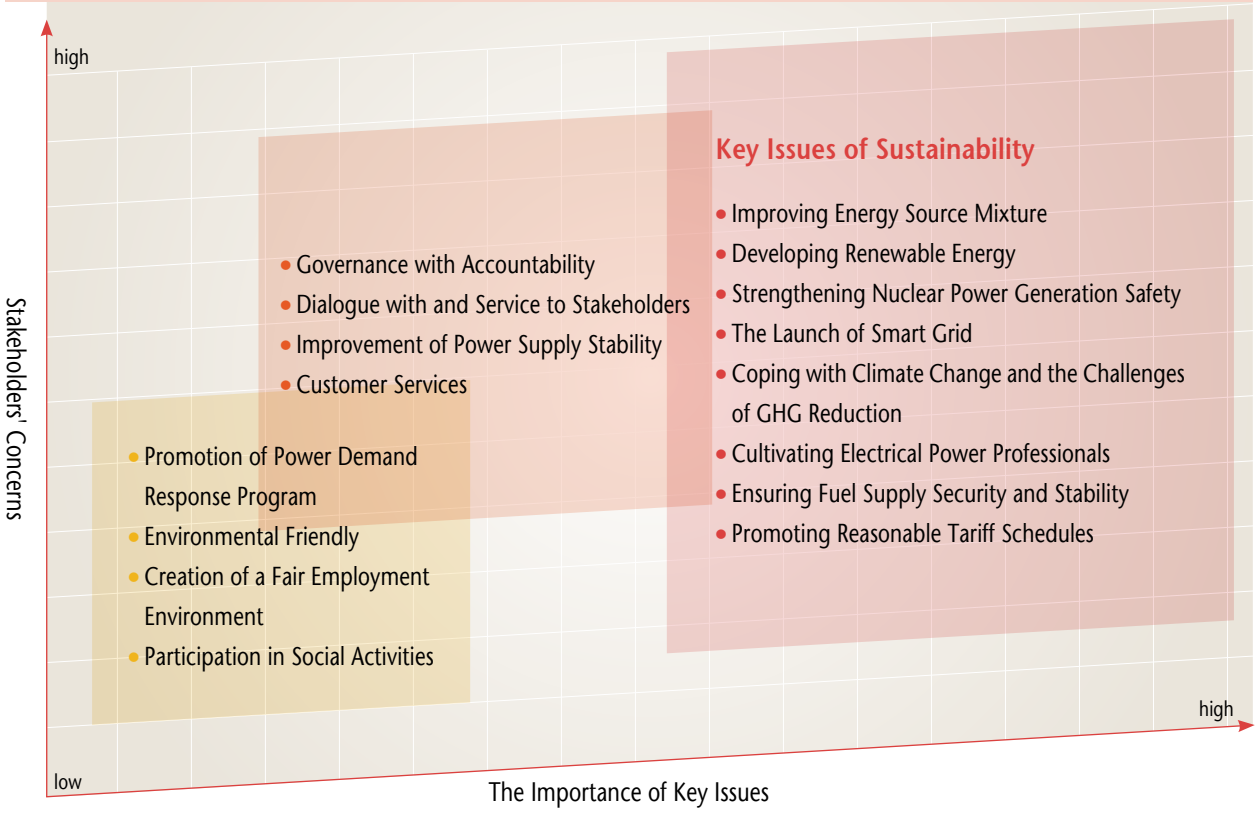
Stage 2 The "Sustainability Issues Meeting" was convened with representatives from the "Management Development Promotion Team," "Sustainable Environment Promotion Team," and "Social Responsibility Promotion Team". After a comprehensive discussion in accordance with Taipower's sustainable development principles and strategies and management development direction, each aspect of sustainability issues and key sustainability issues were confirmed. The importance of the issues was based on:

- Impact on the future Taipower management development
- Level of concern of the public and stakeholders
- Taipower's sustainability principles and their impact on the economy, environment, and society

Stage 3 The conclusions from the discussions were narrowed down to become the "Taipower Sustainability Issues Matrix". To ensure the completeness and accuracy of the issues, representatives from the sustainability promotion teams worked with the relevant units to define the issues and framework of the Taipower Sustainability Report 2012.

Stage 4 The members of the Taipower Sustainable Development Committee conducted the final review to ensure the completeness and accuracy of "sustainability issues" and "response information," while also taking into consideration the stakeholders' viewpoints.

2011 Taipower Sustainability Issues Matrix



New Energy Policy

The outbreak of the nuclear disaster at Fukushima in 2011 stunned the whole world and made people anxious and panicked about power generation by nuclear energy. The government of the ROC also took positive action in reviewing its energy policy and announced its new energy policy of nuclear energy reduction in November of the same year.

The new energy policy set the vision of energy development under the principle of "assurance of nuclear safety, reduction of nuclear energy in stable paces, creation of a low carbon environment, and moving towards a nuclear-free homeland gradually". In practice, effort has been made to save energy and reduce carbon emission and maintain sufficient and stable supply of electric power under the principle of no rationing of power supply, maintaining tariffs at a reasonable level, and attuning to international carbon reduction commitment.

Under the planning of the new energy policy, there will be no extension of the service term for nuclear power plants. Therefore, the sources of power supply must be found elsewhere, which turned into a burden to find other forms of power generation. As such, Taipower takes the following measures to ensure the stability of power supply.

Reduction of nuclear power in stable paces

- Ensure the units #1 and #2 under construction at Nuclear Plant 4 enters commercial running safely.
- All nuclear power generation devices currently in service will be phased out after 40 years of service.
  1. In Nuclear Power Plant No. 1, Units #1 and #2 will be phased out in December 2018 and July 2019, respectively.
  2. In Nuclear Power Plant No. 2, Units #1 and #2 are planned to be phased out in December 2021 and March 2023, respectively.
  3. In Nuclear Power Plant No. 3, Units #1 and #2 are planned to be phased out in July 2024 and May 2025, respectively.
- The power generation capacity from nuclear facilities will be reduced from 12.4% of the total in 2011 to 4.3% in 2025.

Intensification of the development of renewable energy

- In responding to the reduction of power generation by nuclear facilities and the substantial increase in the volume of carbon gas emission, the government intensified the development of renewable energy.
- The development of renewable energy is full of uncertainty. Pragmatic assessment of the feasibility of development is necessary in the short run to avoid excessive optimism, which in turn may affect the capacity of power supply. In the long run, we would follow the government development goal and projects that the power supply from this source will account for 15.5% of the total power supply in 2025. (Including regular hydroelectric power).

Rational use of natural gas

Taipower is taking active effort in the construction of natural gas power plants. The double circulation system of units #1~#4 at Tongxiao has been updated. Four power units will be added to Datan Power Plant with capacity of 720MW. In addition, the system in the Changhua Industrial Zone, Daxing Power Plant will be included in the plan with the addition of new systems for power generation. It is expected that power generated by natural gas will account for 36.6% of the total power supply in 2025.

Key Sustainability Issues and Response

In the sustainability development committee meeting of 2011 at Taipower, the committee members reviewed and discussed the result of the key sustainability issues and management performance in 2011,compared with the the performance in 2010 and listed the result of the key sustainability issues in 2011:

Key Sustainability Issue	Commitment
Improving Energy Source Mixture (p.36)	Provide abundant energy sources and balance regional power supply.
Developing Renewable Energy (p.39)	Annual increment in the purchase of power supply from renewable energy.
Strengthening Nuclear Power Generation Safety (p.29)	Strengthen the safety of nuclear power generation, improve operational performance, and earn the trust of the public in nuclear safety.
Launch Smart Grid (p.36)	Satisfy customers' diversified demand, strengthen power grid and establish a smart grid in order to provide the public with stable, reliable, reasonable-priced and quality electricity.
Coping with the Climate Change and the Challenges of Greenhouse Gas Reduction (p.44)	Follow the objective assigned by the government and related policy guidelines for reduction and put the "Master Plan of Carbon Reduction at Taipower" and related action plans into practice.
Cultivating Electrical Power Professionals (p.67)	Continue to cultivate electric power professionals and promote the passing on core technologies to cope with the human resource transition.
Ensuring Fuel Supply Security and Stability (p.37)	Strengthen energy supply security to ensure a stable fuel supply for power generation.
Promoting Reasonable Tariff Schedules (p.90)	Continue to disclose information related to operations to enhance the public's understanding of Taipower; establish a reasonable tariff schedule adjustment mechanism and promote reasonable tariff schedules.

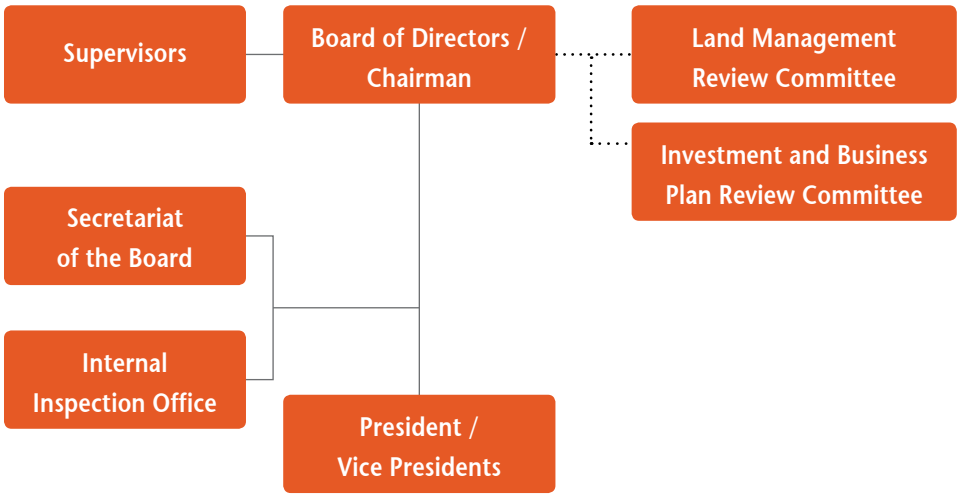



Goal	2011 Performance Achievements
• Spare capacity in 2022 will be 15.5% in responding to the call of the government under the "new energy policy". The power supply capacity during peak hours will be sufficient in northern, central, and southern Taiwan.	• "Dalin Power Plant Upgrade Plan" had been adjusted in line with the conclusion of environmental assessment. Related amendment plans were presented in March 2011.
• In 2030, the capacity of Taipower facility will be 3.5 GW (including regular hydroelectric power).	• Installed electric power generation capacity by 63.3MW in hydroelectric power, 39.6MW by wind power, and 6.1MW by solar power, and outsource for 5,546 GWh (2.65% of the total).
• Continue to strengthen and improve the comprehensive safety assessment of nuclear safety. • Enhance the resistance to earthquake and tsunami waves. • Streamline manpower/organizational operation and strengthen nuclear power generation safety. • Strengthen promotion and communication for nuclear power generation to the public.	• Completed the safety check at all nuclear power plants. • Completed pressure test on all in-service nuclear power plants. • Established a procedure for emergency situations. • Conducted composite drills in the prevention of disasters. • In 2011, nuclear power supply accounted for 40,522 GWh. • Zero failure record for 6 units in the whole year with an average capacity factor at 93.06%, which is a record high. Annual reduction of carbon emission reached 34 million tons.
• Implement the 7th Power Transmission and Substation Project, with an investment estimated at NT$238.9 billion over 6 years responsible for constructing and expanding 130 substations with a total capacity of 23,560 MVA, and total length of transmission lines reaching 2,370 ckt-km.	• Introduced new transmission and substation technologies to upgrade the capacity of main transmission lines. • Continued to promote the automation of the feedback loop and develop the smart power distribution network.
• Fulfill the carbon reduction goal stipulated in the "National Master Plan on Energy Conservation and GHG Emission Reduction". The quantity of emissions in 2020 should be reduced to the level of that in 2005, and in 2025 to the level of that in 2000.	• A number of preliminary projects and replacement plans had been studied in conformity to the "The Principle of Preliminary Project of Greenhouse Gas Reduction and Replacement Plan" launched by the Environmental Protection Administration of Executive Yuan, and the confirmation of reduction and the quantity of reduction have been applied.
• Recruit new employees as planned, cultivate the professional capability, and the strengthen utilization of human resources.	• Continued to provide a wide array of training programs for employees to fulfill their needs for self-improvement and carry on technological-know- how. • In 2011, Taipower recruited 493 new employees to avoid the interruption of human resources and to carry on technological-know-how. • Established a scholarship system in universities at the graduate level and post-graduate level in disciplines of special skills and uncommon subjects as incentive for training professionals to possess special skills in power generation.
• Provide fuels to the power plants in the right quality, the right quantity, and at the right time to ensure power supply security and stability.	• Ensured fuel supply security and stability and maintained fuel needed for power plants at safety inventory targets. • In 2011, the total fuel procurement expense was reduced by NT$16.553 billion.
• Tariff rates should reasonably reflect the costs of power supply and encourage customers to make effective use of power through sending out correct pricing signals; Taipower should avoid cross-subsidy of electricity so that tariff rates can be effective and fair.	• Disclosed information on the financial position of Taipower on website perpetually and regularly for the review of the public. Reviewed the fuel cost item by item quarterly based on the resolution of tariff adjustment reached by the Legislative Yuan in 2008 and disclosed the cost structure of "quarterly weighed average cost of petrochemical fuels in power generation and supply per kWh" on the website. • Communicated with the competent authority in due time and continued to illustrate the rationality and necessity of tariffs adjustment.

Governance with Accountability

In a spirit of accountability, Taipower strengthened our corporate governance and risk management system, continue to educate our people with corporate ethics, enhance information transparency, and upgrade the effectiveness of corporate sustainable management performance.

Organization of the Board of Directors and Supervisors



Corporate Governance and Corporate Ethics

To reinforce its capacity in corporate governance, Taipower has officially formulated “Corporate Governance Regulations” in 2010. In addition to strengthening the function of the BOD and the supervisors, improving the internal control structure and respecting the rights and interests of the stakeholders, it also helps to establish a viable disclosure system to provide information on operation, financial position, BOD and shareholders for upgrading the information transparency. The mechanism covers:

Strengthening the Functions of Directors and Supervisors

Strengthening the Functions and Effectiveness of the Board of Directors

The Taipower Board of Directors consists of 15 directors (including 1 female director), including 5 managing directors, 2 independent directors (with 1 being a managing director) and 3 labor directors. A Board meeting is convened regularly each month. There are two functional project review committees for "Land" and "Investment and Business Plan." The two committees review important issues submitted by the managerial sector (all the units under the supervision of the president) before the meeting is held.

In 2011, Taipower had called for 11 meetings with the “Land” Review Team and 11 meetings with the “Investment and Business Plan” Review Team. The resolutions of these meetings helped to forge the decision of the BOD and are vital for the efficiency and effectiveness of the BOD in parliamentary procedure and operation.

Carrying out the Functions of Supervisors

The 3 supervisors attend Board meetings, monitor the operation of the company and carry out regular and irregular checks on the company’s financial and business conditions. In 2011, the supervisors all exercised their authority abiding by the regulations.

Strengthening the Effectiveness of the Shareholders’ Meeting

Shareholders’ Meetings are held once a year to ensure the rights of shareholders’ participation and decision-making in the company’s affairs. Minutes of the Shareholders' Meeting shall be recorded and posted on a government website and distributed to shareholders. The company shall also disclose relevant information concerning corporate governance in its annual report.

Establishing an Information Exchange Platform for Independent Directors, Supervisors, and Accountants

Taipower currently has 2 seats for independent directors and 3 seats for supervisors. They perform their assigned duties in accordance with Company Law and the Securities and Exchange Act. Taipower also planned to elect 3 independent directors in the General Meeting of Shareholders in 2013 in conjunction with the "Particulars of the implementation of the system of independent directors in businesses under the Ministry of Economic Affairs" promulgated by the Ministry of Economic Affairs for the official launch of the audit committee system (in lieu of the supervisor system).

Taipower appoints independent certified public accountants for the audit and certification of its financial statements. The independent directors and supervisors also take part in the assessment of the independence and competence of the accountants and call for regular meetings for information and opinion exchange. Before proceeding to the audit of the financial statements, the accountants will report the audit plan to the independent directors and supervisors. After the audit and certification of the financial statements, the accountants will report to the BOD for review and the supervisors review meeting, and will attend the meeting for exchanging points of view.

Improving the Internal Control Structure

- Taipower should make timely adjustments in the design and implementation of its internal control system in response to changes in the laws and environment.
- Taipower should implement its own internal auditing operation, and issue a Taipower Internal Control Effectiveness Statement and publish it in Taipower's annual report and the company's statement.
- The functions of internally important project audits and roving audits should be upgraded to enhance internal management performance.
- Information Security (IS) should be undertaken to ensure that each unit is executing IS management properly.

Strengthening the Information Disclosure System

A public information network was established. The company's operation, financial report, and relevant important information were periodically reported to raise the transparency of the company's operation information.

Proactively Promoting Education on Corporate Integrity Principle and Ethics Standards

- Properly enforce the "Ethics Code for Employees of the Ministry of Economic Affairs" promulgated by the Ministry of Economic Affairs.
- Actively educate the concept of corporate ethics code in anti-corruption and integrity through events, including the "2011 Energy Saving Propaganda Conference" held by Taipower and the "Transparency, Integrity, 2011" large-scale social participation and advocacy campaign.
- Taipower has instituted its "Regulation for Routine Inspection of the Code of Conduct", with reference to the evaluation report recommendation presented by the Taiwan Corporate Governance Association, in its "2011 State-Owned Enterprises Corporate Governance System" to make the corporate governance system viable, and improve and strengthen employees' concept of accountability and ethics code.

Comparison Table of Taipower and Corporate Social Responsibility Best Practice Principles for TWSE/GTSM-Listed Companies

Item	Status
	
Exercise Corporate Governance	
• Set up CSR policy or system and review its implementation effectiveness.	• p.22
• Establish exclusive (or concurrent) units to promote CSR.	• p.23
• Hold regular corporate ethics educational training and promotional events for directors, supervisors, and employees, incorporate the foregoing into its employee performance appraisal system, and establish a clear and effective system of rewards and discipline.	• p.18,25
	
Foster a Sustainable Environment	
• Dedicate to upgrading the effective utilization of various resources and use renewable materials that have a low impact on the environment burden.	• p.51, 54~56
• Establish an appropriate environmental management system based on the characteristics of the industry.	• p.52,55
• Designate a dedicated unit or personnel for environmental management tasks to maintain the environment.	• p.7,55
• Pay attention to the impact of climate change on operation activities, and establish the company's energy conservation, and carbon reduction and greenhouse gas emission reduction strategies.	• p.45~47
	
Preserve Social Welfare	
• Comply with relevant labor law to protect employees' legal rights and interests, and establish proper management methods and processes.	• p.70,71
• Provide employees with a safe and healthy working environment, and conduct regular safety and health education for the employees.	• p.73,74
• Stipulate and announce to the public the policy of consumers' rights and interests and provide a transparent and effective process for consumers to voice complaints about products and service.	• p.86~89
• Cooperate with suppliers to jointly commit to upgrading CSR.	• p.74
• Participate in community development and relevant charity activities through commercial campaigns, non-cash property endowments, volunteer service, and other free professional services.	• p.76~83
	
Enhance Disclosure of Corporate Social Responsibility Information	
• Disclose CSR-related relevant and reliable information.	• p.1
• Publish CSR report to disclose the CSR promotion information.	

Risk Management

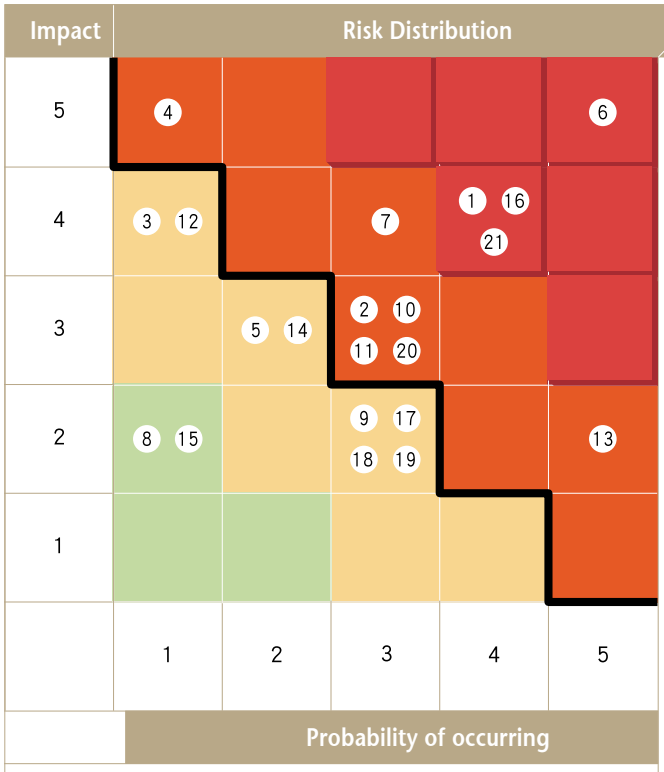
To cope with the rapidly changing internal and external management environment and to understand and manage possible operational risks, Taipower has launched the "Risk Management Implementation Plan" as the basis of the assessment of risk management for internal units. This plan aims at the effective and efficient management of possible risks through the identification, analysis, assessment, and response to possible risk events. In 2011, there were 21 risk items, including "Power supply stability and safety", subject to risk control.

In 2011, the "Risk Management Committee", which is consisted of the top management, including the Chairman and the General Manager, resolved to classify risks into short, mid, and long-term for the purpose of identification and to map out corresponding response measures.

- Possible risks from one to three years ahead, and/ or risks subject to control by senior management or attracting much of the attention of different social sectors shall be included as the risks for control in the year. These risks shall be reviewed annually and managed by rolling forward for efficient results.
- Mid-term risks (3 to 10 years) and long-term risks (beyond 10 years) shall be included in the "10 Year Operation Strategy" and the "Sustainability Development Action Plan" for necessary control.

In 2011, there were 4 items which were way beyond the risk tolerance level, including deterioration of financial structure. They were listed as the first priority to be dealt with and the countermeasures were presented for active control. There were 7 high-risk items, including Protection of nuclear power plants against composite disasters. They were handled by formulating a plan and putting it into actual practice. There were 10 items that fell under the risk tolerance level, including power supply stability and safety. The responsible units continued monitoring and controlling tasks to reduce the impact and probability of risks occurring.

2011 Taipower Risk Paradigm



Remarks:
1. Black line in bold represents the risk tolerance line.
2. Definition of colors Very high High Medium Low

Risk Items

1. The impact of the passage of the GHG reduction regulations on power supply.
2. Dissatisfaction of the public regarding tariff adjustments.
3. Power supply stability and safety.
4. The protection of nuclear power plants against composite disasters.
5. The outbreak of labor-management disputes and employees' protests.
6. Deterioration of financial structure.
7. Manpower structure improvement and the passing on of technologies.
8. Corruption and malfeasance.
9. Work safety incidents.
10. Contagious diseases.
11. Delay of the upgrade and expansion plan at Shenao Power Plant.
12. Nuclear radwaste storage and final disposal.
13. Lungmen Project to finish as scheduled, meeting quality and budget expectation.
14. Information security.
15. Changes of power demand.
16. Impediments to the implementation of power development projects.
17. Environmental protection incidents.
18. Natural disasters.
19. Fluctuations of interest rate and exchange rates.
20. Compensation of land under transmission lines.
21. Rising fossil-fuel prices.

The Risk Management of the Impact of Power Supply Shortage on System Stability and Security

Due to the commercial and industrial development and the upgrading of the living standard over the years dictated higher power consumption. In order to satisfy public's strict demand for quality power, Taipower utilize SWOT analysis, corporate strategic planning, and data gathering to detect possible opportunity, risk, strength, and weakness in its operation and identify possible risks, which will be included as a part of the "Risk Management Practice Plan." "The power supply shortage and its impact on system stability and security" is one vital aspect of risk management, among others.

Taipower identified possible risk scenarios deriving from its power plants, transformation stations, and distribution networks of its power supply system that may affect system stability and security, including the "failure of big power plant in power generation – possible outbreak of large-scale power failure or rationing of power supply," "interruption of the major extra high voltage transmission lines between southern and northern Taiwan – possible outbreak of large-scale power failure or rationing of power supply," "mechanical failure in the power plant of science-based industrial parks that lead to power failure", "interruption of the supply of natural gas and fuels that lead to inadequate power supply or rationing of power supply," "sabotage of major power generation facilities and reservoir dams by terror groups that may lead to power failure or rationing of power supply," and others. In addition, Taipower also instituted the "Regulation for Rationing of Power Supply During a Period of Power Insufficiency" as the mechanism for power supply and reporting to reduce the possibility of crisis and its influence. Taipower also established the "Taipower & CPC Natural Gas Supply and Demand Communication Mechanism and Early Warning System" and "Taipower & CPC Fuel Supply and Demand Communication Mechanism and Early Warning System" as a close liaison with China Petroleum Corporation and for proper control of the supply status of fuel for power generation and as an early warning for proper response. Taipower also held exercise drills simulating "Severe Earthquake Resulting in Tsunami Wave (composite disasters) that handicapped a big power plant in power generation" to strengthen the capacity to respond to such a situation. This risk has been subject to control for several years and held within the tolerance line with high performance in risk management.

Sustainable Development Philosophy and Operation Mechanism

Taipower holds that, sustainable development of the power industry should be based on energy security, economic efficiency, and environmental quality in order to satisfy the requirements of future development, which include:

- Utilize limited natural resources efficiently. Support national economic development and social progress with the minimum power development and efficient management.
- Balance energy security, economic efficiency, and environmental quality during power development.
- Fulfill our corporate social responsibility and create a bright future together with our shareholders through a business philosophy of integrity, caring, innovation, and service.

Future Development Paradigm

Power Construction System
A Leader for Low-Carbon Power Generation

- Investing annually on average over NT$200 billion to promote power construction.
- Planning the best low-carbon energy source mixture.
- Promoting green power prices.
- Establishing green power parks and promoting green buildings.
- Creating a social energy conservation atmosphere (including energy conservation services for customers, and promotion of load management measures).

Power Generation System
A High-Efficiency Power Operator

- Launch Enterprise Resource Planning (ERP).
- Accelerating the replacement of old facilities in existing power plants.
- Introducing high-efficiency generation facilities and technologies.
- Strengthening operation management in hydro and thermal power plants.
- Enhance the performance of operation and safety of nuclear power plant to 1/4 of WANO members.

Power Grid System
A Smart Grid Builder

- Becoming a domestically indispensable power transmission and distribution operator.
- Establishing a smart power grid and enhancing the power grid with the functions of self-monitoring, self-diagnosing, and self-recovering.
- Providing value-added services to customers that enable them to use power more smartly and reach the goal of voluntary power conservation.

Power Sales System
A High-quality Power Provider

- Satisfying customers' multiple power demands.
- Creating various channels to establish interactive communication pathways with customers.
- Enhancing customer-relationship management to upgrade customer satisfaction.
- Reducing duration and frequency of power outages to raise power supply reliability.

Corporate Citizen
A Practitioner of Corporate Social Responsibility

- Focusing on the company's governance and establishing its corporate ethics.
- Cultivating social caring activities and co-existing and co-prospering with the local communities (including organizing voluntary service teams).
- Establishing proactive, mutual caring and disciplinary industrial safety culture.

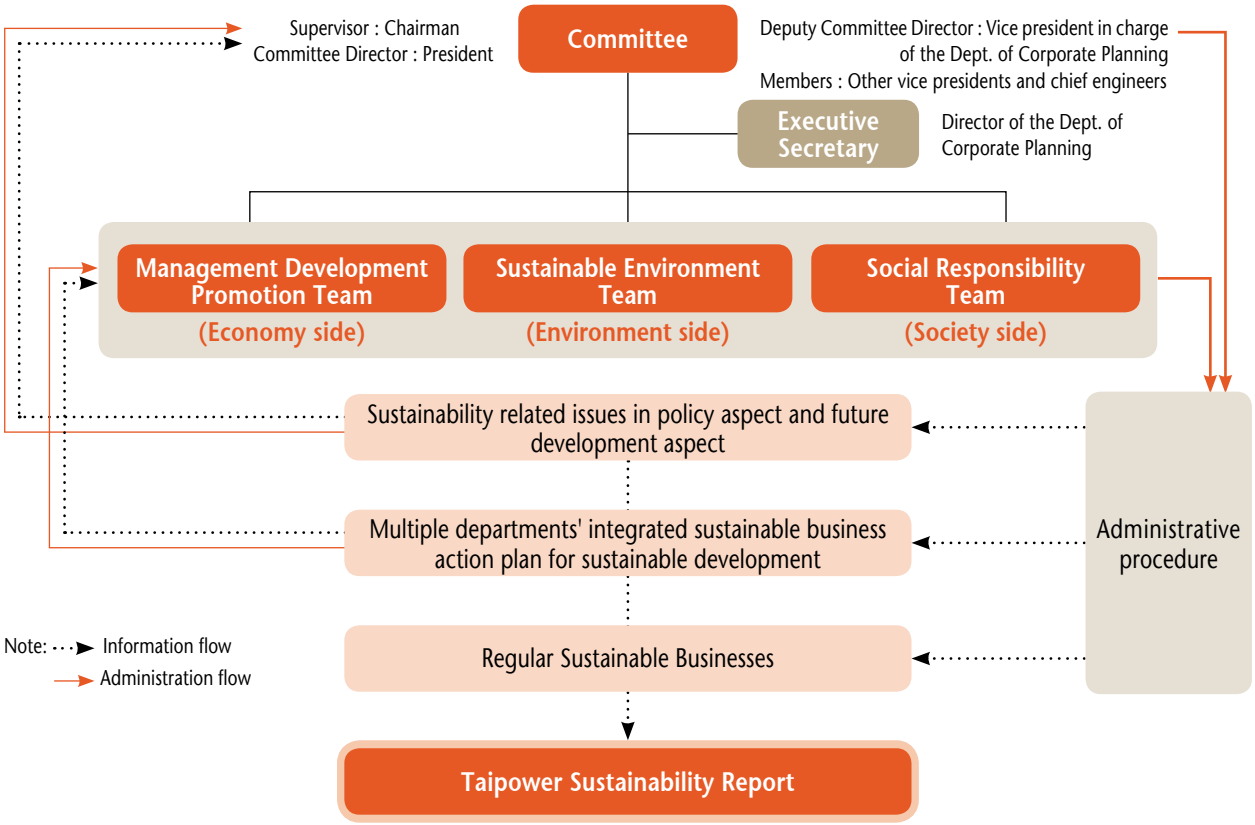
Sustainable Development Committee and Operational Mechanism

In order to promote business development, safeguard the ecological environment, fulfill our corporate social responsibility, and encourage sustainable development-related work, Taipower set up the Sustainable Development Committee. Its mission and organization chart are as follows:

- Long-term corporate strategic planning and integrated management improvement.
- Environmental protection and ecological maintenance strategic planning.
- Corporate social responsibility strategic planning and promotion.
- The report on 10-year corporate strategic planning and sustainability.
- Other resolutions and follow-up management and control actions.

