

經濟部



# The Electric Power Supply and Demand Report of Taiwan

2018



經濟部能源局  
Bureau of Energy  
Ministry of Economic Affairs

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## I. Foreword

According to Article 91 of the Electricity Act: “The central competent authority shall present the annual report on the current supply and demand of electricity in the country, progress of the development of electricity and the status of the energy saving and carbon reduction policy; the report shall be open for public access.”.

For the stabilizing power supply and preventing power shortage or outage from resulting in significant loss of industries and people’s livelihood, the long-term power supply planning must meet the power consumption load due to industrial development and livelihood increase in electricity demand, and proper reserve margin should be maintained in response to the situations such as temperature variation, sudden activities, regular unit maintenance or malfunction, and reduction of power supply by hydraulic power plant during dry season.

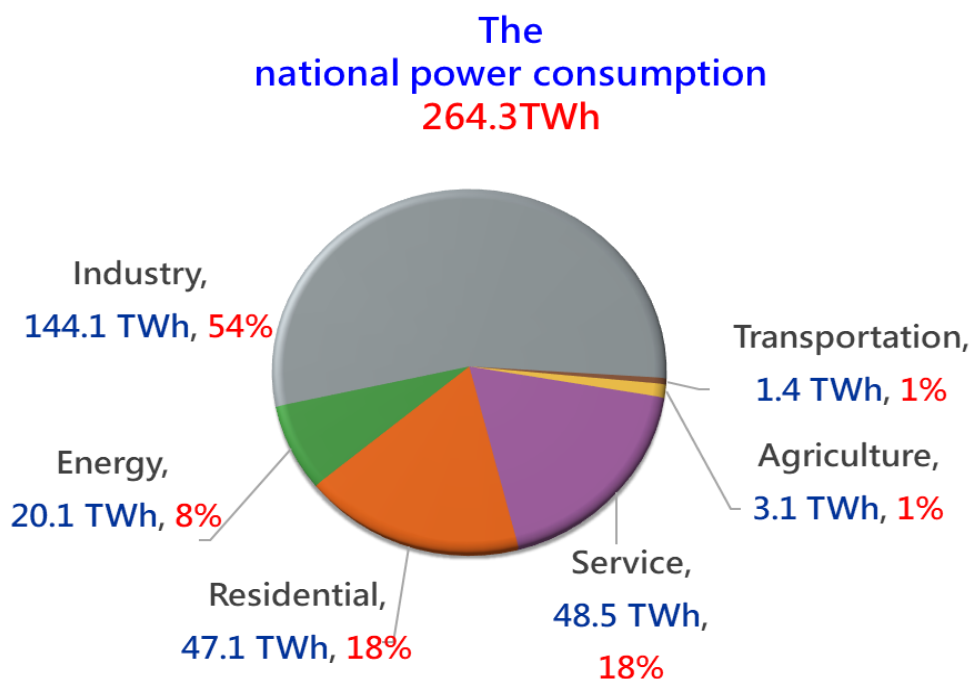
The excessive reserve margin will lead to increase installation of generating units. Therefore, the investment cost is increased; the insufficient reserve margin could result in higher probability of power shortage or outage. However, leading to loss of power shortage influence of economic development and people’s welfare. Therefore, the long-term power supply and demand planning should be based on proper estimation of power load demands in the next few years to ensure sufficient power supply and to avoid excessive investment and waste.

## II. Current Status of Electric Power Supply and Demand

### 1. Power Consumption

There are many factors affecting power load, such as economy, industry, population, temperature, electricity rate, and demand management. Based on the total power consumption, it can be divided into the two major categories which are power consumption and lighting consumption. The power consumption is mostly affected by economy and industry, while the lighting consumption is mostly affected by population (population, population structure), electricity price and temperature.

In 2018, Taiwan's electricity consumption reached around 264.3 TWh, of which 144.1 TWh was consumed by the industrial sector, accounting for 54% of total electricity consumption. Additionally, the service and residential sectors both accounted for 18%. For details please refer to [Figure 2-1](#).



