



LRQA Independent Assurance Statement

Relating to GlobalWafers Co., Ltd. Taisil Branch's Report for the calendar year 2022

服務條件

本保證聲明書乃為環球晶圓股份有限公司中德分公司所準備。

勞盛股份有限公司台灣分公司(以下簡稱 LRQA)受環球晶圓股份有限公司中德分公司(以下簡稱 GW TAISIL)之委託以查證其 2022 日曆年度 (1/1/2022~31/12/2022) 期間溫室氣體盤查報告(發行日期:2023 年 4 月 18 日第二版), 以下簡稱為"溫室氣體盤查報告"。

此溫室氣體盤查報告包含直接、能源間接及其他間接溫室氣體排放。

環球晶圓股份有限公司中德分公司的地理邊界包含其在'新竹縣寶山鄉研新一路 2 號'主要活動包含'矽晶棒和矽晶圓的製造'及相關設施, 溫室氣體排放使用營運控制權。範疇 3 中的類別 5 和 6 排除於報告書中。

Terms of Engagement

This Assurance Statement has been prepared for *GlobalWafers Co., Ltd. Taisil Branch*.

LRQA was commissioned by *GlobalWafers Co., Ltd. Taisil Branch* (GW Taisil) to assure its *GHG Report for the calendar year 2022* (hereafter referred to as "the Report").

The Report relates to direct GHG emissions and energy indirect GHG emissions *and other indirect GHG emissions*.

GlobalWafers Co., Ltd. Taisil Branch's geographical boundary includes its operations located at No. 2, Yanxin 1st Rd., Baoshan Township, Hsinchu County 300093, Taiwan. The main activities of GlobalWafers Co., Ltd. Taisil Branch includes 'Manufacturing of silicon ingots and silicon wafers' and the GHG emissions have been consolidated using Operational' control. The following GHG emissions were excluded from the Report:

e.g. category 5 and 6 from scope 3.

管理責任

環球晶圓股份有限公司中德分公司的管理階層為準備、宣告和遵循 ISO 14064-1:2018 準則以及揭露的數據和資訊維持有效的內部控管負責。LRQA 的責任為依據我們與環球晶圓股份有限公司中德分公司間的合約執行查證。

最終的, 溫室氣體盤查報告由環球晶圓股份有限公司中德分公司所核准並負有責任。

Management Responsibility

GlobalWafers Co., Ltd. Taisil Branch's management was responsible for preparing the claim, report and conformity with the criteria ISO 14064-1:2018 and for maintaining effective internal controls over the data and information disclosed. LRQA's responsibility was to carry out an assurance engagement on the Report in accordance with our contract with GlobalWafers Co., Ltd. Taisil Branch.

Ultimately, the Report has been approved by, and remains the responsibility of GlobalWafers Co., Ltd. Taisil Branch.

LRQA 的方法

LRQA 查證已依循 ISO 14064-3:2019 (溫室氣體主張之確證與查證指引之規範), 以提供對環球晶圓股份有限公司中德分公司符合 ISO 14064-1:2018 (組織層級溫室氣體溫室氣體排放與移除之量化及報告附指引之規範)所準備的溫室氣體盤查報告之有限和合理保證查證。



為作成結論, 本保證以抽樣方式執行並涵蓋下列的活動:

- 依溫室氣體盤查報告中所界定的設施設備, 進行現場查訪; 同時審查與溫室氣體排放數據及資料管理相關的過程;
- 訪談組織中對於相關溫室氣體排放數據與紀錄管理與維持之權責人員;
- 查證類別三之上游原料(蒐集至少達 80%採購金額)與下游產品運輸之活動數據, 商務旅行、員工通勤之活動數據彙整
- 查證類別四在購買的產品和服務之活動數據彙整(蒐集至少達 80%採購金額)
- 審查活動數據的來源(合理等級)和原始數據的匯總(有限等級)
- 查證日曆年西元 2022 年度的歷史數據及資料來源。

LRQA's Approach

Our verification has been conducted in accordance with ISO 14064–3:2019, 'Specification with guidance for verification and validation of greenhouse gas statements' to provide limited and reasonable assurance that GHG data as presented in the Report have been prepared in conformance with ISO 14064–1:2018, 'Specification with guidance at GlobalWafers Co., Ltd. Taisil Branch level for quantification and reporting of greenhouse gas emissions and removals.