The Sustainable Development Committee is comprised of a Management Development Team, a Sustainable Environment Team and a Social Responsibility
Team. Each team is chaired by relevant directors and the Vice Presidents in charge of the relevant units.

Sustainable Development Committee and Operational Mechanism



Regular businesses related to each team will be handled by each team individually based on Taipower's administrative procedures; for businesses involving more than one unit, the convener of the involved teams should convene meetings and handle the matters through administrative procedures based on resolutions made at the meetings. Important matters concerning corporate strategy and future development should be submitted to the Sustainable Development Committee for consideration.

The Sustainable Development Committee convenes regular annual meetings on the review of sustainable development action plans and the editing of a Sustainability Report. The preparation for editing the future 10-year management strategy will also be done. Each team should convene a meeting at least once a year to discuss the revisions of the economic, environmental, and social aspects of the Taipower Sustainable Development Action Plans, follow up on the previous year's actions, and propose key issues of sustainability in the Sustainability Report for review by the Sustainable Development Committee.

2011 Management Performance Achievements

Taipower devised its key performance indicators (KPI) in accordance with the company's vision, management strategies, current major business directions, important points of the government's policies and evaluation, and in consultation with the KPI system adopted by world-class energy groups in Europe, USA, and Japan. The four-perspective spirit of the Balanced Scorecard was adopted in formulating KPIs.

Key Performance Indicators	2010 Actual	2011 Target	2011 Actual	Accomplishments
1. Improve Financial Structure				
(1) Pre-tax income (NT$100 Million)	-187.18	≧-513.48	-433.48	☺
(2) Debt ratio (%)	74.86	≦78.32	77.64	☺
2. Operating & Maintenance (O&M) Cost Control				
(1) Power generation O&M cost control (NT$ cent/KWh)	27.23	≦21.00	19.87	☺
(2) Power supply O&M cost control (NT$ cent/KWh)	15.33	≦15.90	13.86	☺
3. Fuel Purchase Performance (Comparison between the actual purchase price and market price)				
(1) Coal purchase performance (%)	-7.03	≦-6.00	-8.99	☺
(2) Uranium concentrate purchase performance (%)	-11.02	≦-5.00	-12.53	☺
4. Power Purchase Expenditure Control				
(1) Coal-fired power plants (NT$/KWh)	2.07	≦2.38	2.31	☺
(2) Gas-fired power plants (NT$/KWh)	3.66	≦3.95	3.81	☺
(3) Co-generation large units (NT$/KWh)	2.29	≦2.39	2.24	☺
5. Electricity Operation Performance				
(1) Line loss (%)	4.66	≦4.72	4.76	☹
(2) Economic dispatch performance(NT$/KWh)	1.42	≦1.75	1.63	☺
6. Customer Satisfaction (scores)	86.1	≧86.0	87.2	☺
7. Power Supply Reliability				
(1) System Average Interruption Duration Index (SAIDI) (min./customer. year)	17.663	≦20.5	18.224	☺
(2) System Average Interruption Frequency Index (SAIFI) (freq./customer. year)	0.196	≦0.300	0.204	☺
8. Industrial Safety Performance				
Total injury index	10.11	≦8.34	3.33	☺
9. Environmental Protection Performance				
Number of unplanned automatic scram (freq.)	0	≦1	0	☺
10. Environmental Protection Performance				
(1) PM emissions (kg/GWh)	23	≦30	19	☺
(2) SO_x emissions (kg/GWh)	240	≦353	253	☺
(3) NO_x emissions (kg/GWh)	248	≦338	258	☺
(4) GHG control (g/KWh)	510	≦559	516	☺
(5) Tree planting (m^2)	380,955	≧115,000	150,000	☺

Key Performance Indicators	2010 Actual	2011 Target	2011 Actual	Accomplishments
11. Renewable Energy Development				
(1) Wind turbines installed (MW)	49.4	≧39.6	39.6	☺
(2) PV systems installed (MW)	1.22079	≧6.094	6.095	☺
(3) Renewable Energy installed capacity approved (MW)	5.8	≧8	2.3087	☺
12. Generation Unit Operation				
(1) Reduce unit heat rate, increase efficiency (kCal/KWh)	2,264	≦2,287	2,259	☺
(2) Upgrade nuclear power generation performance (%) (excluding the overhaul capacity factor)	98.43	≧98.00	99.38	☺
13. Energy Conservation				
(1) Promote energy conservation to customers – amount of energy conserved (GWh)	39.18	≧29.86	37.91	☺
(2) Self-used electricity reduction (GWh)	10,637	≧9,486	15,979	☺
14. Improve Base Load Capacity and Regional Balance				
Capital expenditure implementation rate (%)	97.44	≧95	97.71	☺
15. Upgrade Power Supply Quality				
(1) The length of transmission lines and the capacity of substation completion rate (%)	100	≧95	107.14	☺
(2) The length of distribution lines completion rate (%)	102	≧102	102	☺
16. Innovation				
(1) No. of employee proposals	6,041	≧2,209	3,680	☺
(2) Average training hours of employee per year (hr./employee)	59.1	≧40	59.4	☺
17. Research and Development				
(1) Income increase (NT$ 1,000)	740,238	≧363,649	1,042,406	☺
(2) Cost reduction (NT$ 1,000)	4,947,002	≧4,445,740	4,580,219	☺

Note: ☺ represents objective accomplished ☹ represents objective not accomplished.

In order to completely combine the company's management performance with employees' contribution, Taipower raises the appropriation rate for efficiency bonuses to encourage employees to upgrade operation efficiency to reach win-win for efficiency and management performance.

Management Performance over the Past 3 Years

In recent years, due to the stern effort of the government in promoting an energy saving and carbon reduction policy and the success of "The Extension of Electricity Bill Discount for Energy Saving Incentives Measure" , it resulted in only marginal increase in power supply volume over the past two years. With the concerted efforts of its employees, Taipower demonstrated various remarkable achievements in its management performance.

Power Production and Sales

Item \ Year	2009	2010	2011	Remarks
Total Production (GWh)	193,605	207,385	213,042	
(1) Generated by Taipower (GWh)	143,361	157,792	162,589	A new Taipower record.
(2) Purchased (GWh)	50,244	49,593	50,453	
Power Sales (GWh)	179,239	193,313	198,637	A new Taipower record.
Peak Load (GW)	31.01	33.02	33.79	A new Taipower record.
Customers (thousand)	12,415	12,583	12,768	The number of customers increased by 185 thousand.

Employee Productivity

Item \ Year	2009	2010	2011	Remarks
Number of Employees	26,921	26,828	27,261	In order to solve the problems of an aging workforce and the talent gap, recruitment of new employees was continued. However, the total number of employees is still 4,862 less than the peak number of 32,123 in 1992.
Employee Productivity				
(1) Production per employee (MWh)	6,420	6,977	7,196	An increase of 219 MWh as compared to 2010.
(2) Sales per employee (MWh)	8,027	8,548	8,792	An increase of 244 MWh as compared to 2010.
(3) Revenue per employee (NT$1,000)	21,225	22,602	23,169	An increase of NT$567 thousand and a growth rate of 2.5%.

Power Supply Quality

Item \ Year	2009	2010	2011	Remarks
Line Loss (%)	4.86	4.66	4.76	
Power Supply Reliability				
(1) SAIFI (freq./customer.year)	0.238	0.196	0.204	
a. Scheduled Outage	0.066	0.063	0.066	The second best record in recent years.
b. Forced Outage	0.172	0.133	0.138	
(2) SAIDI (min./customer.year)	19.246	17.663	18.224	
a. Scheduled Outage	14.164	13.952	13.894	The second best record in recent years.
b. Forced Outage	5.082	3.711	4.330	

Operational Performance

Item \ Year	2009	2010	2011	Remarks
Thermal Power Plant Efficiency (LHV, Gross) (%)	41.94	42.52	42.51	The second best record in recent years.
Thermal Power Plant Incidents (freq./unit)	0.38	0.44	0.47	
Nuclear Power Plant Generation (GWh))	39,981	40,029	40,522	Power generation was the highest in Taipower's history. The power unit depreciation was nearly complete, which effectively reduce total power generation cost.
Nuclear Power Plant Scram (freq./unit)	0.17	0	0	The best record in recent years.

Upgrading Power Supply Stability

A stable power supply is necessary for the development of our nation's industry and the prosperity of its people. Faced with the trend of rising fuel prices and increasing domestic power demand, Taipower undertook the strategies of ensuring fuel supply, strengthening power grid construction, and improving energy source mixture, in an effort to reach a balance between upgrading management efficiency, lowering tariff schedules, and stabilizing power supply.

Key Sustainability Issue	Commitment	Goal
Improving Energy Source Mixture	Provide abundant energy sources and balance regional power supply.	Spare capacity in 2022 will be 15.5% in responding to the call of the government under the "new energy policy". The power supply capacity during peak hours will be sufficient in northern, central, and southern Taiwan.
Developing Renewable Energy	Annual increment in the purchase of power supply from renewable energy.	In 2030, the capacity of Taipower facility will be 3.5 GW (including regular hydro power).
Strengthening Nuclear Power Generation Safety	Strengthen the safety of nuclear power generation, improve operational performance, and earn the trust of the public in nuclear safety.	• Continue to strengthen and improve the comprehensive safety assessment of nuclear safety. • Enhance the resistance to shock and tsunami waves. • Streamline manpower/organizational operation and strengthen nuclear power generation safety. • Strengthen promotion and communication for nuclear power generation to the public.
Launch Smart Grid	Satisfy customers' diversified demand, strengthen power grid and establish a smart grid in order to provide the public with stable, reliable, reasonable-priced and quality electricity.	Implement the 7th Power Transmission and Substation Project, with an investment estimated at NT$ 238.9 billion over 6 years responsible for constructing and expanding 130 substations with a total capacity of 23,560 MVA, and total length of transmission lines reaching 2,370 ckt-km.
Ensuring Fuel Supply Security and Stability	Strengthen energy supply security to ensure a stable fuel supply for power generation.	Provide fuels to the power plants in the right quality, right quantity, and at the right time to ensure power supply security and stability.

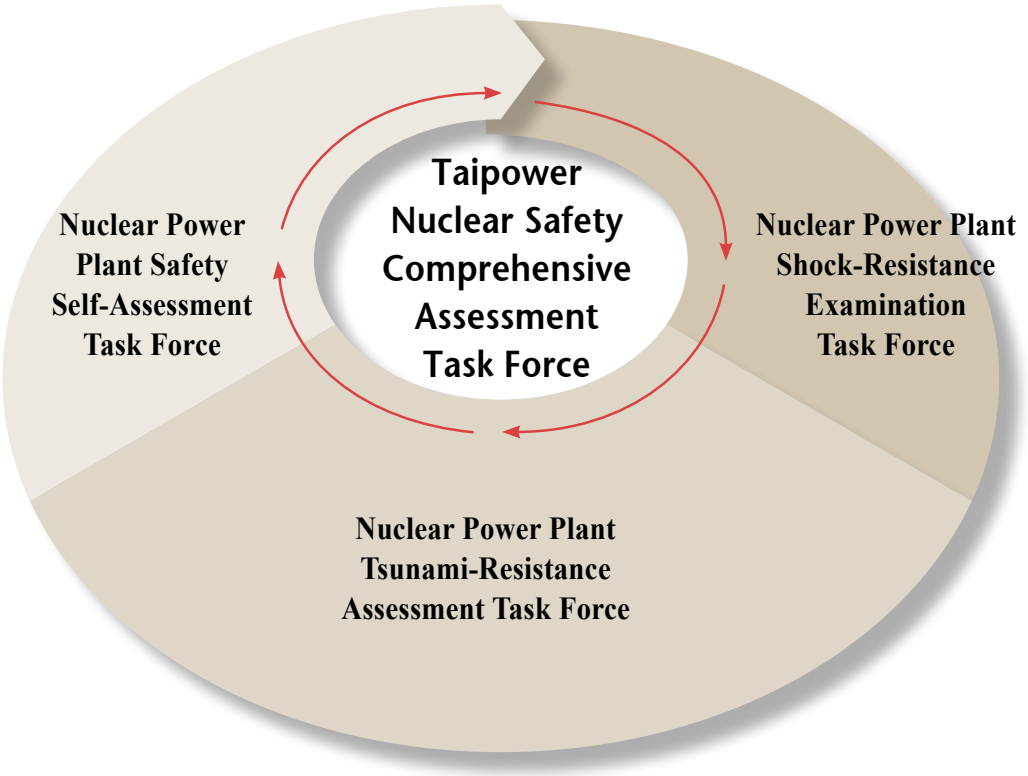
Nuclear Power Generation Safety –

Lesson from the Nuclear Accident of Fukushima in Japan to Fortify the Prevention of Disasters

The earthquake in the northeastern part of Japan in 2011 triggered a series of accidents to the nuclear plant in Fukushima. This was not just an accident for the Tokyo Electric Power Company and Japan, but to the entire nuclear energy industry of the world. Being the main supplier of power in Taiwan, Taipower promised to learn from the nuclear accident at Fukushima and took immediate action shortly after the event to conduct assessments of the overall safety of its nuclear power plants.

Comprehensive Safety Assessment of Nuclear Power Generation

To learn from the nuclear accident at Fukushima, Taipower launched a full-range assessment of all nuclear power plants in 2011 and thereby setting up three task forces in four directions respectively, namely, "nuclear power plant site selection," "design standard," "operation maintenance," and "accident management." Assessments of 12 items and a 10-year overall safety assessment were accomplished in the end.



Further to reviewing the design standard of the power plants currently in service and upgrading the capacity in shock resistance and protection against tsunami, Taipower also established a number of concrete action plans for responding to accidents beyond the design standard in four perspectives, including "shock resistance capacity," "protection against tsunami," "rescue capacity," and the establishment of an "emergency procedure". Taipower also completed an exercise drill on August 4, 2011 under a simulated earthquake, at the intensity that hit the nuclear power plant at Fukushima by the tsunami, and the response to the situation.

In case of disasters beyond the capacity of the design standard, nuclear power plants will lose its capacity in supplying water for cooling down the reactions, suffer power failure, or sudden stoppage due to a strong earthquake with a warning of a forthcoming of tsunami. At that point, nuclear power plants shall immediately proceed to the emergency procedure for prompt decision and actions to protect public property and environmental safety.

Expert's On-site Inspection and Testing

After the accident at Fukushima, Taipower made an effort to access real-time information from nuclear power countries and nuclear power organizations through participation in international nuclear power organizations and attendance in seminars and conferences in related technologies. In addition, Taipower also invited domestic and overseas experts in the field to conduct general assessments of all nuclear power plants in order to map out solutions. In the future, Taipower will take the experts' advice to continue conducting enhancement measure and upgrade the safety capacity of nuclear power plants to protect against disasters through continuous review and improvement.

Taipower complied with the pressure test standards of EU and completed a series of pressure tests on nuclear power plants already in service to confirm that the general assessment has effectively helped to upgrade capacity in the prevention against disasters and the minimization of damage in case of disasters on March 5 2012. Pressure test on Lungmen (Nuclear Power Plant #4) Plant was also completed on April 27 2012.

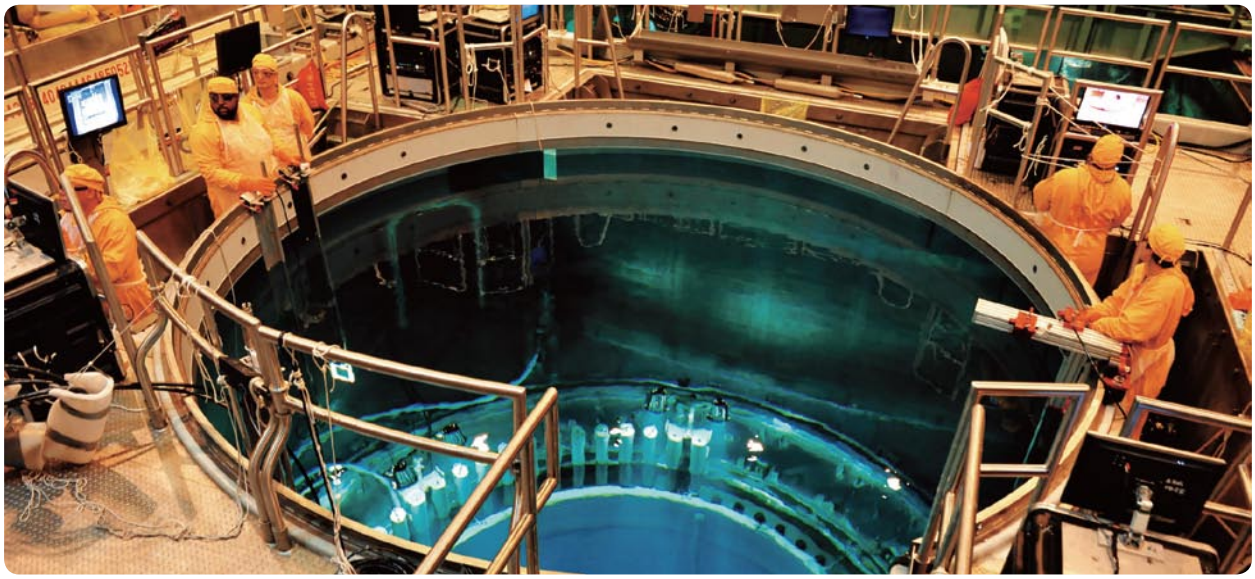
In the future, Taipower nuclear power comprehensive assessment enhancement measure will be carried out as scheduled one by one to ensure the safe and stable running of nuclear power plants. Additional effort will also be made in compliance with the official report and improvement measures announced by the international nuclear power organization for necessary improvement.

Safety Assessment of Lungmen Plant (Nuclear Power Plant #4)

Unit #1 at Lungmen Plant (Nuclear Power Plant #4) was already engaged in a pilot run. The civil engineering and the installation of mechanical equipment of Unit #2 are at the final stage. The installation of control panel equipment and the cable, as well as the completion test is in process.

After the nuclear power plant accident at Fukushima, Taipower has completed the self-examination of the entire Lungmen Plant (Nuclear Plant #4) to confirm its sufficient capacity in shock resistance, protection against tsunami, and drainage system. For enhancing its safety protective capacity, Taipower has mapped out the "Adjustment and Enhancement Measurement for Lungmen Plant (Nuclear Power Plant #4) General Examination on Safety and Protection Plan" and invited international nuclear power experts to conduct plants inspections. The comprehensive assessment report has been presented to the Executive Yuan Atomic Energy Commission in January 2012.

Further to the conduct of general examination and pursuit of a stern policy in order to make lungmen Plant (Nuclear Power Plant #4) strong enough to withstand serial disasters, Taipower also planned to conduct a second round running test on related systems after the pilot run. To ensure proper and complete running tests, Taipower takes the experience of the power plants of Japan into account and added six items of cross-plant system integration tests for verifying and validating the overall function of distributed and Control Information System (DCIS).



The Phase-out Plan of Nuclear Plant #1

According to the law of the ROC, nuclear power plants shall be phased out in 25 years including the demolition of the facilities. Taipower has mapped out a preliminary plan for decommissioning nuclear power plant and will perform the tasks in five stages:

1. Preliminary work before phase out: including the preliminary investigation of the history and specific features of the site, the phase out strategy, and operation research, the preparation of work plans and the phase out plan (including the environmental impact assessment report), presentation of the plans and documents for approval.
2. Transitional period for shutdown of machines.
3. Stop running stage.
4. Radioactive detection on the environment stage.
5. Recovery of the original site.

In the preliminary plan, Taipower will make appropriate adjustments depending on "the feasibility of technology," "the safety in the phase out process," "cost-efficiency," and "needs in actual operation."

The phase out of Nuclear Plant #1 is complicated and the time frame is tight. In addition, this plant will still be in operation before 2018. We do not have any experience in phasing out a nuclear power plant and we do not have comprehensive legal framework for such a task yet. As such, Taipower has established a task force for such a purpose. At the preliminary stage, cross-function operation will be adopted for performing the duties of phasing out plant #1. In the future, this organization shall be subject to adjustment as needed.

Adoption of "Defense in Depth" Safety Design Principle

1.Adoption of "Defense in Depth" Safety Design Principle

- Natural disaster prevention
  1. Choosing plant sites located on a huge rock bed to resist strong earthquakes.
  2. Designing auto safety shutdown of units when strong earthquakes hit.
  3. Locating power plants at a sufficiently high altitude to prevent being hit by tsunamis and equipping power houses and facilities with strong-typhoon-resistant designs.
- Reduce incident extent and terminate incidents
  1. When monitoring a safety warning sign that will impact safety, safety protection facilities will be immediately and automatically activated in sequence to deal with the diversity of incidents.
  2. Preparing at least 2 sets of safety facilities, with each one independent and separated to avoid being a simultaneous failure in a single event.
- Prevent radioactive substance release
  1. Manufacturing fuel pellet with structure dense and rigid enough to sustain temperatures over 2,000.
  2. Installing fuel cladding that can sustain high temperature and high pressure.
  3. Constructing a 30-cm-thick high strength reactor pressure vessel.
  4. Installing multiple sets of emergency core cooling system with 9 circuits.
  5. Constructing an over 2-meter-thick reinforced-concrete containment.

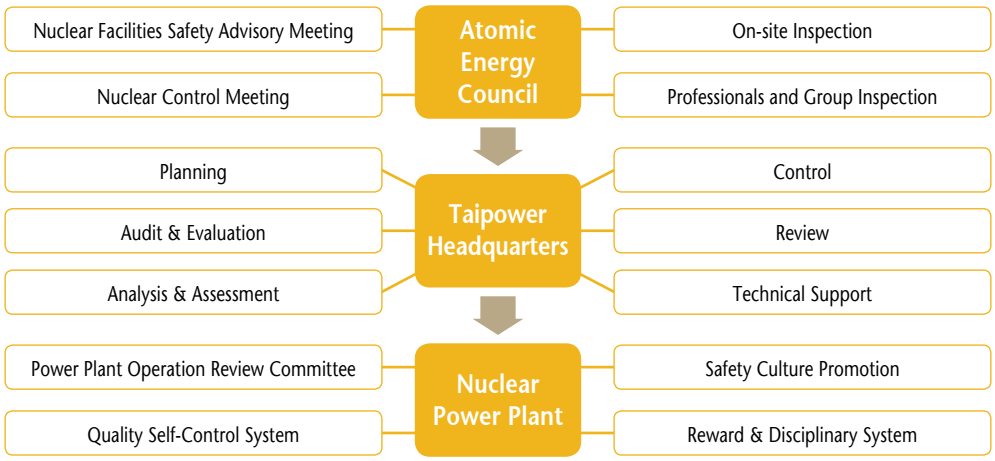
2.Reinforcing Control Measures

- Promote evaluations of various quality-guarantees to ensure continuous enhancement of the safety operation of power plants.
- Divide work based on professionalism and proactively conduct the review and control of each important safety measure of the nuclear power plants.
- Strengthen professional control skills and pay attention to the changing trend of safety operation, and introduce operation experience, maintenance experience, and technological information from foreign countries.
- Implement power plant safety level analysis and evaluation to substantiate the foundation of safety management operation.
- Enforce regular, independent auditing operation, screen the weakness of safety performance, and eliminate potential shortfalls.

3.Strengthening Nuclear Safety Organization and Culture

- Fortify employees' attitudes towards safety and cultivate good work habits among them to reduce operational negligence.
- Raise personnel training performance and operation skills.
- Follow a rigorous nuclear quality-guarantee project to formulate implementation procedures and standards for each operation.
- Establish a strict safety and quality control system and a safety management organization to ensure safety at every level.

Nuclear Safety Management System

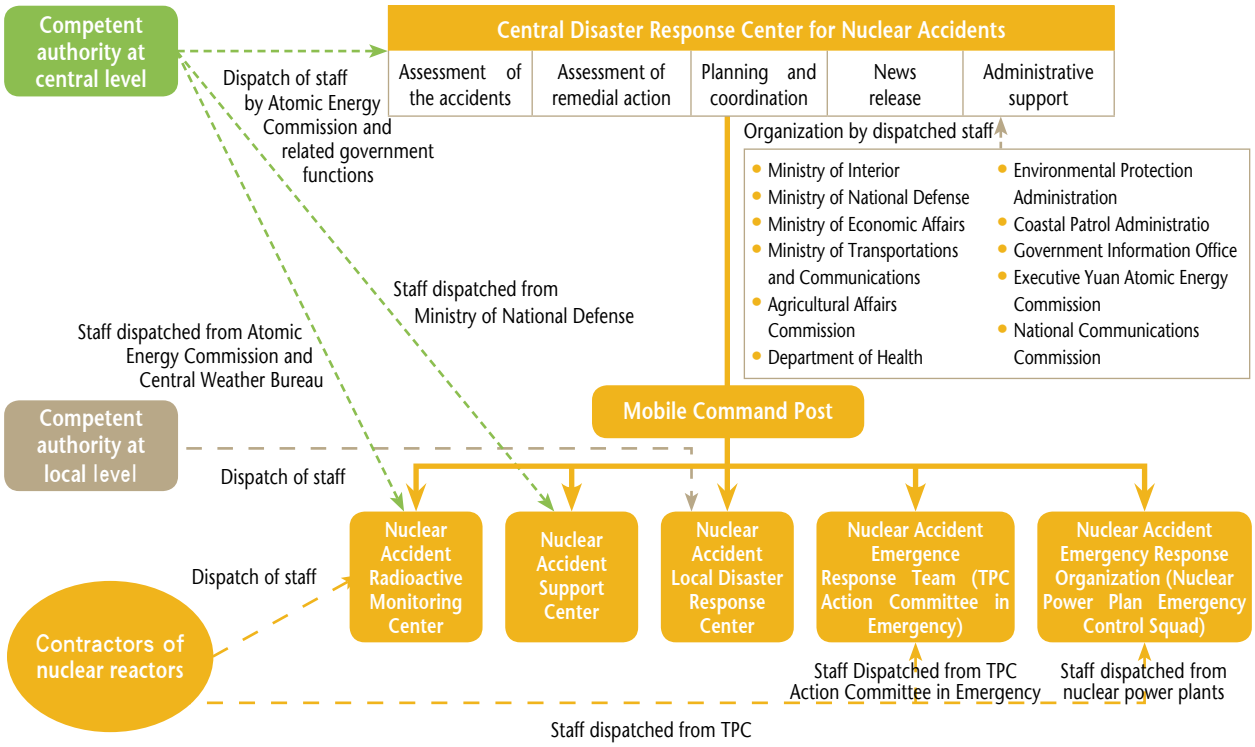


4.Emergency Response Mechanism at Nuclear Power Plant

Though viable safety measures have been considered in the design of the nuclear power plant, based on the risk management consideration, Taipower has still established the "Taipower Nuclear Reactors Emergency Response Plan" in accordance with the "Nuclear Accident Emergency Response Act" and related by laws as the Taipower emergency response designated unit in responding to nuclear emergencies and as a guideline for all nuclear power plants in the organization and procedure for responding to emergency situations during nuclear accidents.

Regular preparation	**Implementing response operation exercises**	• Conduct routine training in response to emergency situations, including: (1) General training: once every other year. (2) Professional training: once a year. • The training content includes general training in the emergency plan and the professional training in the emergency plan of special duties. • All nuclear power plants shall provide training for the personnel assigned to the duties of responding to emergencies (Emergency Response Team), including initial training and annual repeating training.
	Implementing response operation drills	• Every nuclear power plant has to conduct a drill once a year internally. Taipower, central and local governments, military, police, and medical units are all mobilized to participate in an annual nuclear safety exercise that is by turns held at each nuclear power plant. • In addition to supervising agencies, Taipower also invites professionals and scholars to form an evaluation group to assess exercises on each response measure to make the emergency response plan more effective.
	Establishing emergency response readiness performance indicators	• Each nuclear power plant shall enforces the "Emergency Readiness Performance Indicators" and the results are reported quarterly to the Atomic Energy Council as part of the control measures of the Atomic Energy Council for ensuring the safe running of the nuclear power units. Related performance indicators including: (1) Drills/ exercise performance. (2) Participation of the emergency response organization in drills. (3) Reliability of the warning and reporting system.
Response to accidents	**Adopting emergency response measures**	In case of nuclear accident occurrence, nuclear power plants shall comply with related procedures in documentation to perform rescue and relief. Should the accident not be effectively controlled, and to the extent that the neighboring residents and environments will be jeopardized, proceed to the "Nuclear Accident Emergency Response Act" thereby related government functions shall organize into the Nuclear Accident Central Disaster Response Center, Nuclear Accident Radioactive Monitoring Center, Nuclear Accident Local Disaster Response Center, and the Nuclear Accident Support Center for joint action in rescue and relief outside the plants.

Taipower shall pay utmost attention to handling, controlling, mitigating, and eliminating accidents that may occur inside the plants as the prevailing mindset. In case of nuclear accident, Taipower shall immediately establish an emergency response system to ensure the safety of the public.



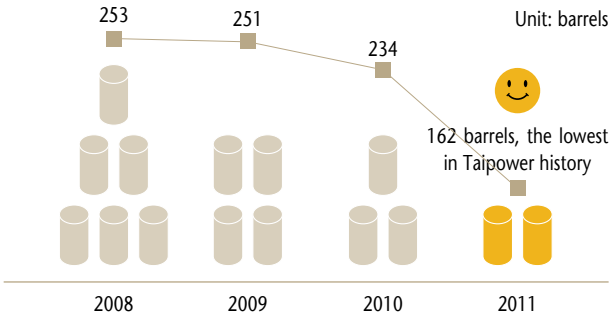
5.Nuclear Safety Operation Performance

All of the 6 units in the 3 nuclear power plants demonstrated remarkable achievements in 2011. The power production amounted to 40,522 GHz, the highest record in Taipower's history. The effect of CO_2 reduction reached 34 million tons. The average capacity factor reached 93.06%, the highest in Taipower's history.