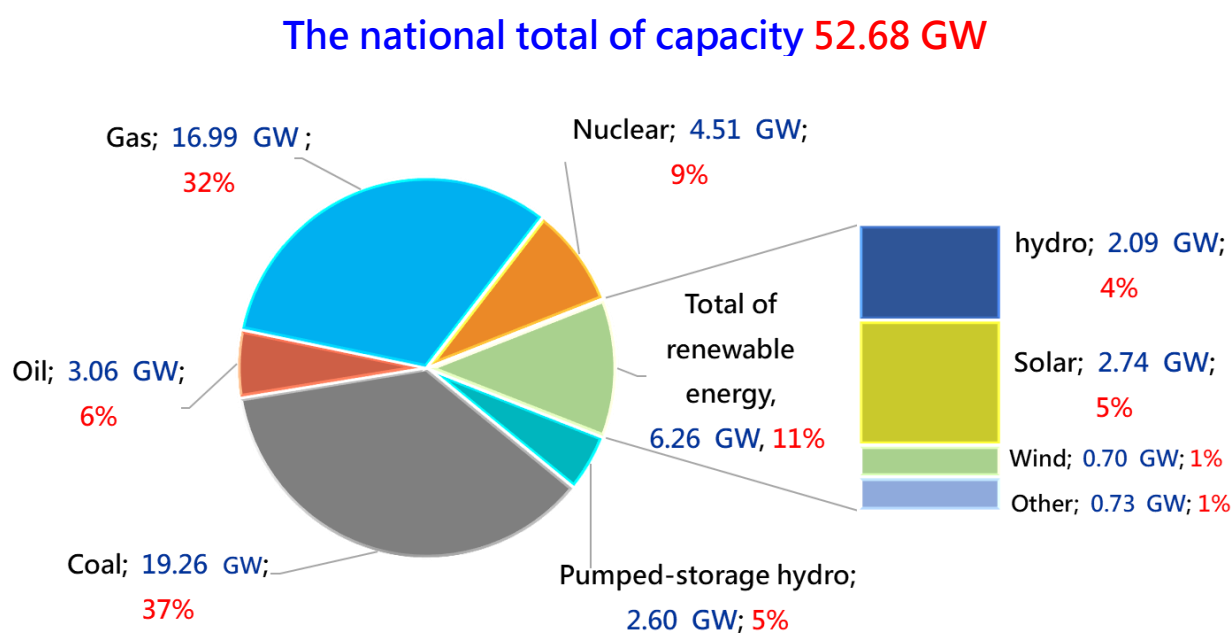
Note: The national electricity consumption includes the total electricity sold by Taipower system, the electricity consumed by the energy sector and the self-usage power generation equipment.  
Data source: Bureau of Energy, Ministry of Economic Affairs (MOEA), Energy Statistics Monthly Report, 2019.

Figure 2-1 Power consumption and share of each sector in 2018

## 2. Power Supply

### (1) Installed Capacity

In 2018, national total power installed capacity was about 52.68GW. Among them, 19.26GW of coal-fired units and 16.99GW of gas-fired units are the main power supply sources in the power system, accounting for 37% and 32% respectively. Moreover, the capacity of renewable energy which actively promoted by the government was about 6.26GW, including 2.09GW of conventional hydropower, 2.74GW of solar photovoltaic, 0.7GW of wind power and 0.73GW of other renewable energy sources, accounting for about 11% of total capacity. The Figure 2-2 showed the capacity and share of different types of power plants in 2018.



Note: The total capacity of power generation includes Taipower system and self-usage power generation equipment.

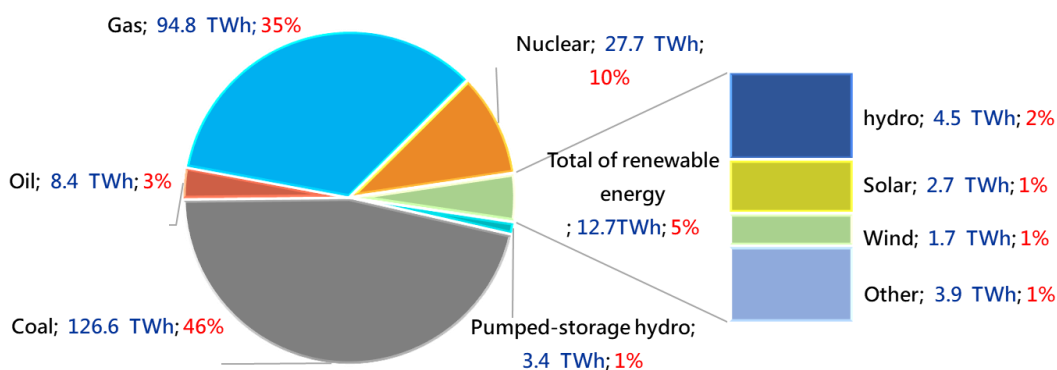
Data source: Bureau of Energy, MOEA, Energy Statistics Monthly Report, 2019.

