

# 109 年能源供需概況

## I. 綜合能源部分

1. 本（109）年能源總供給量為138,480.6千公秉油當量，較上年（148,400.4千公秉油當量）減少6.68%；其中自產能源為3,057.2千公秉油當量，占總供給量2.21%，較上年減少1.70%；而進口能源為135,423.4千公秉油當量，占總供給量97.79%，較上年減少6.79%。若按能源種類區分，則煤及煤產品占30.00%，較上年減少6.23%；原油及石油產品占44.17%，較上年減少12.14%；天然氣占17.17%，較上年增加6.98%；生質能及廢棄物占1.21%，較上年減少1.19%；核能占6.57%，較上年減少2.73%；水力占0.21%，較上年減少45.55%；地熱、太陽光電及風力占0.59%，較上年增加44.53%；太陽熱能占0.08%，較上年增加3.34%。
2. 本（109）年國內能源消費量為85,400.1千公秉油當量，較上年（85,009.2千公秉油當量）增加0.46%；其中能源消費（燃料用）為53,906.0千公秉油當量，占國內能源消費63.12%，較上年增加0.90%；若按能源種類區分，則煤及煤產品占8.22%，較上年減少2.87%；石油產品占51.86%，較上年減少0.63%；天然氣占6.01%，較上年增加6.40%；生質能及廢棄物占0.50%，較上年減少0.02%；電力占30.35%，較上年增加2.08%；太陽熱能占0.12%，較上年增加3.34%；熱能占2.93%，較上年增加1.50%。若按各經濟部門能源消費量區分，則能源部門自用占8.27%，較上年減少5.42%；工業部門占31.47%，較上年增加0.22%；運輸部門占15.82%，較上年增加0.79%；農業部門占0.92%，較上年減少5.47%；服務業部門占6.80%，較上年增加0.15%；住宅部門占8.11%，較上年增加5.40%；非能源消費占28.61%，較上年增加1.30%。
3. 本（109）年能源出口量為14,511.4千公秉油當量，較上年（21,799.2千公秉油當量）減少33.43%。
4. 本（109）年每人平均能源消費量為3,621.4公升油當量，較上年（3,602.7公升油當量）增加0.52%。

## II. 個別能源部分

### 1. 煤及煤產品

- (1) 本（109）年煤及煤產品總供給量為49,682.6千公秉油當量，41,544.5千公秉油當量為進口，8,138.2千公秉油當量為轉變產出，較上年（52,753.1千公秉油當量）減少5.82%。
- (2) 本（109）年國內煤及煤產品總需要量為49,510.0千公秉油當量，較上年

(50,604.6千公秉油當量)減少2.16%，其中能源轉變(即發電、煉焦等)為42,396.4千公秉油當量，較上年(43,359.2千公秉油當量)減少2.22%，而最終消費為5,766.9千公秉油當量，較上年(5,917.6千公秉油當量)減少2.55%。

## 2.石油

- (1) 本(109)年石油供給量為61,172.1千公秉油當量，較上年(69,622.6千公秉油當量)減少12.14%。其中自產原油2.2千公秉油當量，占總供給量0.00%，較上年(3.9千公秉油當量)減少43.65%；煉油廠進料79.7千公秉油當量，占總供給量0.13%，較上年(72.6千公秉油當量)增加9.72%；而進口原油為42,915.9千公秉油當量，占總供給量70.16%，較上年(51,570.4千公秉油當量)減少16.78%；進口燃料油、柴油、液化石油氣等石油產品為18,174.3千公秉油當量，占總供給量29.71%，較上年(17,975.8千公秉油當量)增加1.10%。
- (2) 本(109)年原油煉量為42,216.9千公秉，較上年(51,674.7千公秉)減少18.30%。
- (3) 本(109)年石油產品之總供給量為63,485.6千公秉油當量，較上年(71,989.0千公秉油當量)減少11.81%。其中自產之石油產品為49,429.2千公秉油當量，占總供給量77.86%，較上年(57,393.2千公秉油當量)減少13.88%；進口石油產品為18,174.3千公秉油當量，占總供給量28.63%，較上年(17,975.8千公秉油當量)增加1.10%。
- (4) 本(109)年石油產品之總需要量為63,668.7千公秉油當量，較上年(73,007.1千公秉油當量)減少12.79%。其中國內消費量45,846.6千公秉油當量，占總需要量72.01%，較上年(46,436.8千公秉油當量)減少1.27%；而出口量為14,419.4千公秉油當量，占總需要量22.65%，較上年(21,783.1千公秉油當量)減少33.80%；國際海運為1,328.4千公秉油當量，占總需要量2.09%，較上年(1,444.4千公秉油當量)減少8.03%；國際航空為2,074.3千公秉油當量，占總需要量3.26%，較上年(3,342.8千公秉油當量)減少37.95%。
- (5) 本(109)年石油產品國內消費量，若按能源轉變與最終消費予以區分，則石油產品轉變為發電及汽電共生之消費量為1,299.4千公秉油當量，占國內消費量2.83%，較上年(1,666.1千公秉油當量)減少22.01%；又石油產品轉變為其他石化產品為256.4千公秉油當量，占國內消費量0.56%，較上年(200.9千公秉油當量)增加27.61%；能源部門自用為2,858.7千公秉油當量，占國內消費量6.24%，較上年(3,339.8千公秉油當量)減少14.40%；而最終消費量為41,432.1千公秉油當量，占國內消費量90.73%，較上年(41,230.0千公秉油當量)增加0.49%。
- (6) 本(109)年石油產品最終消費量中，若按使用部門予以區分，各部門所占的百分率如下：工業部門占3.25%，運輸部門占32.26%，農業部門占1.14%，服務業