Nuclear Safety Performance Indicators	2011 Achievements
Unit Scram	• No scrams occurred in the 6 nuclear units. (The best record in history). ☺
Abnormal Events at Nuclear Units	• Only 6 abnormal events occurred among the 6 nuclear units. (The second best record in history).
Safety Performance Control Light	• All units remained in the green light, well-performing level.
Others	• The 3rd Nuclear Power Plant Unit 2 in full fuel cycle continuously, safely and stably for 500 days. ☺

6.Radioactive Waste Management

The low-level radioactive waste (radwaste) generated by the nuclear power operation can be incinerated, compressed, or solidified and stored properly in zinc-coated barrels. Under Taipower's strict control, in 2011, the total solid wastes from all nuclear power plants was 162 barrels, which was a historic low.



Taipower applies a 3-stage strategy for the management of spent nuclear fuel that is used internationally: pool storage, dry cask storage, and final disposal. The capacities of the storage facilities constructed in the 1st, 2nd and 3rd Nuclear Power Plants are all sufficient enough to meet the requirement for the operation period that's set for the power plants. In the future, all low-level radwaste will be sent to final disposal sites.

As the spent nuclear fuel pool storage facilities in the 1st and 2nd Nuclear Power Plants cannot accommodate the spent nuclear fuel produced over a 40-year period of operation by each reactor, Taipower is currently planning to construct dry storage facilities to enable each power plant to have sufficient storage facilities before the spent nuclear fuel is sent to final disposal sites.

Taking reference of widely used international measures, Taipower will adopt deep geological disposal methods for its spent nuclear fuel final disposal. Currently, Taipower is undertaking the tasks of investigating and evaluating the characteristics of the potential host rocks.

7.Enhancing Promotion and Communication with the Public

Through the "nuclear information transparency system" website (http://wapp4.taipower.com.tw/nsis/), Taipower seeks to fully disclose nuclear power plants' operation and related information, including real-time information, environmental radiation monitoring, etc., according to monitoring standards to reach the goal of nuclear safety being supervised by all the people. In addition, on the Atomic Energy Council website, green, white, yellow, and red lights are used to enable the public to understand the status of nuclear power plant operations.

Power Supply Stability

Improving Energy Source Mixture

Faced with the challenges of energy conservation and GHG emission reduction, making adjustments in the energy source mixture is an inevitable trend. Although renewable energy has become an important point for future energy source mixture, thermal power generation is the major source of electricity in the short term and hard to be replaced. The ideal ratio of energy sources mixture proposed by Taipower is: Peak load energy source at 10%~15%, medium load energy source at 15%~30%, and base load energy source at 55%~65%.

Base Load Energy Source

In the past, the plan of power generation by fuel coal was difficult to execute and the capacity of power generation remained very low. In the last twelve years, a number of fuel coal power units have been launched into service in 2006. Then the base load power source constituted 41.7%~49.5% , which was behind the expected level of 55%~65%. Without the supply from base load source, the proportion of power supply accounted for only 41.9% in 2011. New sources of base load power are urgently needed.

Medium Load Energy Source

In the last twelve years, there were numerous problems confronting the construction of base load power sources. It was coupled with the government policy of the extensive use of natural gas that most of the newly constructed power plants were equipped with combined cycle natural gas units for medium load, including power plants from the private sectors like Chang Sheng, Chia Hui, Hsin Tao, Kuo Kuang, Hsing Neng, Sen Pa, and Hsing Yuan, and the plants of Taipower at Tongxia #6, south #4, and Datan. The total capacity of power generation from these plants was 9,560 MW. As such, the capacity of these plants in 2011 was as high as 47.7% of the total, to the extent that medium load energy sources were much higher than the expected proportion of 15%~30%.

Peak Load Energy Source

In 2011, the peak load energy sources accounted for 10.4% of the total. In the last twelve years, peak load energy source ranged from 10.3%~19.1% of the total and is conforming to the expected load level.

Mixture	Base Load Energy Source	Medium Load Energy Source	Peak Load Energy Source
Ideal proportion	55%~65%	15%~30%	10%~15%
Sources	Wind, stream hydro, nuclear and coal-fired units	Pondage hydro, oil-fired, gas-fired steam turbine and combined-cycle units	Pumped-storage, reservoir hydro, gas turbine units

Launching Smart Grid

Taipower uses the "Smart Grid Master Plan" as the blueprint and follows the new energy policy of the government to map out the strategic direction and action plan of the smart grid.

The implementation period is divided into short-term for preliminary installation (2011~2015), mid-term for promotion and proliferation (2016~2020), and long-term (2021~2030) whereby information on the business models qualified for our country will be gathered, assessed, recommended through the facets of smart power generation and dispatch, smart power transmission, smart power distribution, and smart power consumers.

In practice, Taipower will pursue "heat-resistance conduction line," "dynamic thermal capacity monitoring," "Wide Area Monitory System, WAMS/PMU," "Special Protection System, SPS," "smart transformation stations" to improve the efficiency of power supply and power transmission safety. In addition, Taipower will also launch "power distribution automation," "enhancement of the power distribution network schematic information system," "meter data application for reinforcing the power distribution system management," "demand driven electricity tariff structure," "upgrade the renewable combined grid capacity and management," and "the continued review of the time-based electricity tariff promotion" for upgrading power supply safety and efficiency and to buttress diversified sources of energy integration.

Ensuring Fuel Supply Security and Stability

Taipower adopts the following measures to secure a sufficient amount of fuels and provide them to the power plants in the right quality and quantity and at the right time to ensure power supply security and stability.

- Diversify Supply Sources: Enter into term agreements of supply volume and intensify in overseas coal mines to ensure the abundance of supply in nuclear fuel and coal.
- Establish Safety Inventory: Establish a safe inventory respectively for each type of generation fuel.

Thermal Coal	Fuel Oil	Diesel	Natural Gas	Nuclear Fuel
45 days (legally set 30 days)	20-30 days.	Proper operation amount of inventory according to each power plant's power supply and transmission conditions.	Maintain natural gas adjustable amount higher than the 80 thousand and 50 thousand tons at Youngan and Taichung plant, respectively, and discuss related response strategies and cooperation matters.	3 years of uranium.

- Establish a Flexible Operation Mechanism Based Mainly on Term Contracts and Supplemented by Spot Purchase.

Thermal Coal	Fuel Oil	Natural Gas	Nuclear Fuel
Term contracts account for 75-85% and spot purchase 15~20%.	Demand type term contracts were signed with local suppliers to ensure fuel oil supply security.	A term contract was signed with CPC, Taiwan.	Long-term contracts were signed (supplying at least 50% of uranium concentrate). Long-term contracts were signed with 2 or 3 suppliers for subsequent fuel processing services, such as conversion, enriching, and manufacturing.

- Ensuring Coal Shipment Stability: In 2011, Taipower has added four 9.3-ton coal vessels which can carry approximately 5.7 million tons of coal per year. With the previously-owned two 8.8-ton vessels, the total shipment volume of coal is approximately 8 million tons per year. The ratio of shipment by Taipower-owned coal vessels has increased from 9% in 2010 to 30% in 2012.

In addition to ensure the stable supply of fuels for power generation, Taipower also takes proactive action to reduce the cost of fuel purchase through easing procurement specification, broadening the sources of fuel coal supply, enhancing competitiveness in bidding, flexible use of market fluctuation, and pursuing the spot commodity purchase. With the effective strategy implementation, Taipower successfully reduced fuel expenditure by NT$ 16.553 billion in 2011, which is sound.

Purchase Item	Expenditure Saving in 2011 (in NT$ 100 million)
Procurement of thermal coal	74.11
Cost of marine transport of thermal coal	13.58
Procurement of fuel oil and diesel	1.33
Procurement of natural gas	59.8
Procurement of nuclear fuel	16.71
Total saving in expenditure	**165.53**

Guaranteeing Power Supply in High-tech Science Parks

Taipower established the "High-tech Industrial Park Power Quality Management and Improvement Task Force" and the "Industrial Parks and Processing Zone Power Quality Management and Improvement Task Force" to ensure the power supply quality in the science parks (reduction of sudden drop in voltage) and provide related consultation services on technical issues.

In recent years, Taipower has made efforts in high power supply reliability, underground cables, and fortifying the operation maintenance to reduce equipment failure. In addition, Taipower also adopted external diagnosis techniques to eliminate potential problems and condensed the response time for repair and recovery of power supply . Related measures include:

- The installation of power supply quality monitoring equipment for analysis of the quality problem of electric power for review and improvement.
- Education for business users to install or correct the time setting for power lag, the use of machinery with wider range of tolerance, reduce the sensitivity of the production process to the power quality, and installation of power quality improvement devices.
- Strengthening the communication and reporting mechanism between the dispatching center of the service regions and electricians of the major customers.
- Assisting the training of electricians of major consumers and applying the 3 H management mechanism (Hazimete [starting], Henka [change], and Hisashiburi [intervals]) to reinforce industrial safety mechanism for double checking and confirmation.

Reducing Scheduled and Forced Power Outage Frequency and Duration

To enhance the reliability of power supply and access operating performance, Taipower has established power supply reliability targets for power generation, power transmission and power distribution operating system. A Power Facilities System Incident Review Meeting is held every month to review the causes of incidents happened last months in the three operating systems, while optimal improvement measures are jointly proposed for each incident.

Besides, in order to reduce the power outage duration and frequency, Taipower accelerated the automation engineering of the line system, upgraded the data update progress of the power distribution layout and data accuracy, substantiated proper schedule control of the temporary power supply stoppage, and promoted continuous power supply while performing maintenance and repair work.

KPI		2009	2010	2011	Notes
Average duration of power outage per user (min/customer, year)	Performance of Works Outage	14.164	13.952	13.894	Reduced from 14.164 as of 2009 to 13.894, which was the best on record in recent years.
	Accidents Outage	5.082	3.712	4.33	The average duration of accident outage in 2011 was slightly longer than that in 2010, but was the second best on record in recent years.
	Total	19.246	17.663	18.224	In 2010 and 2011, the average duration of power outage per user was 17.663 minutes and 18.224 minutes, respectively, which was lower than the targeted time (20.85 mins and 20.5 mins).
Average frequency of power outage (freq/customer, year)	Performance of Work Outage	0.066	0.063	0.066	Comparing to the average frequency of 0.063 times in 2010, 2011 was 0.066 times, which was marginally higher.
	Accidents Outage	0.172	0.133	0.138	In 2011, the average frequency of power outage per user was slightly higher than that in 2010, but was the second best on record in recent years.
	Total	0.238	0.196	0.204	The average frequency of power outage per user in 2010 and 2011 was 0.196 and 0.204 times, respectively, which were lower than that targeted values (0.32 times and 0.30 times).

Removing Silt and Maintaining the Safety of Reservoirs

Taiwan is a populous small island with steep terrain and frequent earthquake. The extreme climate changes in recent years have brought about typhoons and downpours that often cause mudslides that worsen the sedimentation problems of reservoirs. Currently, there are 22 reservoirs under Taipower's administration. To mitigate the influence of reservoirs silt, Taipower has made tremendous effort in cleaning up the mud and launched proper safety measures to ensure safety of the dam and reduce possible loss and damage and thereby reduce the probability of hazards to the lives and property of the people living downstream. Taipower, as a state-owned enterprise, assumes its corporate social responsibility for disaster prevention, disaster mitigation, and the sustained use of water resources.

In terms of the removing silt of reservoirs, Taipower has cleaned up the mud sediment of the reservoirs under its administration by 1,660,000 m^3 in 2011, which helped to increase the storage capacity and enhance the efficiency of power generation. In terms of the safety maintenance, Taipower has regularly implemented a safety evaluation of its reservoirs in accordance with the "water conservation structure check and safety evaluation" promulgated by the Ministry of Economic Affairs. In 2011, according to the safety evaluation, there was no safety concern at Deji Reservoir, Wushe Reservoir, Shilin Reservoir, and Tonggui Dam, which are administered by Taipower. In addition, Taipower conducts response drills of collapse of dams at reservoirs to ensure operation safety at the reservoirs.

Promoting Total Quality Management

Taipower adopted the Quality Management System as the basis for total quality management and integrated it to relevant management systems to improve operational efficiency. At the end of 2011, a total of 85 units passed the ISO-9001 certification by the Bureau of Standards, Metrology and Inspection with a 100% passing rate.

Furthermore, Taipower continued to promote the programs of employee innovation, quality control circle, management by accountability and improvement projects. In 2011, the liquid waste circle of Nuclear Power Plant # 1 won the Silver Tower Award in the 24th National QCC Competition with its entry entitled "Improving performance through reducing the volume of concentration liquid waste" while the smile circle of Dalin Power Plant won the Bronze Tower Award with its entry entitled "Improving performance through reducing the emission volume of liquid and gaseous lubricants from Unit #1" respectively.

Development of Renewable Energy

Due to insufficient domestic energy production, Taiwan relies on imported energy to meet 99% of its energy demand. Therefore, taking proactive action in the development of renewable energy is an inevitable trend and policy object for Taipower. Considering the maturity and economy scale of renewable energy technology, wind power is the most cost competitiveness, while solar power entails higher cost for the time being. However, under the Statute for the Development of Renewable Energy, preferential treatment is offered in the purchase of renewable energy through subsidies.

Establish Designed Unit to Promote the Renewable Energy Development

For the development of renewable energy, Taipower has formed the Department of Renewable Energy on August 1 2011 for coordinating and integrating the planning, design, procurement, construction, operation, maintenance, and management of renewable energy (mainly wind power, solar power, geothermal power, excluding hydro power). Currently, Taipower focuses on wind power and solar power as the main source of renewable energy development. The objectives of the future are:

- Wind Power: Continuing the promotion of the 4th Phase of the Wind Power Project and the Penghu Island Low-carbon Wind Power Project with a total installed capacity of 47.8 MW.
- Solar Power: Development will be launched incrementally depending on the status of technology development and the reduction of cost. It is expected that capacity will be increased by 9.2 MW in 2014.

Taipower Renewable Energy Development Status

Hydro power	Wind Power	Solar Power System
Hydro power has been developed in Taiwan for more than a century. Currently, there are 44 hydropower plants in operation with a total capacity of 2,040 MW.	As of December 2011, Taipower had 160 power units driven by wind power with total capacity of 284.76 MW and annual power generation capacity of about 800 GWh.	Numbers of demonstration systems are in operation, including the Shulin Comprehensive Research Institute, Taipei Service Region, Dalin Power Plant, Nantou Service Region, Kinmen Service Region, Kaohsiung Training Center, Nuclear Power Plant #3 Demonstration Site at South Taiwan, Taichung Power Plan, Hualian Service Region and Taitung Service Region, which have a total capacity of 233.5 KW. Taipower has also launched the "Solar Power Phase I Plan". Currently, solar power facilities have the capacity of 10.4 MW, including the largest solar power site at Yantandi in Yongan with the capacity of 4,636.8 KW, D and E raw water pools at Taichung Power Plant with the capacity of 1,508 KW, and Nuclear Power Plant #3 with the capacity of 1,458 KW. These are MW class voltaic power plants.

Simplifying the Application Procedure for Integrating Renewable Energy Sources with the Grid

In supporting the renewable energy development policy of the government and encouraging the development of using renewable energy in power generation in the country, Taipower devised the "Particulars for the Procurement of Renewable Energy" and simplified the procedure of integrating renewable energy with the grid in four processes:

Combine renewable energy with grid process	Schedule
1.Combination review (including preliminary consultation) 2.Enter into Buy-Sell Agreement on electric power 3.Trial run of combined grid 4.Bulk sale of electrical power	• Analysis of system impact is necessary: To be completed within 25 days after the acceptance of application documents. • Analysis of system impact is not necessary: To be completed within 15 days after the acceptance of application documents. • No system impact analysis for cases under 10KW: Attempt will be made for completion within 10 working days depending on the availability of human resources.

Taipower also sorted out the mistakes commonly made in the application for integrating with the grid as a reference for the Taiwan Photovoltaic Industry Association for condensing the time for review. In addition, Taipower also established the user manual for power units with capacity of less than 500 KW fueled by renewable energy for speeding up the application procedure of integrating with the grid.

Ever since the promulgation of the Statute for the Development of Renewable Energy in 2009, Taipower has supported the government in full effort in its green energy development policy. Taipower announced the tariff rate and took a proactive stance in integrating with the grid and bulk purchase operation. As of the end of 2011, Taipower had entered into an agreement on total capacity of 360 MW. In the same year, Taipower purchased power generated from renewable energy by 1.64 billion KWh and has achieved the goal set for 2011.

Demand-side Management

In order to provide the public with more stable, high-quality power, Taipower promotes load management and energy conservation measures through demand-side management (DSM) strategies, working with its customers to raise power consumption efficiency, change power consumption habits, balance peak and off-peak loads and reduce power waste.

Load Management

Taipower has been committed to promoting DSM for more than 3 decades, and has made an effort in mapping out various response measures for different levels of demands that can improve the load balance of the system. In the summer of 2011, Taipower had successfully reduced the load at peak hours by 4,883 MW, which significantly contributed to the balance of system load.

Measure	Description	2010 Performance	2011 Performance	Effect
Time-of-Use Rates	Encourage customers to use electricity during off-peak hours to reduce peak load and to reflect the cost of power supply at different time periods.	Chosen by 88,647 customers, the peak load was reduced by 3,398 MW.	Chosen by 94,952 customers, the peak load was reduced by 3,418 MW.	☺
Interruptible Rates	Provide discount rates to encourage customers to reduce peak-hour demand through shifting the demand to off-peak hours to reduce peak load.	Chosen by 1,246 customers, the peak load was clipped by 1,290 MW during the peak days.	Chosen by 1,252 customers, the peak load was clipped by 1,465 MW during the peak days.	☺
Seasonal Rates	Reduce the consumption during summer by setting different prices for different seasons.	12.468 million customers applied for the seasonal rates and the average load in the summer was reduced by 3,699 MW.	12.638 million customers applied for the seasonal rates and the average load in summer was reduced by 3,731 MW.	☺
Ice-Storage Central Air Conditioning System	Encourage customers to make use of off-peak load to store ice in the system and thus reduce the peak load. Power consumption during off-peak hours earns a 40% discount off the regular rate.	249 customers installed the system, with a total capacity of 213 thousand hp.	255 customers installed the system, with a total capacity of 226 thousand hp.	☺
Central Air Conditioner and Package Air-Conditioner Duty Cycling Load Control Measure	Central air-conditioning system stops for 15 minutes after every 60 minutes of operation and package air conditioning system stops for 8 minutes after every 22 minutes of operation to reduce peak load.	126 customers applied and compressor capacity reached 27 thousand tons.	156 customers applied and compressor capacity reached 30 thousand tons.	☺
Demand-Response Program	The reduced capacity of the contracted customers can be included in the reserve margin for emergency dispatch to raise the system dispatch flexibility and reliability.	5 customers applied for this measure, with a total contracted capacity of 14 MW.	4 customers applied for this measure, with a total contract capacity of 17 MW.	☺

Energy Conservation

Through various channels and approaches, Taipower holds promotion events every year, mainly promoting the energy conservation concept and practice to enable the public to understand the value and rarity of electric energy and thus establish a correct energy conservation concept.

In order to educate the public with energy saving in their daily lives, Taipower continued to offer the "Discount on Electricity Bill Incentive Measure" and "Counties and Cities Energy Saving Contest" to increase the public's willingness in energy saving. Customers with special energy saving results will be entitled to "basic discounts" of 5%, 10%, or 20% off their electricity bills. If the county or city where the awarded customers live is among the top three in the energy saving contest, such customers will be awarded with an extra 15%, 10%, or 5% of "contest discount." The ultimate winners can be entitled to save up to 35% discount off their electricity bills.

Energy Conservation Advocacy Achievement of 2011

- From 1911 onwards, Taipower has been holding a number of energy conservation campaigns, including exhibitions, quiz with prize, presentation, writing, painting and calligraphy contests in primary and secondary schools, and photography competition for the public, etc. to deliver the energy conservation concept and practice to the customers. In 2011, a large-scale energy conservation campaign was held at Taitung County Stadium and attracted 9,102 attendees.
- Taipower continued to hold all kinds of energy conservation seminars (large customers seminars, school energy conservation seminars, and basic repair and maintenance of in-house electric equipment) promoting energy conservation concept and methods. In 2011, Taipower has organized 1,293 events that attracted about 352,000 attendees.
- On-site visits to customers of high consumption over 100 KW and providing customers with suggestions in lighting, air-conditioning, load management, and improvement of electrical appliances to promote the concept and methods of the efficient use of energy . In 2011, 5,063 customers participated in these events.
- Effective July 1 2008, Taipower presented the "Discount on Electricity Bill Incentive Measure" in full force. In 2011, 26.08 million customers reduced their consumption of electricity totaling 3,791 GWh and amounting to NT $7,932 million as compared with the same period in 2010.
- In 2011, Taipower released publication of promotional materials for energy conservation totaling about 230,000 copies to the public as a reference guide.

Development of Electric Power Technology

For the purpose of providing the public with a higher-quality power supply, Taipower is making an effort to raise the efficiency of production, distribution, and utilization of existing energy, extend the life span of using petrochemical fuels, and pay close attention to the R&D trend of advanced technologies performed by the international power industries. In addition, Taipower will continue to introduce far-sighted technologies to develop a new generation of electric power source technologies for the mankind, and to enhance the efficiency of the power supply industry and energy use.

Electric Power Technology	Subject	Taipower Development Priority
Supercritical and State-of-the-art Materials for Power Generation and Water Treatment Technology	Increase power generation efficiency	• The state-of-the-art materials and welding technologies for ultra-supercritical power generation: Introduce higher efficiency of supercritical coal-fired units and gas-fired combined-cycle units. Develop our own technology such as evaluation of material life, non-destructive testing, regenerating welding, etc. • Water treatment technologies for ultra-supercritical power generation: Set up the apparatus and equipment for the experimentation of technologies for ultra-supercritical power generation devices and water treatment to assist the selection of materials for power generation and related quality verification or assessment of water treatment and monitoring technologies at the power plants for the time being and in the future.
Clean Coal Power Generation Technology Testing and Assessment	Increase power generation efficiency	• IGCC: Taipower has already acquired the technology for thermal simulation of the Air-blown IGCC power generation system, which is its short-term objective. In the future, Taipower will make the combination of IGCC and the thermal simulation of the CO_2 removal technology system as its objective. • Oxy-Fuel: Currently, Taipower is engaged in a joint venture with National Cheng Kung University Research Foundation on the research of experiments in oxygen-enriched combustion. In the future, Taipower will continue to work in cooperation with the academic circle and research institutions in the thermal simulation capacity through oxygen-enriched combustion. • Gasification and Torrefaction: The IGFC power generating system formed by gasification of charcoal and hydrogen and the fuel cell can substantially enhance the efficiency of power generation. Biomass energy can be transformed into high heating valued and easier grinded biochar through pyrolysis and utilized at coal-fired power plants for cofiring or gasifier power generation in the future to assist Taipower increasing fuel sources and reducing carbon emission. • Tracking and assessment of fuel cell technology: provide consultation service for high-end technology to assist the power plants in the installation of cell protection, maintenance and responses to accidents as a part of the effort in the establishment of smart grid.
CO_2 Capture and Storage and Algae Fixed Carbon Technology	CO_2 recovery	• CO_2 Capture and Storage: 1.Develop novel CO_2 absorbent manufacture technology and study the practicality and cost-effectiveness of CO_2 capture. 2.Establish our own assessment capability for potential CO_2 storage areas. Participate in MOEA's CCS R&D Alliance's effort to expedite and promote domestic CCS technology in Taiwan. • Micro Algae Fixed Carbon Technology: 1.Improve photo bioreactor for algae culture to raise fixed-carbon rate and study the feasibility and cost of large-scale implementation. 2.Promote research on algae resource applications and conversion into energy.
Renewable Energy and Distributed Generation	Enhance the capacity of the power grid	• Proceed with the installation and testing of the generation and storage of hydrogen from renewable energy and fuel cells in small-scale, and the retrieval and analysis of the data on the operation. • The development and application of far-sighted or pioneering type renewable energy and distributed power generation technologies to actively launch the plan of renewable energy in multiple channels
Power Storage Technology	Enhance the capacity of the power grid	• The development of storage technologies that can be applied to distributed generation, micro power grid and IGFC: The user-end should select the most appropriate storage technology through proper assessment to upgrade the utilization rate of green energy and launch the development of low carbon energy for stable quality of power supply. The research-end shall invest in storage technologies with high potential and the development of critical materials and components for the development of indigenous technologies.

Electric Power Technology	Subject	Taipower Development Priority
Smart Grid and Advanced Metering Infrastructure (AMI)	Enhance the capacity of the power grid	• Introduce the technologies of power generation, transmission, distribution, and dispatching oriented towards the installation of smart power grid to make the grid more reliable and perform in better quality. This will help to increase the proportion of interval renewable energy. • Promote feeder automation (featured automatic detection, confirmation, and resumption of power-FDIR) and complete the installation of the test site of a model system of advanced automated power distribution, and work in conjunction with the government and the academic circle for a better environment of power distribution through smart grid. • Plan to complete installation of automatic metering devices for about 23,000 high-voltage customers and 10,000 low-voltage customers before 2012. After conducting cost-effectiveness analysis and proving the applicability of the technology, expansion of this project will be implemented.
Demand-side Management Technology	Enhance the capacity of the power grid	• Integrate the feeder line customer database of the management system for forced outrage or rationing of power supply to establish the user safety and emergency reporting system for enhancing the safety and service equality of power consumption. • Study on the demand-side energy management service technologies and establish a portal for AMI system users and value-added service systems to provide more diversified value-added services for the inquiry and use of the customers, including daily power consumption statements, alert message on power interruptions, and others. These prompt the customers to use energy more efficiently and stripped off the peak load and inefficient use of power supply.
Related Studies or Information on Multiple-fuel Power Generation Combustion System	Increase power generation efficiency	• Taipower has conducted a feasibility study on the use of wood fuel in #5~8 power units, and completed the gathering of relevant information and survey on the development of the advanced countries in Europe, the United States and Japan on the use of wood fuel in power generation, and planned for the possibility of using wood fuel. Taipower will continue to gather relevant information on the blending of wood fuel in power units in advanced countries as reference for future planning.
Power Equipment Monitoring and Diagnosis Technologies	Enhance the capacity of the power grid	• Diagnosis and analysis of the status of electric power equipment, and assessment of life span to reduce operation risk deriving from the equipment. • Transient analysis on the electric power equipment and distributed generations that are connected with electricity distribution system.

Enterprise Resource Planning (ERP)

In the hope of using information technology to engage in enterprise management to upgrade its overall operation performance, Taipower has made a comprehensive plan to establish its ERP system in phases. Through this system, Taipower will implement its enterprise reengineering to clearly design written operation standards and management process and conduct prompt reviews and improvements. This will benefit sustainable management and development.

Currently, the headquarter in the 1st Phase of the project and 56 power generation units have already connected to the system. The other 63 units will be linked to the system by August 2012. By then, the project in Phase I will be fully accomplished.

ERP System Project

Phase 1	Phase 2	Phase 3
Integrate all Taipower IT systems including financial accounting, financial management, procurement and material management, internal auditing control management, etc., to establish a more efficient enterprise operation core process.	Continue integrating IT systems, including engineering management, facilities maintenance, human resources and business intelligence to establish and integrate core information systems for the integrated power industry.	Strengthen business intelligence and establish enterprise performance and strategy enterprise management to build a complete e-power utility.

Coping with the Challenges of Climate Change

It is foreseeable that the climate extremes caused by global climate change will drastically increase the scale and frequency of disasters. As a main power supplier in the country, Taipower should realize that it must have a long-term disaster prevention and adaptation strategy to maintain power supply stability and safety, and support continuous development of the industry. Thus, Taipower should make strategies far in advance to deal with the effects triggered by continued climate change and to reduce damage to the assets of the country and its citizens.

Key Sustainability Issue	Commitment	Goal
Coping with the challenges of climate change and GHG emission reduction	Progressively implementing Taipower's GHG control strategy to reach the reduction goal set by the government.	Fulfilling the carbon reduction goals as stipulated in the "National Master Plan on Energy Conservation and GHG Emission Reduction". The quantity of emissions in 2020 should be reduced to the level of that in 2005, and in 2025 to the level of that in 2000.

Climate Change Adaptation

Extreme temperatures and excessive rainfall will aggravate the frequency and scale of disasters and endanger relevant power supply facilities. Taipower's generation, transmission and distribution systems must therefore undergo preparations for long-term disaster prevention and countermeasures.

In responding to the challenges derived from climatic change, Taipower has already launched different adaptive measures and continued to make effort in related research. These adaptation plans have been incorporated into the short, mid, and long-term research and development plans of Taipower for strengthening its adaptive capacity and to mitigate the impact of climatic change on power generation, supply, transmission, and distribution systems.

Strategy	Action
Strategy 1	**Participation in the National "Climate Change Adaptation Plan"** Taipower participated in the " planning of promotion of the guidelines and action plans for climate change adjustment" panel discussion hosted by the Council for the Economic Planning and Development and presented 5 action plans, including: • Climate change impact assessment and vulnerability inventory check assessment for Taipower energy supply facilities and their locations. • Climate change impact assessment and vulnerability inventory check assessment for the operation of the power grid system. • General power industry climate change adaptation capability improvement. • The planning and establishment of a climate change early warning and emergency response system for the integrated power industry. • Equipment deterioration monitoring and development of prevention technology for power generation, transmission and distribution.
Strategy 2	**Execution of the "Power Facilities Climate Change Adaptation Action Plan"** In 2011, Taipower selected the service region of Xintao to execute the "Power Facilities Climate Change Adaptation Action Plan" and conducted analysis on the impact of climate change on Ermei Ultra high voltage power transformation station and assessment of its vulnerability to climate change. This plan is scheduled to be complete by the end of 2012 with accompanying report on the adaptation of climate change impact on the system. In the future, Taipower will gradually complete the planning and implementation of the adaptation strategy to power generation, transmission, and distribution facilities to mitigate the impact of climate change in the power supply system for stable power supply and achieve the goal of risk management on climate change.
Strategy 3	**Merging into Taipower Management System** Taipower will incorporate the short, mid, and long-term adaptation strategies into its corporate management mechanism on the basis of its management system currently in effect. • Short-term: Consider the possible impact of climate change on the power supply and demand and incorporate the strategy into the risk item of "Power Supply Stability and Safety" of the Risk Management Implementation Plan for proper control. • Mid-term: Incorporate into Taipower "10 Year Business Strategy." • Long-term: In response to Taipower sustainable development objectives, Taipower incorporate the environmental dimension of its "Sustainability Action Plan" for the study and design of adaptation plan and strategic direction.
Strategy 4	**Incorporating into the Short-to Long-term R&D Plan** In consideration of the uncertainty of climate change and the technological sophistication of Taipower in its power supply system, the collection of related information, information exchange and study became critical. Taipower planned to incorporate the climate change impact and the adaptation strategy into its short- to long-term R&D plan for far-sighted, integrated, basic, and full-range research for preemptive action.

