Opinion TW25/00268GG

Greenhouse Gas Verification Opinion

The inventory of Greenhouse Gas emissions in year 2024 of

Taiwan Union Technology Corporation

803 Bo-ai St., Zhubei,
Hsinchu County 302045, Taiwan

has been verified in accordance with ISO 14064-3:2019 as meeting the requirements of

ISO 14064-1:2018

Opinion Type: Modified

Direct emissions
37,265.7487 tonnes of CO_2e
Indirect emissions
269,172.4325 tonnes of CO_2e
Direct emissions and indirect emissions
306,438.181 tonnes of CO_2e

Authorized by

Stephen Pao
Business Assurance Director
Date: 06 June 2025
Version 1

TGP56B-15-1 2501
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The emission of each category is described as below: Unit: tonnes of CO_2e

Reporting Boundaries			GHG Emissions
Inventory categories		Description	
Direct emissions		Direct emissions from stationary combustion	34,514.1912
		Direct emissions from mobile combustion	194.0042
		Direct process emissions and removals from industrial processes	1,361.3929
		Direct fugitive emissions arise from the release of GHGs in anthropogenic systems	1,196.1605
		Direct emissions and removals from land use, land use change and forestry	0.0000
Indirect emissions	Imported energy	Imported Electricity	47,225.6829
	Transportation	Downstream transportation and distribution by land Business travel (self-driving travel)	470.0841
	Products used by an organization	purchased goods (copper foil and butanone) Industrial waste transportation Industrial waste disposal	221,476.6655
	Associated with the use of products from the organization	(not significant)	--
	Other sources	(not significant)	--
Direct emissions and indirect emissions			306,438.181

The emission of each site is described as below: Unit: tonnes of CO_2e

Site	Direct emissions	Indirect emissions		Total GHG emissions
	Category 1	Category 2	Category 3~6	
TUC Taiwan (Headquarters)	18,700.1852	25,207.5703	65,197.0350	109,104.791
TUC Changshu, China	9,183.3217	12,370.0829	79,600.9186	101,154.323
TUC Zhongshan, China	9,382.2418	9,648.0297	77,148.7960	96,179.068

SGS has been contracted for the verification of direct and indirect Greenhouse Gas emissions in accordance with

ISO 14064-3:2019

as provided by Taiwan Union Technology Corporation (hereinafter referred to as "TUC Taiwan"), 803 Bo-ai St., Zhubei, Hsinchu County 302045, Taiwan, in the GHG Statement in the form of GHG report.

Roles and responsibilities

- The management of TUC Taiwan 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.
- The verification was based on the verification scope, objectives and criteria as agreed on 23 March 2023.
- Verification Criteria: ISO 14064-1:2018
- Verification Period: 02 April 2025 to 24 April 2025.

Scope

- GHG information for the following period was verified: 01 January 2024 to 31 December 2024
- Location/boundary of the activities:
  - 803 Bo-ai St., Zhubei, Hsinchu County 302045, Taiwan
  - 768 Dongnan Ave., Changshu, Jiangsu 215500, China
  - 39 Yangjiang East 3rd Rd., Zhongshan City, Guangdong 528437, China
- Types of GHGs included: CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3
- The IPCC 2021 AR6 GWP values are applied in this inventory.
- Emission factor:
  - Direct emissions: Greenhouse Gas Emission Factor, MOENV(2024.02.05)
  - Indirect emissions:
    - Taiwan : Electricity emission factor is 0.474 $kgCO_2e/kwh$ (Announced by Energy Administration, Ministry of Economic Affairs in 2025).
    - Jiangsu : Electricity emission factor is 0.5978 $kgCO_2e/kwh$ (National Bureau of Statistics of the Ministry of Ecology and Environment [2024] No. 33).
    - Guangdong : Electricity emission factor is 0.4403 $kgCO_2e/kwh$ (National Bureau of Statistics of the Ministry of Ecology and Environment [2024] No. 33).

- The secondary database has Carbon Footprint Information Platform, Chinese Product Life Cycle Greenhouse Gas Emission Coefficient Database (2022).

- TUC Taiwan (Headquarters)：The level of assurance for category 1 and category 2 agreed is that of reasonable assurance. Category 3 till category 6 agreed is that of limited assurance.
- TUC Changshu and TUC Zhongshan, China：The level of assurance agreed is limited assurance.
- Materiality：5%
- The version of inventory sheet:

Site	The version of inventory sheet
TUC Taiwan (Headquarters)	0425
TUC Changshu, China	V5
TUC Zhongshan, China	V2

- The version of GHG statement:

Site	The version of GHG assertion
TUC Taiwan (Headquarters)	V4
TUC Changshu, China	V4
TUC Zhongshan, China	V2

- Intended user of the verification opinion: 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 statement
- The data reported are accurate, complete, consistent, transparent and free of material error or omission.

Conclusion

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 the GHG emissions are free from material misstatement.

- The greenhouse gas emissions is 306,438.181 metric tonnes of CO_2 equivalent
- The emissions from the combustion of biomass is 0.0000 metric tonnes of CO_2 equivalent

The emission of each category is described as below: Unit: tonnes of CO_2e

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- The opinion of SGS is modified in accordance with the following described circumstances.
  - The verifier has sufficient and appropriate evidence to support the material emissions, removals, or storage.
  - The verifier applies appropriate criteria for the material emissions, removals, or storage.
  - When the verifier intends to rely on relevant controls, the effectiveness of those controls has been assessed.
  - The verifier, applying the ISO 14064-1:2018 standard, presents the following findings. After adjustments and corrections, no material errors were identified.
    - Some emission factors have been corrected, such as: VOCs, septic tanks.
    - Some activity data have been corrected, such as acetylene, natural gas distribution, purchased goods, waste, and downstream transportation.
- Retention Limitation: NA

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 opinion shall be interpreted with the GHG statement of TUC Taiwan as a whole.

Verifier Group

Above opinions coincide with auditing process with fairness and impartiality and aim at the emission of year 2024 of clients.

Lead Verifier: Emma Kao

Verifier: Mike Huang Chris Hsia