To form our conclusions the assurance engagement was undertaken as a sampling exercise and covered the following activities:

- conducted site tours of the facilities and reviewed processes related to the control of GHG emissions data and records;
- interviewed relevant staff of GlobalWafers Co., Ltd. Taisil Branch responsible for managing GHG emissions data and records;
- verified at an aggregated level GHG emissions data for Category 3 and 4 from upstream raw materials (collecting at least 80% of the purchase amount) and downstream product transportation, activity data collection for business travel and employee commuting;
- verified at an aggregated level GHG emissions for Category 4 of activity data of purchased products and services (collecting at least 80% of the purchase amount);
- reviewed activity data at the source level (for reasonable level) and summarised source data (for limited level);
- verified historical GHG emissions data and records for the calendar year 2022.

查證等級及實質性

依據雙方合約協定, 本查證聲明書的查證意見基於類別1 & 2基於合理保證等級和5%實質性進行; 類別3 & 4基於有限保證等級和5%實質性進行;

Level of Assurance & Materiality

In accordance with our contract agreement, the assurance was conducted at a reasonable level of assurance at a materiality of 5% for Categories 1 & 2 and at a limited level of assurance at a materiality of 5% for Categories 3 & 4. The opinion expressed in this Assurance Statement has been accordingly formed.

LRQA意見

基於 LRQA 方法, 依據溫室氣體報告書中揭露年西元 2022 年度之全部直接及能源間接的溫室氣體(類別一與類別二)排放總量實質正確, 其他間接溫室氣體排放(類別三四)沒有任何情形引起我們注意到計算沒有實質正確; 溫室氣體盤查報告之準備也符合 ISO 14064-1:2018 (組織層級溫室氣體溫室氣體排放與移除之量化及報告附指引之規範)相關要求

LRQA's Opinion



Based on LRQA's approach,

- The GHG emissions for Categories 1 and 2 disclosed in the Report as summarized in Table 1 below are materially correct.
- Nothing has come to our attention that would cause us to believe that the GHG emissions for Categories 3 and 4 disclosed in the Report as summarized in Table 1 below are not materially correct.

and that the Report has been prepared in conformance with ISO 14064-1:2018.

LRQA 的建議

GlobalWafers Co., Ltd. Taisil Branch 須掌握 IPCC 評估報告中的 GWP 之更新。

LRQA's Recommendations

GlobalWafers Co., Ltd. Taisil Branch should be aware of changing of GWPs in the Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

Signed

KP Huang

KP Huang
LRQA Lead Verifier
On behalf of LRQA Group Limited Taiwan
Branch
CIT, No. 1, Yumen St., Zhongshan Dist., Taipei
City, Taiwan.
台北市中山區玉門街 1 號 台北創新中心(CIT)

Chiang-shan Chen
General Manager 總經理

LRQA reference number: TWN00000322/O_2022/Data Issued: 27 June 2023





Table 1. Summary of GlobalWafers Co., Ltd. Taisil Branch, GHG Emissions Inventory / Report 2022

Scope of GHG emissions 溫室氣體排放的範疇	Tonnes CO₂e
Direct GHG emissions (Category 1) 直接溫室氣體排放 (類別 1)	1,625.0911
Direct GHG emissions from the combustion of biomass (生質燃燒溫室氣體排放)	None
Indirect GHG emissions from imported energy 能源間接溫室氣體排放 (類別 2) (Category 2, Location-based)	134,222.5752
Indirect GHG emissions from imported energy 能源間接溫室氣體排放 (類別 2) (Category 2, Market-based)	None
Indirect GHG emissions from transportation (Category 3) 運輸的間接溫室氣體排放	4,560.4966
Indirect GHG emissions from products used by the organization (Category 4) 產品使用的間接溫室氣體排放	195,801.2348
Indirect GHG emissions associated with the use of products from the organization (Category 5) 使用產品間接溫室氣體排放	Not significant
Indirect GHG emissions from other sources (Category 6) 其他間接溫室氣體排放	Not identified
Location based and Market based are terminologies from Annex E of ISO 14064-1:2018.	