GHG Control Action Plans

Domestic power consumption has increased with sustained economic development. In order to manage and achieve the GHG emission reduction goals and achieve the objective of "National Energy Saving and Carbon Reduction General Plan" (control the emission volume of 2020 to the volume of 2005, and the volume of 2025 to the volume in 2000). Taipower has taken concrete strategies and actions to proactively reduce the GHG emissions to approach the vision of a low carbon society of the country.

For this, Taipower has established the "Energy Saving and Carbon Reduction Performance Promotion Meeting" in 2011, thereby set forth 9 promotion strategies and 35 action plans. Through concrete strategies and actions, Taipower seeks to reduce GHG proactively.

Energy Conservation and Carbon Reduction Promotion Strategies and Action Plans

		Action plans	Achievements
Strategy 1	Expanding Low-carbon Energy	1. Expand installed capacity of renewable energy. 2. Complete units 1 and 2 of the Lungmen Power Plant. 3. Maintain natural gas power at an appropriate ratio. 4. Retire and renew the existing units. 5. Adopt the best available technologies for new generation units.	• Aim at current plan for the upgrade of fuel-coal power units by choosing high performance ultra-supercritical fuel-coal devices, which can generate electric power at the efficiency of 44.5% (LHV-Gross). For example, the fuel-coal units at Linkou Plant with a capacity of 800 MW can reduce the emission of CO_2 by approximately 10% after the upgrade. • Addition of power generation by new energy and natural gas, and continuation of developing renewable energy. In 2011, power generation capacity of natural gas increased by 2,552.74 GWh as compared with the same period in 2010.
Strategy 2	Upgrading the Efficiency of Existing Generation Units	6. Upgrade the efficiency of existing thermal units. 7. Upgrade output of existing nuclear units.	• The efficiency of thermal power units in 2011 was 42.51 % (LHV Gross), which approximate the efficiency of 42.52% in 2011. • Taipower planned to complete the upgrade of intermediate output efficiency at Nuclear Plant #1, renewal of the components of low pressure turbine of units #2 at Nuclear Plant #2 in 2011 to upgrade the performance of the nuclear power units.
Strategy 3	Upgrading the Efficiency of the Transmission and Distribution Systems	8. Improve efficiency of the operation of transmission and distribution systems to reduce line loss. 9. Improve transmission and distribution facilities. 10. Research, promote, and apply high-efficiency transmission, substation and distribution facilities.	• In 2011, the line dissipation rate of Taipower system was 4.76%, which was just under Korea, and not as efficient as advanced countries like the USA and Japan.
Strategy 4	Strengthening R&D on Power Grid Technology	11. Construct a high-quality power grid for integrating distributed energy sources. 12. Develop automation of substation and feeders and design for the installation of the new generation communication system. 13. Apply energy storage system and electric and electronic technologies. 14. Study the addition of new pumped storage hydro power for the development of renewable energy.	• In 2011, Taipower launched the "Regional Integrated Renewable Energy Grid Management Information system", "Integrated Distributed Generations and Power Distribution System Impact Analysis and Planning Platform," "Feasibility Study on the Integration of Renewable Energy Power Generation Equipment with Power Distribution System and Energy Storage System," and "The Planning and Installation of Micro Grid for Smart Grid".

		Action plans	Achievements
Strategy 5	Strengthening R&D on Power Supply-side Technology	15. R&D in technologies for upgrading power generation efficiency and equipment reliability. 16. R&D in technologies for clean coal power generation and fuel cell power generation. 17. Develop the technologies for carbon capture, storage, and reuse. 18. R&D in technologies for new energy power generation. 19. Introduce and assess the demonstrative renewable energy power generation system.	• For mitigating the impact of the release of greenhouse gas from thermal power generation on the environment, Taipower is engaged in the research of technologies for the capture and storage of CO_2 and Micro Algae Fixed Carbon. In addition, Taipower also participated in related agreements on the research topics held by EPRI of USA and the CRPEPI of Japan on new energy technologies including the capture and recycle of CO_2, and the research and development of fuel cell, solar energy, bio-energy, and wind power forecasting.
Strategy 6	Developing and Trading Carbon Credits	20. Invest or participate in domestic and foreign carbon reduction projects. 21. Purchase domestic/foreign carbon emission credit. 22. Plant trees to reduce carbon.	• Taipower announced the "guidelines for the establishment of a carbon operation task force" and thereby established a carbon credit operation task force to handle relevant business in April 2010. • Taipower has complied with the Bureau of Energy of Ministry of Economic Affairs' Voluntary GHG Reduction for Energy Industry Project since 2006. As of the end of 2011, Taipower's accumulative verified quantity of CO_2e has reached 12.85 million tons.
Strategy 7	Implementing Demand-side Management	23. Infrastructure plan for AMI. 24. Promote the demand-side electric energy management management measures. 25. Promote reasonable tariff schedules. 26. Study demand-side electrical energy management service techniques. 27. Discuss and plan the establishment of an energy technology service company.	• In 2011, there were 26.08 million customers (household·time) responded to the plan, which helped to save the consumption of electricity by 3,791 GWh amounting to NT$ 7,932 million
Strategy 8	Enhancing Internal Energy Conservation	28. Control internal productive and non-productive energy conservation. 29. Promote green buildings and in-house energy conservation. 30. Promote green IT and teleconferencing. 31. Establish an energy conservation service team to provide energy conservation technology diagnosis and consultation services.	• In 2011, energy saving was 159.79 GWh cumulatively, water saving was 194 MWh, and fuel oil saving was 135 kilo liters.
Strategy 9	Reinforcing Energy Conservation Promotion and Communication	32. Use the media to promote energy conservation and carbon reduction. 33. Hold energy conservation and carbon reduction promotion campaigns. 34. Promote energy conservation and carbon reduction techniques and methods. 35. Host large-scale energy conservation and carbon reduction exhibitions and seminars.	• 1,293 energy conservation seminars were held in 2011. • Organized electricity conservation technology interviews for a total of 5,063 households of more than 100 watts. • 483 thousands of people attended energy saving and carbon reduction exhibition. • 2Held energy saving and carbon reduction exhibition at Taitung county stadium to enhance energy saving knowledge and practice among the public. • Utilize broadcast, television, internet and news media to promote energy saving and carbon reduction and organized events such as electricity construction seminars for elementary school teachers, 2011 TAIPOWER Taitung bicycling for the energy saving event, and elementary and middle school essay competition, to educate energy saving and carbon reduction.

Developing and Trading Carbon Credits

In order to achieve the carbon reduction targets which the government might set for Taipower in the future, and assuming that the goal of total quantity control could still be unreachable, Taipower will plan to trade carbon credits in domestic and foreign markets to meet emission quotas. As such, Taipower announced the "guidelines for the establishment of a carbon operation task force" and thereby established a carbon credit operation task force to handle relevant business, including:

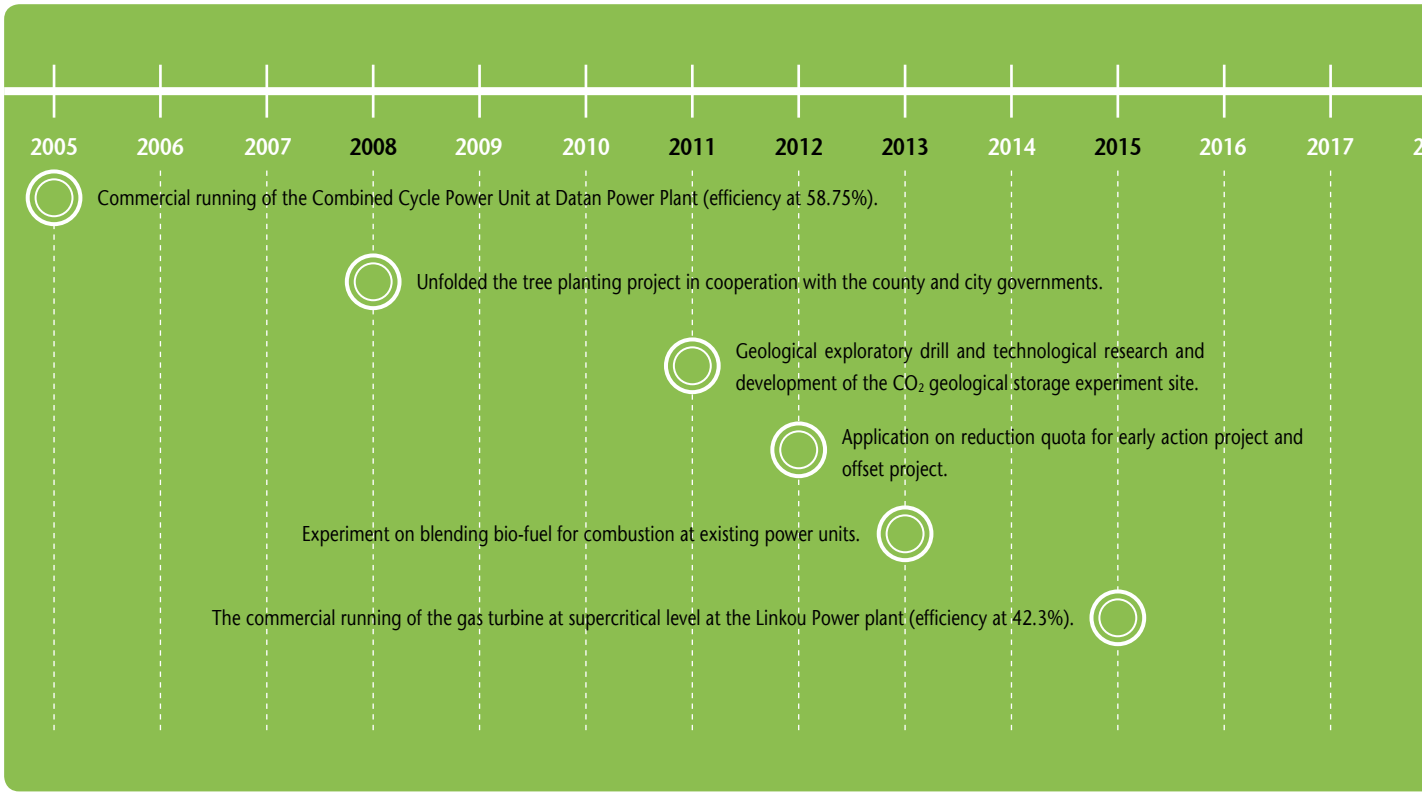
Planning of carbon credit management	Conduct analysis of the environment for carbon emission in the future, and assess the demand for carbon emission. Properly allocate budget to the carbon credit operation, plan and establish an accounting system for the carbon trading system and related matters.
Investment and procurement	Acquire carbon credits in the domestic and foreign carbon trading market for investment or participation in related plans of GHG reduction, and keep track on the reduction volume and result.
Assessment and introduction of reduction technologies	Assess the carbon reduction methods and additional measures suitable for the Taipower carbon reduction plan, and introduce related technologies and assist the planning function to manage related works.

GHG Emission Inventory Check and Management

Taipower's main GHG emission sources are thermal power generation, coal yards, transportation vehicles, insulation gas used for switchgear, and freezer and air-conditioning facilities. In 2011, Taipower emitted 84,576 thousand tons of CO_2e of GHG emissions, of which 99.3% came from thermal power generation processes.

In order to make its GHG information transparent and credible, Taipower entrusted a certification agency to conduct ISO 14064-1 verification. As of 2011, 17 units passed the ISO 14064-1 verification.

Taipower GHG Reduction Progress



GHG Emissions by all units (including power generation and common process)

Unit: 1,000 tons of CO_2e

GHG	CO_2	CH_4	N_2O	SF_6	HFC
Total	83,944	69	316	227	20

Complying with the government's Voluntary GHG Reduction for Energy Industry Project, Taipower made a great contribution to GHG emission reduction, with its total reduction accounting for over 98% of the amount in the Bureau of Energy's assistance program.

Unit: 1,000 tons of CO_2e

Thermal Power Generation	Emission in 2010	Emission in 2011
Oil-fired	6,204	5,525
Gas-fired	17,568	18,672
Coal-fired	56,694	59,777

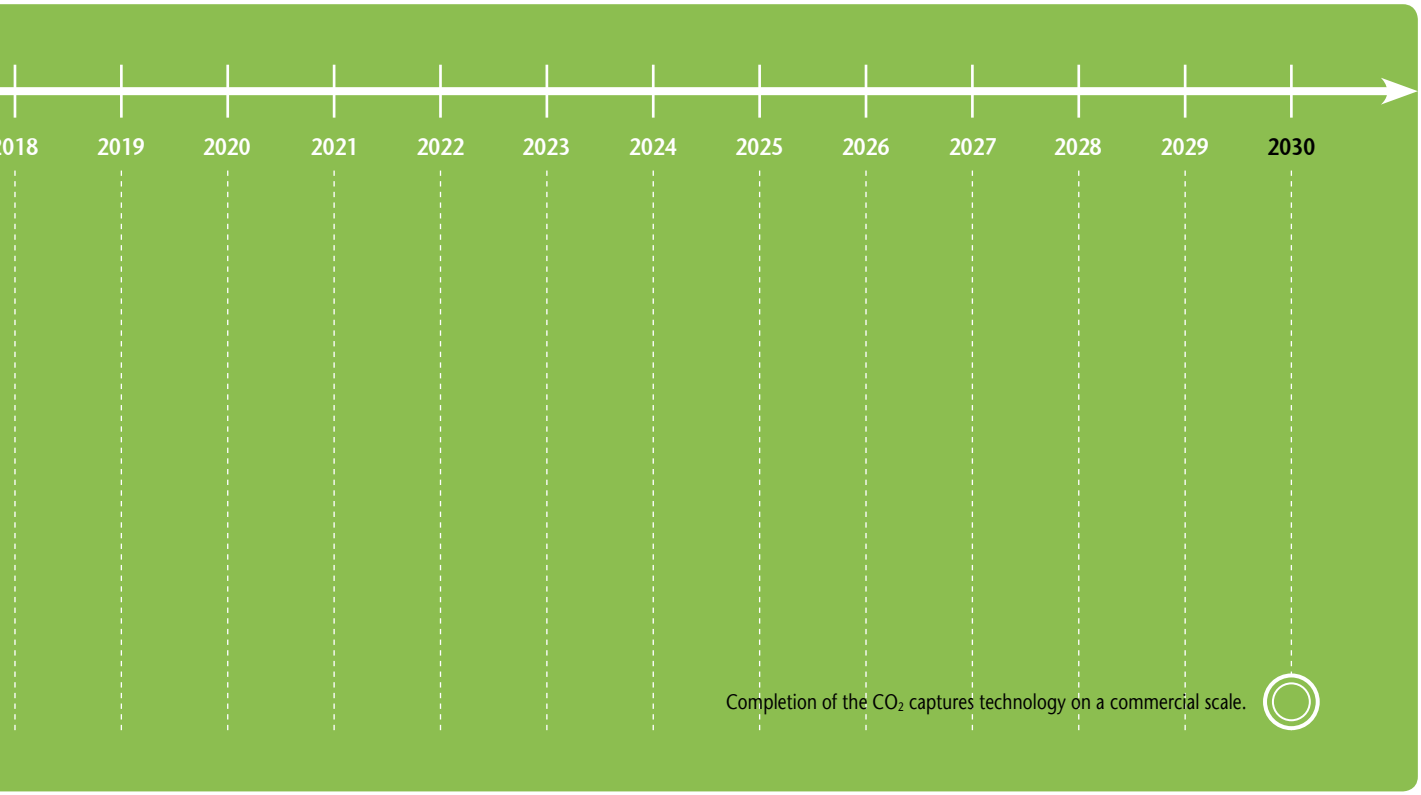
Reduction of GHG Emissions

Complying with the Bureau of Energy of Ministry of Economic Affairs' Voluntary GHG Reduction for Energy Industry Project, Taipower promotes power plants voluntary reduction actions. In 2011, the capacity of CO_2e reduction was recognized at 6.76 million tons under the ISO 14064-2 verification. As of the end of 2011, Taipower's accumulative verified quantity of CO_2e has reached 12.85 million tons.

GHG Early Action Project and Offset Project Application

Taipower's Dalin Power Plant has completed the third party verification of the "2005~2010 Early Action Project Quota" and the reduction capacity was recognized at 180 thousand tons. If the result is verified by Environmental Protection Administration, Taipower can acquire the early action project quota and deposit at the reduction quota of the Taipower account for offsetting the GHG emissions in the future.

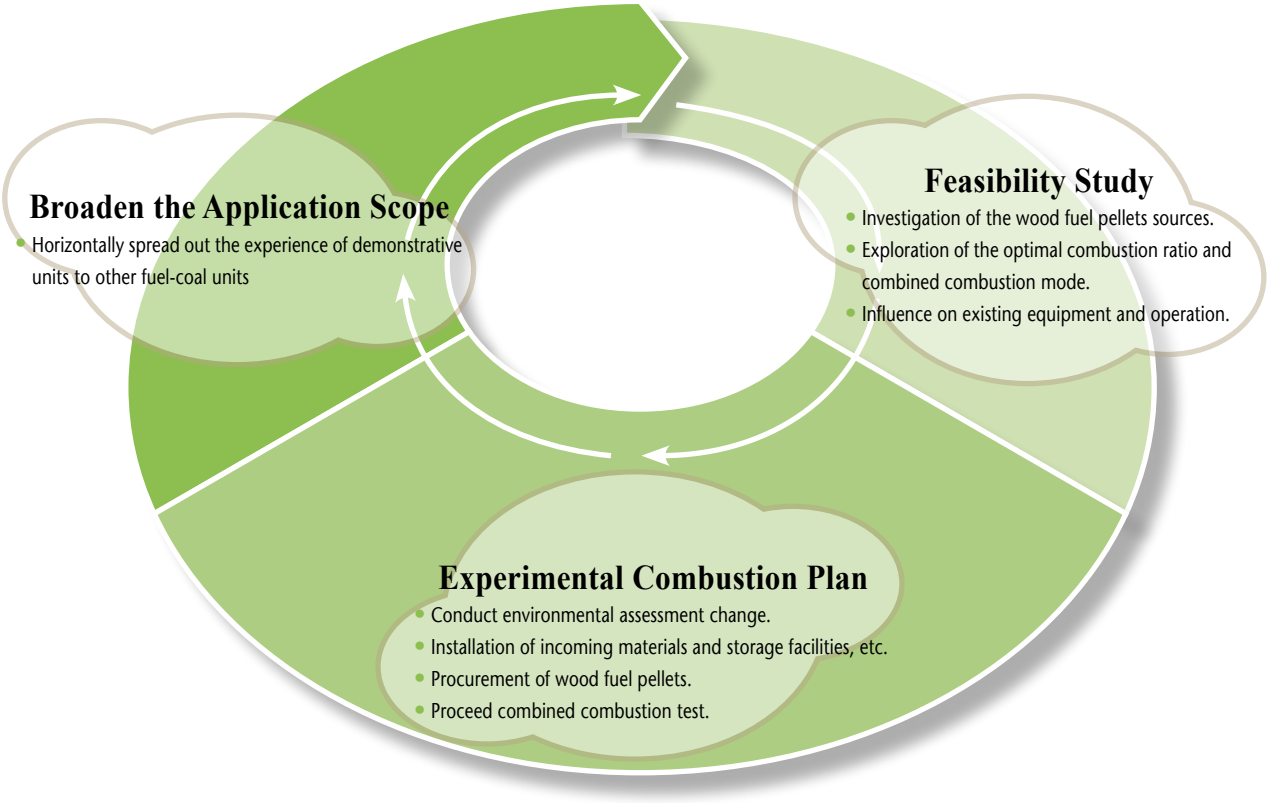
In terms of the offset project, Taipower has already proposed 6 offset projects including the "Wansongbihai Power Generation Plan," "7.03 MW Integrative Solar Voltaic Power Generation Plan," the "Speed and Frequency Control Improvement of the Hsieh-Ho #4 Unit FDF Motors Driven by VFD," and "Efficiency Upgrade of the Hsing Ta Plant #1 Turbine," "Datan Power Plant Natural Gas Power Generation Plan," and "Tongxiao Power Plant Conversion to Natural Gas Power Generation Plan" to the Environmental Protection Administration for recognition of the GHG emission quota.



Bio-fuel Combined Combustion Plan

Taipower has unfolded the "feasibility study on the partial bio-fuel combined combustion at existing power units" program in 2010. Currently, Taipower has assigned one power unit at Taichung Power Plant for testing the combined combustion with coal and wood fuel pellets. In the future, Taipower will assess the feasibility of expanding the promotion of combined combustion power generation depending on the legislation of related rules and regulations in the country.

Assuming that one power unit consumes 1.6 million tons of coal per year, co-combustion with 5% wood pellets can help to save the coal consumption by 80 thousand tons per year and reduce the CO_2e emission by 200 thousand tons per year (basing on the 2.53 tons of CO_2 emission from one ton of the coal combustion). If co-combustion is applied to 10 power units at Taichung Plant and 4 power units at Xingda Plant at the same time, Taipower can reduce the carbon emission by 2.8 million tons/year.



Carbon Footprint of Power Industry

The carbon footprint of power system refers to the tracking of the GHG emission of one unit of power generation through the analysis of the life cycle – including the fuel extraction and refinery, the fuel transport, power plant construction, power generation, waste disposal, and power distribution system (and maintenance). Taipower attunes to the assistance of the Bureau of Energy of MOEA and proceeds the carbon footprint calculation of different types of power generation gradually.

As of the end of 2011, Taipower has completed the carbon footprint calculation at Linkou Fuel-Coal Power Plant, Nuclear Power Plant #3, Mingtan Power Plant pumped-storage hydro power unit and regular hydro power unit, and combined cycle natural-gas South power plant. In the future, Taipower will continue to calculate the carbon footprint of thermal power plants, which release a much higher volume of GHG and nuclear power plants for proper emission volume control of all types of power generation within their life cycles.

SF_6 Management and the Reduction Performance

In addition to safety and reliability, modern substation facilities need to be aesthetic in structure, safe for operation, easy to maintain, etc. Thus, Taipower has widely adopted the use of SF_6 insulated switchgear (GIS) equipment in power facilities, such as switchyards, substations and distribution lines. The quantity of equipment is large and varied.

To effectively manage the usage and emissions of SF_6 , Taipower has accurately controlled the variety and quantity of switchgears and SF_6 refill amounts through its "SF_6 reporting management information system". Each unit was requested to upgrade the quality of its facilities inspection and maintenance to reduce SF_6 leakage. The accurate amount of SF_6 usage and refilling as well as the impure SF_6 inventory are required to be posted in the information system.

For the creation of reusable space, Taipower will recycle and collect the SF_6 gas into the empty cylinders for storage, and deliver to "National Halons and F-gases Management Center" for refining and transfer to the magnesium alloy industry for further use. This helps to extend the life span of SF_6 and reduce the emission volume of GHG.

The Status of SF_6 in 2011

Item	Quantity (kg)	GHG (ton of CO_2e)
Original Quantity	22,594.76	540,014.67
Facilities/ Refilling Frequency	1,121	-
Refilling	9,614.41	229,784.29
Purified SF_6 Emissions	55,599.01	1,328,816.34
Inventory	514.6	12,298.94

Creating an Environmentally-Friendly Culture

Taipower continued making efforts in reducing operational risks caused by environmental issues. In order to reduce the impact caused by power industry-related activities, products and service on the environment, Taipower and its employees, abide by the following declaration, engage in various environmentally-friendly activities to minimize the impact of operation activities on the environment. Taipower demonstrates its determination in striving to become a world-class green energy group.

Taipower Environmental Declaration

- Meet relevant regulations: In addition to environmental regulations, the regulations of landscape, ecology, and international issues should be taken into consideration.
- Emphasize pollution prevention: Environmental impact assessments should be put into practice and environmental monitoring should be implemented before, during, and after power development projects.
- Substantiate resource conservation: Each unit should minimize its consumption of resources - oil, water, and electricity.
- Strengthen promotion and communication: Each unit should, based on the spirit of ISO 14001, strengthen the company's internal and external promotion and communication tasks.
- Continue performance improvement: Each unit should follow the ISO 14001 P-D-C-A concept to continue its performance improvement.

Environmental Impact Assessment

While engaging in the environmental impact assessment process, Taipower entrusts professional organizations to conduct related research. In addition, for key environmental projects, Taipower consults with stakeholders, including government agencies, scholars, experts, the private sector, etc. in order to ensure that the project content will meet the public's needs and take into consideration its impact on the neighboring natural environment, biology, society, and economy.

As influenced by various key factors such as energy policies, CO_2 emission issues and project requirements, the progress of reviews for EIA has been fairly slow. Taipower will continue its effort to communicate with its stakeholders in an attempt to meet their expectations and develop the company's power facilities at the same time.

Assessment of the Impact of Electric Power Facilities before the Installation of Facilities in the Community

In the process of the environmental impact assessment, Taipower will conduct public opinion polls among the development area, including organizing public seminars, visiting and communicating with the local public, and assessing the local physical and chemical environment, humanities, social and economic environment, ecological environment, and to propose environment-friendly measures and achieve the purpose of environmental protection.

Feasibility Study on Combined Heat and Power

Despite the experience of the thermal power plants in Denmark in using heat energy implicated that cold and heat energy can be reused in the region and help to save energy and reduce carbon emission, the Taipower preliminary studies showed that the heat energy at thermal power plants has already been fully utilized and that the remainder of heat cannot be efficiently and economically reused. Therefore, at this stage, the thermal power plants adopt the Combined Heat and Power, or CHP system, and supply cold and heat energy to the neighboring industrial zone and residential areas is not feasible ; the reasons are as follows:

Reason	Description
The change in design will not give ideal results.	The CHP system is a customized design thereby the demand of cold and heat energy in the neighboring zone must be at certain scale in order to match the design and yield optimal efficiency in output of energy. Any change in the power units presently in service for cogeneration of heat and energy will yield poor performance.
The remainder of heat energy from the power plants cannot be reused economically.	The temperature difference between the thermal discharge and the background water is lower than 7℃ and the temperature of the water is lower than 40℃, which cannot be reused economically. As for the exhaust from combustion, the temperature after heat recycling and the air pollution control equipment is very low and has to be heated up to about 100℃ to surpass the dew point so that the gaseous substances can be emitted smoothly in compliance with the requirement of environmental protection. The thermal discharge and exhaust emitted from the power plants cannot be recycled and reused economically.
Gas supply from power plants influences the efficiency and stability of the power supply.	In the CHP system of the power plant, the steam was to be supplied for meeting the demand of heat energy, so the capacity and efficiency of power generation will be hampered. Accordingly, the efficiency and stability of power generation will also be affected. The power capacity short should also be filled by other power units. As such, this option cannot help to enhance the overall efficiency of energy supply.
Trade-off relation between power supply and steam supply.	If Taipower uses the CHP system to supply both cold and heat energy for the needs of the region, Taipower will have a trade-off dilemma in situations where major repair of power generation is required, malfunction of the power units, or tight supply of power. In either way, the rights and privileges of the customers will be affected or they may even claim damages.
The use of steam in the power plant for cooling cannot help to enhance efficiency and is not as good as using electric power.	The demand of cold energy in Taiwan is much higher than the demand for heat energy. The cooling effect of power compressor is much more efficient that the cold water tower system. Therefore, it is not feasible for the thermal power plants to use the CHP system to supply energy for cooling, which cannot help to enhance the overall efficiency of energy use and is not helpful for carbon reduction.

Energy Resource Management

Material Flow Management System

Taipower is the first company in the country to complete its Material Flow Management System (MFMS) after its Environmental Accounting System was established. Currently, this system can rapidly control the condition of raw material utilization, pollutant emissions, and discharge, by product bidding amount changes, etc. This system greatly upgrades the efficiency and accuracy of environmental information management.

The environmental information collected by MFMS includes: input – the amount of fuel, electricity, and water needed for manufacturing, and output – electricity, waste, or pollution created during power generation, etc. In addition, the waste can be reutilized and reused to add extra income, such as offal, wastewater reuse, coal ash, plaster, etc. Thus, a complete environmental data bank platform was established.

Wastewater Reuse

While adhering to the concept of water conservation, Taipower has been actively pursuing the goal of zero wastewater discharge. Rainwater collection (power plants and dormitories) and wastewater reuse projects are being promoted, and integral planning has been implemented to reduce the use of tap water inside the power plants.

With the implementation of various measures, in 2011 the amount of wastewater reuse was much higher than that of the previous two years. In addition to saving an enormous amount on water expenditure, this also demonstrated Taipower's dedication and contribution to water conservation in Taiwan.

Thermal Power Plant Wastewater Reuse

Unit: tons

Item \ Year	2009	2010	2011
Reuse of rainwater	371,835	159,529	152,171
Reuse of wastewater and process water	1,471,677	1,621,918	1,794,707

Power Plants Water Footprint Calculation

Presently, the whole world has started to pay close attention to the issue of industry's "water footprint". In 2011, Taipower began calculating the quantity of water input and wastewater output of thermal power plants to understand the water resource utilization conditions. In the future, Taipower will comply with the government's "water footprint" promotion system to conduct water footprint inventory checks.

Unit: M^3/year

Water Footprint	Power Plant	2010 (A)	2011 (B)	Direct Effect on Environmental Protection (A-B)
Water Input (blue water)	Productive Water Use	10,046,068.60	10,077,268.20	-31,199.6
	Non-Productive Water Use	478,126.00	382,072.00	96,054
Effluent of Treated Wastewater (grey water)	Treated Wastewater Discharge	1,269,596.60	1,179,308.5	90,288.1

Note: The baseline data from 2009 was adjusted to facilitate comparison with current business activities in 2011.

Environmental Accounting System

In 2003 Taipower established the environmental accounting system (EAS), and in 2006 developed the EAS information platform to help with EAS information entry work.

Taipower's environmental accounting system includes not only environmental expenditure information, but also industrial safety and sanitation expenditure information. By expanding the scope of the system, Taipower is able to quantify the costs of all environmental-related activities (including environmental protection, occupational safety and sanitation), and this capability has enabled Taipower to become one of the few companies in Taiwan which can conduct real-time statistics and analyses of environmental expenditures.

In 2011 total environmental expenditure was NT$ 15.8 billion, of which environmental protection accounted for NT$ 8.87 billion, occupational safety NT$ 5.47 billion and sanitation NT$ 1.46 billion.