Figure 2-2 The capacity and share of different types of power plants in 2018 (By fuel)

## (2) Power Generation

The total power generation in 2018 was approximately 273.6 TWh, with coal-fired power generation at 126.6 TWh and gas power generation at 94.8 TWh, accounting for 46% and 35% of the total power generation respectively. In addition, the amount of electricity generated 12.7 TWh by renewable energy which has been promoted by the government in 2018, accounting for 5% of the total power generation. Among all kinds of renewable energy generation, 4.5 TWh of conventional hydropower generation contributed the most, accounting for 2% of the total power generation, 3.9 TWh of other types of generation (mainly for municipal solid waste power generation). And the rest were solar photovoltaic and wind, they generated 2.7 TWh and 1.7 TWh respectively. For details please refer to [Figure 2-3](#).

### The national total of power generation 273.6 TWh



Note: The total power generation is the gross generation, including the Taipower system and the power self-consumption power consumption for the self-usage generation equipment.  
Data source: Bureau of Energy, MOEA, Energy Statistics Monthly Report, 2019.

Figure 2-3 The total power generation and share by different types of power plants in 2018 (By fuel)

## (3) Percent Operating Reserve

Another important factor in assessing the stability of a power system is the operating reserve, and taipower system provides daily operating reserve information. In the past three years, Taipower's actual performance of the lowest percent operating reserve of the power system were 1.64% (May, 2016), 1.72% (August, 2017) and 2.89% (May, 2018). The reasons for low percent

operating reserve were the high temperature, hot weather, and the temporary failure of the unit (such as pipe rupture and collapse of power tower), resulting in increasing demand for electricity and reducing supply capacity. From 2016 to 2017, the number of days when the percent operating reserve was lower than 6% increased sharply from 78 days to 101 days, indicating the tight power supply. In 2018, with the completion and commercial operation of units including Daitan #7 gas single cycle, Tongsiao new #1 and Dalin new #1, the days when the percent operating reserve was lower than 6% were reduced to 29 days. Even though the electricity demand increased more than expected with the economic growth, indicating that the situation of power supply and demand has been gradually improved as shown in Table 2-1 .

**Table 2-1 days of percent operating reserve from 2016 to 2018**

<b>Year</b>	<b>Above 10%</b>	<b>10%~6%</b>	<b>Below 6%</b>	<b>Under 900MW</b>
<b>2016</b>	<b>125</b>	<b>160</b>	<b>78</b>	<b>3</b>
<b>2017</b>	<b>53</b>	<b>208</b>	<b>101</b>	<b>3</b>
<b>2018</b>	<b>55</b>	<b>281</b>	<b>29</b>	<b>0</b>

Data source: Taiwan Power Company.



### III. Future Objectives of Our Country's Energy Policy

98% of energy is imported in Taiwan, and the stability of various energy prices and supplies is deeply affected by geopolitics. In addition, Taiwan's power system is an independent power grid, which is not able to accept foreign aid when the power supply is insufficient. This will affect the domestic social and economic situation, and thus increase the risk of national security. In 2016, the government proposed an energy transformation policy and through an amendment to the Electricity Act, stipulated that all nuclear power generation facilities must be shut down by 2025. However, on November 30, 2018, the Central Election Commission announced that the adoption of the energy-related referendum, and then abolished Article 95 (1) of the Electricity Act based on the result of referendum. Based on this, the overall goal of Taiwan's energy transformation after zero-based thinking and pragmatic review, the assessment of the current policy can still comply with the provisions of the referendum law. Therefore, in order to ensure the stability of national electricity market and the completion of relevant energy supportive measures, the government actively achieve the goal of national energy transformation.

#### 1. Key points of promotion

In order to actively achieve the goal of energy transformation, the executive yuan approved and revised the "Guidelines on Energy Development" on April 24, 2017 as the guideline for energy policy. In the context of "Energy Security", "Green Economy", "Environmental Sustainability" and "Social Equity", the three goals of "non-nuclear homeland", "stable power supply" and "air pollution improvement" are promoted to construct a governance framework of energy transformation. The main contents are as follows:

##### (1) “Energy Security”:

Various energy advantages should be effectively utilized to actively increase energy independence, ensure energy diversity, allocate distributed energy, optimize energy supply structure, promote advanced energy management and improve energy efficiency. Hence, the energy supply and demand system are able to be developed with stable, affordable and low risk

characteristics.

(2) **“Green Economy”:**

The all-round development based on the integration of energy saving, energy creation, energy storage and intelligent system should be strengthened in combining regional resource characteristics, talent advantages and reinforcing international connections. Utilizing green energy drives innovative technologic R&D and job opportunities.

(3) **“Environmental Sustainability”:**

At first, the greenhouse gas emission density should be reduced and air quality should be improved. Secondly, regional environmental considerations should be taken into account in the implementation of energy facilities. Last but not least, the decommission of existing nuclear power plants should be completed with proper disposal, so as to create a clean energy system and a healthy living environment.