部門占2.23%，住宅部門占2.92%，非能源消費占58.21%。如與上年之消費比較，則其增減情形如下：工業部門減少17.05%，運輸部門增加0.81%，農業部門減少12.49%，服務業部門增加7.65%，住宅部門增加1.52%，非能源消費增加1.49%。

### 3.液化天然氣

- (1) 本（109）年液化天然氣供給量為23,680.6百萬立方公尺，較上年（22,073.4百萬立方公尺）增加7.28%。
- (2) 本（109）年液化天然氣國內消費量為22,286.0百萬立方公尺，其中石油煉製、發電及汽電共生占84.70%，能源及工業用占14.42%，服務業用占0.57%，住宅用占0.30%，農業0.02%。

### 4.天然氣

- (1) 本（109）年自產天然氣產量為105.3百萬立方公尺，較上年（167.2百萬立方公尺）減少37.01%。
- (2) 本（109）年自產天然氣國內消費量為1,941.8百萬立方公尺，其中發電及汽電共生占0.09%，能源及工業用占37.08%，服務業用占19.24%，住宅用占43.58%。

### 5.電力

- (1) 本（109）年總毛發電量為280,139.9百萬度，較上年（274,190.9百萬度）增加2.17%；其中抽蓄水力占1.13%，火力占82.18%，核能占11.22%，慣常水力、地熱、太陽光電、風力、生質能及廢棄物占5.47%。
- (2) 本（109）年台電公司火力發電廠燃料耗用量為32,051.2千公秉油當量，較上年（31,110.2千公秉油當量）增加3.02%；其中煤及煤產品占50.27%，柴油占0.17%，燃料油占2.52%，液化天然氣占47.03%。
- (3) 本（109）年電力各部門消費占總需要（含線路損失及統計差異）之比率如下：能源部門自用占6.89%，工業部門占53.81%，運輸部門占0.53%，農業部門占1.17%，服務業部門占16.51%，住宅部門占17.92%；而與上年消費量比較，則其增減情形如下：能源部門自用減少1.37%，工業部門增加2.08%，運輸部門減少1.21%，農業部門增加7.49%，服務業部門減少1.07%，住宅部門增加6.39%。
- (4) 本（109）年平均每人用電量為11,502.2度，較上年（11,261.2度）約增加2.14%。