2009~2011 Environmental Expenditures

Unit: NT$ billion

Item \ Year	Environmental Expenditure	Industrial Safety Expenditure	Sanitation Expenditure	Total
2009	8.25	6.54	1.65	16.44
2010	7.22	5.58	1.36	14.16
2011	8.87	5.47	1.46	15.8

Recycle and Reuse of Thermal Power Plants Byproducts

Reuse of Coal Ash

The majority of waste generated from Taipower's thermal power plants is coal ash (fly ash and bottom ash), most of which can be reused to reduce the environmental burden. Presently, fly ash is commonly used in civil construction. In fact, Taipower has used fly ash in power facilities construction and promoted its use. In the meantime, Taipower has promoted the use of bottom ash for ditch repaving projects in construction units. This greatly raises the reuse quantity and rate of coal ash. In 2011, and auction price for the sale of coal ash amounted to NT$ 146 million or at the utilization rate of 87.2%.

Reuse of Gypsum

During the combustion process in coal-fired power plants, the sulfur contained in the coal is converted onto SO_x. The sulfur content of coal is converted into SO_x, and then emitted with the flue gas. To reduce air pollution, Taipower has installed exhaust desulfurization facilities at its three coal-fired power plants (Linkou, Taichung and Hsinta) to eradicate SO_x and uses limestone slurry to transform SO_x in flue gas into gypsum. Taipower used lime paste to give $CaSO_4.2H_2O$ or commonly known as raw gypsum through the process of absorption, neutralization, oxidation and crystallization. The gypsum produced by Taipower can be reused by local cement makers and fire retardant board makers. In 2011, the production of gypsum amounted to 659 thousand tons per year and its utilization rate reached 98%.

Industrial Waste Bidding Volume

Unit: 1,000 tons

Items of industrial waste	2009	2010	2011
Waste wires, cables and metal scrap materials - centralized for auction sales	9.323	8.773	6.801
Coal ash production volume	1,735	1,957	2,104
Coal ash auctioned volume	832	1,687	1,835
Landfills and land reclamation	903	270	269

Note: 1. Reuse after sales through auction. 2. The output of coal ash = auctioned volume + the volume in landfills and land reclamation.

Reuse other industrial waste

Other industrial waste, such as waste wires and cables, metal scrap materials, etc., are being reused by Taipower through waste disposal contractors through an open bidding process. In accordance with government regulations, bidding contractors should be qualified Industrial Waste Processors and perform their reuse operations according to regulations to reduce the environmental risks involved in waste treatment.

Industrial Waste Bidding Amount

Unit: NT$ billion

Name \ Year	2009	2010	2011
Waste wires, cables and metal scrap materials	1.096	1.283	0.988
Coal Ash	0.208	0.135	0.146
Total	1.304	1.418	1.134

Environmental Protection Fines Reduction

Through detailed management and check plans, intensified measures and internal control mechanisms, and strengthened check and preventive measures in environmental protection, the number of violations against environmental regulations has substantially dropped. In the future, Taipower will continue its effort to fulfill its commitment to environmental protection.

Year	2009	2010	2011
No. of violations	12	9	9
Fines (in NT$ 1,000)	979	820	876

Air Quality Maintenance

Taipower installed the continuous emission monitoring system (CEMS) on each of its thermal power plant smokestacks to monitor and control the emissions of air pollutants from the power plants. The CEMS not only helps the company gain information regarding the emission concentration, but also helps the company to maintain the pollution prevention devices at optimum condition and keep the amount of pollutants to a minimum.

Air pollutants	Preventive Measures
–	The choice of fuel (control from the origin) • Choose fuels of low carbon, sulfur, and nitrogen contents. • Switch to clean fuel combustion (natural gas).
Particulate matters (PM)	• Installed high-efficiency electrostatic precipitators (ESP) which are capable of removing 90%~99.8% of particular matter. • Built a wind-shielding fence around the coal yard and installed a sprinkler system. • Transported and unloaded coal in a closed environment, as well as compacted coal heaps and kept road cleaned. • Stabilized the coal surface by using a chemical, and recently, Taipower has planted trees around the yard to prevent the spreading of coal dust.
NO_X	Installation of low-NO_X burners (LNB) and selective catalytic reduction (SCR) for purifying the smoke.
SO_X	Installation of flue gas desulfurization (FGD) to remove over 90% of SO_X emission.

The investment in the pollution prevention facilities from coal-fired power generation I equals 25%~30% of the total construction cost. Presently Taipower has established 4 indoor coal domes. In the future, all new Taipower thermal power plants will use indoor coal domes and closed conveyor belts to further reduce coal dust. In 2007~2012, improvement work has been performed to 2 power units at the Xingda Power Plants amounting to NT$ 9.7 billion in investment cumulatively.

2011 Reduction of Air Pollutant Emissions

Unit: kg/GWh

Name \ Year	2009	2010	2011
SO_X	388	342	356
NO_X	413	354	364
PM	27	33	27

Control of Ozone Depleting Substances

Taipower's use of ozone depleting substances (ODS) comes mainly from its use of halon (HCFC) fire extinguishers. According to its 2011 inventory, Taipower still has about 81.545 tons in stock. Following the stipulation in the Montreal Protocol, Taipower set its goal of limiting annual consumption of HCFC to be 25% of the base amount (159.539 ODP tons). In the future, Taipower will comply with government policy and regulations to gradually reduce the use of HCFC fire extinguishers to protect the ozone layer.

Environmental Education Training

To help Taipower employees to realize the importance of environmental protection and to substantiate environmental protection tasks, Taipower implemented environmental education training sessions through professional training agencies.

In 2011, Taipower held various classes, including environmental management systems, check and review of environmental regulations, waste management, operation and management of GHG inventory checks, and other related courses. There were in total 284 participants. In addition, each of Taipower's operation units, when necessary, invites environmental experts and scholars to deliver speeches and conduct training sessions every year. In 2011, there were in total 22,309 participants.

Green Education Promotion

In compliance with the Environmental Education Act, each employee of Taipower must take at least four hours of education and training in environmental protection every year. In 2011, Taipower has completed environmental protection training for all its employees (27,038 persons) to the required hours, and declared the result online.

Taipower has taken positive action in providing environmental education programs. The Chairman would give keynote speeches on special topics for senior managers training. In addition, four education programs for employees on environmental protection have been given while external experts and scholars were invited to host the lectures. The content covered coral reef fishery, the protection of marine and land ecology, evolutionary biology, and climate change.

Green Purchasing

In order to realize the concept of co-existence and co-prosperity for environmental protection and economic development, the Environmental Protection Administration of the Executive Yuan enforced the "Government Agency Green Purchase Program" hoping to utilize the extensive purchasing power of agencies to make green products the top priority in their purchase plans, encourage the production and use of green products, and make the consumption of green products a prevailing social practice for environmental protection.

Taipower responded to the government policy of green purchase and thereby actively prompting its subordinate units to make efforts in practicing green purchases like office paper, office appliances (multiple-functional business machines, computer mainframes, etc.), electric appliances (fluorescent tubes, dehumidifiers, and drinking water machines), and other equipments (like water saving toilets, cleaning products). In addition, Taipower also designated items for "green purchase" as a part of the performance indicators in "environmental management". After years of endeavor, Taipower has enhanced its performance in green purchase incrementally year after year, and has outstanding result in "low pollution, recyclable, and energy savings".

As a result of active promotion, in 2011 the amount of the green purchases reached NT $240 million, of which environmental protection products accounted for 91.40%. Taipower encouraged the manufacturing and utilization of green products within the country with pragmatic actions and helped cultivate an atmosphere of green consumption.

Low Carbon Park

Participation in Penghu Low Carbon Island Program

In order to help transform the society into a low carbon society, Taipower has participated in the "Penghu Low Carbon Island Construction Program" in 2011. The primary objective is to turn Penghu County into the first renewable energy living circle in Taiwan and allows over 50% of the power supply on the island generated from renewable energy. The idea is to make Penghu County a low carbon island for clean living and as the low carbon island benchmark at a world-class level. In addition, this also helps to develop the ecological tourist industry on a low carbon island and boost up the development of related industries.

The Framework of Turning Penghu into a Low Carbon Island

- Jumbo size wind power installation at 96MW
- Solar Voltaic Benchmark Building at 1.5 MW
- Solar Energy Heater of 6,400m²
- Extend the green zone by 200 hectares
- AMI for 2,106
- 4,000 LED street lambs
- 14,000 units of energy saving home appliances
- Water dripping rate reduced from 32% to 25%
- Reduce water supply by 2,070 tons/day
- Zero disposal of dumps
- 6,000 electric motor vehicles.
- B2 Biodiesel for the whole island
- Education and promotion of low carbon community
- Encourage the participation by the public
- Energy saving management and low carbon label
- Low carbon community
- Low carbon model island
- 100% of the new public buildings/ major investment projects in the private sector granted
- Promotion of low carbon education in school

It is expected that the renewable energy power generation at Penghu will exceed the demand of the island (100%) after the completion of the program. At the same time, the per capita emission volume of CO_2 could be reduced from 5.4 tons/person-year to 2.1 tons/person-year.

Taipower expects the establishment of the low carbon island model can amplify the effort of energy saving and the application of renewable energy for industrial development, and could gradually upgrade the low carbon community into a low carbon city and ultimately a low carbon country.

Establishment of Low Carbon Community

In 2011, Taipower proactively responded to the vision of New Taipei City Government in turning this city into a low carbon city through converting the Northern Electric Power Exhibition Hall at Nuclear Plant #2 and the dormitory area into a low carbon community. The planning strategy is "low carbon building, low carbon transport, renewable energy, green environment cultivation, and resources recycling and reuse." Taipower aims at winning the New Taipei Polar Bear Class Low Carbon Community Mark and supports the development of the low carbon community with full effort.

Note:

New Taipei City Government differentiates the low carbon community mark at two levels:

1. Penguin Class Low Carbon Community Mark: scores ≧60 and ＜ 80 in verified low carbon community.
2. Polar Bear Class Low Carbon Community: scores ≧80 in verified low carbon community.

Green Buildings

Further to Taipower's effort in supplying stable and safe power, Taipower also introduced the concept of environmental protection in the architecture of all its buildings from the planning, design, construction, and maintenance to save energy and reduce carbon. In 2011, Taipower had 1 building that obtained green building candidate certificates and 5 buildings that obtained green building labels.

Policy and Promotion

- According to the "Specification of Architecture Design" of Taipower, sun screening panels should be installed outside of Taipower buildings to lower the temperature indoors and reduce the use of air-conditioning.
- Choose an appropriate proportion of environmental friendly materials and recycled materials for construction.
- Encourage the use of ice-storage air-conditioning system to prepare ice during the off-peak hours at nighttime and store the ice in the system, and allows the ice to melt during daytime to shift the power load to nighttime and reduce the peak load.

The Direction for Future Effort

- Introduction of innovative approaches in green architecture: New techniques for designing green buildings will be continuously developed to improve the energy conservation of new and existing buildings.
- Intelligent energy-conserving buildings: Energy control software and other technologies are used to integrate the control of power, HVAC, elevators, lighting, automated control systems, etc., to introduce an intelligent building to raise energy utilization efficiency, save electric power, and achieve the goal of energy savings and carbon reduction.
- Solar photovoltaic system: Solar photovoltaic designs will be introduced to new buildings that have an area over 600 m2 and a roof hat can be installed with a capacity of over 30 KW of solar power to increase the use of renewable energy.
- Taipower is in the process of assessing the feasibility of establishing internal code superior to applicable laws of government in green architecture and construction, thereby planning to require the materials for the outer shell of all new buildings of a superior quality than required by related legal rules. For new buildings nominated for certification as a green building candidate and the green building label, the overall score shall be better than the minimum requirement.

Ecological Engineering Methods

Under the traditional concept of engineering design and construction, the ecology element has always been put as the last priority. The impact of the building on ecology and the environment has rarely considered in architecture. Yet, human beings constitute a part of the ecology and that human beings and the environment is a coexisting entity.

Over the years, Taipower has already taken the interaction between human beings and the environment as a focus in the architectural design and construction of all its new structures to mitigate possible damage to the natural environment. In the future, Taipower will control the area of construction and minimize the interference with the environment and mitigate the damage to the natural environment under the notion of "based on the ecology and oriented towards safety". In practice, Taipower will comply with the following principles:

- Taking into consideration the overall ecological, geological and social conditions in planning and design.
- Adopting tree planting methods on slopes as much as possible, such as erecting stakes and fences to protect plants of which, the majority are native plants.
- Adopting protection engineering methods for water discharge and river banks with rough surfaces and holes to increase the habitat and living spaces for native animals.
- Minimizing building sizes while fulfilling the functional requirements to reduce the impact of the building on the surrounding view.
- Conducting a comprehensive monitoring and assessment of development areas to serve as a reference for selecting the most appropriate engineering methods.

Taipower is committed to environmental friendly planning, design, construction, operation, and maintenance of its facilities to minimize the environmental impact, optimize energy saving, protect natural environment and biological creatures, protect nature from disasters so that to achieve the goal of "Sustained System Engineering for Mitigating the Damage to the Eco-system".

Environmental Conservation and Ecological Diversity

Fishery Resources Restoration

Seeing that coastal fishing resources in Taiwan have been on the decline and with the understanding of people's dependence on maritime resources, Taipower stepped forward to show its responsibility to the society to boost the economy of the region, and to the protection of marine ecology. In practice, Taipower continues to release fry fish of high economic value off the coast of the locations of its thermal and nuclear power plants in order to rejuvenate the fisheries resources and marine ecology in demonstrating its corporate social responsibility. In the last decade, Taipower has released more than 10.72 million fry fish off the coast of the locations of its thermal and nuclear power plants.

Environmental Protection Research Collaboration

Project Name	Collaborated Partner	Project Content
"Integrated planning project of environmental conservation and exhibition in Wanda and Taichung power plants"	Observer Ecological Consultants Co., Ltd.	• Gather information on existing ecological surveys and monitoring at Wanda Power Plants. Search the literature on the targeted groups of animals, the scope of inhabitation, environmental requirement, and related ecological information. Sort out the materials worth retaining or further explanation. Conduct analysis on the scope of data and conduct supplementary investigation. • Proceed with the collection of species for incubation as needed for subsequent breeding. • Gather information on environmental assessment and ecological monitoring of the surrounding area of Taichung Thermal Power Plant, literature on birds inhabiting along the coastline of central Taiwan, and use the space inside the power plants and facilities for the breeding and inhabitation of sensitive breeds and related ecological information. Taipower planned to rejuvenate the inhabitation and breeding of certain species of birds through the exhibition and education on ecological resources and the environment.
"Using used electric utility poles as artificial reefs: an investigation and study of the resource enhancement"	Academia Sinica	• Conduct an extensive survey on the artificial fishery reel zones with the positioning of cement cable poles, gather information on the types of fishery and other resources at cable pole reef, square cement reef, steel reef, and boat reef. • Investigate different reef zones, including Wanhaishiag at Keelung, Yie-Liu, Dawulun, Shenao, Aodi, Yiwan in Taitung, Xiaogang, Zhuhu, Guiwan (Green Island), and Pingtung as reference for subsequent planting of cement pole reef for fishery incubation.

Coral Preservation

Coral reefs are the most productive and biologically diverse ocean ecosystems and are often called the "tropical rainforests of the seas".

In addition to participating in Kenting National Park's "Hengchun Peninsula Coral Reefs Comprehensive Conservation Program" over the years, Taipower has appointed the Marine Biology Museum for the "Investigation and Monitoring of the Ecology at the Coral Reef at the Sea Zone off South Bay" and installed three underwater remote monitoring systems (since 2003) near the water intake of the 3rd Nuclear Power Plant. These remote monitoring systems allow Taipower to monitor the status of the coral reefs around the clock and to project live images of the reefs for public viewing at Taipower's Southern Visitors Center. Taipower has made the best of its effort in the coral reef conservation for performing its corporate social responsibility in environmental protection, and achieve coexistence and mutual prosperity with the local community.

Promotion of Planting and Green Landscaping

Taipower shows its concern for the earth and its dedication to Taiwan, and makes planting a vital aspect of its mission. In the past, Taipower has established green belts in all power plants, power supply facilities, work sites, and training centers. As of the end of 2011, Taipower has completed 284 hectares of planting, which is the equivalent of 10 times the area of DaAn Forest Park, to help to mitigate global warming through concrete action.

Environmental Footprints of Taipower's Operations of 2011

Power Purchase 50,452 GWh

INPUT

- **Fuel**

Coal: 27,720.2 thousand tons

Natural Gas: 9,119.66 Million m^3

Heavy Oil: 1,768.8 thousand kilo liters

Light Oil: 52.5 thousand kilo liters

Uranium concentrate (U_3O_8): 2.29 million pounds

- **Water Consumed by Thermal Power Plants**

11.65 million tons

Power Generation 162,589 GWh

Nuclear Power Plants: 40,522 GWh

Thermal Power Plants: 115,272 GWh

Pumped-Storage Power Plants: 2,889 GWh

Renewable Energy Power Plants: 3,906 GWh

- **Energy Consumption in Offices**

Power Consumption: 126 GWh (453,600 GJ)

Oil Consumption: 1.48 million liters (48,684 GJ)

Water Consumption: 1.93 GWH

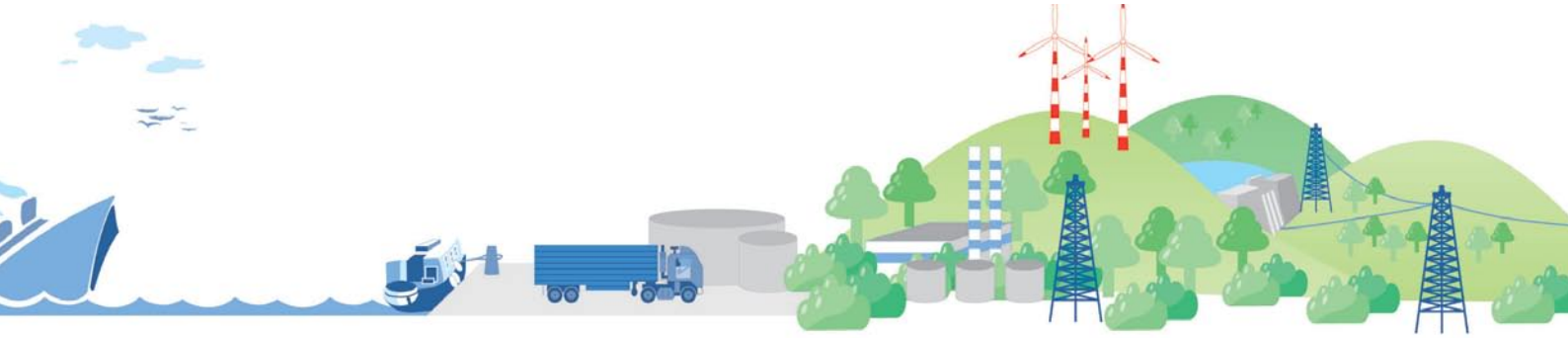
- **Office Conservation Results**

Power Consumption: 9,192 MWh (33,091 GJ)

Oil Consumption: 135 kilo liters (4,441 GJ)

Water Consumption: 194 MWh

Note: 1KWh=0.0036GJ, 1Gallon Gasoline=0.125GJ



Total Power Transmitted to Customer 198,637 GWh

OUTPUT

- **Gas Emissions from Generation, Transmission and Distribution**

Gas Emission

- CO_2e: 84,576 Thousand tons of CO_2e
- SO_X: 42,850 tons
- NO_X: 43,711 tons
- PM: 3,252 tons

- Waste Cables: 68.01 thousand tons

Power Generation Byproducts:

- Coal Ash: 2,104 thousand tons
- Gypsum: 659 thousand tons

Low-Level Radioactive waste: 162 Barrels

Change in Quantity of Spent Nuclear Fuel:

437bundles (approximately 89.8 tons)

Employee Cultivation and Workplace Harmony and Safety

Protecting the safety and health of workers and reducing injury incidents and occupational illness of the employees and contractors, as well as helping employees enjoy a good career development are Taipower's core value concepts towards its employees and work partners. Taipower intends for every employee and work partner to enjoy a safe and healthy work environment.

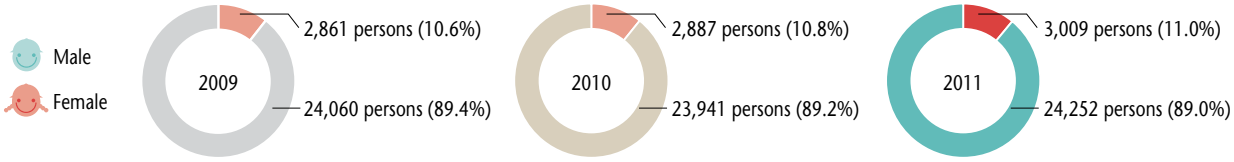
Key Sustainability Issue	Commitment	Goal
Cultivating Electrical Power Professionals	Continuing to cultivate electric power professionals, promoting the passing on of core technologies, and making proper arrangements for the overlap period of the new and old manpower to smoothly promote the company's business.	Recruiting new employees as planned, cultivating professional capacity and strengthening utilization of human resources.

Taipower Human Resource Structure Snapshot

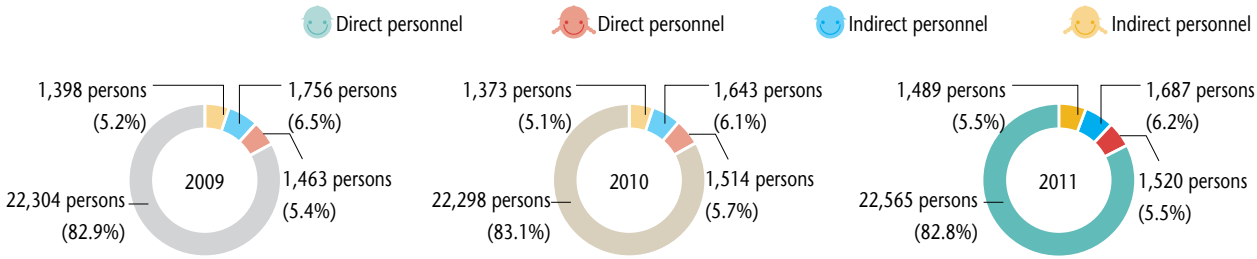
Employment Status

Total number of employees (All employees are of R.O.C. nationality)

Male and Female Personnel Rate



Direct Personnel and Indirect Personeel Rate by Gender



Employee Turnover Number and Rate (by age, gender, or region)

unit: person

Year	2009		2010		2011	
Gender						
Under age of 30	13 (0.05%)	4 (0.01%)	18 (0.06%)	14 (0.05%)	38 (0.13%)	18 (0.07%)
Age of 30~50	39 (0.14%)	5 (0.01%)	37 (0.14%)	13 (0.05%)	66 (0.25%)	21 (0.08%)
Age over 50	198 (0.74%)	13 (0.06%)	457 (1.70%)	45 (0.17%)	292 (1.07%)	32 (0.11%)
Total	250 (0.93%)	22 (0.08%)	512 (1.90%)	72 (0.27%)	396 (1.45%)	71 (0.26%)




Number of Parental Leave Applications and Reinstatement Rate

Unit: person

Year	2011		
			Total
Number of persons entitled to apply for parental leave in 2011	1,299	151	1,450
Number of persons applied for parental leave in 2011	6	14	20
Number of persons reinstated in 2011	7	12	19
Number of persons reinstated for one year after 2010	6	8	14
2011 Reinstatement rate	117%	86%	95%
2011 Remaining rate	100%	100%	100%

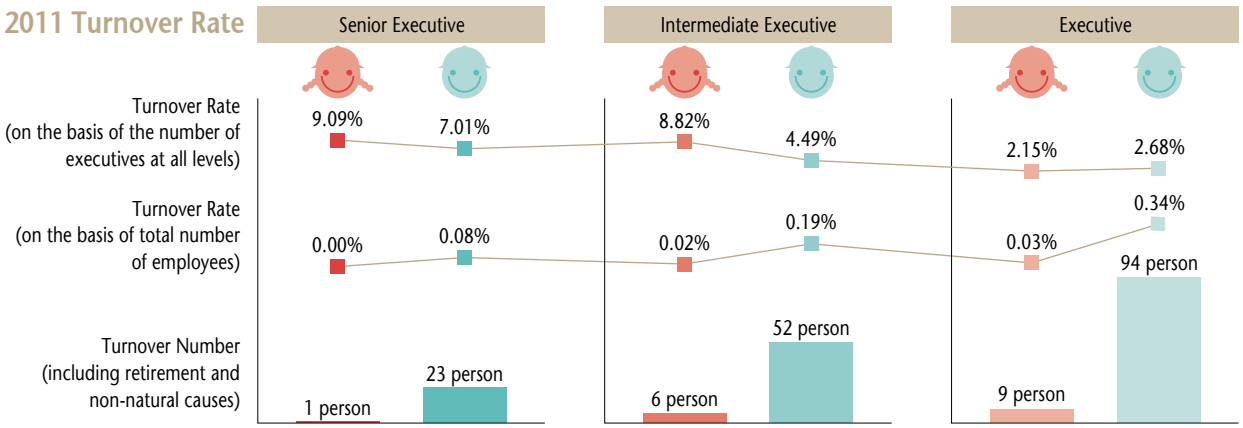
Note 1: The "Number of persons entitled to apply for parental leave in 2011" is based on the number of employees who have taken parental leave (including the leave of the spouse) in the last three years (2009-2011).

Note 2: The "Number of person reinstated in 2011" included those who have taken leave in 2009 but applied for reinstatement in 2010, taken leave in 2010 but applied for reinstatement in 2011, and taken leave on 2011 but applied for reinstatement in 2011.

Note 3: The method of calculation for "2011 Reinstatement rate": Number of persons reinstated in 2011/the number of all persons applied for parental leave in 2011.

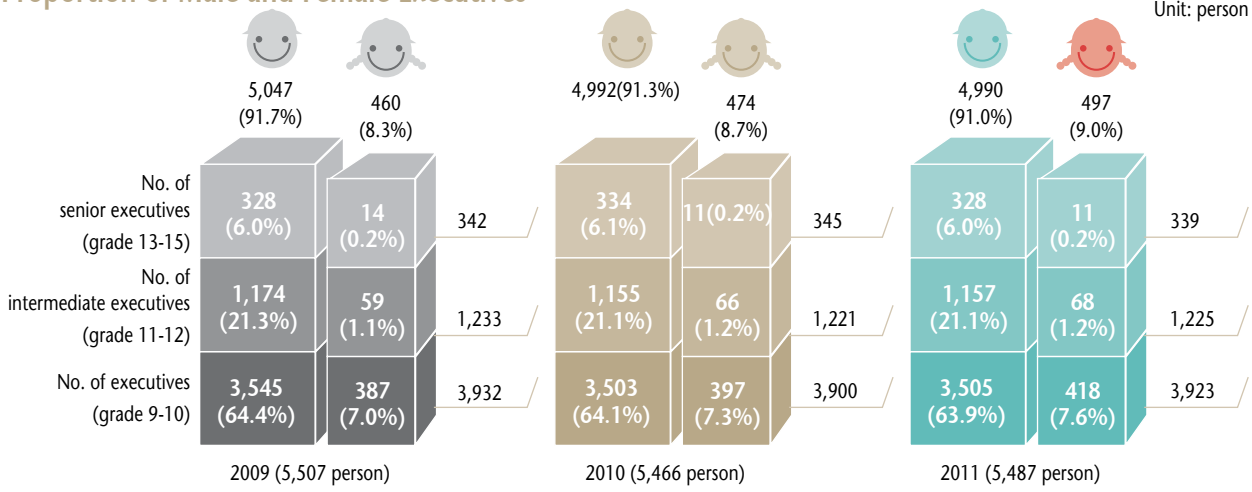
Note 4: The method of calculation for "2011 Remaining rate" = those who reinstated in 2010 and remained in office in 2011/the total number of persons reinstated in 2010.

2011 Turnover Rate



Proportion of Male and Female Executives

Unit: person



Cultivation of Talent

Taipower regards its employees as the most important asset of the company and emphasizes the cultivation of talent. Training requirements are developed from core technologies. Through integrating internal and external training resources, Taipower continues to provide its employees with multiple training programs to satisfy employees' needs for self-promotion and learning of the passing on of technologies. Taipower will therefore continuously strengthen its competitiveness and further enable its employees to grow along with the company's business.

In compliance with the government's personnel downsizing policy, the quota of employees was reduced by 19.8% from 1992 to 2011. Manpower was thus reduced by 15.1% (4,862 employees). This led to problems of tight manpower, aging manpower structure, manpower gap, and the difficulty of passing on technologies.

In 2011, the average age of employees was 49.1 and the average working year was 25.5. The number of employees over 45 years old was 67.9%. Manpower is concentrated in the middle- and senior-aged groups. In the coming 10 years, 11,142 employees, accounting for 40.9% of present manpower, will be mandatorily retired. For cultivating professional talent and enabling the passing on of technologies, there must be an overlap period of new and old employees to facilitate the implementation of the company's business.

To alleviate the aging of manpower and strengthen the passing on of technologies, Taipower, starting from 2005, has planned to gradually recruit the necessary core manpower year by year. In addition, Taipower, through the efforts of reinforcing the utilization of manpower resources, implementing a talent cultivation system based on the premise of expanding core capabilities, substantiating a personnel rotation system, and enhancing evaluation mechanisms, upgrades its employees' productivity and the company's competitiveness, and promotes the sustainable management of the power industry.

Taipower has offered scholarships in universities for undergraduate and graduate level students who demonstrated their strength in special and rare disciplines for the development of special talents for the future operation of the company. Students granted with Taipower scholarship shall be subject to tracking on progress in relevant fields of academic specialization. Taipower scholarship covers the disciplines of "Power grid planning and analysis, control, and operation" (previously "Electrical System"), "Relay," and "nuclear engineering" (including healthcare physics /radioactive chemistry) in the field of electricity. From 2006 to 2011, 162 students have been granted this scholarship of which 97 have joined Taipower after graduation. The remainders of the laureates of the scholarship awards will join Taipower afterwards. Taipower plans to continue offering this scholarship in order to meet the needs of professional workforce in its operation.

Conducting Executive Training

Each level's executives play a key role in promoting and implementing Taipower's management strategies. In order to continuously add new talent to executive levels, in 2011, 334 employees with good performance participated in the supervisory training; 198 participated in the intermediate supervisory training and 110 participated in the senior supervisory training. These training sessions together with other diversified on-the-job training sessions are beneficial to manpower reserve and utilization.

