# Independent Assurance Opinion

Verification Opinion No.:
C670835-2023-AG-TWN-DNV

Issued date:
07 March, 2024



This is to verify initiate reporting of Greenhouse Gas Inventory Management Report (2023) of

## GlobalWafers Co., Ltd. Zhunan Plant

**Scope of Verification**
DNV Business Assurance (DNV) has been commissioned by GlobalWafers Co., Ltd. Zhunan Plant ('the Organization') to perform a verification of the greenhouse gas statements of Greenhouse Gas Inventory Management Report (2023) (hereafter the "Inventory Report") in Taiwan, ROC with respect to the sites listed in Appendix A.
The Reporting Boundary for the verification including direct GHG emissions and removals, indirect GHG emissions from imported energy, indirect GHG emissions from transportation, indirect GHG emissions from products used by the Organization and indirect GHG emissions associated with the use of products from the Organization. The further descriptions for the Reporting Boundary is listed in Appendix B.

**Verification Criteria and GHG Programme**
The verification was performed on the basis of ISO 14064-1:2018 as well as criteria given to provide for consistent GHG emission identification, calculation, monitoring and reporting.
The verification was conducted in accordance with ISO 14066:2011, ISO 14065:2020, ISO14064-3:2019.

**Verification Opinion**
It is DNV's opinion that the Inventory Report (2023), which was published on 10 January, 2024(ver. 1), is free from material discrepancies in accordance with the verification criteria identified as stated above. The opinion is decided based on the following approaches,

- For the Direct (Category 1) and Indirect GHG emissions from imported energy (Category 2), the reliability of the information within the Inventory Report (2023) were verified with reasonable level of assurance.
- For the other indirect GHG emissions, the involved information was tested using agreed-upon procedures, AUP, defined in Inventory Report.

Also, the GHG information as stated in Appendix B and C has been verified during the process.

Chien Yi Jerry Huang
GHG Verifier

Place and date:
**Taipei, 07 March, 2024**

For the issuing office:
**DNV Business Assurance Co., Ltd.**
**29Fl., No. 293, Sec. 2, Wenhua Rd., Banqiao District, New Taipei City 220, Taiwan**

Management Representative

# Supplement to Verification Opinion

**Process and Methodology**
The reviews of the Inventory Report and relevant documents, and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

**Quantification of Greenhouse Gas Emission**
The Inventory Report covering the period 1st January, 2023 to 31st December, 2023, it is DNV's opinion that GHG emissions and removals identified within the Reporting Boundary has been included in the Inventory Report as claimed in accordance with the verification criteria identified as stated above, and results in quantification of GHG emissions that are real, transparent and measurable.

**Organizational Boundary of Verification**
☐Financial Management Control ☒Operational Management Control ☐Equity Share

**GHGs Verified**
☒$CO_2$ ☒$CH_4$ ☒$N_2O$ ☒HFCs ☒PFCs ☒$SF_6$ ☒$NF_3$

The Quantification of GHG emissions in Direct and Indirect Emission Source:

| Category | Direct and indirect GHG emissions categorization* | Emissions and removals verified, tonnes $CO_2$-e |
|---|---|---|
| 1 | Direct emissions and removals** | 257.0693 |
| 2 | Indirect GHG emissions from imported energy | 21,026.4397 |
| *Total greenhouse gas emissions and removals in Category 1 & 2* | | 21,283.5090 |
| 3 | Indirect GHG emissions from transportation | 507.1208 |
| 4 | Indirect GHG emissions from products used by the Organization | 23,166.9209 |
| 5 | Indirect GHG emissions associated with the use of products from the Organization | - |
| *Total greenhouse gas emissions and removals in Category 3,4 & 5* | | 23,674.0417 |

*: Unless other indicated, the Indirect Emissions was calculated based on 2022 electricity emission factor of 0.495 kg $CO_2$-e/kwh, which was announced by Bureau of Energy, Ministry of Economic Affairs. The Global Warming Potential (GWP) defined in IPCC AR6 (2021) has been choose and correctly referred by the Organization.
**:the details subcategory of each category could be refer later in the Report.

