Comparison of Greenhouse Gas Emissions of Each Plant Unit: Metric tons of CO_{2e}

Plant	2013 (Base Year)	2021	2022	Difference Between 2013 (Base Year) and 2022
Guishan Plant 1	20,468.182	16,965.467	14,712.233	**(5,755.950)**
Guanyin Plant 2	54,215.717	47,154.368	42,181.117	**(12,034.600)**
Guanyin Plant 3	81,131.009	75,203.379	60,669.983	**(20,461.026)**
Guanyin Plant 4	5,921.688	5,884.850	3,967.731	**(1,953.956)**
Dayuan Plant 5	68,914.567	42,887.852	35,677.550	**(33,237.017)**
Taipei Office	-	-	103.997	-
Total	230,651.163	188,095.916	157,312.611	**(73,338.552)**

*All data in this table have been converted to AR6 calculations, and the scope of emissions is only direct emissions and indirect emissions from energy sources.

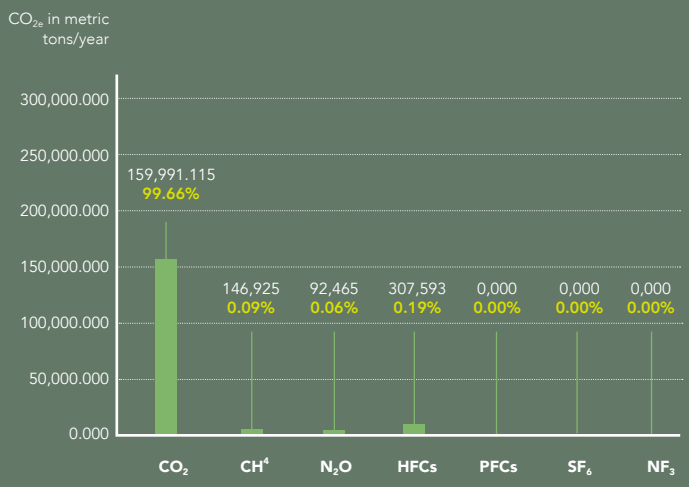
Due to the decrease in production in 2022, the total greenhouse gas emissions decreased by 30,783 metric tons of CO_{2e} compared to 2021. Since 2020, we have made adjustments in our source of energy, gradually switching from fuel oil to natural gas. The transition to natural gas was completed in 2022. Increases or decreases in major greenhouse gases are as follows:

Electricity: Reduced by 21,687.2 metric tons of CO_{2e}.
Fuel oil: Reduced by 10,229.4 metric tons of CO_{2e}.
Bituminous coal: Reduced by 3,211.3 metric tons of CO_{2e}.
Steam: Reduced by 60.8 metric tons CO_{2e}.
Natural gas: Increased by 4,432.5 metric tons of CO_{2e}.

To fulfill our corporate responsibility to protect the environment as a global citizen, we continued to adhere to the following greenhouse gas reduction measures in our greenhouse gas policy in 2023:

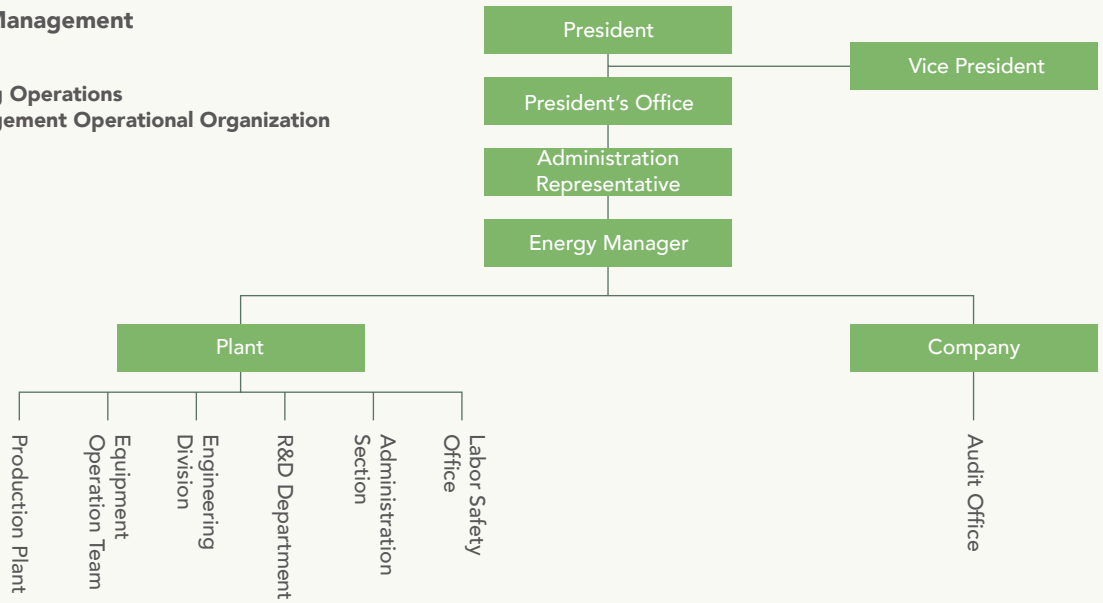
- **Continued promotion of energy conservation measures**
- **Participation of all staff in energy saving and carbon reduction activities**
- **Comply with environmental regulations, customer needs, and other relevant regulations**