Year	2010	2011
External Training	54,796 persons/times	54,240 persons/times
Overseas Study	17 persons/times	24 persons/times
Practical training	94 persons/times	104 persons/times
Certificates and licenses	1,829 persons/licenses	1,935 persons/licenses

Gender							Total Average Hours
Training	Training Hours	No. of Persons	Average Training Hours	Training Hours	No. of Persons	Average Training Hours	
2009	42,394	2,861	14.8	1,364,497	24,060	56.7	52.3
2010	34,864	2,887	12.1	1,550,671	23,941	64.8	59.1
2011	35,140	3,009	11.7	1,584,163	24,252	65.3	59.4

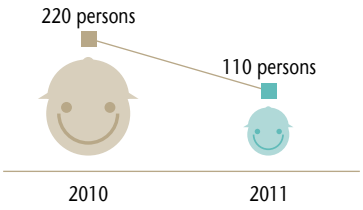
Recruiting and Training New Employees

As of the end of 2011, Taipower had 27,261 employees. In order to avoid a manpower gap and strengthen the passing on of technology, Taipower has launched a recruitment campaign in 2011 and has hired 493 persons in 20 categories on September 19 of the same year. After completing 2-week orientation training, they were assigned to their respective units to undergo a 6-month period of probation. Each unit set up learning goals for the new employee's tentative assignments and selected proper sectors for probation. In addition, according to their career planning, the company provided them with long-term training and assistance. Under the system of talent cultivation, the employees who partake in multiple training programs will be better equipped to grow with the company's business.

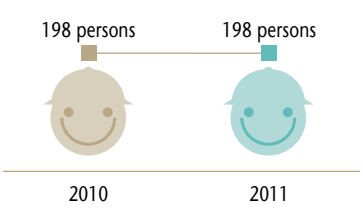
Conducting Executive Training

Each level's executives play a key role in promoting and implementing Taipower's management strategies. In order to continuously add new talent to executive levels, in 2011, 334 employees with good performance participated in the supervisory training; 198 participated in the intermediate supervisory training and 110 participated in the senior supervisory training. These training sessions together with other diversified on-the-job training sessions are beneficial to manpower reserve and utilization.

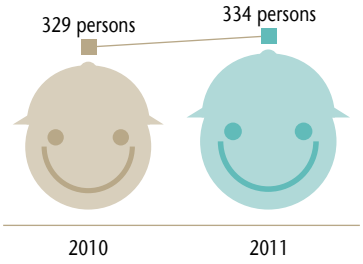
Senior Supervisory Job Training



Intermediate Supervisory Training



Supervisory Training



Establishing Knowledge Communities

Taipower established a "knowledge communities" system to provide a platform for its employees to share and exchange work experience and professional knowledge. Through these interactions, employees' loyalty was also solidified. The measures included:

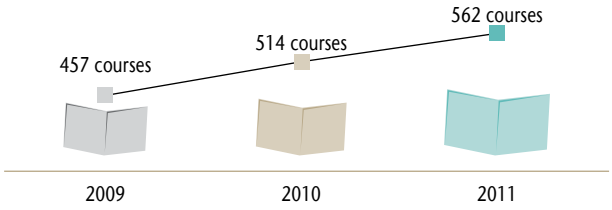
Knowledge Management System	• Taipower blogs: providing employees' daily work review, • Quick place: providing each unit's business and documents, unit entrance, project management, etc. • Taipower Think Tank: providing knowledge communities, knowledge tank, experts, document review area, employee proposals, SKM (Taipower strategic knowledge management mechanism) tool, discussion forum, problem shooting, FAQ, application teaching, newsletter, and opinion poll, etc.
Knowledge Management Content	• 61 quick places. • 239 knowledge communities. • 6,926 knowledge experts. • 14,064 knowledge documents.
Installation of Taipower KM Integrated Index Search system	• Taipower has established its training institute, comprehensive research institute library database, Taipower Think Tank, Taipower E-Learning School and other educational platforms for years. The library database platform avails the function of data search and converts all useful information as knowledge of the Taipower Think Tank. Such information will be edited by experts and released as teaching materials for Taipower E-Learning School. These systems are interrelated as upstream and downstream operation of Taipower. An integrated index search system has been established for enhancing knowledge management so that these systems can yield synergy.

Establishing Taipower E-Learning School

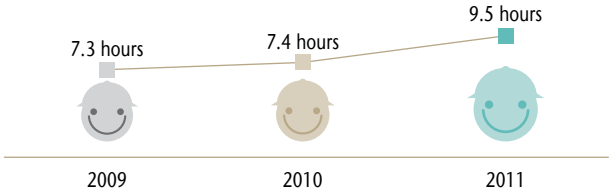
Riding the wave of the knowledge economy, Taipower plans to continue promoting the lifelong learning concept and integrating resources, such as various practical training and Taipower's internal E-Learning School (ELS), to form learning type organization to strengthen employees' competitiveness.

In 2011, Tai power ELS offered 562 on-line courses and opened outside learning websites to provide employees with an environment of unlimited time and space in which to conduct voluntary on-line learning. In 2011, the average number of hours spent reading per employee on ELS was 9.5 hours, which attained the goal of learning hours (5 hours).

Number of Online Courses



Taipower E-Learning Course Viewing and Passing Hours



Establishing an Employee Proposal System

Taipower established the "implementation guidelines of the employee proposal system" in 1994. This system provides a platform for the employees to openly demonstrate their potential and creativity and offered suggestions for improvement in a spirit of team work. Employees can propose concrete implementation projects to pursue improvement and innovation for the company's management and operation, to the extent that productivity and operation performance can be enhanced. In 2011, there were in total 3,680 proposals, of which 1,934 were awarded. This indicated that the employees were enthusiastic about participating in this innovation proposal program.

Incentives for Proposal of New Process/New Method of Work

In 2011, Taipower pledged to upgrade the quality of proposals and encourage the employees in innovation. As such, Taipower instituted the "Selection and Award Standard of New Work Process and New Work Method" in 2011 for evaluating and awarding employees who have made good quality proposals that resulted in a significant contribution to operation (the actual benefit shall exceed NT$10 million) and that the proposed process or method is brand new. The top three winners will be awarded upon confirmation of the achievement in accordance with the "Award Standard of New Work Process and New Work Method".

Strengthening Corporate Ethics and Work Discipline

Corporate ethics and corporate image are closely related. A company won't become prestigious without discipline. As a state-owned public utility, Taipower should strive for society's support for its power construction and win the trust of its customers for its management activities. Therefore, having a good corporate image is significant for the company's sustainable management.

- Having Executives Set Examples to Shape a High Quality Culture
  Executives should set examples of integrity and self-discipline to bring about a good climate for their units. An ideal corporate culture will thus take shape in the company. By awarding integrity, the employees' loyalty, responsibility, pride, etc., will be enhanced.

- Enhancing Work Discipline and Upgrading the Company's Corporate Image
  In order to substantiate the tasks of random checks and enhance rewards and punishments to raise the effectiveness of incentives and alerts, working discipline and the record of rewards and punishments should be taken into consideration when conducting employees' work evaluation, promotion, training and rotation.

Creation of a Fair Employment Environment

In order to provide instant and effective service to employees, Taipower uploaded information relating to the employees' rights and privileges on the intranet in FAQ format so that the employees can search for related information any time they needed. As personnel regulations are significantly related to employees' rights and interests, Taipower has made necessary changes according to the situation. Taipower provide the latest and the most comprehensive information service to its employees. All personnel-related regulations are displayed in FAQ style on the webpage of the Department of Human Resources.

Gender Equality

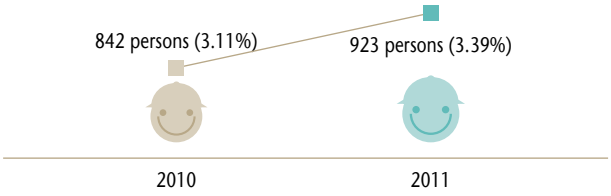
Article 5 of the Employment and Service Act requires that " For the purpose of ensuring national's equal opportunity in employment, employer is prohibited from discriminating against any job applicant or employee on the basis of ..., gender..." As such, Taipower always adheres to the spirit of gender equality in its recruitment, in its entrance test design and in its career planning for employees. Taipower will not discriminate against sex, religious preference, race, and nationality.

Employment of Disabled and Aboriginal People

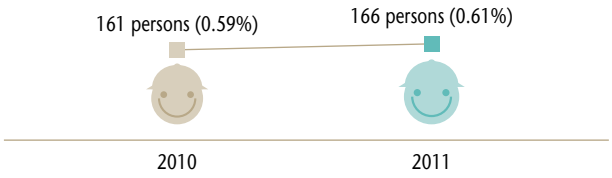
To guarantee equal employment opportunities for minorities, Taipower has abided by the regulations stipulated in the People with Disability Rights Protection Act and the Indigenous Peoples Employment Rights Protection Act.

In 2011 Taipower employed 923 employees with disabilities (3.39% of Taipower's total number of employees, higher than the legal requirement of 3%),, and 166 employees of aboriginal descent (0.61%).

Total Employment no. of People with Disability/ Employment Percentage of People with Disability



Total Employment no. of Indigenous People/ Employment Percentage of Indigenous People



Labor-management Relations

According to the Convocation Rules of the Labor-Management Conference, Taipower holds labor-management meetings regularly to conduct effective communications between labor and management. In 2011, the headquarters units and subunits held 403 meetings, and 274 proposals were sent to the headquarters for processing. For important labor-management issues, Taipower will hold timely negotiations with the Taipower Union and offer explanations to them. There were in total 28 meetings held to solve the differences between labor and management in an accurate and timely manner, thereby achieving effective communication.

Executive-employee Communication Meetings

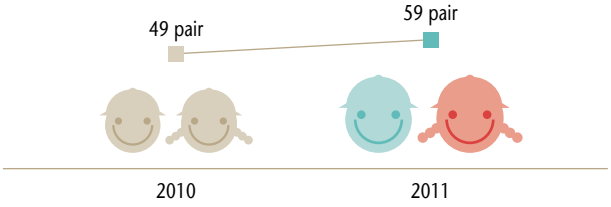
In order to substantiate communication mechanism, Taipower set up "guidelines of enhancing communication with employees" to urge each unit's head to enhance communication and interaction with his/her members. Attention was specifically focused on employees' rights and interests. Taipower responds to and keeps track on the comments and opinions of the employees for buttressing communication with the employees.

For providing a stable operation environment, Taipower organized three seminars in northern, central, and southern Taiwan on Labor Union Act and Collective Agreement Act in 2011 so that the employees can understand the content of amendment to related labor laws. There were 271 employees attended in the seminars. Through the seminars and education promotion, the executives and related personnel can properly understand labor-management communication. This helped to enhance the communication and coordination between labor and management, and will be an input for adapting to change and responding to the challenges in the operation environment and operation management of the future. Taipower also organized related seminars to strengthen employees' understanding of nuclear energy and related issues and be more confident about nuclear safety. In addition, Taipower also made use of any appropriate opportunity for external communication and 700 participants have been invited to such occasions.

Group Wedding

In 2011, under the theme of "Century Romance with One Hundred Percent of Love", Taipower and the Employees' Welfare Committee co-hosted the "32nd Taipower Employee Group Wedding". The President of Taipower was invited as the witness, and high-ranking officials served as ceremony officiators and introducers. With the blessings of the President, colleagues and others, 59 couples walked down the red carpet of happiness to fulfill a romantic, warm and memorable wedding.

The Number of Newly Weds in Group Wedding



Employee Assistance Program (EAPs)

The physical and mental health of the employees is the cornerstone of business success. In light of the dangerous nature of the work power industry is engaged in, the protection of its employees' life safety and physical and mental health has always been the goal of primary concern and effort of Taipower.

Taipower has established the Heart-to-Heart Counseling programs for 24 years and provide different forms of assistance programs to the employees. Over the years, these programs have successfully and effectively helped Taipower employees to cope with problems at work and in daily lives. Where necessary, Taipower will refer employees' problem or need to its appointed psychiatry consultants, management or financial consultants, or even lawyers for further assistance (Each employee is entitled to 8 hours of free consultation annually while Taipower will pay for the occurred expenses). This is the manifestation of the spirit of Taipower employees in self helping and helping others and mutual support and caring for each others.

Taipower Employee Assistance Program

Purpose	Internal and external resources were integrated and applied to help employees solve his difficulties or problems in their work, lives, emotions, and health. A Taipower employee supportive network system has been established to raise the performance of the employees and the organization.
Status	Currently, 75 Heart-to-Heart Counseling Programs have been established and 621 employees worked on a voluntary basis to organize the assistance programs, concern for employees, preliminary interview, and referral service (each employee is entitled to 8 hours of free consultation and Taipower will pay for the expenses occurred thereof.
Employee Assistance Activities	• There are 5,000 persons participate preliminary interviews each year. The Heart-to-Heart chapters in each functional unit organized up to a thousand events for assisting employees, including the colloquium for the basic level workers, keynote speech, book reading gathering, birthday party, recreation programs, cancer examination, and weight loss contest for the strengthening the bonding among the employees and creating a harmonious and physically and mentally healthy work environment. • Publish the "Heart-to-Heart Bimonthly" magazine. The magazine features diverse and attractive contents. This is the platform of exchanging information for the employees and also a resource of knowledge on work, health, living, and mental and physical health. The magazine also yields the desired result of print media communication and supervision in writing.
Projects	Taipower launched the various EAPs to meet the needs of the organization and the employees, including: • "Well-Being 100% for prevention of Physical and Mental Exhaustion" to help the employees to control emotion and release pressure, and manage for better health against fatigue. • Other initiatives include a New Employee Assistance Project, an Employee Body and Mental Health Improvement Project, Relieved Service Program, Long-term Care and Health Promotion Program, Employee Financial Consultation Project and a Legal Consultation Assistance Project, etc.
2011 Achievements	• Taipower was awarded by the Executive Yuan Council of Labor Affairs in 2011 as an outstanding business in "Employee Assistance Program" of the country, and received the citation by the Minister of the council on December 16. This helped to upgrade the corporate image of Taipower in its concern for employees. • The August 2011 issue of "Teacher Chang Monthly" reported on the EAPs of Taipower in helping the employees in back-to-work preparation after holidays and concentration at work. This helped the outsiders understand how exactly the program works. • In 2011, a number of education institutions visited Taipower and shared opinions with Taipower, including Ming Chuan University, Fujen Catholic University, Personnel Department of New Taipei Government, and Chung-Shan Institute of Science and Technology. In addition, the conferences and seminars on employee assistance organized by Taoyuan County Government, Yilan County Government, and National Police Administration of the Ministry of Interior, Taiwan Society of Suicidology, and Labor Safety and Health Institute of the Council of Labor Affairs shared the experience of the "Heart-to-Heart Program" of Taipower. The officials and people from all walks of life highly praised the effort and the result of Taipower in EAPs.

Occupational Safety and Health

In order to provide stable, reliable, and high quality power supply, Taipower makes ceaseless efforts in introducing major construction on power generation, including the performance upgrade of the old power units, or the cable networks for power transmission and distribution, and the manholes and handholes facilities improvement,. These will not be accomplished without the input of all employees and the contractors in full effort.

"Safety" is the foundation of everything. And the safety of each worker implicates the happiness of a family. To ensure the safety and health of the employees and the contractors, and for supporting the government in the policy of reducing occupational accidents and improving health, Taipower endeavored to strengthen safety management at the workplace and improve the work environment to prevent occupational accidents.

In addition to paying close attention to work safety and health management of its employees and contractors, Taipower promotes and implements various work safety measures to establish a healthy and quality work environment to protect its employees' work safety according to the relevant Labor Safety and Health regulations.

Taipower Occupational Safety and Health Awards in 2011

Participating Units	Events	Awards
Taiwan Power Company	National Competition of Workplace Safety and Health Week Performance in 2011	Distinguished Award National and Private Enterprises Group A
Pipe Works of the Relay Station for the 161 KV line #26A at Tianlun~Ma'an, Ongzi, Xinshe.	Outstanding Public Work Project in Labor Safety and Health in 2011	Finalist
	Enterprise Award- 2011 Outstanding Performance in Labor Safety and Health School	Enterprise Award-2011 Outstanding Performance in Labor Safety and Health School
Lungmen Construction Office, Lungmen Nuclear Power Plant, Nanpu Power Plant, Dalin Power Plant, Zengwen Power Plant, Tashan Power Plant, Department of Maintenance South Taiwan Service Region, Changhua Branch, Chushetou Service Region, Pingtung Branch Xinbei Service Region, and Tainan Branch Nanhua Service Region. A total of 10 participants.	Bureau of Health Promotion, Department of Health, Executive Yuan	2011 Self-certification of Health Workplace

Employee Safety and Health Management Measures

To ensure that safety and health management strategies can be effectively put into practice, Taipower proactively implements various action plans and employee-related safety and health measures to maintain employees' work safety and health. To upgrade the competence in labor safety, Taipower designed the "Practical Safety Workshop" at the Kaohsiung Training Center of the Training Institute and was opened for service in 2011. The programs are designed for fortifying the education training function in labor safety and health and heightening participants' sensitivity to danger.

Establishing Labor Safety & Health Organization	• The Department of Industrial Safety & Health is the designated unit to promote industrial safety work. • The Labor Safety and Health Committee were established. Taipower's president serves as the chairman of the committee. There are 33 members (including one chairman, one vice chairman and 31 committee members). • Among the Labor Safety and Health Committee, 14 are from the Taipower Union, accounting for 42% of the total, a percentage that's higher than the legal requirement.
Establishing Taiwan's Occupational Safety & Health Management System (TOSHMS)	• Assistance was offered to each unit to establish a TOSHMS. As of the end of 2011, 54 Taipower units, including generation, repair & maintenance, nuclear power, power supply, business, construction, etc., passed TOSHMS certification.
Promoting Training and Incentives	• The following tasks were undertaken: educating new employees about occupational safety regulations, strengthening the promotion of industrial safety among employees, and reeducating employees on industrial safety regulations and professional skills. In 2011, the participants totaled 32,000. • The employees with outstanding performance in promoting industrial safety work were openly recognized and warded.
Enhancing Disease Prevention and Health Awareness	• In 2011, 1 seminar and consultation on health and cancer examination service have been held. • Programs for the education in the prevention of flu and imported red fire ants and the drug safety were organized. • Regular and special physical checkups were offered. Assistance, counseling and health management were provided for the follow-up of conditions listed in the physical check-up reports.

Contractor Safety and Health Management Measures

For ensuring labor safety and health, Taipower also expects its contractors to be equally respected and have dignity. As such, Taipower will also demand the contractors to take joint action in performing corporate social responsibility in environmental protection and ethics through its procurement regulations as long as such demand is in compliance with the Procurement Act.

According to statistics collected on the types of occupational injuries, falls and electric shocks received during construction work account for about 70% of occupational injuries among contractors. To reduce contractor injury incidents and protect their safety, Taipower has adopted a strategy focused on 3 areas: assistance, checks, and promotion. Apart from actively assisting contractors with safety management and safety audits, Taipower has also strengthened its promotion of work safety measures, and reinforced contractors' consciousness of work safety. The relevant measures included:

Reinforcement Safety Awareness	• Promoting self-protection, mutual-protection, and supervision protection and eliminating hazards through the hazard identification activity. • Inviting the contractors to participate in the accident prevention seminars organized by authorities of labor affairs. • Unit heads shall attend colloquiums with the contractor representatives and labor safety personnel for face-to-face communication.
Senior Executives Supervision in the Inspection, Diagnosis and Assistance of Labor Safety	• Urging contractors to take proper measures of labor safety at the workplace through inspection, diagnosis, and assistance. • Assistance should be focused on control and management to demonstrate the attention and determination of senior executives.
Promoting Industrial Safety Responsibility Area System	• Designing the industrial safety zone joint assistance mechanism for contractors engaging in high risk duties or being weak in enforcing labor safety at the workplace and detect their blind spots in labor safety to provide instant assistance and recommendation for improvement. • Through sharing experience and mutual-learning among different units or departments, to upgrade the competence of self-management on labor safety and prevent the occurrence of accidents.
Conducting Assistance and Audits	• Strictly controlling personnel roster, machines and tools. • Organizing tool kit meeting and identifying hazard before the operation, and informing specifically the status of the work environment, hazardous factors, labor safety and health requirements under law, and the measures to be taken. • Contractors shall file all necessary documents in accordance to the labor safety and health requirements of the contract. • Project organizers shall organize seminars on contractor law violation and safety issues.
Accident Review and Horizontal Development	• Conduct review on major occupational accidents and the horizontal development of related preventive measures to prevent the recurrence of similar accidents.

With the joint effort of Taipower employees and the contractors, the Frequency-Severity Indicator (FSI) of Taipower's employees was 3.33 and the FSI of serious occupational fatality or injury of the contractors was 3 in 2011. Both results were the best on record of labor safety at Taipower. In the future, Taipower will continue enhancing labor safety management and audit, supervising contractors in upgrading safety level, and supporting the government in self-management and education of the accidents prevention to construct a safe and comfortable workplace.

Taipower Occupational Injury Indicators

		Occupational Injury (no. of cases)	Disabilities from Accidents (persons/ times)	The Loss of Work Days (no. of days)	Total Work Hours	Ratio of Occupational Injury to Loss of Work Hours	Ratio of Loss in Work Days	Frequency of Disability	Frequency-Severity Indicator
2009		15	18	7,077	51,020,848	0.05	27.74	0.35	6.94
		0	0	0	6,066,943	0	0	0	0
	Total	15	18	7,077	57,087,791	0.05	24.79	0.31	6.17
2010		21	24	7,649	51,057,011	0.08	29.96	0.47	8.36
		1	1	6,000	6,156,869	0.03	194.90	0.16	12.48
	Total	22	25	13,649	57,213,880	0.07	47.71	0.43	10.11
2011		18	20	1,606	49,751,074	0.07	6.45	0.40	3.57
		1	1	115	6,172,727	0.03	3.72	0.16	1.69
	Total	19	21	1,721	55,923,801	0.06	6.15	0.37	3.33

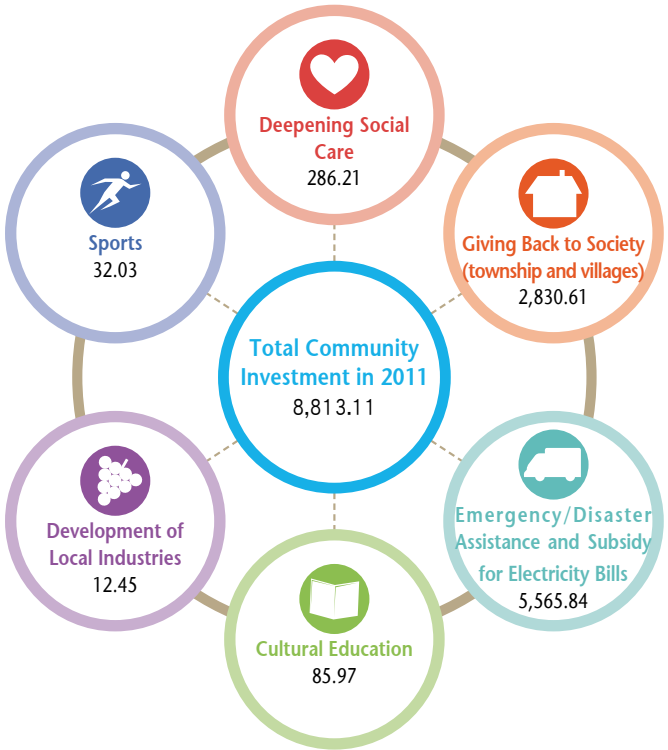
Note:

- The ratio of GRI occupational injury to the loss of work hours = total occupational accidents/total work hours x 200,000*
  (* Basing on 50 weeks per year and 40 work hours per week for 100 employees)
- The ratio of GRI loss of work days = total loss of work days/ total work hours x 200,000*
  (* Basing on 50 weeks per year and 40 work hours per week for 100 employees)
- Frequency of disability = Times of disability/ Total person-work hours *10^6
- Severity of disability = Total workday lost/ Total person-work hours *10^6
- Frequency-Severity Indicator = $\sqrt{\text{Frequency of disability* Severity of disability}}$

Social Participation

Taipower has always committed itself to being a good corporate citizen. In addition to satisfying customer's demands, strengthening safety mechanisms, creating opportunities for its employees, and caring for the work safety of our contractors, Taipower also actively participates in community activities, assists disadvantaged groups and helps local charitable construction projects in order to fulfill its commitment to creating a win-win situation with its stakeholders.

Unit: NT$ million



Deepening Social Care

Taipower seeks to deepen social concern. For this end, Taipower encourages its employees and families to organize a volunteer corp. Taipower volunteers contribute to community service, humanity, and environmental protection as feedback to the society during leisure time, a manifestation of the loving and energetic sense of Taipower people and at the convergence of energy for loving people and the world.

The "Taipower Volunteer Corp. Plan" has been widely applauded by the employees of Taipower as it unfolded in 2010. In 2011, volunteers were grouped into 52 teams with a total of 2,098 persons (1,677 are employees and 421 are families of the employees, retirees, and social work volunteers).

For pooling up the achievement and intensify the service of volunteer works, Taipower further established the "Volunteer Service Communication Platform" in 2011 with the function of matching volunteer service, volunteer management, service experience sharing and insight among the volunteers, and related statistical analysis. This platform enhances the management efficiency of volunteer service.

In 2011, the volunteer corp. had organized different forms of events for social charities in 108 instances, including the promotion of energy saving and the safe use of electric power, service and emergency assistance to the social misfortunes, action for social and human concern, and environmental protection. These efforts of the volunteers yielded positive results to the society, the public, and the business of Taipower.

Electricity provides momentum to economic development and improvement of the living quality in Taiwan. The Taipower volunteer corporation takes "Taipower-one family" as its cornerstone thereby extending its effort to every corner of the society. This is the realization and commitment of the corporate philosophy of Taipower in "ensuring stable and safe power supply, responding to the needs of the customers, establishing a people-oriented corporate culture, paying attention to the sustained development of the environment, showing concern for the social misfortunes and local community."

Deepening Social Care

Light of Love – Year-end Senior Citizens Attentive Care

Chinese New Year is a time when families get together. However, for seniors who live alone, it is the loneliest time of the year. Taitung County has the highest percentage of elderly population in Taiwan. Among them, a majority of the seniors live alone and have low income. Taipower launched the power of love and gathered manpower and funds to jointly host the "Light of Love - Year-End Senior Attentive Care" activities with Taitung Christian Hospital and the A Kernel of Wheat Foundation.

In 2011, Taipower invited 115 seniors to the Chinese New Year Eve dinners, and arranged festival shopping and home delivery activity. New year's supplies were also sent to 163 disabled seniors through home delivery. This attentive care activity drew 30 Taipower volunteers to participate and deliver love to remote villages and towns.

Community Energy Conservation Service

To comply with the government's energy conservation and carbon reduction policy and to cope with the global energy shortage crisis, Taipower provided a free power-saving promotion service to communities. This was done to advocate accurate power-saving skills and the use of high-efficiency energy conservation products, and offer suggestions for the improvement of public power consumption facilities.

There were two kinds of community energy saving services provided – consultation and diagnosis. Assemblies were used to promote power-saving efforts and share power-saving related knowledge and experience, including switching off the light no longer in need, reducing the consumption of standby energy, selecting appliances with the "energy saving" label or "energy efficiency rating label," using of energy efficient and high performance lighting facilities, and giving recommendations on energy saving in using electrical equipment of public facilities. The purpose is to make energy saving a habit in every walk of life and enable everyone to play the part as a world citizen on carbon reduction.

In 2011, 201 community service events were held, covering each area of the country (north, central and south) and offshore islands. A total of 3,933 residents participated in community energy conservation service, which helped the public to substantiate energy saving on daily life.

Beach Clean-up Activity

Taipower deeply realized that a modern enterprise should be conceived with the notion of sustainable development in operation. As such, Taipower requests all its employees to do the best in protecting the environment when running power supply facilities and hopes that all can set examples in environmental protection. This effort will attract followers in environmental protection. For a long time, Taipower has shown its love for the local community and the homeland thereby supported the local governments in social charities and a series of environmental protection events, including cleaning up the locality, environmental protection at the community level, and ecological protection and rejuvenation of wild life.

The increase in national income and upgrading of living quality has resulted in a significant boom in leisure life. Coastal areas and beaches are the common choice of the people for pleasure and recreation. To encourage employees to engage in environmental protection activities actively and to encourage more people to get involved in environmental protection and eco-conservation, Taipower continued to hold its beach clean-up activity, which entered its 18th year. Each year, Taipower will call for its employees and local residents to join together in cleaning up the coastal areas (beaches) near where power plants are located and in off-shore islet areas. This is done with a mindset of caring for the environment by restoring the shoreline to its pristine state and leaving a clean living environment for the future generations.

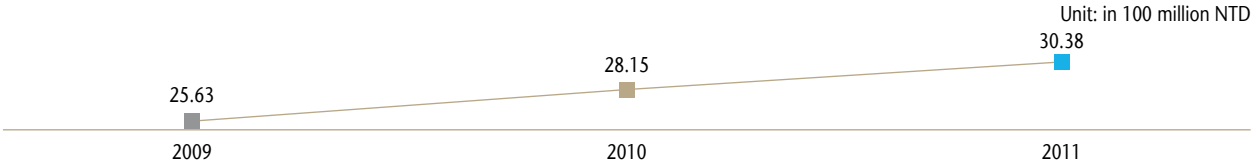
Giving Back to Society

Subsidies for Local Charitable Activities and Assistance

In order to strengthen the welfare of the residents living in areas near power facilities, Taipower established the Approval Committee of Power Development Foundation (APDF), a body in charge of distributing subsidies for local construction projects.

In 2011, Taipower offered a total of NT$3.038 billion in subsidiary projects, making a great contribution to local public construction, education and culture activities, underprivileged group assistance, public welfare activities, etc. Major achievement of APDF in 2011 includes:

- Proactively planning the landscape surrounding the power plants.
- Assisting infrastructural programs in the local community.
- Assisting the government agencies and schools to switch to power-saving lighting equipment, conducting a low-carbon island energy conservation balancing GHG emissions demo project.
- Scholarship and grants for education and culture (Refer to p. 82 for details)
- Assistance to the development of local industries (Refer to p. 83 for details)
- Support to the disadvantaged groups (emergency assistance, low income families): Assisting World Vision, Taiwan, by holding "brighten Taiwan with love and help the emergency families" activities, assisted Long Jing Welfare Association for the Handicapped in outdoor activities.



Public Arts

According to the Culture and Arts Reward Act and the Regulations Governing the Installation of Public Artwork, Taipower will allocate a certain percentage funding for the installation of public artworks in the construction of its buildings and major construction projects.