Note 1: Because year 2022 national electricity emission factor had not been published yet, the year 2021 factor published by the Taiwan BOE (Bureau of Energy) on 22 July 2022 was quoted for the calculation.

Note 2: GHG emission figures above are being reported with four decimal places as required by Taiwan EPA

備註 1: 因為 2022 年度國家電力溫室氣體排放係數尚未公告，因此以上溫室氣體排放引用能源局在 2022 年 7 月 22 日公佈之民國 110 年度電力係數作為外購電力之排放係數。

備註 2: 溫室氣體盤放數據相關小數點規定依據環保署規定執行

This Assurance Statement is subject to the provisions of this legal section:

LRQA Group Limited, its affiliates and subsidiaries, and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'LRQA'. LRQA assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant LRQA entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

The English version of this Assurance Statement is the only valid version. LRQA assumes no responsibility for versions translated into other languages.

This Assurance Statement is only valid when published with the Report to which it refers. It may only be reproduced in its entirety.

Copyright © LRQA, 2023.

Greenhouse Gas Verification Statement

The inventory of Greenhouse Gas emissions in year 2021 of

**GlobalWafers Co., Ltd.
Taisil Branch**

No.2. Creation Road 1, Hsinchu Science Park,
Hsinchu, Taiwan, R.O.C.



has been verified in accordance with ISO 14064-3:2006 as
meeting the requirements of

ISO 14064-1:2018

Direct emissions

1307.3852 tonnes of CO₂e

Indirect emissions

379638.0069 tonnes of CO₂e

Direct emissions and indirect emissions

380945.392 tonnes of CO₂e

Authorized by

David Huang

Senior Director

Date: 17 May 2022

Version 1

TGP56A-15-6 2103

SGS Taiwan Ltd.

No. 136-1, Wu Kung Road, New Taipei Industrial Park, Wu Ku District,
New Taipei City 24803, Taiwan

t (02) 22993279 f (02)22999453 www.sgs.com



Statement TW22/00113GG, continued

The emission of each category is described as below:

Unit: tonnes of CO₂e

Reporting Boundaries		GHG Emissions	
Inventory categories	Description		
Direct emissions	This direct GHG emissions are the sum of owned or controlled by the organization within the organization.	1307.3852	
Indirect emissions	Imported energy	133361.9457	
	Transportation	Upstream transportation and distribution for raw material (at least 80% of the total spend)	4742.1407
		Business travel (domestic business travel and overseas business travel flights)	
		Employee commuting	
	Products used by an organization	Downstream transportation and distribution for sold products	241533.9205
		Purchased goods (at least 80% of the total spend)	
Fuel- and energy- related activities (not included in category 1 or category 2)			
Associated with the use of products from the organization	NA	--	
Other sources	NA	--	
Direct emissions and indirect emissions		380945.392	

Greenhouse Gas Verification Statement

The inventory of Greenhouse Gas emissions in year 2020 of

GlobalWafers Co., Ltd. Taisil Branch

No.2. Creation Road 1, Hsinchu Science Park,
Hsinchu, Taiwan, R.O.C.



has been verified in accordance with ISO 14064-3:2006 as
meeting the requirements of

ISO 14064-1:2018

Direct emissions

1,310.1932 tonnes of CO₂e

Indirect emissions

364,400.2838 tonnes of CO₂e

Direct emissions and indirect emissions

365,710.477 tonnes of CO₂e

Authorized by

David Huang

Senior Director

Date: 10 March 2021

Version 1

TGP56A-15-6 2103

SGS Taiwan Ltd.

