

Comparison of Total Greenhouse Gas Emissions

Plant	2013 (Base Year)	2020	2021	Difference Between 2013 (Base Year) and 2021
Guishan Plant 1	20,460.421	15,754.371	20,055.886	(404.535)
Guanyin Plant 2	54,209.436	41,781.756	52,604.935	(1,604.501)
Guanyin Plant 3	82,056.345	74,572.450	86,195.336	4,138.991
Guanyin Plant 4	5,907.349	5,582.270	6,954.995	1,047.646
Dayuan Plant 5	73,164.725	51,291.298	46,809.981	(26,354.745)
Total	235,798.276	188,982.144	212,621.131	(23,177.145)

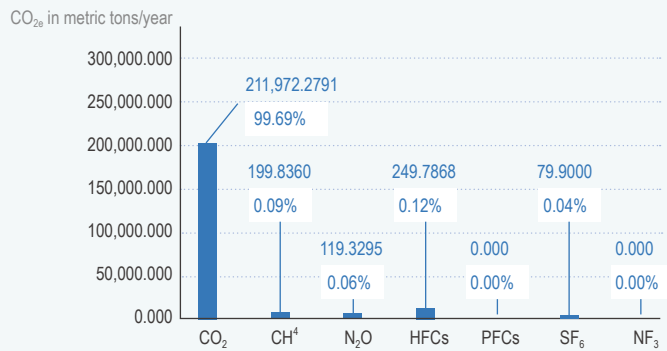
Unit: Tons of CO_{2e}

Due to the significant increase in production in 2021, the total greenhouse gas emissions increased by 23,638.987 metric tons of CO_{2e} compared to 2020. Since 2020, we have made adjustments in our source of energy, gradually switching from fuel oil to natural gas. The transition to natural gas is expected to be completed in 2022. Increases or decreases in major greenhouse gases are as follows:

Electricity increased by 22,164.205 metric tons of CO_{2e}, fuel oil increased by 5,715.307 metric tons of CO_{2e}, bituminous coal decreased by 1,264.478 metric tons of CO_{2e}, steam decreased by 6,424.020 metric tons of CO_{2e}, and natural gas decreased by 899.325 metric tons of CO_{2e}. To fulfill our corporate responsibility to protect the environment as a global citizen, our policy in 2022 remains the same to reduce greenhouse gases:

- Continued promotion of energy conservation measures
- Full participation in energy saving and carbon reduction activities
- Comply with environmental regulations, customer needs, and other relevant regulations

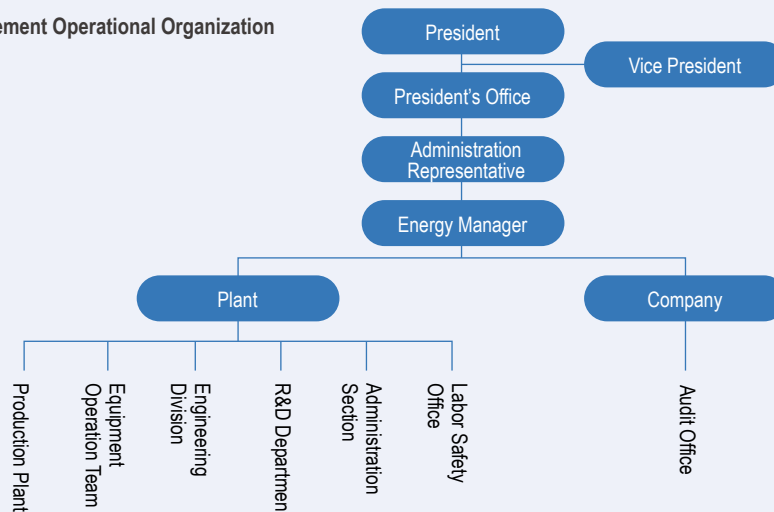
Types of Greenhouse Gas in the 2021 Verification



6.3 Energy Saving Management

6.3.1 Energy Saving Operations

Energy Management Operational Organization



6.3.2 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 below

(1) Total Energy Consumption

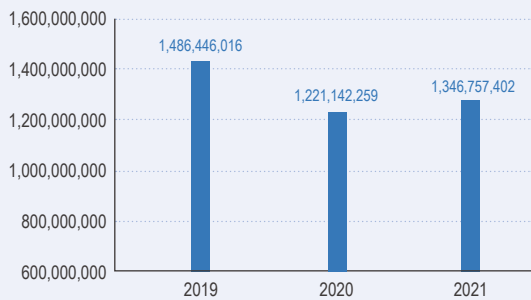
To continuously save energy and reduce carbon emissions while considering our use of electricity, fuel oil, natural gas, bituminous coal and steam, we aim to consume less energy each year compared to the previous year.