# Energy Supply and Demand

## Situation of Taiwan in 2020

### I. General Situation

1. In 2020 the total supply of primary energy amounted to 138,480.6  $10^3$  KLOEs, marking a decrease of 6.68% over 148,400.4  $10^3$  KLOEs in 2019. Of this total, indigenous energy contributed 3,057.2  $10^3$  KLOEs or 2.21%, representing a decrease of 1.70% over the previous year, and the imported energy occupied 97.79%, or 135,423.4  $10^3$  KLOEs, representing a 6.79% decrease over 2019. Classified by form of energy, coal contributed 30.00%, a decrease of 6.23% over 2019; crude oil & petroleum products contributed 44.17% which was a 12.14% decrease; natural gas shared 17.17%, marking a 6.98% increase; Biomass and Waste constituted 1.21%, a decrease of 1.19% over 2019; Nuclear constituted 6.57%, a 2.73% decrease over 2019; hydro provided 0.21%, a decrease of 45.55% over the previous year; Solar PV and Wind constituted 0.59%, an increase of 44.53% over the previous year; Solar Thermal constituted 0.08%, an increase of 3.34% over the previous year.
2. The domestic energy consumption in 2020 was 85,400.1  $10^3$  KLOEs, marking an increase of 0.46% over the 85,009.2  $10^3$  KLOEs of 2019. Of this total, combustible fuels consumed 53,906.0  $10^3$  KLOEs, or 63.12%, which was an 0.90% increase over 2019. Classified by forms of energy, coal and coal products contributed 8.22%, which was a 2.87% decrease over 2019; petroleum products constituted 51.86%, which was a 0.63% decrease; natural gas constituted 6.01%, which was an 6.40% increase; biomass and waste constituted 0.50%, which was a 0.02% decrease; electricity constituted 30.35%, marking an increase of 2.08%; solar thermal constituted 0.12%, an increase of 3.34%; heat constituted 2.93%, an increase of 1.50%. When classified by sector, the final consumption of energy for each sector in 2020 and its comparison with that of 2019 were as follows: the energy sector own use consumed 8.27%, a decrease of 5.42%; the industrial sector, 31.47%, an increase of 0.22%; the transportation sector, 15.82%, an increase of 0.79%; the agriculture, forestry, and fishery sectors, 0.92%, a decrease of 5.47%; the service sector, 6.80%, an increase of 0.15%; the residential sector 8.11%, an increase of 5.40%. Non-energy uses consumed 28.61% of the domestic energy consumption, which was an 1.30% increase over the previous year.

3. Exported energy totaled 14,511.4  $10^3$  KLOEs in 2020, which was a decrease of 33.43% compared with 21,799.2  $10^3$  KLOEs in 2019.
4. In 2020, the per capita energy requirement was 3,621.4 liters of oil equivalent, representing an increase of 0.52% over 3,602.7 liters of oil equivalent in 2019.

## II. Energy Supply and Consumption

(by Form of Energy)

### 1. Coal

- (1) The total supply of coal and coal products in 2020 was 49,682.6  $10^3$  KLOEs marking a decrease of 5.82% over 52,753.1  $10^3$  KLOEs of 2019. 41,544.5  $10^3$  KLOEs was imported and 8,138.2  $10^3$  KLOEs was indigenous.
- (2) The domestic coal and coal products demand in 2020 totaled 49,510.0  $10^3$  KLOEs, marking a decrease of 2.16% compared with the 50,604.6  $10^3$  KLOEs of 2019. Of this demand, 42,396.4  $10^3$  KLOEs were consumed for energy conversion uses such as power generation and coke processing, which was 2.22% less than the 43,359.2  $10^3$  KLOEs of 2019. The final consumption totaled 5,766.9 KLOEs in 2020, a 2.55% decrease compared with 5,917.6  $10^3$  KLOEs in 2019.

### 2. Petroleum

- (1) In 2020 the total petroleum supply was 61,172.1  $10^3$  KLOEs, which was a 12.14% decrease compared with 69,622.6  $10^3$  KLOEs in 2019. Of this total, indigenous crude oil contributed only 2.2  $10^3$  KLOEs or 0.00%, which was a 12.14% decrease over 3.9  $10^3$  KLOEs in 2019, refinery feedstock contributed 79.7  $10^3$  KLOEs or 0.13%, representing an 9.72% increase over the previous year (72.6  $10^3$  KLOEs), and imported crude oil provided 42,915.9  $10^3$  KLOEs or 70.16%, which was a 16.78% decrease compared with 51,570.4  $10^3$  KLOEs in 2019, while imported fuel oil, diesel oil, L.P.G. and other petroleum products reached 18,174.3  $10^3$  KLOEs, or 29.71%, representing an 1.10% increase over the previous year (17,975.8  $10^3$  KLOEs).
- (2) Refined crude oil totaled 42,216.9  $10^3$  KLOEs in 2020, which was a 18.30% decrease compared with 51,674.7  $10^3$  KLOEs in 2019.
- (3) The total supply of petroleum products (secondary forms of energy) was 63,485.6  $10^3$  KLOE, a 11.81% decrease over 71,989.0  $10^3$  KLOEs in 2019. Of this total, indigenous petroleum products occupied 49,429.2  $10^3$  KLOEs or 77.86%, which was

13.88% less than the 57,393.2  $10^3$  KLOEs of the previous year and imported petroleum products reached 18,174.3  $10^3$  KLOEs, or 28.63%, representing an increase of 1.10% over the 17,975.8  $10^3$  KLOEs of 2019.