No. 136-1, Wu Kung Road, New Taipei Industrial Park, Wu Ku District,
New Taipei City 24803, Taiwan

t (02) 22993279 f (02)22999453 www.sgs.com



Validation and Verification

VB002



Statement TW21/00020GG, continued

The emission of each category is described as below:

Unit: tonnes of CO₂e

Reporting Boundaries		GHG Emissions	
Inventory categories	Description		
Direct emissions		1,310.1932	
Indirect emissions	Imported energy	Imported Electricity	134,650.0867
	Transportation	Upstream transportation and distribution for raw material (at least 80% of the total spend)	7,011.4888
		Business travel (overseas business travel flights only)	
		Employee commuting	
	Products used by an organization	Downstream transportation and distribution for sold products	222,738.7083
		Purchased goods (at least 80% of the total spend)	
		Fuel- and energy- related activities (not included in category 1 or category 2)	
	Transportation and treatment for waste generated in operations.		
Associated with the use of products from the organization	NA	0.0000	
Other sources	NA	0.0000	
Direct emissions and indirect emissions		365,710.477	

SGS has been contracted by GlobalWafers Co., Ltd. Taisil Branch (hereinafter referred to as “GWC Taisil Branch”), No.2. Creation Road 1, Hsinchu Science Park, Hsinchu, Taiwan, R.O.C. for the verification of direct and indirect Greenhouse Gas emissions in accordance with

ISO 14064-3:2006

as provided by GlobalWafers Co., Ltd. Taisil Branch (hereinafter referred to as “GWC Taisil Branch”), No.2. Creation Road 1, Hsinchu Science Park, Hsinchu, Taiwan, R.O.C., in the GHG Assertion in the form of GHG report covering GHG emissions of the period 01 January 2020 to 31 December 2020.

Roles and responsibilities

The management of GWC Taisil Branch is responsible for the organization’s GHG information system, the development and maintenance of records and reporting procedures in accordance with that system, including the calculation and determination of GHG emissions information and the reported GHG emissions.

It is SGS’s responsibility to express an independent GHG verification opinion on the GHG emissions as provided in the GHG Assertion for the period 01 January 2020 to 31 December 2020.

SGS conducted a third party verification of the provided GHG assertion against the principles of ISO 14064-1:2018, ISO 14064-3:2006 in the period 04 February 2021 to 23 February 2021. The verification was based on the verification scope, objectives and criteria as agreed between GWC Taisil Branch and SGS on 28 October 2020.

Level of Assurance

The level of assurance for category 1 and category 2 agreed is that of reasonable assurance.

Scope

GWC Taisil Branch has commissioned an independent verification by SGS Taiwan of reported GHG emissions of GWC Taisil Branch arising from the manufacture of silicon ingot and silicon wafer activities, to establish conformance with ISO 14064:2018 principles within the scope of the verification as outlined below.

This engagement covers verification of emission from anthropogenic sources of greenhouse gases included within the organization’s boundary and is based on ISO 14064-3:2006.

Statement TW21/00020GG, continued

- Title or description activities: GHG verification for GWC Taisil Branch in year 2020
- Location/boundary of the activities:
 - No.2. Creation Road 1, Hsinchu Science Park, Hsinchu, Taiwan, R.O.C.
- Physical infrastructure, activities, technologies and processes of the organization: The manufacture of silicon ingot and silicon wafer.
- GHG sources, sinks and/or reservoirs included: Sources as presented in the inventory spreadsheet provided by GWC Taisil Branch
- Types of GHGs included: CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, NF₃
- The IPCC 2013 AR5 GWP values are applied in this inventory.
- Emission factor:
 - Direct emissions: Greenhouse Gas Emission Factor Table (6.0.4), EPA.
 - Indirect emissions:
 - Electricity emission factor is 0.509 kgCO₂e/kwh (Announced by Bureau of Energy, Ministry of Economic Affairs in 2020).
 - The secondary database has Carbon Footprint Calculation Platform, SimaPro 9.0 - Ecoinvent 3 database.
- Directed actions: NA
- GHG information for the following period was verified: 01 January 2020 to 31 December 2020
- The version of inventory sheet: V1 (2021.02.23)
- The version of GHG assertion: V1 (2021.02.23)
- Intended user of the verification statement: Private

Objective

The purposes of this verification exercise are, by review of objective evidence, to independently review:

- Whether the GHG emissions are as declared by the organization's GHG assertion
- The data reported are accurate, complete, consistent, transparent and free of material error or omission.