Regarding the power transforming stations that may affect the visual appearance of the roads and the neighborhood, Taipower proactively promoted beautification projects with "painting," "color patterns" and "wood fence" for visual comfort. Taipower takes the normal operation of the equipment and the pedestrians' rights and interests into consideration and thereby mainly focuses on using compact model or decorating the exterior side of such facilities. "Color painting" will be designed in harmony with the surrounding environment and improvement of visual attraction to the passer-by and in conjunction with the planning of the local government. "Wood fences" were erected on a smaller scale by Taipower to comply with the events held by local government (the Floral Expo, for example).

Regular Buildings	• In 2011, Taipower completed public art installation planning in New Taipei City, Hualian County, and Taichung City. The selecting process was held and completed in 2011 and the works will be commenced in 2013~2014. • In 2011, Taipower started the "Green Bubble" public art installation plan proposed by Pingtung Service Region.
Major Projects	• In 2011, Taipower unveiled the Wanda Power Plant Expansion Project at Nantou County and Songlin Hydroelectric Power Plant public art installation projects. It is projected that the project expenditures in 2012 will amount to NT$5 million.
Others	• Organized color painting: at 9537 locations. • Designed per the request of other agencies and institutions: about 132 cases.

Emergency/Disaster Assistance and Subsidy for Electricity Bills

Subsidies to Remote Islands

Taipower complies with the government mandate to provide power to remote islets. And they base the tariff rates for these places on the regulations stipulated in the Offshore Islands Development Act and the Subsidy Regulations on Losses of Electric Utility Operator for Offshore Islands. In 2011, Taipower discounted electricity bills amounted to NT$24.39 million in Orchid Island. In 2011, Taipower offered electricity bills subsidies to remote islands amounting to NT$5,500 million.

Power Supply for Relief – Reconstruction of the Shanlin Great Charity Houses in the Typhoon Morakot Flood Area

When Typhoon Morakot devastated southern Taiwan in 2009, Taipower immediately launched emergency repairs and recovery tasks, and as part of its social responsibility, Taipower continued to help disaster survivors rebuild their lives. Complying with Nantou, Chiayi, Tainan, Kaohsiung, Pingtung, and Taitung City's permanent housing projects, Taipower offered assistance in the power infrastructure project.

By actively participating in the meetings between the government, builders and non-government organizations, Taipower monitored the progress of permanent housing construction and streamlined administrative procedures to finish the power-supply facilities for over 3,000 permanent houses at 28 locations in time. With love and care, Taipower provided people with warm and safe houses that prevailed with brightness and hope. Taipower's efforts earned an enthusiastic response from the communities and the people.

Cultural Education

I Love Mammy Earth Mobile Stories House

Taipower took the lead in launching the "I Love Mammy Earth" mobile stories campaign exclusively for the children of age 3~6 in kindergarten. Through the mobile storytelling campaign, Taipower conveys the idea of energy saving and loving the world so that children at a very young age can learn more about energy saving and care for energy conservation. This innovative move has been widely recognized by teachers in kindergarten. They also encouraged the children to bring such ideas back home so that they could put the concept into action with their parents.

The script of the "I Love Mammy Earth" was written under the joint effort of a group of kindergarten teachers and storytelling experts from the perspective of "energy saving and carbon reduction". The story is edited in line with the pictures to satisfy the curiosity and imagination of the young children. Through direct contact with these children of age 3~6, the idea of energy saving and environmental protection was imprinted in their minds. In 2011, the "I Love Mammy Earth" campaign has held more than 55 events in kindergartens in Taipei, New Taipei City, and Keelung with the participation of about 4,000 children.

Electric energy is a vital problem confronting Taiwan and worth special attention. The Go Green campaign is a top-down movement featuring human concern. Update news from this campaign is available at www.facebook.com/mammyearth by searching with the keyword "I Love Mammy Earth". In the future, Taiwan will continue its effort to make the concept of low carbon deeply rooted in the daily lives of the people.

Cultural Education

Delivering Power with Love – The Seeds of Hope Plan

The "Seed of Hope" Plan is a long-term charity event of Taipower in Hualian and Taitung. From 2005 onwards, Taipower has started to work in cooperation with Hualian Mennonite Christian Foundation, Taitung Christian Hospital and A Kernel of Wheat Foundation, and Hengchun Christian Hospital. In 2011, Taipower has organized the event for the 7th instance.

This plan provided poor university students of indigenous origin and with hometowns in Hualian, Taitung, and Pingtung the opportunity to return to their homes for work during summer holiday. Over the years, this plan has encouraged many young people to serve their hometowns and at the same time earning money for their school tuition. In the last six years, there were total 360 students participating in this plan.

The annual "Seed of Hope Plan" lasts for 6~7 weeks. Students can work as administrative or healthcare assistants. They may also arrange to help the elderly living alone in housekeeping, home visits, meal delivery, intensive care center and nursing homes, and helping school children with their homework. Through these experiences, the students can have a real sense of service which in turn will drive them forward for caring and concern about the people in their daily lives.

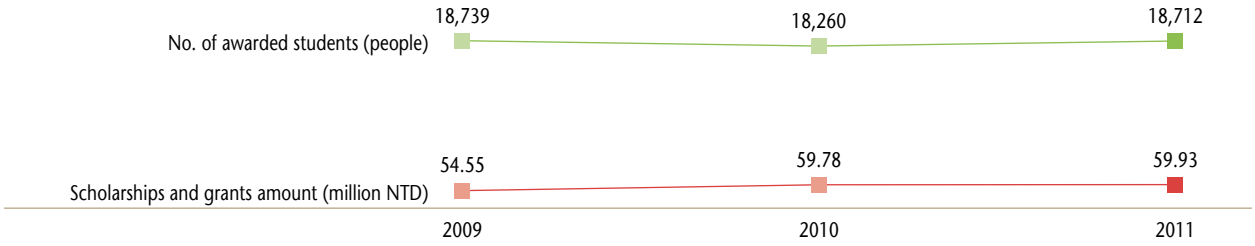
Taipower will continue the promotion of Seed of Hope Plan as concern for the poor students of indigenous origin living in the rural areas. This plan can help them lower the burden of tuition fees and nurture their love and concern for the society, specialty, and ethics. Taipower will continue our effort in cultivating the spirit of caring for disadvantaged groups, and the love for hometown and country.

Cultural Education

Student Scholarships

Each year, Taipower holds scholarship award activities to encourage the outstanding students and disadvantaged students from low-income families who live in the area nearby power plants, making concrete efforts in encouraging students to study hard. In 2011, Taipower launched the "student scholarship event" in 24 power plants across the country and the amount given to 18,712 awarded students amounting to NT$59.93 million.

In addition, Taipower also provides emergency assistance to students in the senior high schools, vocational high schools, and university students whose families suffered economical hardship and other serious accidents that needed emergency assistance.



Firefly, Children's Reading Plan

As educational resources in the Tatung and Hualien regions are very limited, lots of students there are in great need of assistance. Taipower and the A Kernel of Wheat Foundation continued to jointly promote the "Firefly, Children's Reading Plan" in 2011. There were thirteen after-school classes set up in these two areas, providing mobile book carts, character education class, summer-time growing reading camp, little angel heroes gathering, etc. to enhance the students' reading and learning capability.

2011 Firefly Children Book Reading Plan Result

After School Classes	The priority was given to primary school students from underprivileged mid-and-low income, single parent families and those raised by grandparents. There were in total 240 students who attended these classes.
Mobile Book Carts	Mobile book carts went to the tribes in the remote mountainous areas and communities every two weeks. There were in total 230 times with 16,405 participants.
Summertime Growing Reading Camps	Thirteen summertime growing reading camps were held with 73 participants.
Little Angel Heroes Gathering	Activities were held at the Taitung Girls High School. The content covered the image memory of lives in tutorial class, the dance and songs and bamboo drum show of the students in the tutorial class, and the quiz between the students and the guests. There were also the performances of OOO Puppet Theatre. Gifts were presented to the participating children for the celebration of the upcoming Christmas. There are 13 tutorial classes with the participation of 218 teachers and students.

Development of Local Industries

Assisting Local Industries Development – Unique Feature for Each Township

Assisting Local Industries Development – unique feature for each township In order to promote local prosperity and local industrial development, Taipower assists local governments in the towns and villages surrounding the power facilities by holding local industrial activities that embody historical, cultural, unique and economically beneficial features. Meanwhile, professional approaches are adopted to enhance the marketing of industries and tourism resources. The unique culture and image of each town and village is then established to promote local prosperity and the development of other industries and businesses

In 2011, Taipower helped promote 12 industrial and location-themed activities in the following localities:: Pingsi: Sky Lantern Festival, Yongan: Grouper Cultural Festival, Mituo: Milkfish Cultural Festival, Luju: Tomato Cultural Festival, Sanchih: Waterwheel Cultural Festival, Nantou: Sun Moon Lake Black Tea Festival, Gongliao: Gongliao Ocean Music Festival, Shuangsi: Chinese Yam Cultural Festival, Zhuolan: Fruit Season Promotion Sales, Taoyuan: Lotus Season Festival, Lugang: Winter Festival, and Hengchun: Fish Promotion Sales in supporting the Fishermen Festival of the Fishermen Association of the district, etc.

Sports

Taipower Sports Team

For six decades, Taipower not only has supplied good power quality but also laid down a solid foundation for Taiwan economic development. In addition, Taipower made its contribution and outstanding performance in promoting sports events. Currently, Taipower has continuously trained six ball teams, namely, the male baseball team, volleyball team, soccer team, and the female volleyball team, basketball team, and badminton team, which are all Class A teams in the country. Many of the Taipower ball team members were promoted national class players. Their skill and sportsmanship not only helped to improve Taipower corporate image but also cultivate many outstanding sports players, which indeed contributed a great deal to the sports world and the country. The team players have often used their free time to hold demonstration games in each level of schools, conveying basic ball-playing concepts and skills to promote a sports culture. They have also taken part in social charity activities, which are highly appreciated by local residents.

Care-Free Bicycle Tour

Cycling is not only a healthy form of exercise but can also serve as an option for low-carbon transportation. To promote the concepts of LOHAS, energy conservation and carbon reduction, Taipower partnered with the Taitung County Government and the "Taiwan Cyclists Federation" and hold the " 2011 TAIPOWER Taitung Energy Saving and Carbon Reduction Crazy Cyclists" event expecting to promote cycling as a habit to make the earth better.

This event was held in Taitung, a place with green mountains, blue sky, and a green sea. The cycling routes are divided into two sections of which 30 km is "cycling for pleasure" and 40 km is "cycling for challenges". Besides cycling, there were also the "Energy Saving and Carbon Reduction" Quiz with prizes and lucky draw, dancing performed by the Taipower Dancing Girls team, the drum show of San Ho Primary School, and the songs and dance performed by the indigenous people of Taitung Commercial Senior High School. Taipower hopes that the activity will encourage the participants to treasure energy and save power consumption. In summer time, people should turn off unnecessary power sources and go outdoors to enjoy fresh air and embrace the great outdoors.

Communication between Taipower and Stakeholders

Taipower's operation and business activities are closely linked with its stakeholders, including customers, shareholders, the government, employees, etc. Stakeholders' opinions and requirements help improve the quality of our service and operation.

Key Sustainability Issue	Commitment	Goal
Promoting Reasonable Tariff Schedules	Continuing to disclose all operating cost information to enhance the public's understanding; establishing a reasonable tariff schedules adjustment mechanism and promoting a list of reasonable tariff schedules.	Setting up reasonable tariff rates to reflect power supply costs, offering guidance to customers for effective use of power through sending out correct pricing signals, avoiding cross-subsidy of power consumption, to set up a list of effective and fair tariff schedules.

Customer Service

"Customer-first, satisfying customers' requirements" is Taipower's service philosophy. It is also the key factor that helps Taipower continuously win its customers' recognition and trust. Taipower activates various customer service mechanisms and provides a transparent communication platform to ensure that customer's voices can be heard and responded to, thus improving our service efficiency and creating new service opportunities.

Promoting Reasonable Tariff Schedules

In order to maintain the normal operation of the electricity industry, Taipower makes efforts in establishing an overall review mechanism on the tariff system in the long run to reflect the cost of operation and a reasonable profit margin. Besides, Taipower also coordinate with the government policy in the livelihood of the people, economic condition, social benefits, and others.

Communication with Stakeholders

Through various channels, Taipower communicates with its internal and external stakeholders. In addition to enhancing management efficiency and upgrading service quality, the most important company goal is to ensure that its stakeholders' voices and requirements can be received and responded to. Through conversation, participation and cooperation, Taipower solves the issues that are of concern to the stakeholders, and establishes a state of innovative co-prosperity and win-win situations with its stakeholders.

Customer Service

Taipower has established 24 service regions, 24 service centers, 279 service locations, and 2 customer service centers to provide the public with instant and convenient service. In 2009, Taipower declared the consumer use power supply service agreement to comply with the principle of setting up contracts in the modern society and demonstrate the spirit of the Consumer Protection Law. Users can understand their rights and obligations better through this agreement and have their rights and privileges properly protected.

Further, each year Taipower publishes the Taipower Customer Service White Paper to show its commitment to integrity, caring, innovation and service. The White Paper can be downloaded at http://www.taipower.com.tw". Taipower's website provides useful information for customers, such as electricity and life, electricity library, service locations, customer service information, tariff schedules, information related to electromagnetic fields, and website counter services.

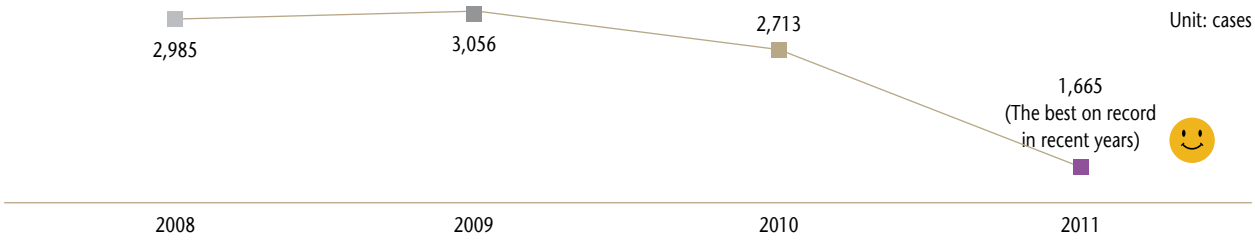
Process of Complaints

To help satisfy new customers and impress long-term customers with the company's improvement, Taipower has worked hard in the area of handling customer complaints. Through a customer complaint management system, Taipower compiled and classified customers' suggestions as an important reference for future business improvement.

If customers have any questions regarding applications, bill collections, power outage incidents, rights and interests and other relevant questions, they can call the toll-free number 1911, contact branch offices' service centers or Taipower service offices and/or use the Taipower website's customer suggestion box (service@taipower.com.tw) to ask for assistance.

In 2011, 1,665 complaints were recorded, of which 671 were received via e-mail. Most complaints related to areas such as line relocation (480 cases, 28.8%), and power supply quality (236 cases, 14.2%).

Customer Complaints

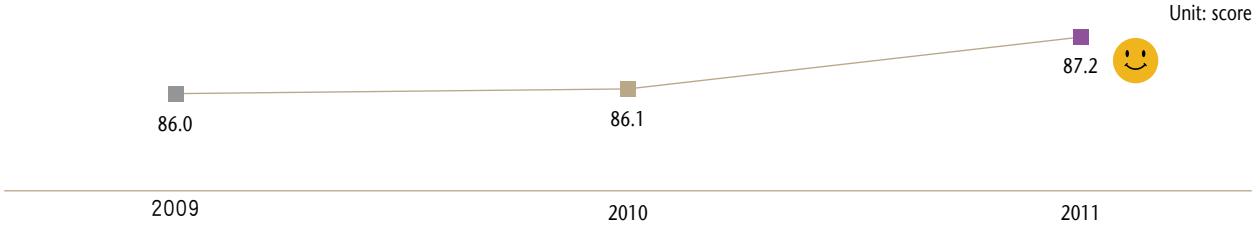


Customer Satisfaction

Taipower is dedicated and feels obliged to its service quality and highly values the opinions of consumers. From 2002 onwards, Taipower has entrusted an outside professional agency to conduct periodical customer satisfaction surveys with regular customers and medium and large customers (more than 100 KW) through telephoning. The overall customer satisfaction rate has remained above 85 scores over the past 3 years.

To fulfill customers' expectation, in the future, Taipower will continue to review and improve various ways of providing convenient service to customers and strengthen its communication with customers as well.

Customer Satisfaction Scores over the Past 3 Years



Continuous Efforts to find Ways to Reduce Inconvenience

To upgrade the environmental effectiveness, in addition to promoting the improvement of existing distribution facilities and developing new-style facilities, Taipower communicated and negotiated with customers to actively improve those distribution facilities that presented an inconvenience to traffic and pedestrians.

Whenever power cannot be reconnected in time due to problems with facility installation, Taipower will make an honest effort to inform the customer and look for ways to resolve the issue. Taipower is committed to providing high-quality power.

In order to reduce the inconvenience caused by power outages, Taipower strengthened its maintenance inspection procedures to reduce incidents and promoted feeder automation projects and improved distribution lines to reduce the frequency and duration of power outages.

Confidentiality of Customer Information

To meet the regulations of the Personal Information Protection Act, Taipower conducted an inventory check on personal information files and systems in 2010 to review the necessary fields and amend related business regulations. To protect the confidentiality of customer information, Taipower established a comprehensive security mechanism for different groups.

Employees	Contractors	Public
Raising awareness of information security and confidentiality through guidance and training.	Taipower requires all external contractors that may access internal information of Taipower to sign the "Data Access Security Agreement" and requires all employees of the contractors to sign the "Statement of Information Confidentiality" to ensure the company's information security.	Inputting customers' detailed personal information for their applications, inquiries and bill payments to ensure customer information security.

Information Security (IS)

To deal with the increasingly rampant activities of hackers and to prevent them from illegally tampering with information related to Taipower's customers, Taipower conducts e-mail social engineering drills each quarter to strengthen employees' understanding of safe e-mail practices. The results of the drills have all met the regulations set by the National Information Security Meeting.

Taipower periodically reviews its IS policies and performs on-site checks on each unit. To enhance employee's awareness of IS, Taipower promotes the concept of "information security, everybody's responsibility" through the IS electronic newsletter. Furthermore, drills on a continuous operation plan are held every year to strengthen each unit's responses to IS events. As of the end of 2011, the units with IS grades A and B continued to retain their ISO 27001 IS management system certifications.

The Department of System Operations and Taichung Power Plant have been audited by the annual audit on information and communication security conducted by the Executive Yuan Information and Communication Security Audit Team. The audit result was "Very Complete".

Taipower took tremendous caution in handling the chronological issue of the 100th year of the ROC and has mapped out relevant responding plans and emergency measures. The issue of 2011 chronology has been carried through peacefully. All functional units subject to control and units relying on the process control system for system operation, hydroelectric, thermal, and nuclear power plants, service regions of the power supply regions, and district service offices, have reported to the headquarters the status in January 2011on the operation status of equipment and the system. No problem concerning the chronology issue of the 100th year of the ROC has occurred.

Unified Counter Service

The counters at Taipower's branch service centers and Taipower's Service Offices can handle all applications through a shared system. In addition, Taipower has provided multiple channels for processing power applications: in person, on the Taipower website, by telephone, via fax and through the mail, etc. to save customers' time and energy.

To satisfy the customers' needs and making power supply service better, all service regions will proactively contact the customers to arrange the "projected date of power supply" to applicants applying for additional power supply to save time in the process. Pipe work will be underway before the customers pay the application fee. The power supply will be connected at the arranged date hoping to enhance the customer satisfaction.

E-application Channels and E-mail Notification Service

To facilitate customers' various application processes, except for those submitted via telephone and mailing, Taipower provides multiple choices for customers. Customers can send in their applications and download forms through the Taipower website. Currently, there are 34 application items that can be handled by this website. In 2011, there were about 49,000 applications processed through the Taipower website, accounting for 2.3% of the total number of applications.

To simplify the operation flow and to accelerate efficiency, the application process has been completely opened to the use of citizen digital and business certificates. Furthermore, to cope with the requirements of the internet era, Taipower originated an e-mail service especially for high-voltage customers that provides information on such items as power bills, business regulations, payment deadlines, power supply recovery deadlines, forced outages, scheduled outages, etc. The service content will be expanded according to customer needs.

Multiple Bill Payment Service

Customers may pay their electricity bills at the nearest service location of Taipower. With the exception of some 2,000 user accounts where electricity bills will still be collected by personnel dispatched by Taipower, the other customers may pay their electricity bills through a wide array of channels:

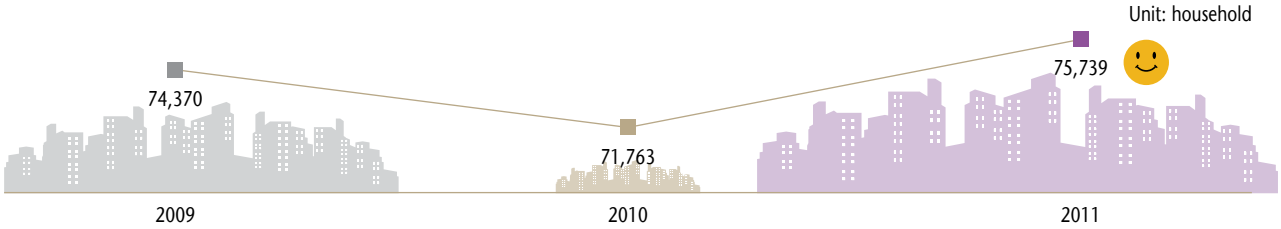
- Prearranged fund transfer from designated account at financial institutions, postal saving and deposits, or credit card. This helps to save the time and effort of the consumers.
- Pay over-the-counter of financial institutions, post offices, and 24-hr convenient stores (to lighting and low voltage users only). There are more than 14,800 locations for processing your payment at your convenience.
- Fund transfer through telephone voice service, mobile phone, ATM, internet, multimedia MOD (for lighting and low voltage users only). This method of payment is not restrained by time and space, and is efficient and convenient.

Call Center Service

A call center system was installed in northern and central Taiwan. With the telephone number of 1911, the Call Center offers 24-hour service including applications, tariff rates, power line repair and maintenance, complaints, etc.

Special Customer Service

To establish a means of direct communication with its customers, Taipower continued offering special customer service. The designated Taipower employees will periodically and actively visit high-voltage customers and village offices to understand their needs, provide them with technical consultation, and solve their problems. This is done in an attempt to win the customers' support and trust.



Customer Opinion Box

Taipower's e-mail inbox on the Taipower website provides a channel for customers to express opinions directly through the website. All suggestions are collected by the responsible department, which then sends the suggestions out to related units for the reply. The suggestions are compiled, analyzed, controlled and followed up. In 2011, 6,004 e-mails were processed. This e-mail system has become an important communication channel between Taipower and its customers.

Year	No. of Cases
2009	7,166
2010	6,290
2011	6,004

Promoting Reasonable Tariff Schedules

The wide fluctuation of international fuel prices and the prolonged high prices of fuels in recent years as well as echoing with the government policy resulted in the chronic low price in power supply. As such, Taipower has suffered sustained losses and incremental rise in liabilities ratio year after year. Before the price for power supply can fully reflect the cost of power supply, the rationalization of tariff is the fundamental solution for improving the dismal financial position of Taipower. In order to maintain the normal operation, Taipower makes efforts in establishing an overall review mechanism of the tariff system in the long run to reflect the cost of operation and a reasonable profit margin.

Further, the mistaken pricing signal also made the public difficult to cultivate energy conservation habits. Reasonable pricing on energy not only conforms to economic and environmental benefits but also allows for the reasonable adjustment of the energy and the industrial structure. This helps to avoid the distortion of energy use and facilitate the advocacy of energy saving and carbon reduction. Thus, in order to enhance the efficient use of energy and improvement of energy saving and carbon reduction, the rational reflection of the energy cost is necessary for reasonable tariff.

Taipower is a state-owned enterprise. We understand that the pricing of power supply is not only a matter of cost concern but also the manifestation of government policy thereby tariff shall be considered with reference to the impact on the social and economic environment and consumer prices, the burden of the social misfortunes, and the competitiveness of the country and receptiveness of the society as a whole. Regarding the rationalization of tariff, Taipower will make effort towards this goal and coordinate with the government policy in the livelihood of the people, economic condition, social benefits, and others.

The Goals in Tariff Designing of Taipower

Economic Goals	For the efficient use of electric power and fair reflection of the cost of power consumption, Taipower takes into consideration of the following factors and maps out: ● Reflect the cost of power supply at different times of the day. ● Provide correct price signals to guide the users to use power resources more efficiently. ● Upgrade the power load efficiency and improve the efficiency of the power supply equipment. ● Avoid waste, improve energy saving.
Financial Goals	The tariff schedule should be sufficient for covering the operation expenses and provides a reasonable profit margin to enable power supply industry have enough capital to reinvest in the electric industry and further construction.
Social Goals	● As a state-owned enterprise, Taipower understand that the tariff schedule should not only reflect the operation cost but also support the government policy to maintain the tariff stability and rationality and the satisfaction of social justice. Therefore, the tariff formulation should consider the customers' basic right for power consumption and satisfy customers' basic need for power consumption. ● The design and adjustment of the tariff structure shall avoid additional burden to low income users. Also, the tariff schedule is an essential element for the users in the investment decision. To avoid the impact on the users due to the fluctuation of the tariff schedule, Taipower should support the government policy and take caution in adjusting the tariff schedule.

Future Planning Direction of Reasonable Tariff Schedule

Short-term Goals	● Substantiate the clauses of tariff and fuel, and adjust the fuel cost additional charges accordingly. ● Recommend the government to comply with Article 14 of the "Offshore Islands Development Act" to set the budget for subsidizing the loss of Taipower in power supply to the remote islands and comply with Article 7 of the "Renewable Energy Development Act" to permit Taipower to bundle the funds for the Renewable Energy Foundation with the selling electricity price. ● Continue to review the existing tariff discount policy, and consult with other government agencies under the leadership of MOEA to arrange budget for subsidizing Taipower on the discounted tariff amount.
Mid- and Long-term Goals	● Numbers of factors may affect the tariff. Further than the fuel price, the structure and proportion of power generation and power purchasing, the depreciations, interest expense, cost of operation and maintenance are also included. In the long run, the overall tariff review mechanism shall be established for the reasonable reflection of the power supply cost and promote energy saving and carbon reduction to ensure the sustainable operation of the electric industry. ● To avoid the cost of tariff discount becoming the public burden, which is in defiance of the equity principle, The Electricity Act should explicitly state the discount for specific power consumers shall be compensated by respective competent authorities of different operations with a specially allocated budget. In addition, a "Tariff Schedule Review Committee" should be set up for reviewing the tariff schedule, the discount beneficiaries and the discount range.

Comparison of Electricity Pricing in Taiwan and other Asian Countries

Unit: NTD/KWh

Residential Electricity		Industrial Electricity	
Country	Average Electricity Rate	Country	Average Electricity Rate
Malaysia	2.5762	Taiwan	2.3536
Taiwan	2.7568	South Korea	2.3701
South Korea	2.8862	Malaysia	2.6487
Thailand	3.1545	Thailand	2.8174
Hong Kong	3.8966	Hong Kong	3.0125
Singapore**	5.2500	Singapore**	3.8960
Philippines*	6.1095	Philippines*	4.3273
Japan	7.3409	Japan	4.8729

Note: 1. Source: International Energy Agency (IEA),(ELECTRICITY INFORMATION (2010 Edition)); This is the statistics of 2010 compiled by TNB of Malaysia.
2. The conversion rate between NTD and USD is 1 USD= 31.642 NTD (average exchange rate in2010).
3. The "*" mark denotes data in 2008; The "**" mark denotes data in 2009. Data of Taiwan and South Korea are in 2011.

Communication between Taipower and Stakeholders

Stakeholder	Issue	Communication Interface	Participation Status
Industry Groups (unions, associations)	• Exchange in power supply service and business.	• Business colloquium • Visits	Organize colloquium and seminars with TTECA and Taipower on business issues
Government	• Electricity pricing issues • Energy policy • Environmental impact assessment	• Ministerial meetings • Review of budget legislation	• Tariff Issue: Quarterly report to the MOEA "Electricity and Natural Gas Pricing Consultation Committee" on the result of the "weight average cost of per KWh of fossil fuels in power generation and power purchased". • Legislative Yuan Budget Review: Taipower budget reviewwas completed in line with the review agenda of the Legislative Yuan.
Representatives of the People	• Tariff schedule adjustment plans • Nuclear power issues • Ratio of power generation and load capacity • Power transmission and distribution work plans • Promotion of renewable energy • Installation and safety of power facilities • Information on power supply service	• Report on project status • Coordination meetings • On-site inspection • Visits • On-site observation	• Check the meeting schedules and arrange visits to related executives for preliminary understanding. • Provide written information. • Participate and control the whole process. • Follow-up on instructions of the meetings. • Filing and control of related documents. • Meeting for communication between the legislators and the assistants.
Shareholders	• Financial status • Share dividends • Shareholders' meeting information • Share transaction problems	• "Shareholder area" on the Taipower website • Shareholder opinion box • Shareholder proposals presented in shareholders' meetings • Market observation post system (MOPS)	• Set up "Shareholder Area" on the Taipower website to disclose the relevant information of the issues that the shareholders and the general public are concerned about. • All the information of shareholders' meetings, shareholder proposals, dividends and shareholding changes among Taipower personnel are disclosed on the MOPS.
Customers (incl. corporate customers)	• Actively understand customer needs and their behavior and provide consultation on power consumption techniques • Provide service on tariff rates and business inquiries, handle applications for power supply and repair and maintenance of power supply facilities, and customer complaints • The transparency of fuel coal purchase information	• Visits to large customers in person • 1911 service hotline • Toll free 0800 service hotline • E-mail service • The "Disclosure" Zone on the corporate website.	• Special customer service: The designated Taipower employees will periodically visit high voltage (over 100 KW) customers and village offices. • Establish customer service centers in northern and central Taiwan to provide 24-hr service. Users on the main island can dial the phone no. 1911 for service or inquiry. • Users may dial 0800 to reflect problems and make inquiry with Taipower on related business policies. • E-mail was used to notify service, sent out information on power bills, revision of business regulations, power consumption exceeding the contracted amount, payment deadline, forced power outage, etc. • "Customer Opinion Box" and "Online Customer Satisfaction Survey" provide customers with multiple channels for expressing their opinions. • Disclosure of fuel coal purchase information on the "Disclosure" Zone of the corporate website.