(4) **“Social Equity”:**

There are 3 key points to reach energy democracy and justice which are to implement the spirit of energy empowerment, build a fair and competitive energy market environment, and strengthen policy coordination and public participation.

## **2. Promotional strategies**

The government adopts specific strategies such as energy creation, energy saving, energy storage and integration of intelligent system to promote energy transformation. The overall strategy framework is as follows:

- (1) **Energy creation:** Diverse electricity generation can promote the development of clean energy, please see the content below.

**A. Renewable Energy:**

- To Consider the feasibility and cost-effectiveness of technologies
- To adopt phased development to promote renewable energy
- To drive the development of domestic green energy industry

**B. Thermal power plant:**

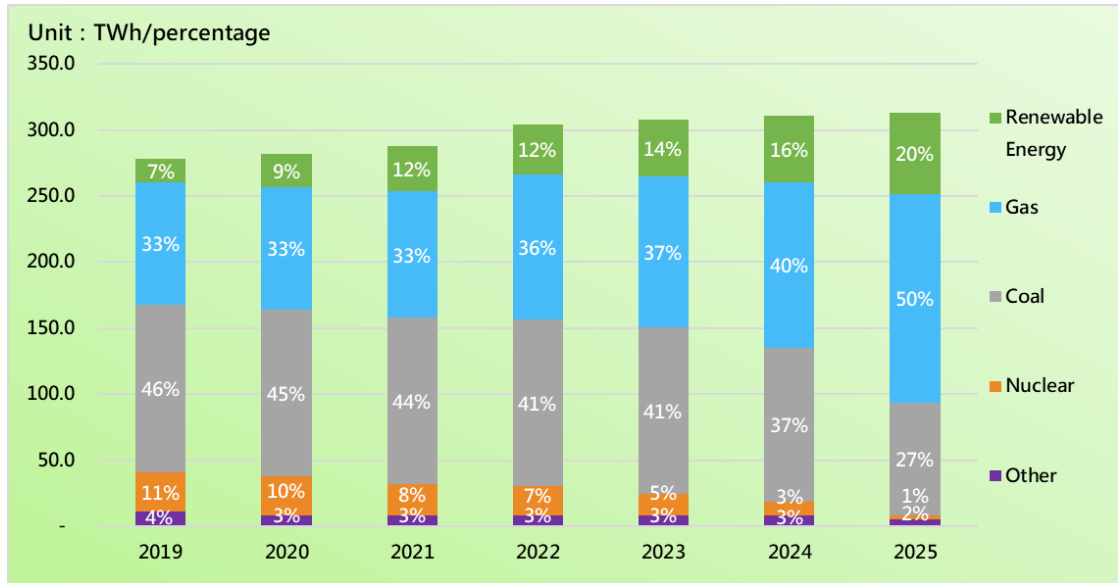
- To ensure stable power supply and maintain energy diversification, thermal power generation needs to be maintained.
  - To accelerate the construction of natural gas terminal and transportation-storage facilities, gradually expand the use of natural gas.
  - To adopt high-efficiency combined cycle units in gas-fired power plants.
  - To actively upgrade to ultra-supercritical generating units in coal-fired power plants, and gradually reduce the proportion of coal-fired power generation.
- (2) **Energy saving:**
- To promote the maximization of energy conservation, improve the efficiency of energy use, reduce the growth of electricity demand, and comprehensively promote energy conservation in industrial sectors, residential and commercial sectors, government departments and other sectors.
  - To promote the "New Energy Saving Campaign", with the government taking the lead, industry responding and the whole people participating, to jointly promote the transformation of low-carbon energy.
- (3) **Energy storage:**
- The grid energy storage can be distributed by setting up fast response units, adding pumped-storage plants or increasing dispatching frequency.
- (4) **Integration of intelligent system:**
- Executive Yuan approve to promote the "Overall Plan for Smart Grid". After the installation of smart meters for high-voltage users, the installation of smart meters will be promoted with time of use rates, and the priority objects of smart meters are large low-voltage electricity consumers and densely populated areas.

According to the result of the referendum, after practical review, the government currently plans to achieve the target of energy generation structure ratio by 2025, and actively reach the development of low-carbon and clean energy with 50% gas, 20% renewable energy, 27% coal and 3% other energy.