2021 Progress in Power Saving Targets

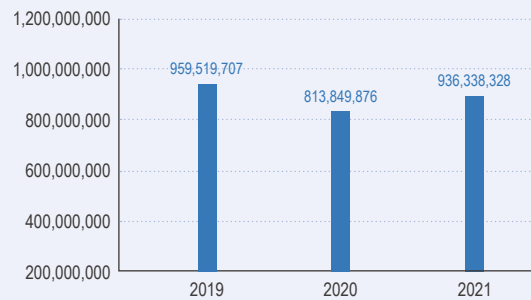
Target Value	Actual Value	Power Saving Programs
3,616,044 (MJ)	6,626,793.6 (MJ)	Replacing DTY machines Adjusting equipment capacity and frequency Adding variable-frequency drives Tube lights are replaced by LED lights

Actual values are higher than the target value of 3,010,749 million joules

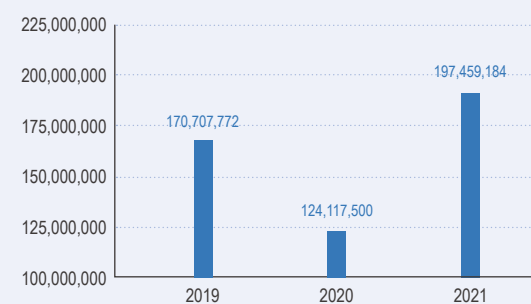
Total Energy Consumption



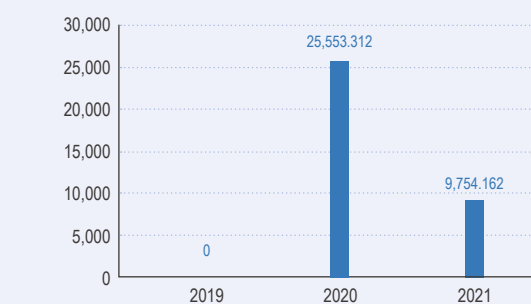
Electricity



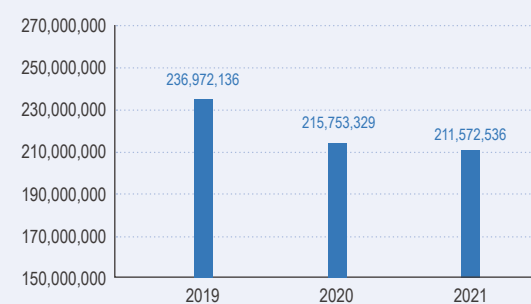
Fuel oil



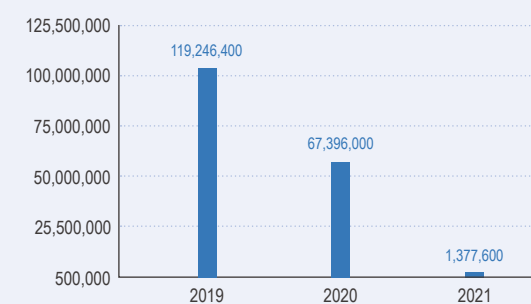
Natural gas



Bituminous coal



Steam



Unit: MJ

(Bureau of Energy's calorific value table for energy products per unit)

Electricity: 1kWh=860kcal=860*4.184*10³MJ=3.6MJ

Fuel oil: 1L=9600 kcal=9600*4.184*10³MJ=40.2MJ

(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 tone = 661.93kcal=661.93*4.184*10³MJ=2.8MJ

(the calorific value provided by the supplier)