Types of Greenhouse Gas in the 2022 Inventory



4.2.2 Energy Management

(1) Energy Saving Operations
Energy Management Operational Organization



(2) Energy Saving Results

In order to comply with the sustainable energy policy of the Executive Yuan and reduce the consumption of resources, we have introduced the method laid out in the ISO 50001 Energy Management System in 2018 to evaluate what major sources of energy use and consumption are in our plants, and to establish the benchmark of energy performance indicators (with 2018 as the base year). We have drawn an energy baseline according to the appropriate period or variables affecting energy use and consumption in order to monitor energy performance, determine effective measures for managing energy use, and continuously follow up and manage progress. Our overall energy efficiency has significantly improved, as described to the right:
Since four DTY machines were used for the application of the offset project, the actual energy savings were not included in the statistics, and part of the energy savings and the production volume were affected by each other. The availability factor in 2022 did not meet expectations, so the actual value was less than the target value of 499,758.4 kWh.

2022 Progress in Power Saving Targets		
Target Value	Actual Value	Power Saving Programs
1,784,137 (kWh)	1,284,378.6 (kWh)	Replacing DTY machines Adjusting equipment capacity and frequency Adding variable-frequency drives Tube lights are replaced by LED lights
Actual value less than target value by 499,758.4 kWh		

Total Energy Consumption

To continuously save energy and reduce carbon emissions while considering our use of electricity, fuel oil, natural gas, bituminous coal and steam, we aim to consume less energy each year compared to the previous year.

Unit: MJ

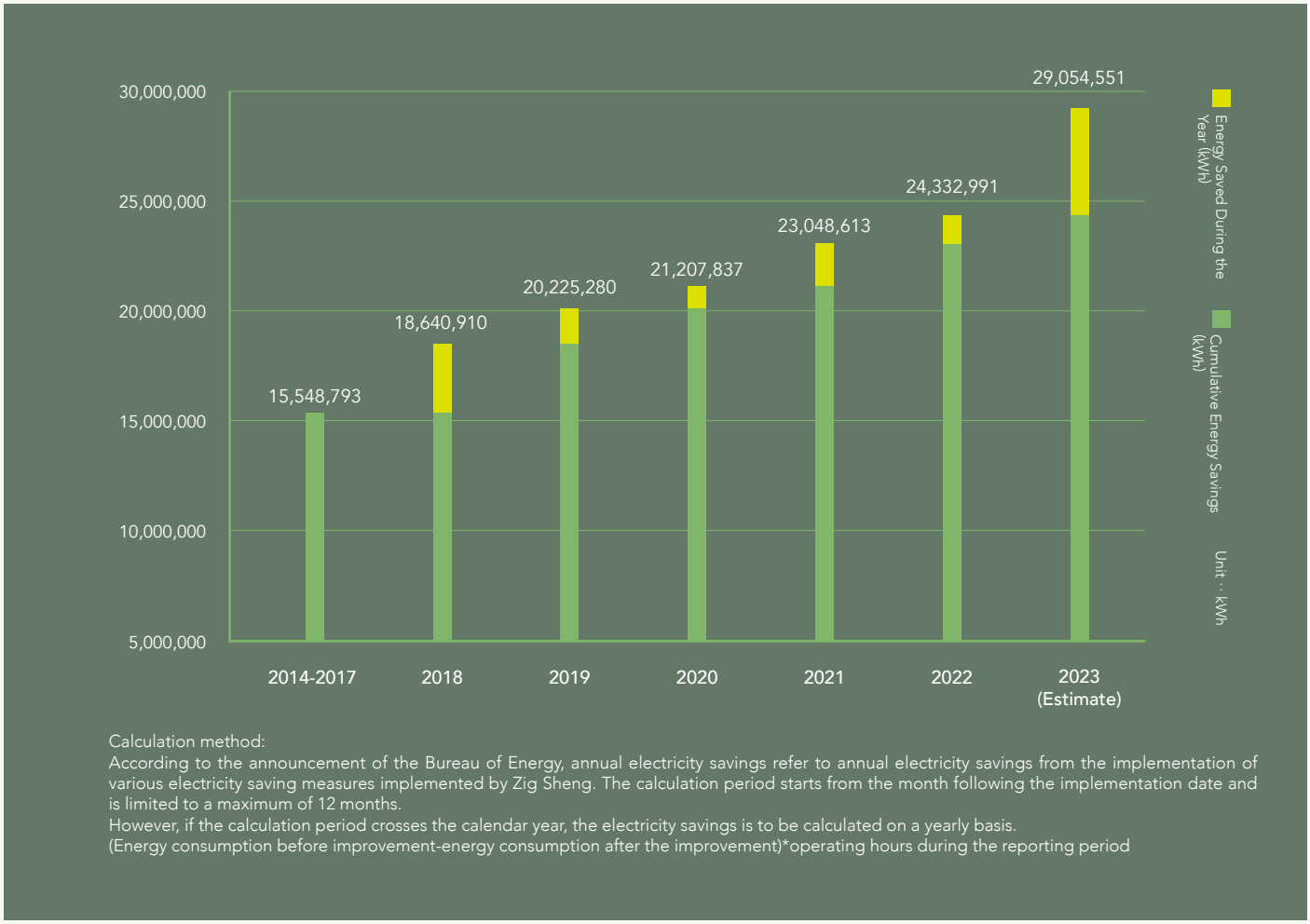
(Bureau of Energy's calorific value table for energy products per unit)
Electricity: 1 kWh=860 kcal=860*4.184*10^{-3} MJ=3.6 MJ
Fuel oil: 1 L=9600 kcal=9600*4.184*10^{-3} MJ=40.2 MJ