The relevant instructions are as follows, as shown in figure 3-1 and table 3-1:

1. Renewable energy power generation accounted for in the solar photovoltaic, offshore wind power and other various promotion measures, is expected to rise from 7% in 2019 to 20% in 2025.
2. The proportion of gas-fired power generation is expected to be about 33% in 2019. But under the principle of continuous completion of natural gas terminal, commercial operation of new gas-fired units and priority dispatching, the proportion of electricity generation will increase to 37% by 2023 and 50% by 2025.
3. The proportion of coal-fired power generation is estimated to be about 46% in 2019, and will decline year by year. It will be reduced to 41% in 2023 and 27% in 2025.
4. In the case that existing nuclear power units do not apply for postponement of service in time and dry storage equipment is not approved. Therefore, service of existing nuclear power units will be eliminated before the end of 2025. During this period, the proportion of nuclear power generation will decline from about 11% in 2019, and the proportion of electricity generation is expected to be only about 1% in 2025.

Although clean and low-carbon natural gas will be the main source of power generation in the future, considering that coal has the advantages of high reserves-to-production ratio, stable supply, easy storage, etc. In order to maintain reliable power supply and national energy security and stabilize social and economic situation. The source of power supply still needs to maintain a certain proportion of coal-fired power generation to disperse energy supply risks.



Data source: estimation by Bureau of Energy, MOEA.

Figure 3-1 Ratios of power generation structures from 2019 to 2025

Table 3-1 Power generation structures from 2019 to 2025 (By fuel)

Year	2019		2020		2021		2022		2023		2024		2025		
Power generation volume TWh <sup>note1</sup>	278.3		282.0		288.0		304.3		309.2		311.2		313.2		
Various energies															
Power generation volume (TWh) and share (%)	Renewable energy	18.1	7%	24.9	9%	34.1	12%	37.6	12%	43.1	14%	50.7	16%	61.7	20%
	Gas-fired	92.5	33%	93.2	33%	96.2	33%	110.4	36%	115.6	37%	125.2	40%	158.0	50%
	Coal-fired	127.1	46%	126.3	45%	125.9	44%	125.9	41%	125.9	41%	116.6	37%	85.1	27%
	Nuclear energy	29.9	11%	29.5	10%	23.6	8%	22.1	7%	16.5	5%	10.8	3%	2.9	1%
	Others <sup>note2</sup>	10.8	4%	8.2	3%	8.2	3%	8.2	3%	8.1	3%	8.0	3%	5.4	2%

Data source: estimation by Bureau of Energy, MOEA

Note 1: power generation = net electricity produced & purchased of Taipower + power plant internal consumption (Taipower company, private IPP, renewable energy, and co-generation) + power self-consumption (renewable energy and co-generation)

Note 2: other energies include oil-fired power generation and pumped-storage hydropower.

Note 3: pumped storage hydropower is based on water pumping via residual power during off-peak time. In 2025, each category will be included in the proportion of gas-fired and coal-fired power generation.

## **IV. Energy saving and carbon reduction path planning and goals**

In order to coordinate with the national energy transformation target and greenhouse gas phase 1 control target, besides actively promoting the renewable energy generation target and relevant low-carbon energy supporting facilities being completed on time such as the construction of third nature gas terminal, the Ministry of Economic Affairs (MOEA) has instructed Taipower company to draw up an electricity saving plan every year to assist customers saving electricity to reduce load demand based on Article 47(4) of Electricity Act “ To ensure the effective implementation of the energy saving and carbon emission reduction policy, Electricity Retailing Enterprise shall draft up an annual incentive program that encourages and assists the users to save energy and submit such program to the electricity industry regulatory authority for future reference. The electricity industry regulatory authority shall publish the annual energy saving and carbon emission reduction achievements as a result of the incentive programs instituted by the Electricity Retailing Enterprise to meet the national energy saving and carbon emission reduction goals.”.

In order to reach improvement of air quality, the existing coal-fired power plants will continue to be replaced with ultra-supercritical units in the future; Moreover, the emergency load reduction is applied without affecting the stable power supply, and the power generation structure ratio is gradually adjusted to meet the phase I regulatory target of greenhouse gas. The overall carbon emission coefficient of power will be reduced from 0.529 kg of CO<sub>2</sub> /kWh in 2016 to 0.492 kg of CO<sub>2</sub>/kWh in 2020 and 0.394 kg of CO<sub>2</sub>/kWh in 2025. A rolling review will also be carried out to meet Environmental Protection Agency (EPA) phase II regulatory target.

## V. Future power supply plan

According to the results of the referendum, zero-based thinking and pragmatic review, the current energy policy is still in line with the referendum laws and regulations. In the future, the government will actively plan to achieve the low-carbon and clean energy development target of "50% of gas-fired power generation, 20% of renewable energy generation, 27% of coal-fired power generation, and 3% of other energy generation".

