

Greenhouse Gas Verification Statement

The inventory of Greenhouse Gas emissions in year 2021 of

TAIWAN HIGH SPEED RAIL CORPORATION

13F., No. 66, Jingmao 2nd Rd., Nangang Dist.,
Taipei City 115, 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

503.9087 tonnes of CO₂e

Indirect emissions

52,263.0977 tonnes of CO₂e

Direct emissions and indirect emissions

52,767.006 tonnes of CO₂e

Authorized by

Stephen Pao

Knowledge Deputy General Manager

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Version 2

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Statement TW22/00419GG, 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.	503.9087	
Indirect emissions	Imported energy	Indirect emissions from imported electricity	43,397.6933
	Transportation	No significant emissions	—
	Products used by an organization	Indirect emissions from upstream energy resources and solid and liquid waste treatment	8,865.4044
	Associated with the use of products from the organization	No significant emissions	—
	Other sources	No significant emissions	—
Direct emissions and indirect emissions		52,767.006	

The emission of each site is described as below:

Unit: tonnes of CO₂e

Site	Direct emissions	Indirect emissions	Total GHG emissions
Nangang Station	21.3065	10,106.0591	10,127.366
Taipei Station	4.6805	7,466.4062	7,471.087
Banqiao Station	13.4564	6,541.4755	6,554.932
Taoyuan Station	1.5818	3,889.4744	3,891.056
Hsinchu Station	0.9897	3,547.4004	3,548.390
Miaoli Station	0.9046	1,331.8830	1,332.788
Taichung Station	79.4262	5,963.2915	6,042.718
Changhua Station	22.8158	1,492.7476	1,515.563
Yunlin Station	0.9853	1,605.3862	1,606.372
Chiayi Station	64.8446	3,101.9796	3,166.824
Tainan Station	68.9078	2,362.3939	2,431.302
Zuoying Station	224.0095	4,854.6003	5,078.610

SGS has been contracted by National Cheng Kung University Industrial Sustainable Development Center (hereinafter referred to as “NCKU-ISDC”), No. 1, Daxue Rd., East Dist., Tainan City, Taiwan (R.O.C.) for the verification of direct and indirect Greenhouse Gas emissions in accordance with

ISO 14064-3:2006

as provided by TAIWAN HIGH SPEED RAIL CORPORATION (hereinafter referred to as “TAIWAN HIGH SPEED RAIL”) · 13F., No. 66, Jingmao 2nd Rd., Nangang Dist., Taipei City 115, Taiwan (R.O.C.), in the GHG Assertion in the form of GHG report covering GHG emissions of the period 01 January 2021 to 31 December 2021.

Roles and responsibilities

The management of TAIWAN HIGH SPEED RAIL 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 2021 to 31 December 2021.

SGS conducted a third-party verification of the provided GHG assertion against the principles of ISO 14064-1:2018, ISO 14064-3:2006 and TW EPA Guidelines for GHG Validation and Verification (2010.12) in the period 21 July 2022 to 17 August 2022. The verification was based on the verification scope, objectives and criteria as agreed between NCKU-ISDC and SGS on 21 April 2020.

Level of Assurance

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.

Scope

NCKU-ISDC has commissioned an independent verification by SGS Taiwan of reported GHG emissions of TAIWAN HIGH SPEED RAIL arising from the high-speed rail transportation service 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.

- Title or description activities: GHG verification for TAIWAN HIGH SPEED RAIL in year 2021.
- Location/boundary of the activities:

Location	Address
Nangang Station	No. 313, Sec. 1, Nangang Rd., Nangang Dist., Taipei City 115, Taiwan (R.O.C.)
Taipei Station	No. 3, Beiping W. Rd., Zhongzheng Dist., Taipei City 100, Taiwan (R.O.C.)
Banqiao Station	No. 7, Sec. 2, Xianmin Blvd., Banqiao Dist., New Taipei City 220, Taiwan (R.O.C.)
Taoyuan Station	No. 6, Sec. 1, Gaotie N. Rd., Zhongli Dist., Taoyuan City 320, Taiwan (R.O.C.)
Hsinchu Station	No. 6, Gaotie 7th Rd., Zhubei City, Hsinchu County 302, Taiwan (R.O.C.)
Miaoli Station	No. 268, Gaotie 3rd Rd., Houlong Township, Miaoli County 356, Taiwan (R.O.C.)
Taichung Station	No. 8, Zhanqu 2nd Rd., Wuri Dist., Taichung City 414, Taiwan (R.O.C.)
Changhua Station	No. 99, Sec. 2, Zhanqu Rd., Tianzhong Township, Changhua County 520, Taiwan (R.O.C.)
Yunlin Station	No. 301, Zhanqian E. Rd., Huwei Township, Yunlin County 632, Taiwan (R.O.C.)
Chiayi Station	No. 168, Gaotie W. Rd., Taibao City, Chiayi County 612, Taiwan (R.O.C.)
Tainan Station	No. 100, Guiren Blvd., Guiren Dist., Tainan City 711, Taiwan (R.O.C.)
Zuoying Station	No. 105, Gaotie Rd., Zuoying Dist., Kaohsiung City 813, Taiwan (R.O.C.)

- Physical infrastructure, activities, technologies and processes of the organization: The high-speed rail transportation service.
- GHG sources, sinks and/or reservoirs included: Sources as presented in the inventory spreadsheet provided by TAIWAN HIGH SPEED RAIL.
- 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 2022).
 - The secondary database has Carbon Footprint Information Platform.
- Directed actions: NA
- GHG information for the following period was verified: 01 January 2021 to 31 December 2021
- The version of inventory sheet: 18 August 2022
- The version of GHG assertion: First edition
- 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 and TW EPA Guidelines for GHG Validation and Verification (2010.12).

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

TAIWAN HIGH SPEED RAIL provided the GHG assertion based on the requirements of ISO 14064-1: 2018. The GHG information for the period 01 January 2021 to 31 December 2021 disclosing emissions of 52,767.006 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		Description	GHG Emissions
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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, and limited level of assurance of category 3 till category 6 for the period 01 January 2021 to 31 December 2021 are fairly stated.

We conducted our verification with regard to the GHG assertion of TAIWAN HIGH SPEED RAIL 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 and TW EPA Guidelines for GHG Validation and Verification (2010.12) 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 TAIWAN HIGH SPEED RAIL as a whole.

Verifier Group

Above statements coincide with auditing process with fairness and impartiality and aim at the emission of year 2021 of clients.

Lead Verifier:

Kyle Lu.

Verifier:

Dave Lin



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 TAIWAN HIGH SPEED RAIL CORPORATION, 13F., No. 66, Jingmao 2nd Rd., Nangang Dist., Taipei City 115, 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.