(The calorific value for steam issued by the supplier is 667.96, which lowered to 661.93 after transported to user's end)
Steam: 1 metric ton=661.93 kcal=661.93*4.184*10^{-3} MJ=2.8 MJ

(the calorific value provided by the supplier)
(Plant 2) Bituminous coal: 1 kg=4820.46 kcal=4820.46*4.184*10^{-3} MJ=20.2 MJ
(Plant 3) Bituminous coal: 1 kg=4739.03 kcal=4739.03*4.184*10^{-3} MJ=19.8 MJ
(Plant 2) Natural gas: 1 m_3=8536.39 kcal=8536.39*4.184*10^{-3} MJ=35.7 MJ
(Plant 3) Natural gas: 1 m_3=8839.76 kcal=8839.76*4.184*10^{-3} MJ=37.0 MJ
(Plant 5) Natural gas: 1 m_3=8812.00 kcal=8812.00*4.184*10^{-3} MJ=36.9 MJ

Energy Efficiency

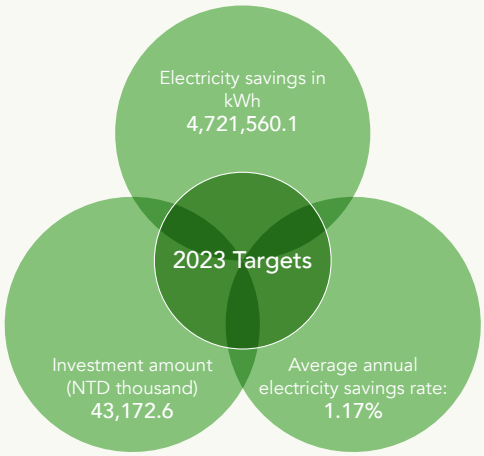
Bureau of Energy-Energy users should aim for an annual energy saving rate of more than 1% in their energy saving targets for 2015-2024. The cumulative energy saving rate of the entire company has reached 11.11% for eight years from 2015 to 2022.
To comply with the energy saving target set by the Bureau of Energy, Zig Sheng has continued to propose energy saving programs and tracked its progress since 2015. Each plant controls its energy use from the demand side, and has achieved a balance between energy supply and demand by tracking process margin behaviors and changing users' operating habits.



Calculation method:
According to the announcement of the Bureau of Energy, annual electricity savings refer to annual electricity savings from the implementation of various electricity saving measures implemented by Zig Sheng. The calculation period starts from the month following the implementation date and is limited to a maximum of 12 months.
However, if the calculation period crosses the calendar year, the electricity savings is to be calculated on a yearly basis.
(Energy consumption before improvement-energy consumption after the improvement)*operating hours during the reporting period

(3) Energy Saving Planning

Power Saving Programs	Estimated Electricity Savings in kWh	Percentage
DTY machine replacement	113,017.8	2.4%
Air compressor replacement	3,521,358.8	74.6%
water chiller replacement	530,856.0	11.2%
Replacing equipment and adding variable-frequency drives	440,845.7	9.3%
Reducing motor usage by utilizing gravity flow	61,120.8	1.3%
Tube lights are replaced by LED lights	54,361.0	1.2%



Note: The average annual electricity savings rate from 2015 to 2023; electricity consumption in 2023 is assumed to be the same as that of 2022, and then calculations are done in accordance with the regulations of the Bureau of Energy.