Performance in 2011	Unit/Contact Telephone
Organize 1 colloquium	Dept. of Business 02-23666670
• MOEA convened 3 times for the "Electricity and Natural Gas Pricing Consultation Meeting". • Taipower's budget review was in compliance with the agenda of the Legislative Yuan. 	Dept. of Development Dept. of Accounting Dept. of Business Dept. of Environmental Protection 02-23667311
• Give explanation to the query from the legislators for clarification. Make effort to gain their support of major policies of Taipower. • Integration and installation of database of business of the functional units of Taipower and make timely update and supplementation. • Establish the platform for communicating with central legislators and the government. 	Dept. of Public Service 02-23666340
One "Standing Shareholders' Meeting" was held. 	Dept. of Finance 02-23666831
• No. of special customer visits: 72,607. • Over 1.84 million calls were received by 1911 and 0800. Average call waiting time was 6.46 seconds. • 6,004 e-mails were processed. • 9,379 on-line customer satisfaction surveys were conducted. 	Dept. of Business 02-23666672 02-23668472
• Control the safe and stable supply of fuels, and make sure the fuel inventory at all power plants is at the safe level. • The fuel purchase performance in 2011 was demonstrated by a reduction of NT$16.5 billion in spending.	Dept. of Fuel 02-23666733

Stakeholder	Issue	Communication Interface	Participation Status
The Community and Residents in the Neighborhood of Power facilities	• Exchange in various power service measures and business	• Community Energy Saving Service	Free power-saving consultation and diagnosis service are provided to community residents.
	• Allow the public to better understand the scarcity and value of power through various channels and help them cultivate a proper concept of energy saving.	• Different types of promotional events	Organize promotional events for Mammy Classroom, social groups, major customers, common knowledge in power consumption and simple repair of home appliances, and energy saving in schools.
	• Education and promotion on power safety and energy saving	• Community visit • Social concern service	The Vice Director of the Power Plant, the Heart-to-Heart members and volunteers of Taipower jointly visit the local neighborhood representative for concern.
	• Reflections of 311 nuclear accidents at Fukushima in Japan	• Organize a large scale seminar on the 311 Nuclear Accidents at Fukushima of Japan	Hosted by Taipower, participated by Atomic Agency Commission, State-Owned Enterprise Commission, New Taipei Government, Shimen District Office and the legislators.
Academic Agencies, Power Supply Enterprises or the General Public	• Opinion Survey on customer satisfaction of technical service • Customer satisfaction survey research plan • Promotion of R&D accomplishments	• Opinion surveys • Exhibitions	• To solve technical problems, all internal and external units of Taipower appointed Taipower Research Institute to provide technical service. After rendering such service, the Institute conducted a customer satisfaction survey as a reference for upgrading the customer satisfaction. • To solve technical problems, all internal and external units of Taipower appointed Taipower Research Institute to propose related plans for systematic basic research. After the presentation of the plans and the report, the Institute conducted a customer satisfaction survey as a reference for upgrading the customer satisfaction. • Participate in the"2011 Taipei International Invention & Technology Trade Show" with the display of 15 product items of "Power supply equipment and materials," "Power supply monitoring," "new technologies of power generation and energy." Researchers were appointed to the scene to explain the R&D innovation achievement of Taipower.
Employees	• Enhance communications and interaction with employees • Amendment to labor laws • Major labor-management disputes • Nuclear Power Safety Issues	• Call for labor-management meetings at regular intervals in accordance with the "Labor-Management Meeting Implementation Procedure"	• Hold labor-management meetings at the corporate level and the functional level. • Hold seminars on the Labor Union Act and the Collective Agreement Act so that all employees can understand the content of amendment to the applicable legal rules of labor. • Communicate with the labor union on major labor-management issues on due time for a timely solution of the problem and difference. • For enhancing the confidence of the employees on nuclear power safety, Taipower has held seminars for proper education and understanding.
	• Issues of labor safety and health	• Labor Safety and Health Committee Meeting	Call for regular labor-management meetings at regular intervals.
Contractors	• Communication and education on safety and health • The implementation of safety and health	• Industrial safety seminars and promotion meetings • Project assistance	• Contractor safety and health promotion meetings were held in northern, southern, and central Taiwan. • Organize colloquium between the contractors and the employer once semi-annually. • Assistance was given to contractors to enhance their capability for self-management of work safety.
Media	• The management status of Taipower in 2011 and the future direction of development • Nuclear Power Safety in Taiwan learning from the Nuclear Accident at Fukushima • The safety and adaptation plan of nuclear power facilities in Taiwan • Screening examination of the new employees, employment and assignment of duties • Tariff rates in summer and energy saving tips	• Press conference • Interview reports	Taipower provided print and electronic media interview reports.

Performance in 2011	Unit/Contact Telephone
Accomplished service programs in 201 communities across the nation, including northern, central, and southern Taiwan and the offshore islands, with the participation of 3,933 persons.	Dept. of Business 02-23667661
A total of 1,293 events for energy saving promotion have been held with the participation of 352 thousand persons/times.	Dept. of Business02-23667661
Organize one occasion of social concern with the locality.	Nuclear Plant No. 1 02-26383501
Four of such occasions have been held (at Shanzhi, Shimen, Jinshan, Wanli)	Nuclear Plant No. 102-26383501
• There were 81 respondents to the questionnaire on technical service from January 1 to December 31, 2011.	Taipower Research Institute 02-23601174
• There were 36 respondents to the questionnaire of the research plan from January 1 to December 31, 2011.	Taipower Research Institute 02-23601174
• The "2011 Taipei International Invention & Technology Trade Show" was held from September 29 to October 2, 2011.	Taipower Research Institute 02-23601178
• Call for 403 meetings at the corporate level and the functional level. There were 274 proposals referred to General Management Dept. for record. • Organize 3 seminars on the Labor Union Law and Organization Agreement Law in northern, central, and southern Taiwan with the participation of 271 persons. • Organize 28 conferences for communication with the employees on major labor-management issues. • Organize 1 seminar on nuclear power safety with the participation of more than 700 persons.	Dept. of Human Resources 02-23667355
Call for 6 meetings on labor safety and health.	Dept. of Industrial Safety and Health 02-23668638
• 11 safety and health promotion meetings were held in the 3 areas. • Organized 130 colloquia between the contractors and the employer. • Organized 110 times of project assistances..	Dept. of Industrial Safety and Health 02-23668638
• Hold a press conference at any time as needed. • 83 persons/times interviews were given by Taipower spokesperson or relevant units.	Dept. of Public Relations 02-23666340

Taipower Outreach

Taipower actively responds to activities, ideas, and initiatives launched by various domestic and international organizations to learn about the latest developments in sustainability and emerging technologies. This will help Taipower to think about and improve its sustainability strategy and enhance the quality of its sustainability actions. Taipower's interactions with outside organizations range from supporting proposals, research promotion and strategic alliances in the development and innovation of power technologies. Taipower believes that these cooperative relationships are crucial to Taipower's sustainable development. Following are some of the organizations that Taipower supports as well as Taipower's important partners.

Business Council for Sustainable Development, Taiwan, ROC, BCSD-Taiwan

Taipower joined the BCSD-Taiwan in 2003 and has since continued to support the organization's initiatives and actions. This includes the "Taiwan Enterprise Sustainability Forum" platform established by representative enterprises in Taiwan. Through learning from other industries' sustainability issues, and the integration and implementation of action plans used by similar trade industries, Taipower and its partners work together to become a sustainable development enterprise.

BCSD-Taiwan held the "New Opportunity for Corporate Development-Perpetual 2012" on December 22 2011 for sharing the experience of corporate sustainable development. The Vice-President of the R.O.C. attended the event as the opening ceremony VIP, together with the corporate leaders unveiling the "Perpetual 2012" ceremony. Later on, Director of Executive Yuan of the ROC presented the appreciation certification to the corporate representatives. Taipower was represented by the President for receiving the citation.

Taipower has prepared the sustainability report in accordance with the G3 guideline of GRI in past years. From 2011 onward, Taipower actively participates in the enterprise conference under the GRI-G4 guideline pronounced by GRI, and shares with other enterprises the experience of sustainability.

Association of Industrial Relations, ROC.

Taipower joined the Association of Industrial Relations, ROC in 1984 and has demonstrated its effort in corporate social responsibility in the harmonious development of labor-management relation in the country.

East Asia Electric Power Technology Conference

Participants in this conference are representatives from CEPRI of China, CRIEPI of Japan, KERI of Korea, KEPCO Research Institute of Korea, and TPRI of Taiwan. Vital research topics were discussed. The members of the entity take turns hosting the conference every year.

Taipower hosted the East Asia Electric Power Technology Conference in 2011 from September 20 to 22. Chairman of Taipower hosted the opening ceremony. Participants to the conference were CEPRI of China, CRIEPI of Japan, KERI of Korea, KEPCO Research Institute of Korea, and TPRI of Taiwan. The topics for discussion included smart power grid, renewable energy, energy storage technology, energy saving and carbon reduction technology, mitigation of and adaptation to climatic change.

World Safety Organization, WSO

The WSO is an international exchange platform focused on safety & health policy, academic research, information and equipment. Members come from key industries around the world. The WSO shares information with its members about the latest international development trends and practices, management tools and technologies.

Taipower joined the World Safety Organization, or known as WSO, in June 1911. This is an international organization dedicated to the supply of information on technologies, practice, and training for enhancing safety and health at the workplace and the environment for its members. Enterprises in many industries worldwide are members of WSO.

Being a member of WSO, Taipower can attend the annual conference and related events to enhance its corporate image. In addition, Taipower can also join its annual conference team at the invitation of the Council of Labor Affairs to strengthen the bonding in cooperation of experience and technology exchanges through these corporate or international events. WSO has abundant resources of information and equipment on safety and health from the academic research of experts in safety and health policy and industrial safety and health and will pass the latest information on the new trends and practical experience, management tools and techniques to the members and the corporate world for reference. With this resource, Taipower can perform much better in industrial safety and health.

The Association of the Electricity Supply Industry of the East Asia and the Western Pacific, AESIEAP

AESIEAP was founded in 1975 and is an international NGO consisting of members from the electric power and related industries in East Asia and the Asian-Pacific. The purpose of this organization is the strengthening of the cooperation in the power supply of the region and the exchange of expertise knowledge and technologies in electric power and related industries. This organization holds its CEPSI conference once biannually. This event is the biggest and most professional conference and exhibition on the topic of power supply and related issues.

The AESIEAP 2011 CEO Conference was held in Manado, Indonesia from October 30 to November 1, 2011. The Vice President of Taipower led the team with members from the Taiwan Research Institute, Renewable Energy Dept., and Corporate Planning Dept. to the conference.

Institute of Nuclear Power Operations, INPO

The publications and the database of INPO are some of the most credible references in the nuclear power industry. All nuclear power providers in the United States are basic members of the INPO.

INPO has international members from 16 countries. Since the nuclear generation units owned by Taipower are all American-style units, learning from American companies can help us increase the reliability, performance, and safety of our nuclear power plant operations. As an international member of INPO, Taipower can directly interact with U.S. nuclear power operators and nuclear power plants.

Technological Exchange with Central Research Institute of Electric Power Industry of Japan (CRIEPI)

Taipower has entered into an agreement with CRIPEI on technology exchange on September 8, 1988 for the annual conference, personnel exchange, and technology exchange. Taipower and CRIEPI take turns hosting the annual conference to explore and study confronting problems to both sides. Personnel exchange and technology exchange will be conducted at any time as needed. Communication is facilitated through e-mail. Each side can have answers from the other side in a timely manner. In 2011, the CRIEPI/TPC annual conference of technology exchange was held at Taiwan Power Research Institute on September 19 2011. CRIPEI has 9 experts in the delegation. They share the discussion with the representatives of TPC on pressing issues, including the assessment of wind power and PV on the performance of the electric power industry, the technology for storage of CO_2, reassessment of the capacity of shock resistance of the civil structures at nuclear power plants of Japan, the method for the experiment of adaptation of nuclear power plants in Japan, and the impact of the nuclear accident at the Fukushima Nuclear Power Plant.

World Association of Nuclear Operators, WANO

WANO is an international association organized by power companies that operate nuclear power plants around the world. There are currently 36 operators, and the association serves as an important channel that transcends political barriers for the exchange of experience between nuclear power plant operators. The publications and the database of WANO are some of the most credible references in the nuclear power industry

Its member states are responsible for providing their experience in nuclear power plant operations and delivering their information on nuclear power plant incidents to all members through a reporting system, to prevent similar incidents from recurring.

To enhance nuclear power operation safety and performance, Taipower joined WANO as a member. Taipower can communicate with all of its fellow members around the world, participate in relevant activities and interact with other nuclear power operators to maintain its nuclear power operation performance and keep up with worldwide nuclear industry progress.

IERE GTC/NTC Steering Committee Conference

IERE (International Electric Research Exchange) has established the TIS-Asia Steering Committee in 2008 to administer the Generation Technical Committee (GTC) and Network Technical Committee (NTC). Effective December 15 2010, the two committee meetings were operated in the form of a Working Group and with the titles changed to the Generation Working Group (GWG) and the Network Working Group (NWG).

Taipower is a senior member of IERE and the top management of Taipower was invited to related conferences by IERE for joint discussions and for sharing experience among international electric power institutions. This helps Taipower to enhance its international visibility and reputation significantly.

2011 Awards

Asia-Pacific Award for Most Innovative Power Technology

Taipower participated in the 2011 Asia Power Competition through the "Google Map Thunder Shock Information Platform" and won the Gold Medal of Asia-Pacific Award for Most Innovative Power Technology in 2011.

Asian Power Plant of the Year

Datan Thermal Power Plant took part in The Asian Power Award competition held by Asia Power Magazine, and won the Silver Medal of The Asian Power Award 2011 "Asian Power Plant of the Year". The award allows Taipower to broaden its international horizons and improve its corporate image worldwide.

Public Works Gold Award in 2011 from MOEA

- The "New Projects of Wanggong at Changhua, Datan Phase II, and Huxi Wind Power Units" of Taipower won the outstanding award.
- Manager Hung Tung-Po of Southern Construction Office of Nuclear and Fossil Power Project Dept. was conferred the Class I individual "outstanding performance award" of the 11th public work "gold award" by Executive Yuan Public Works Commission.

Taiwan Corporate Sustainability Report Award

To encourage domestic corporations to keep up with global trends, and to enhance the emphasis and focus on sustainable development, environmental awareness and social welfare, in 2008 the Taiwan Institute for Sustainable Energy (TISE) began promoting the Corporate Sustainability Report Award to encourage businesses to improve stakeholder engagement and understanding by issuing sustainability reports.

To follow this international trend and to meet the domestic and foreign-related organizations' requirements regarding non-financial performance information, since 2007, Taipower, in compliance with the Global Reporting Initiative (GRI) G3 guidelines, has annually published its own Sustainability Report to communicate Taipower's thinking, strategy, and accomplishments to the public in the three categories of economy, society, and environment. In 2011, Taipower won a gold award in the 2011 Corporate Sustainability Report Awards.

Third-Party Assurance Statement

SGS

ASSURANCE STATEMENT

SGS TAIWAN'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE TAIWAN POWER COMPANY'S SUSTAINABILITY REPORT OF 2012

NATURE AND SCOPE OF THE ASSURANCE/VERIFICATION

SGS Taiwan was commissioned by Taiwan Power Company (hereinafter referred to as TPC) to conduct an independent assurance of the Sustainability Report of 2012. The scope of the assurance, based on the SGS Sustainability Report Assurance methodology, included the text, and data in accompanying tables, contained in TPC's all operational sites in Taiwan of this report.

The information in the TPC's Sustainability Report of 2012 and its presentation are the responsibility of the superintendents, CSR committee and the management of TPC. SGS Taiwan has not been involved in the preparation of any of the material included in the TPC's Sustainability Report of 2012.

Our responsibility is to express an opinion on the text, data, graphs and statements within the scope of verification set out below with the intention to inform all TPC's stakeholders.

The SGS Group has developed a set of protocols for the Assurance of Sustainability Reports based on current best practice guidance provided in the Global Reporting Initiative Sustainability Reporting Guidelines. These protocols follow differing options for Assurance depending the reporting history and capabilities of the Reporting Organisation.

This report has been assured at moderate level of scrutiny using our protocols for:

- evaluation of content veracity; and
- evaluation of the report against the Global Reporting Initiative Sustainability Reporting Guidelines (G3.1 2011).

The assurance comprised a combination of pre-assurance research, interviews with relevant employees at headquarter of TPC 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 Taiwan affirms 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 SA 8000, EICC, QMS, EMS, SMS, EnMS, GPMS, GHG Verification 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 Sustainability Report of 2012 verified is accurate, reliable and

provides a fair and balanced representation of TPC sustainability activities in 01/01/2011 to 12/31/2011. Some statements and data within the scope were not assured due to lack of accessible records during the timescale allowed for assurance, and these are clearly marked throughout the text.

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. The report is the first to be assured by an independent assurance team and TPC has taken a bold step by offering the report to evaluation against Global Reporting Initiative's G3.1 guidelines. This shows a deserved confidence in their reporting process.

In our opinion, the contents of the report meet the requirements of Global Reporting Initiative G3.1 Application Level A^+.

GLOBAL REPORTING INITIATIVE REPORTING GUIDELINES (G3.1 2011) CONCULSIONS, FINDINGS AND RECOMMENDATIONS

Principles, Standard Disclosures and Indicators

The report, TPC's Sustainability Report of 2012, is adequately in line with the Global Reporting Initiative G3.1 application level A^+. The principle of stakeholder inclusiveness and Materiality may be further enhanced. It is recommended to have higher degree of direct involvement of stakeholders during future engagement and formalize both process and criteria applied to assess materiality to ensure better consistent result in future reporting. Contents of Disclosure on Management Approach may have more clearly defined policies and goals for each aspect. It is also recommended to have more disclosure on the performance of supplier chain management and sustainability strategy.

Signed:
For and on behalf of SGS Taiwan

Dennis Yang, Chief Operating Officer
Taipei, Taiwan
31 July, 2012
WWW.SGS.COM

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2.3	Operational structure	7
2.4	Headquarters location	1
2.5	Countries in operation	5-6
2.6	Nature of ownership	5
2.7	Markets served	5-6
2.8	Scale of the reporting organization	5
2.9	Significant organizational changes	None
2.10	Awards received in the reporting period	99
3.	Report Parameters	
3.1	Reporting period	1
3.2	Previous report	1
3.3	Reporting cycle	Annual
3.4	Contact point for questions	1
3.5	Process of defining content	12-15
3.6	Boundary of the report	1
3.7	Limitations on the report scope	None
3.8	JVs, subsidiaries, and outsourcing	None
3.9	Data measurement techniques	Please refer to each chapter
3.10	Effect of information re-statement	None
3.11	Changes from previous reports	None
3.12	Standard disclosures	102-105

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3.13	External assurance	100-101
4.	Governance , Commitments, and Engagement	
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4.3	Independent members of the board	17
4.4	Mechanisms for shareholder/ employee participation	16-18
4.5	Executive remuneration and performance	25
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4.7	Process to determine board expertise on sustainability	17-18
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4.10	Processes for evaluation of the board's economic, environmental, and social performance	23
4.11	Precautionary approach or principle	20-21
4.12	External charters/ principles	None
4.13	Association memberships	96-98
4.14	List of stakeholders	92-95
4.15.	Stakeholders identification	12
4.16	Approaches to stakeholder engagement	92-95
4.17	Topics raised by stakeholders	14-15
Financial Indicators		
Disclosure on Management Approach		8,24-27
EC1	Direct economic value	24-27,76
EC2	Financial implications due to climate change	8,20-21
EC3	Benefit plan	Allocate the retirement pension in accordance to the law.

	GRI Index	Page
EC4	Government's financial assistance	Taipower is a state-owned enterprise.
EC5	Entry level wage	Taipower is a state-owned enterprise and any wage and bonus are issued according to relevant regulations.
EC6	Local suppliers	74
EC7	Local recruitment	67
EC8	Infrastructure investments and services for public benefit	79,82
EC9	Indirect economic impacts	83
Environmental Indicators		
Disclosure on Management Approach		52
EN1	Volume of materials used	62-63
EN2	Recycled materials	None
EN3	Direct primary energy consumption	62-63
EN4	Indirect primary energy consumption	62-63
EN5	Energy conservation	41, 62
EN6	Initiatives for energy-efficient and renewable energy	39,78
EN7	Initiatives for reducing indirect energy	40-41,62
EN8	Water withdrawal	62
EN9	Effect of water withdrawal	61
EN10	Water recycled	54
EN11	Land assets in sensitive areas	None
EN12	Impact on biodiversity	61
EN13	Habitats protected or restored	61
EN14	Strategies for biodiversity	58,61
EN15	Endangered species	No relevant issues
EN16	Greenhouse gas emissions	48
EN17	Other greenhouse gas emissions	49

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EN18	Initiatives to reduce greenhouse gas	46-51
EN19	Ozone-depleting substances emissions	57
EN20	NO_X, SO_X and other air emissions	57
EN21	Water discharge	54
EN22	Waste by disposal method	55-56
EN23	Significant spills	No spills
EN24	Transportation of hazardous waste	No relevant issues
EN25	Habitats affected by discharges and runoff	61
EN26	Environmental impacts mitigation	57, 58
EN27	Packaging materials	Taipower is a public power utility, thus not applicable.
EN28	Non-compliance sanctions	56
EN29	Environmental impacts of transport	No relevant issues
EN30	Environmental protection expenditures	55
Social Indictors (1): Labor Practices & Decent Work		
Disclosure on Management Approach		64,67
LA1	Breakdown of workforce	65
LA2	Employee turnover	65,66
LA3	Benefits to full-time employees	70-71
LA4	Employees with collective bargaining agreements	96.3%
LA5	Minimum notice periods	Act according to relevant legislation.
LA7	Occupational injuries and absenteeism	75
LA8	Training on serious diseases	74
LA9	Trade union agreements on health	74
LA10	Average hours of training per employee	67-68
LA11	Programs for lifelong learning	67-69

	GRI Index	Page
LA12	Percentage of employees receiving regular performance and career development reviews	100%
LA13	Composition of governance bodies	65,70
LA14	Ratio of basic salary of women to men by employee category	No difference
LA15	Return to work and retention rates after parental leave, by gender	66

Social Indictors (2): Human rights

Disclosure on Management Approach		70
HR1	Human rights clauses in investment	No relevant investments
HR2	Suppliers screening on human rights	74-75
HR3	Training on human rights	71
HR4	Discrimination	No relevant issues
HR5	Association and collective bargaining	Taipower has a labor union and does not interfere the operation of the labor union.
HR6	Child labor	No hiring child labor in accordance to the Labor Standards Act.
HR7	Forced labor	No relevant issues
HR8	Training for security personnel	None
HR9	Violations of rights of indigenous people	No relevant issues
HR10	Human rights reviews	18
HR11	Formal grievance mechanisms	No relevant issues

Social Indictors (3): Society

Disclosure on Management Approach		76
S01	Operational impacts on communities	53
S02	Corruption risks	18
S03	Anti-corruption training	69
S04	Actions against corruption	69
S05	Lobbying	None
S06	Political donations	None
S07	Anti-competitive behavior	Taipower is a public power utility, thus not applicable.
S08	Non-compliance with laws and regulations	None
S09	Operations with negative impacts on communities	53
S10	Prevention measures implemented in operations with negative impacts on local communities	53

Social Indictors (4):Product responsibility

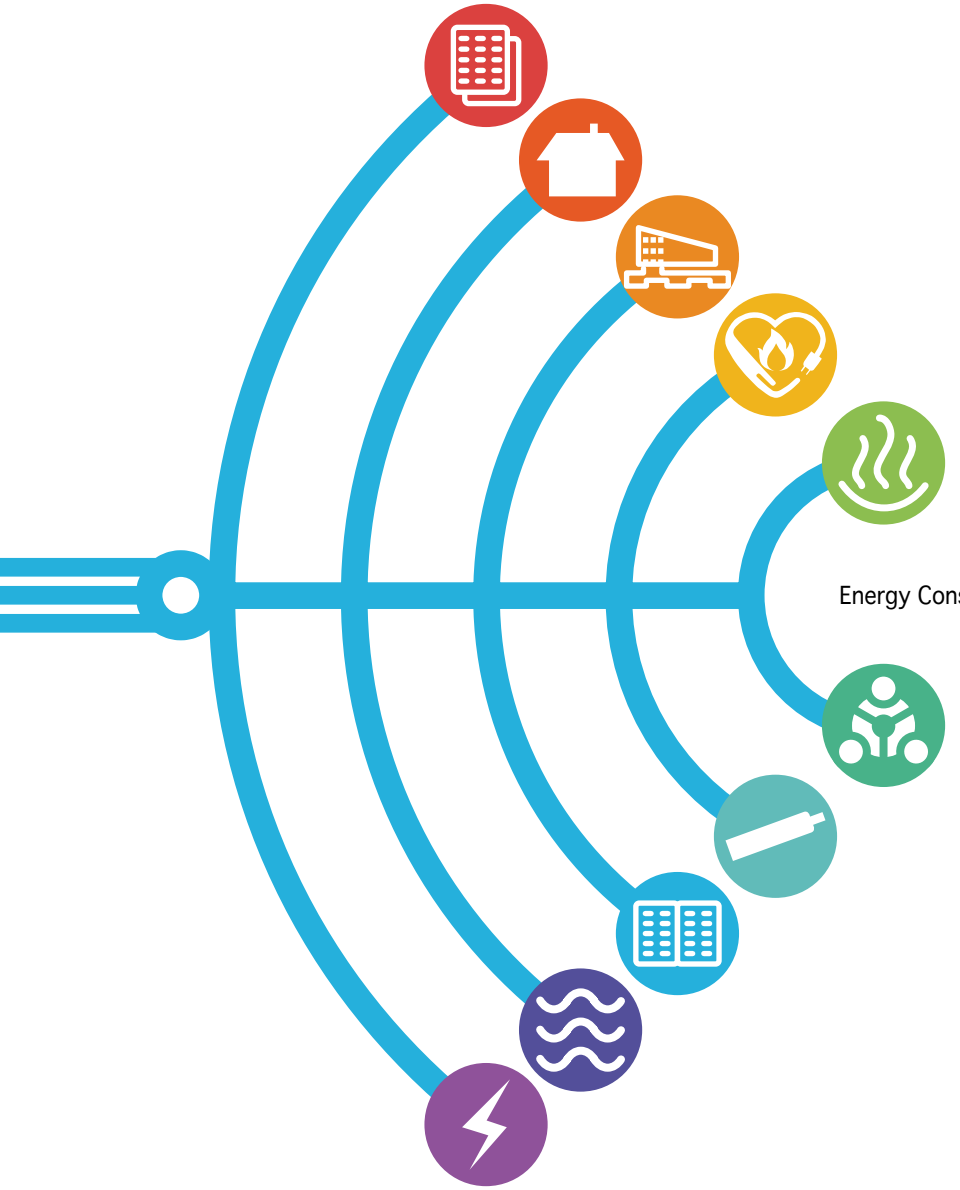
Disclosure on Management Approach		28
PR1	Health and safety impacts along product life	20-21
PR2	Non-compliance with health and safety standards	None
PR3	Product information	Transmission and distribution facilities are marked with safety warnings as regulated.
PR4	Non-compliance with product information regulations	None
PR5	Customer satisfaction	86
PR6	Communication programs	86-89
PR7	Non-compliance in marketing practices	No relevant issues
PR8	Complaints regarding customer privacy	No relevant issues
PR9	Product non-compliance	None

Electric Utility Supplement

EU1	Installed capacity, broken down by primary energy source and by regulatory regime	4
EU2	Net energy output broken down by primary energy source and by regulatory regime	63
EU3	Number of residential, industrial, institutional and commercial customer accounts	5

	GRI Index	Page
EU4	Length of above and underground transmission and distribution lines by regulatory regime.	Extra high voltage transmission lines: 3,911KM;Primary and secondary transmission lines:12,987KM; Distribution lines: 339,687KM
EU5	Allocation of CO_2e emissions allowances or equivalent, broken down by carbon trading framework	48
EU6	Management approach to ensure short and long-term electricity availability and reliability	36
EU7	Demand-side management programs including residential, commercial, institutional and industrial programs	40-41
EU8	Research and development activity and expenditure aimed at providing reliable electricity and promoting sustainable development	40-43
EU9	Provisions for decommissioning of nuclear power sites	13,31
EU10	Planned capacity against projected electricity demand over the long term, broken down by energy source and regulatory regime	36
EU11	Average generation efficiency of thermal plants by energy source and by regulatory regime	24-27
EU12	Transmission and distribution losses as a percentage of total energy	24
EU13	Biodiversity of offset habitats compared to the biodiversity of the affected areas	53
EU14	Programs and processes to ensure the availability of a skilled workforce	67-70
EU15	Percentage of employees eligible to retire in the next 5 and 10 years broken down by job category and by region	67
EU16	Policies and requirements regarding health and safety of employees and employees of contractors and subcontractors	73-74
EU17	Days worked by contractor and subcontractor employees involved in construction, operation & maintenance activities	Important electrical operations and maintenance are conducted by the Taipower personnel.

	GRI Index	Page
EU18	Percentage of contractor and subcontractor employees that have undergone relevant health and safety training	100%
EU19	Stakeholder participation in the decision making process related to energy planning and infrastructure development	92-95
EU20	Approach to managing the impacts of displacement	No relevant issues
EU21	Contingency planning measures, disaster/emergency management plan and training programs, and recovery/restoration plans	33-34
EU22	Number of people physically or economically displaced and compensation, broken down by type of project	No relevant issues
EU23	Programs, including those in partnership with government, to improve or maintain access to electricity and customer support services	36-38
EU24	Practices to address language, cultural, low literacy and disability related barriers to accessing and safely using electricity and customer support services	Provide customer service in Taiwanese and English and Braille billing service.
EU25	Number of injuries and fatalities to the public involving company assets, including legal judgments, settlements and pending legal cases of diseases	75
EU26	Percentage of population unserved in licensed distribution or service areas	Power grid penetration reached 99.97%
EU27	Number of residential disconnections for non-payment, broken down by duration of disconnection and by regulatory regime	Totaled 185,214 households. Taipower would resume power service at the payment day
EU28	Power outage frequency	27
EU29	Average power outage duration	27
EU30	Average plant availability factor by energy source and by regulatory regime.	Thermal Power:89.44% Pumped Storage Hydro:90.74% Conventional Hydro:94.90% Nuclear Power:93.27% Wind Power:88.47% Solar Power:87.20%



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