Criteria

Criteria against which the verification assessment is undertaken are the principles of ISO 14064-1:2018

Materiality

The materiality required of the verification was considered by SGS to 5%, based on the needs of the intended user of the GHG Assertion.

Conclusion

GWC Taisil Branch provided the GHG assertion based on the requirements of ISO 14064-1: 2018. The GHG information for the period 01 January 2020 to 31 December 2020 disclosing emissions of 365,710.477 metric tonnes of CO₂ equivalent and 0.0000 metric tonnes of direct CO₂ emissions from the combustion of biomass are verified by SGS to a reasonable level of assurance, consistent with the agreed verification scope, objectives and criteria.

The emission of each category is described as below:

Unit: tonnes of CO₂e

Reporting Boundaries			GHG Emissions
Inventory categories	Description		
Direct emissions	This direct GHG emissions are the sum of owned or controlled by the organization within the organization.		1,310.1932
Indirect emissions	Imported energy	Imported Electricity	134,650.0867
	Transportation	Upstream transportation and distribution for raw material (at least 80% of the total spend)	7,011.4888
		Business travel (overseas business travel flights only)	
		Employee commuting	
	Products used by an organization	Downstream transportation and distribution for sold products	222,738.7083
		Purchased goods (at least 80% of the total spend)	
		Fuel- and energy- related activities (not included in category 1 or category 2)	
	Associated with the use of products from the organization	Transportation and treatment for waste generated in operations.	0.0000
		NA	
	Other sources	NA	0.0000
Direct emissions and indirect emissions			365,710.477

SGS's approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions information and the controls in place to mitigate these. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the organization's reported GHG emissions.

We planned and performed our work to obtain the information, explanations, and evidence that we considered necessary to provide a reasonable level of assurance that the GHG emissions of category 1 and category 2 for the period 01 January 2020 to 31 December 2020 are fairly stated.

We conducted our verification with regard to the GHG assertion of GWC Taisil Branch which included assessment of GHG information system, monitoring and reporting plan/protocol. This assessment included the collection of evidence supporting the reported data, and checking whether the provisions of the protocol reference, were consistently and appropriately applied.

In SGS's opinion the presented GHG assertion

- is materially correct and is a fair representation of the GHG data and information, and
- is prepared in accordance with ISO14064-1:2018 on GHG quantification, monitoring and reporting.

Confidentiality

The reports and attachments may contain relevantly confidential information of the clients. In addition to being submitted as governmental application or certification documents, the reports and attachments are not allowed to be edited, duplicated, or published without the clients' agreement in written form.

Avoidance of Conflict of Interest

The reports and attachments are completely complied with the standards and procedures that related-authorities established. The reports and attachments of auditing process are conduct with fairness and honesty. If not, the auditing institution not only has to bear the relevant compensation duties, but also to receive legal charge and punishment.

This statement shall be interpreted with the GHG assertion of GWC Taisil Branch as a whole.

Statement TW21/00020GG, continued

Verifier Group

Above statements coincide with auditing process with fairness and impartiality, and aim at the emission of year 2020 of clients.

Lead Verifier:

Darren Chan

Verifier:

Alicia Su

Note: This Statement is issued, on behalf of Client, by SGS Taiwan Ltd. ("SGS") under its General Conditions for Greenhouse Gas Verification Services available at http://www.sgs.com/terms_and_conditions.htm. The findings recorded hereon are based upon an audit performed by SGS. A full copy of this statement, the findings and the supporting GHG Assertion may be consulted at GlobalWafers Co., Ltd. Taisil Branch, No.2. Creation Road 1, Hsinchu Science Park, Hsinchu, Taiwan, R.O.C., This Statement does not relieve Client from compliance with any bylaws, federal, national or regional acts and regulations or with any guidelines issued pursuant to such regulations. Stipulations to the contrary are not binding on SGS and SGS shall have no responsibility vis-à-vis parties other than its Client.