

Mitigation

The main sources of greenhouse gas emissions in semiconductor fabs are electricity and perfluorocarbons (PFCs). Electricity is essential for operations and production, powering all machinery and equipment in the facility; perfluorocarbons (PFCs), used in manufacturing processes, are high global warming potential (GWP) greenhouse gases.

Greenhouse Gas Inventory

The Company conducts its GHG inventory with reference to ISO 14064-1, Ministry of Environment's Climate Change Response Act, Regulations for the Management of the Inventory, Registration, and Verification of Greenhouse Gas Emissions, Greenhouse Gas Emissions Inventory Guidelines, and the WBCSD/WRI GHG Protocol. Organizational boundaries are defined using the 100% operational control approach. At present, all Scope 1, Scope 2, and Scope 3 GHG emissions are verified by SGS, a third-party certification institution, in accordance with international standards.

The inventory covers all of Nanya Technology's production sites and 100% of our revenue. The main sources of GHG emissions are purchased electricity, steam and process emissions. In 2025, total GHG emissions amounted to 417,308 tCO₂e. Scope 1 emissions were 51,088 tCO₂e (accounting for approximately 12.24%) with no emissions resulting from combustion of biomass fuel. Scope 2 emissions were 366,220 tCO₂e (accounting for approximately 87.76%). The subsidiaries included in the consolidated financial statements reported GHG emissions of 447 tCO₂e in 2025. Scope 1 emissions amounted to 4 tCO₂e with no GHG emissions resulting from combustion of biomass fuel. Scope 2 emissions amounted to 443 tCO₂e.

GHG emission factors were based on those announced by Taiwan's Ministry of Environment in February 2024, as well as Taiwan's Energy Administration of the Ministry of Economic Affairs and Nan Ya Plastics' own emission factors for steam at their own facilities. Global Warming Potential (GWP) values were drawn from the IPCC Fifth Assessment Report. Compared to 2020, GHG emissions in 2025 decreased by 11.2% and the number of wafers produced decreased by approximately 22.8%. In terms of emissions per unit wafer, the 2025 emissions intensity was 0.89 kgCO₂e/wafer area (cm²), which is slightly higher than that of 2024. In terms of emissions intensity per unit of wafer output, the 2025 GHG emissions per unit of production capacity were 381 (kgCO₂e/kpcs), representing a 9.1% reduction compared to 2020.

Note 1: GHG emissions per unit area of wafer output.

Note 2: This inventory was conducted in accordance with the Ministry of Environment's 2024 Greenhouse Gas Emissions Inventory Guidelines.

Percentages of 2025 Scope 1 and Scope 2 Emissions by Category

Scope	Emission Source	Percentage of Emissions (%)
Scope 1	Process emissions	6.28%
	Fugitive emissions	3.31%
	Stationary combustion	2.65%
	Mobile combustion	0.00%
Scope 2	Electricity	86.00%
	Steam	1.75%

2025 Percentages of Scope 1 Greenhouse Gas Emissions

Scope	Type of Greenhouse Gas	Emissions (tCO ₂ e)	Percentage of Emissions (%)
Scope 1	Carbon dioxide (CO ₂)	12,594.7253	24.65%
	Methane (CH ₄)	148.6268	0.29%
	Nitrous oxide (N ₂ O)	1,959.728	3.84%
	Hydrofluorocarbons (HFCs)	13,282.9772	26.00%
	Perfluorocarbons (PFC)	15,009.18	29.38%
	Sulfur hexafluoride (SF ₆)	846.1773	1.66%
	Nitrogen trifluoride (NF ₃)	7,246.653	14.18%

Greenhouse Gas Emissions by Scope (parent company only)

Scope	2022	2023	2024	2025
Scope 1 (tCO ₂ e)	59,788	56,654	39,063	51,088
Scope 2 (tCO ₂ e)	location-based	385,177	385,700	386,774
	location-based	381,166	373,670	370,075
Scope 1+2 (location-based emissions) (tCO ₂ e)	444,965	442,354	425,837	454,663
Scope 1+2 (market-based emissions) (tCO ₂ e)	440,954	430,324	409,138	417,308
Scope 3 (tCO ₂ e)	940,525	816,878	817,588	1,290,121

Note 1: There are 9 types of PFCs emissions in total, including the process gases from carbon tetrafluoride (CF₄), perfluoro-propane (C₃F₈), hexafluoro-butadiene (C₄F₆), octafluorocyclobutane (C₄F₈), trifluoro-methane (CHF₃), difluoromethane (CH₂F₂), fluoromethane (CH₃F), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).

Note 2: Other direct emissions include CO₂, CH₄, N₂O from processes, and HFCs and SF₆ from non-process sources, such as fire extinguishers, refrigerators, freezers, and switch gear.

Note 3: Energy indirect emissions include electricity and steam consumption. The carbon emission factor for electricity is based on the Energy Administration of the Ministry of Economic Affairs' published value of 0.474 kgCO₂e/kWh, as of April 14, 2025.

Note 4: In accordance with the GHG Protocol Scope 2 Guidance (2015), GHG emissions are calculated and disclosed using both "Location-based" and "Market-based" methods respectively since we purchased renewable energy. In the above table, the location-based Scope 2 GHG emissions are calculated by multiplying the total electricity used in each area by the average emission factor for that area. On the other hand, market-based emissions are calculated by multiplying contracted renewable energy by their corresponding emission factors.