(Plant 2) Bituminous coal: 1KG=4960.47kcal=4960.47*4.184*10³MJ=20.8MJ

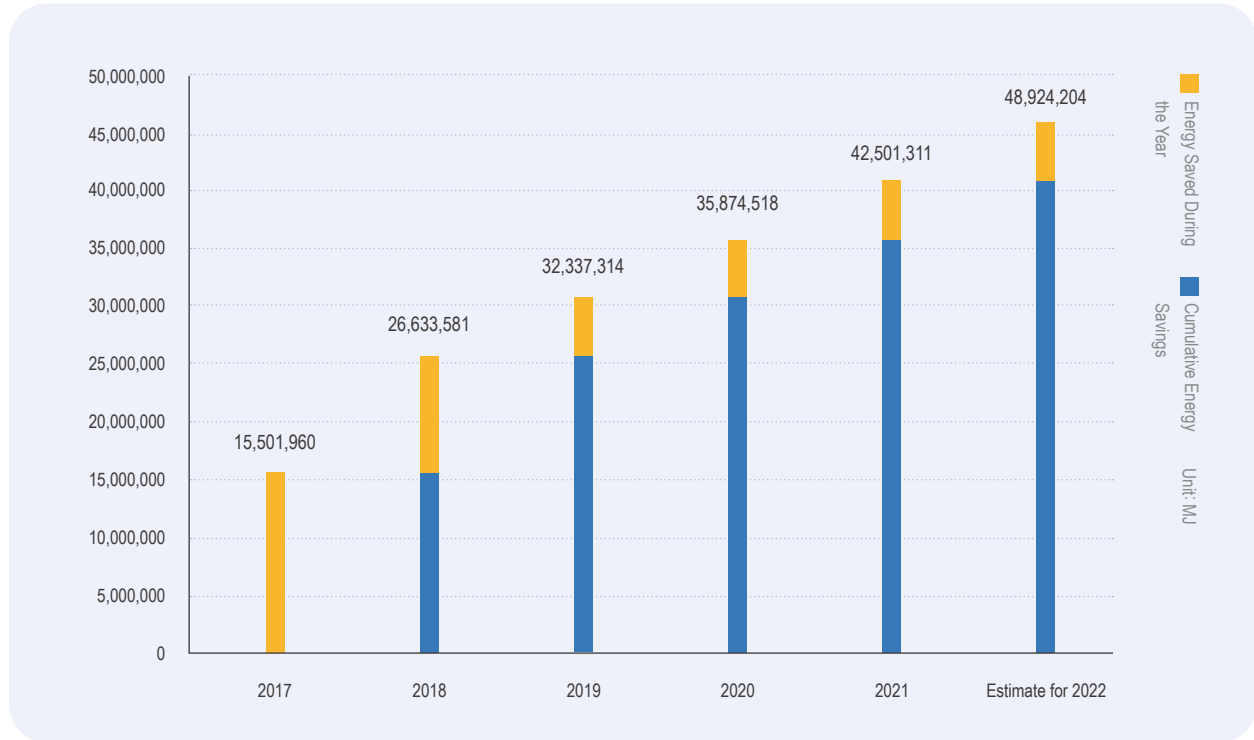
(Plant 3) Half bituminous coal: 1KG=4240.86kcal=4240.86*4.184*10³MJ=17.7MJ

Natural gas: 1m³=8839.76kcal=8839.76*4.184*10³MJ=37.0MJ

(2) 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 10.07% for seven years from 2015 to 2021.

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

6.3.3 Energy Saving Results

Estimated Electricity Saving Targets for 2022

Electricity Saving Plan	Electricity Savings (MJ)
• DTY machine replacement	3,297,868.9
• Adjusting equipment capacity and frequency	1,400,105.9
• Adding variable-frequency drives	1,382,400.0
• Tube lights replaced by LEDs	256,118.4
• Other	86,400.0

Investment amount (NTD)
65,616,180

Average annual electricity savings rate: 1.08%

Electricity savings (MJ)
6,422,893.2

Note: The average annual electricity savings rate from 2015 to 2022; electricity consumption in 2022 is assumed to be the same as that of 2021, and then calculations are done in accordance with the regulations of the Bureau of Energy.