- (4) In 2020, the total demand for petroleum products was 63,668.7  $10^3$  KLOEs, 12.79% less than the 73,007.1  $10^3$  KLOEs of 2019. Of this total, domestic consumption constituted 72.01%, or 45,846.6  $10^3$  KLOEs, which was 1.27% less than the 46,436.8  $10^3$  KLOEs of 2019, exported petroleum products totaled 14,419.4  $10^3$  KLOEs and sharing 22.65%, which was a 33.80% decrease compared with 21,783.1  $10^3$  KLOEs of the previous year, international marine bunker was 1,328.4  $10^3$  KLOEs, constituting 2.09%, which was 8.03% less than the 1,444.4  $10^3$  KLOEs of 2019, international aviation was 2,074.3  $10^3$  KLOEs, constituting 3.26%, which was 37.95% less than the 3,342.8  $10^3$  KLOEs of 2019.
- (5) When classified by energy conversion and final consumption, the domestic consumption of petroleum products in 2020 was as follows : 1,299.4  $10^3$  KLOEs or 2.83% were consumed for conversion into electricity and cogeneration, which was 22.01% less than the 1,666.1  $10^3$  KLOEs of 2019; 256.4  $10^3$  KLOEs, or 0.56%, were consumed for conversion into other petroleum products, which was an 27.61% increase compared with 200.9  $10^3$  KLOEs of 2019; 2,858.7  $10^3$  KLOEs, or 6.24%, were consumed for conversion into energy sector own use, which was a 14.40% decrease compared with 3,339.8  $10^3$  KLOEs of 2019; 41,432.1  $10^3$  KLOEs or 90.73% went to final consumption, which was 0.49% more than the 41,230.0  $10^3$  KLOEs of 2019.
- (6) The final consumption structure of petroleum products in 2020, if classified by sector, was as follows: 3.25% by industry; 32.26% by transportation; 1.14% by agriculture, forestry and fishery; 2.23% by service; 2.92% by residences; 58.21% by non-energy uses. When compared with the previous year (2019), industry decreased by 17.05%; transportation increased by 0.81%; agriculture, forestry and fishery decreased by 12.49%; service increased by 7.65%; residences increased by 1.52% and non-energy uses increased by 1.49%.

### 3.L.N.G.

- (1) In 2020, the total L.N.G. supply was 23,680.6 million  $m^3$  which was an 7.28% decrease compared with 22,073.4 million  $m^3$  in 2019.
- (2) Of the total L.N.G. domestic consumption of 22,286.0 million  $m^3$ , oil refining, power

generation and cogeneration shared 84.70%, energy and industry 14.42%, service 0.57%, residences 0.30%, and agriculture 0.02%.

#### **4.Natural Gas**

- (1) Natural gas production in 2020 reached 105.3 million m<sup>3</sup>, which was 37.01% less than 167.2 million m<sup>3</sup> in 2019.
- (2) Of the total natural gas domestic consumption of 1,941.8 million m<sup>3</sup>, power generation and cogeneration 0.09%, energy and industry 37.08%, service 19.24%, and residences 43.58%.

#### **5.Electricity**

- (1) In 2020, gross power generation reached 280,139.9 GWh, which was an increase of 2.17% over 274,190.9 GWh in 2019. Of this total, pumped-storage hydro contributed 1.13%, thermal 82.18%, nuclear 11.22%, and conventional hydro, Geothermal, solar PV and wind, biomass and waste constitute 5.47%.
- (2) The total fuel consumption of thermal power stations of Taiwan power company in 2020 was 32,051.2 10<sup>3</sup> KLOEs, which was 3.02% more than 31,110.2 10<sup>3</sup> KLOEs in 2019. Of this consumption, coal comprised 50.27%, diesel oil 0.17%, fuel oil 2.52%, and LNG 47.03%.
- (3) In 2019, the amount of sectoral electricity consumed by total demand (including line losses and statistical differences) was 6.89% by the energy sector own use; 53.81% by industry; 0.53% by transportation; 1.17% by agriculture, forestry and fishery; 16.51% by service; and 17.92% by residences. When compared with 2019, energy sector own use decreased by 1.37%; industry increased by 2.08%; transportation decreased by 1.21%; agriculture, forestry and fishery increased by 7.49%; service decreased by 1.07% and residences increased by 6.39%.
- (4) In 2020, the per capita electricity consumption was 11,502.2 kWh, which was an increase of 2.14% compared with 11,261.2 kWh in 2019.