Under the mainstream policy, the government actively promote the supply side and demand side measures in order to ensure power supply stability, and arrange power system flexible scheduling mechanism in response to air pollution emission reduction. With the completion of the third terminal of natural gas and other relevant supporting energy facilities as scheduled, the ministry of economy has planned to set a blueprint for the generation units from 2019 to 2025, aiming to accomplish the percent reserve margin of 15% and percent operating reserve of 10% from 2019. The methods for executing the target strategies are described as follows:

### 1. Gas-fired power generation

#### (1) Addition of gas-fired units

- Gas-fired units with the features of fast start/stop, flexible scheduling and low level of air pollution emission has been planned to gradually install in Xiehe, Datan, Tunghsiao, Taichung, Hsinta and Chiahui power plants. There will be around 12,000 MW of new installed capacity by 2025.
- Excluding the plan for decommission of existing gas units, it is estimated that the net increase of gas units will be about 10,907 MW between 2018 and 2025.

#### (2) New/Expansion of natural gas terminal

- Plans have been made for CPC's third terminal (new), Taichung terminal (expansion), as well as for Taipower's Xiehe terminal (new) and Taichung port terminal (new), which are estimated to supply 26.2 million tons of gas in 2025, meeting the estimated domestic demand of 24.9 million tons.



**(3) Improve storage volume, safety stock, and disperse sources of gas purchase to ensure the safety of gas supply**

➤ Number of days of storage tank:

If the current terminal planning is completed as scheduled, the number of days can be increased from the current 15 days to 20 days in 2025.

➤ Number of days of safety stock:

Considering the impact of import interruption, shipping delay, unloading delay due to typhoon, and taking into account the storage standards of LNG importing from neighboring countries (12 days in South Korea and 14 days in Japan), the number of days of safety stock are planned to increase from the current 7 days to 11 days in 2025.

➤ Disperse sources of gas purchase:

In the future, the sources of CPC's natural gas supply will mainly from the United States, Australia, Independent State of Papua New Guinea, Qatar and Malaysia. Additionally, there will be more than half of the sources of gas will not pass through the region of South China Sea to reduce the risk of import interruption.

## **2. Coal-fired power generation**

Coal-fired power generation is important for base load, but it will result in more air pollution emission and great impact on environment. Currently, the updated Linkou and Dalin power plants are ultra-supercritical units, and the existing coal-fired power units will only be removed later. In the future, the proportion of coal-fired power generation will be gradually reduced, and there are no new coal-fired power units will be added before 2025. However, the air pollution improvement of existing coal-fired power plants will be actively carried out.

## **3. Renewable energy**

**(1) Complete planning path**

The policy target of 20% renewable energy generation by 2025

is formulated based on the principles of "mature and feasible technologies, cost-benefit orientation, balanced development in stages, driving industrial development, and acceptable impact of electricity price".

➤ **Primary idea of development:**

Sufficient photovoltaic power generation in summer can meet the demand of peak power consumption, and the large amount of offshore wind power generation in winter can reduce coal-fired power generation to reduce pollution. Therefore, photovoltaic and offshore wind power generation can be the primary development items to meet the power consumption characteristics in our country while taking environmental protection into consideration.

➤ **Plan for the amount of various renewable energy installations and power generation from 2018 to 2025:**

- Photovoltaic: the target of rooftop installation is 3,000 MW by 2025, and the target of ground installation is 17,000 MW by 2025.
- Wind power generation: the target of offshore wind power generation is 5,738 MW by 2025, and the target onshore wind power generation is 1,200 MW by 2025.
- Geothermal power generation: the target is 200 MW by 2025.
- Hydraulic power generation: the target is 2,150 MW by 2025.
- Biomass energy power generation: the target is 813 MW by 2025.
- Hydrogen energy fuel cell: the target is 60 MW by 2025.

(2) **Photovoltaic promotional strategies**

➤ **The targets have been achieved in 2017 and 2018:**

The "Photovoltaic Two-Year Promotional Plan" has been launched in July 2016, and the actual installed volume by 2018 has reached 1,770 MW, which has exceeded the original installation target of 1,520 MW. And the sustainable promotion system and

environment have been established.

➤ **The target is expected to be achieved in 2019:**

The photovoltaic promotional target in 2019 is 1,500 MW, and currently there are 1,900 MW of confirmed installation projects.

➤ **The lands will continuously be inventoried to ensure the achievement of annual target:**

In the future, through the cooperation of the central and local governments, the relevant departments will continue to inventory available land, integrate land space and matchmaking developers to actively achieve the annual goals. It is also expected to establish the mode of combining agriculture and fishery with photovoltaic, so as to add value to the development of agriculture and fishery.

**(3) Wind power generation promotional strategies**

➤ Wind farm developer has been confirmed for 5.7 GW of offshore wind power generation by 2025:

There are 7 selected developers, including Taipower Company; and there are 2 bidding developers.