**Verification Opinion**
☒ unmodified
☐ modified
☐ adverse

# APPENDIX A

*The greenhouse gas statements of GlobalWafers Co., Ltd. Zhunan Plant Greenhouse Gas Inventory Management Report (2023) with respect to the following sites:*

| Site | Address |
|---|---|
| *GlobalWafers Co., Ltd. Zhunan Plant* | *No. 21, Kezhong Rd., Zhunan Township, Miaoli County, Taiwan (R.O.C.)* |

# APPENDIX B

*The Reporting Boundary of GlobalWafers Co., Ltd. Zhunan Plant Greenhouse Gas Inventory Management Report (2023)*

| Category | Reporting Boundary | Report |
|---|---|---|
| Direct GHG emissions and removals | Stationary Combustion | Emergency generator sets |
| | Mobile Combustion | Vehicles owned by the organization |
| | Process Activities | NA |
| | Direct Fugitive Emissions | wastewater, fire extinguisher, coolant emission from air conditioners and refrigerators |
| | Land use, Land use change | Non-applicable |
| Indirect GHG emissions from imported energy | The amount of greenhouse gas emissions produced by the input of electricity . | Imported Electricity |
| Indirect GHG emissions from transportation | -Upstream transportation and distribution-the greenhouse gas emissions emitted during the transportation of the spare parts and consumables on-board supplies purchased. | 80% purchased goods transportation |
| | -Downstream transportation and distribution-the greenhouse gas emissions emitted during the transportation of the spare parts and consumables on-board supplies purchased. | Products ( Wafer ) |
| | -Emissions from employee commuting include emissions<br>-Employee commuting includes vehicles and motorcycles or public transportation. | High speed rail, Taiwan Railway, highway bus carrier, city bus carrier, automobile, scooter |
| | -Emissions from customer and visitor transport | NA |
| | -Emissions from business travel<br>-Employee travel includes land, sea, and air transportation, such as domestic travel by high-speed rail travel transportation, highway bus travel transportation, Taiwan railway travel transportation, automobile travel. | International business travel by Air |
| Indirect GHG emissions from products used by the Organization | -Emissions from purchased goods | Upstream Emissions of 80% Raw Material |
| | -Emissions from capital goods | Not significant |
| | -Emissions from the production of purchased | Upstream emissions from |

| | | |
|---|---|---|
| | energy (electricity and oil), but not included in Categories 1 and 2. | purchased electricity (including transportation)<br>Upstream emissions of boiler natural gas (including transportation)<br>Forklift diesel upstream emissions (including transport)<br>Upstream emissions of motor gasoline (including transport) |
| | -Emissions from disposal of solid and liquid waste | Waste disposal (excluding transportation)<br>Waste - Clearance Transport<br>Recycling Transportation |
| | -Emissions from asset usage-the annual greenhouse gas emissions of category 1 and 2 generated by leasing assets of other businesses. | Not significant |
| Indirect GHG emissions associated with the use of products from the Organization | -Emissions or removals from the use stage of the product include the total expected lifetime emissions from all relevant products sold. | Not significant |

The scope of other indirect emissions (other than Imported Energy with specified/limited list of sources) was defined by *GlobalWafers Co., Ltd. Zhunan Plant*'s own pre-determined criteria for significance of indirect emissions, considering the intended use of the GHG inventory.

# APPENDIX C

*For direct emissions and removals, quantified separately for each GHG as below, in tonnes of $CO_2$-e：*

| GHG type | GHG Emission (ton $CO_2$-e) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | $CO_2$ | $CH_4$ | $N_2O$ | HFCs | PFCs | $SF_6$ | $NF_3$ | Total |
| Total | 53.1317 | 24.2504 | 0.3496 | 179.3376 | - | - | - | 257.0693 |
| % | 20.67% | 9.43% | 0.14% | 69.76% | 0.000% | 0.000% | 0.000% | 100.000% |

*Indirect emission-Imported energy emission：*

| Consumption(kWh) | Emission Factor | Unit | Emission (ton $CO_2e$) |
|---|---|---|---|
| 42477656 | 0.4950000000 | kg $CO_2e$/ kWh | 21,026.4397 |