

Independent Assurance Opinion

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

Issued date:
07 March, 2024

Page 1 of 2

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.

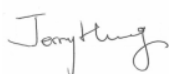
Verification Opinion

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

☒ CO₂ ☒ CH₄ ☒ N₂O ☒ HFCs ☒ PFCs ☒ SF₆ ☒ NF₃

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
<i>Total greenhouse gas emissions and removals in Category 1 & 2</i>		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	-
<i>Total greenhouse gas emissions and removals in Category 3,4 & 5</i>		23,674.0417

*: Unless other indicated, the Indirect Emissions was calculated based on 2022 electricity emission factor of 0.495 kg CO₂-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 to Verification Opinion No. C670835-2023-AG-TWN-DNV

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 -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 -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) Upstream emissions of boiler natural gas (including transportation) Forklift diesel upstream emissions (including transport) Upstream emissions of motor gasoline (including transport)
	-Emissions from disposal of solid and liquid waste	Waste disposal (excluding transportation) Waste - Clearance Transport 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 CO₂-e :

GHG type	GHG Emission (ton CO ₂ -e)							
	CO ₂	CH ₄	N ₂ O	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 ₂ e)
42477656	0.4950000000	kg CO ₂ e/ kWh	21,026.4397

Independent Assurance Opinion

Verification Opinion No.:
C596404-2022-AG-TWN-DNV

Issued date:
02 June, 2023

Page 1 of 2

This is to verify initiate reporting of Greenhouse Gas Inventory Management Report (2022) 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 (2022) (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 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 (2022), which was published on 7 April, 2023(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 (2022) 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.

Jesse Wu
GHG Verifier



Place and date:
Taipei, 02 June, 2023

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, 2022 to 31st December, 2022, it is DNV's opinion that 100% 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

☒ CO₂ ☒ CH₄ ☒ N₂O ☒ HFCs ☒ PFCs ☒ SF₆ ☒ NF₃

The Quantification of GHG emissions and removals 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**	66.6983
2	Indirect GHG emissions from imported energy	22,772.2528
<i>Total greenhouse gas emissions and removals in Category 1 & 2</i>		22,838.9511
3	Indirect GHG emissions from transportation	684.2911
4	Indirect GHG emissions from products used by the Organization	25,207.3571
5	Indirect GHG emissions associated with the use of products from the Organization	-
<i>Total greenhouse gas emissions and removals in Category 3,4 & 5</i>		48,730.599

*: Unless other indicated, the Indirect Emissions was calculated based on 2021 electricity emission factor of 0.509 kg CO₂-e/kwh, which was announced by Bureau of Energy, Ministry of Economic Affairs. The Global Warming Potential (GWP) defined in IPCC AR5 (2013) 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 to Verification Opinion No. C596404-2022-AG-TWN-DNV

APPENDIX A

The greenhouse gas statements of GlobalWafers Co., Ltd. Zhunan Plant Greenhouse Gas Inventory Management Report (2022) 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 (2022)

Category	Reporting Boundary	Report
Direct GHG emissions and removals	Stationary Combustion	Emergency generator sets
	Mobile Combustion	Official car
	Process Activities	Non-applicable
	Direct Fugitive Emissions	Septic tank, fire extinguisher, air conditioner, ice water host, refrigerator and water dispenser
	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 .	Electricity Use
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.	Raw material, consumables, logistic
	-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 -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	Non-applicable
	-Emissions from business travel -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 Air Travel Transportation
Indirect GHG emissions from products used by the Organization	-Emissions from purchased goods	Upstream Emissions of Raw Material
	-Emissions from capital goods	Not significant
	-Emissions from the production of purchased energy (electricity and oil), but not included in	Upstream emissions from purchased electricity (including

	Categories 1 and 2.	transportation) Upstream emissions of boiler natural gas (including transportation) Forklift diesel upstream emissions (including transport) Upstream emissions of motor gasoline (including transport)
	-Emissions from disposal of solid and liquid waste	Waste disposal (excluding transportation) Waste - Clearance Transport 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 CO₂-e :

GHG type	GHG Emission (ton CO ₂ -e)							
	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	NF ₃	Total
Total	30.0169	22.9340	0.2565	13.4908	-	-	-	66.6983
%	45.00%	34.38%	0.38%	20.23%	0.000%	0.000%	0.000%	100.000%

Indirect emission-Imported energy emission :

Consumption(kWh)	Emission Factor	Unit	Emission (ton CO ₂ e)
44739200	0.5090000000	kg CO ₂ e/ kWh	22,772.2528