➤ The Feed-in Tariff (FIT) for offshore wind power in 2025 has been announced:

Based on validated cost information, a reasonable FIT of \$5.51 / KWh has been set.

➤ In the future, operators will get assistance in signing the power purchase and sales contract, construction permit, fulfillment of domestic production commitment, and management of subsequent construction operating procedure; moreover, the developers have also been completed in accordance with the schedules of commitments to actively set up offshore wind field related issues.

## **4. Nuclear power generation**

People believe that nuclear energy does not emit carbon and air pollution in the process of power generation, which is beneficial to ease air pollution problems. Consequently, MOEA has considered the feasibility of license extension or reactivation of Nuclear Power Plant

No.4 based on practical review and thinking without any default position. Nuclear energy is carefully evaluated and understood various difficulties and challenges, but it still needs to face nuclear waste disposal, risk of nuclear disaster and other issues.

**(1) Nuclear Power Plant No.1**

The spent fuel pools of the two units have been full, and the dry storage facilities have been completed, but they are not able to be activated. As a result, the fuel rods in the reactor cannot be withdrawn, and the deadline of application for life extension as stipulated in article 23 and article 33 (penalty) of the "Nuclear Reactor Facilities Regulation Act" has been exceeded. Hence, Nuclear Power Plant No.1 is in the decommissioning process.

**(2) Nuclear Power Plant No.2**

The spent fuel pools of the two units will face full state, and the local government opposes the construction of dry storage facilities. By then, the reactor cannot be filled with new fuel. And Nuclear Power Plant No.2 has already exceeded the deadline of application for license extension as stipulated in article 23 and article 33 (penalty) of the "Nuclear Reactor Facilities Regulation Act". Therefore, the life extension of Nuclear Power Plant No.2 is facing challenge.

**(3) Nuclear Power Plant No.3**

Both units are currently in safe and stable operation. The remaining room of the spent fuel pool will allow the two units to operate until the license is expired. If the life is to be extended, a dry storage facility will be built so that the spent fuel rods in the furnace can be withdrawn and replaced with new fuel rods to continue the operation. However, the local government has spoken out against the life extension, thus it is going to be difficult to obtain permit for life extension.

**(4) Nuclear Power Plant No.4**

Nuclear Power Plant No.4 has been in mothballed status for four years since July 1, 2015. If it wants to restart, it needs N+6~7 years.

The problems it faces include: overcoming the legal restrictions, the resolution of the Legislative Yuan, the maintenance and renewal of hardware equipment, and the tendering and construction of facilities surrounding the power plant.

As described above, the life extension or reactivation of nuclear power plant cannot be implemented when the problems of regulatory restrictions, environmental impact assessment review, local government jurisdiction, and budget allocation have not yet been solved.

## 5. Expected performance of stable power supply

The highest peak load of power system was 37.06GW in 2018 which is an increase of 0.8GW over 36.26GW in 2017. The growth rate was about 2.2%. In the future, under the impact of economic growth, climate change and industrial development, electricity demand will increase year by year. The government has actively promoted the electricity saving plan and enhanced the demand response measures to reduce the electricity demand, and gradually increased the installation of renewable energy units to follow the act of air pollution reduction. In order to ensure a stable and abundant power supply, a large number of gas generating units are also planned to operate in line with the instability of renewable energy. It is expected that the percent reserve margin of 15% and the percent operating reserve of 10% will be achieved from 2019, as shown in [Table 5-1](#) and [Figure 5-1](#).

**Table 5-1 Annual goal setting for percent reserve margin/percent operating reserve from 2018 to 2015**

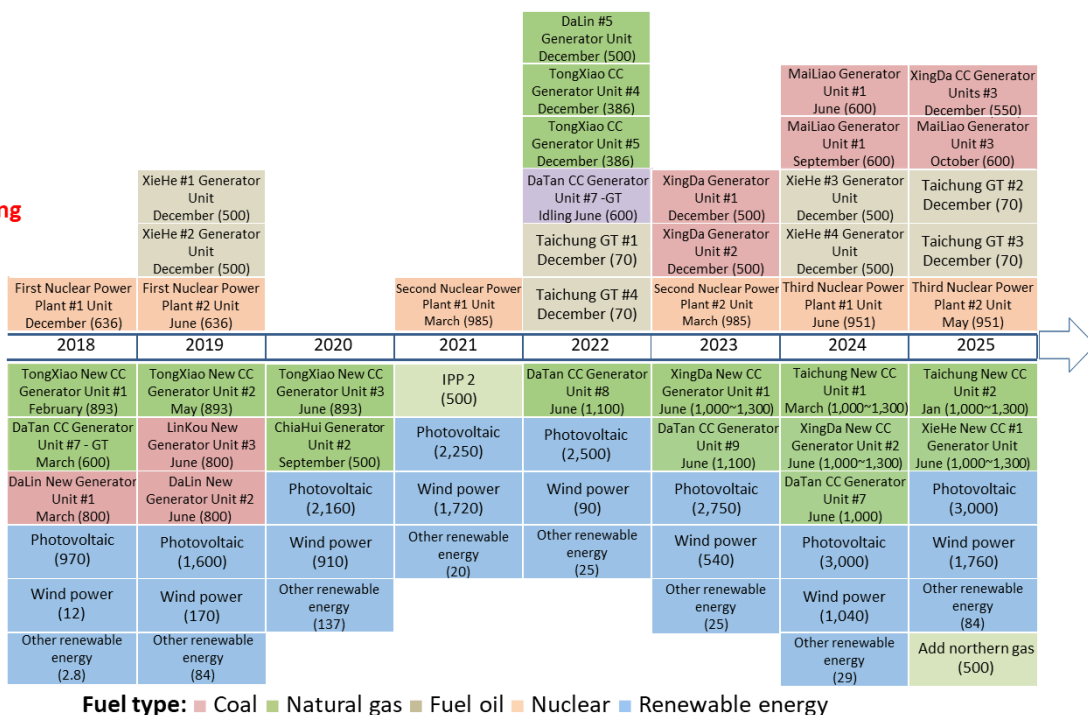
Year	2018	2019	2020	2021	2022	2023	2024	2025
Load estimation (GW)	37.06	37.40	37.92	38.41	38.91	39.41	39.92	40.45
Net peaking capability (GW)	40.76	43.39	44.01	44.47	45.34	45.58	46.69	47.37
Percentage reserve margin (%)	10.0%	16.0%	16.1%	15.8%	16.5%	15.7%	16.9%	17.1%

Data source: MOEA, 2019.

Note: capacity of net peak power supply does not include the two generators of Nuclear Power Plant No.1.

**Decommissioning of Facilities**

**New Installation**



Data source: MOEA

**Table 5-1 Planned New Installation and Decommissioning Facility of Power Generation Units From 2018-2025**

## VI. Conclusion

In order to achieve the energy transformation policy, it is necessary to ensure the stability of national energy supply and environmental sustainability in the process of promoting energy transformation while enhancing information disclosure, citizen participation and policy risk communication. The core values of energy policy should balance the four aspects which are "Energy Security", "Green Economy", "Environmental Sustainability" and "Social Equity" to ensure the smooth transition.

In accordance with the appeal of the referendum on November 24, 2018, the MOEA made positive assessment and review. Considering the issues of raw coal consumption for coal-fired units are restricted by local government, forced the decommission of units before the expiration of license, and stopped the “delivering electricity from Central Taiwan to Northern Taiwan”. The MOEA actively reduces the air pollution emissions from power plants through communication and coordination, accelerating the installation or replacement of air quality control system (AQCS), and implementing self-load reduction management measures with air quality. At present, there are no plans to add new coal-fired units; hence, the expectation is that local governments will not add new power generation restrictions in order to avoid risks of power supply.

In terms of gas-fired generators, new units and expansion or new installation of natural gas terminal are currently in the process of environmental impact assessment. In the future, communication and schedule control will be actively strengthened to ensure the project can be completed on time while meeting all quality requirements. In terms of renewable energy, offshore wind power and solar power generation will also be actively promoted in the future. Moreover, the operators who have obtained the approval for installation permits shall be assisted in handling the follow-up construction work. All developers will be urged to complete the installation of offshore wind farms according to the schedule of construction completion and grid connection while meeting all the schedule and quality requirements.

On the issue of nuclear power generation, the MOEA has no preset position. After the Article 95 (1) of the Electric Act is abolished according to the result



of the referendum, the MOEA has practically reviewed the feasibility of license extension of nuclear power plants and the reactivation of Nuclear Power Plant No.4. However, facing the lack of feasibility and support by local people, the only option left is to maintain safe operation within the legal operating period.

In the future, under the premise of difficult use of nuclear power and limited coal power generation, gas and green power generation will become the main power supply in the future. In order to achieve the goal of stable power supply based on 15% of percentage reserve margin, the government plans supply-side response measures, actively promotes energy conservation to reduce electricity demand, creates a clean energy system and healthy living environment, drives the development of green energy industry, and implements the energy empowerment spirit to advance energy democracy and justice. As mentioned above, all of factors are necessary to be considered in order to accomplish sustainable energy development.

