

Independent Verification Opinion

Verification Opinion No.:
C716359-2023-AG-TWN-DNV

Issued Place and Date:
Taipei, 25 March, 2025

Page 1 of 2

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

National Cheng Kung University

Scope of Verification

DNV Business Assurance (DNV) has been commissioned by National Cheng Kung University (hereafter "the Organization") to perform a verification of the greenhouse gas statements of Greenhouse Gas Inventory Management Report (2023) (hereafter the "Inventory Report") in Taiwan, R.O.C. with respect to the sites listed as below and in Appendix A.

Site	Address
National Cheng University	Kung No. 1, Daxue Rd., East Dist., Tainan City 701401, Taiwan (R.O.C.)

The Reporting Boundary for the verification including direct GHG emissions and removals, indirect GHG emissions from imported energy, indirect GHG emissions from transportation and indirect GHG emissions from products used by the Organization.

Verification Criteria and GHG Programme

The verification was conducted in accordance with ISO 14066:2023, ISO 14065:2020, and ISO 14064-3:2019 and was performed based on GHG protocol, ISO 14064-1:2018, CNS 14064-1:2021, as well as criteria provided to ensure consistent GHG emission identification, calculation, monitoring, and reporting.

Verification Opinion

It is DNV's opinion that the Inventory Report (2023), which was published on January 24, 2025 (Ver.2), 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 (Category1) 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 verified with limited assurance, defined in Inventory Report.

GHG Verifier :
Alvin Chen



For the issuing office:
DNV Business Assurance Co., Ltd.



Management Representative

The Appendix forms an integral part of this Certificate, which shall be invalid when used without the Appendix.

Lack of fulfilment of conditions as set out in the Verification Agreement may render this Verification invalid. This Verification Opinion is based on the information made available to us and the engagement conditions detailed above. Hence, DNV cannot guarantee the accuracy or correctness of the information. DNV cannot be held liable by any party relying or acting upon this Verification Opinion.

The issuing office : 29Fl., No. 293, Sec. 2, Wenhua Rd., Banqiao District, New Taipei City 220, Taiwan Tel.: +886-2-82537800. <https://www.dnv.com/tw/>
DNV ZNATW-OP-F50, Rev.14, 2025-03

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 HFC_s PFC_s SF₆ NF₃

Quantification of Emissions (in tonnes CO₂e)

The Global Warming Potential (GWP) defined in AR6 (2021) has been chosen and correctly referred by the Organization.

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

Category	Emissions in (tonnes CO ₂ e)	Total
Category 1	Direct Emissions	7,122.7993
Category 2	Imported Energy Indirect Emissions	34,815.6592

(The Imported Energy Indirect Emissions was calculated based on 2023 electricity emission factor of 0.494 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 chosen and correctly referred by the Organization.)

The Quantification of GHG emissions in Indirect Emission Source:

Category	Emissions in (tonnes CO ₂ e)	Total
Category 3	Transportation	4,327.2877
Category 4	Products used by organization	7,491.5050
Total Emissions		53,757.2512

Type of Opinion

unmodified modified adverse

APENDIX A

The greenhouse gas statements of National Cheng Kung University Greenhouse Gas Inventory Management Report (2023) with respect to the following sites:

Site	Address
Headquarters Campus, includes Campus: "Li-Hsing Campus Kuang-Fu Campus Cheng-Hsing Campus Cheng-Kung Campus Sheng-Li Campus Ching-Yeh Campus Tzu-Chiang Campus Dong Ning Campus	No. 1, Daxue Rd., East Dist., Tainan City 701401, Taiwan (R.O.C.) No. 33, Xiaodong Rd., East Dist., Tainan City, Taiwan (R.O.C.) No. 350, Dongfeng Rd., North Dist., Tainan City, Taiwan (R.O.C.) No. 138, Shengli Rd., North Dist., Tainan City, Taiwan (R.O.C.)
Dong-Ning Campus	No. 58, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) No. 12, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 1F., No. 54, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 2F., No. 54, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 3F., No. 54, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 4F., No. 54, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 5F., No. 54, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 1F., No. 56, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 2F., No. 56-1, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 3F., No. 56-2, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 4F., No. 56-3, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 5F., No. 56-4, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 1F., No. 38, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 2F., No. 38-1, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 3F., No. 38-2, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 4F., No. 38-3, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 1F., No. 40, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 2F., No. 40-1, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 3F., No. 40-2, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) 4F., No. 40-3, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) No. 99, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.) No. 101, Ln. 93, Dongning Rd., East Dist., Tainan City, Taiwan (R.O.C.)
An-Nan Campus	No. 500, Sec. 3, Anming Rd., Annan Dist., Tainan City, Taiwan (R.O.C.)
Kuei-Jen Campus	No. 2500, Sec. 1, Zhongzheng S. Rd., Guiren Dist., Tainan City, Taiwan (R.O.C.)
Nan-Ke Campus	No. 861, Xilaya Blvd., Xinshi Dist., Tainan City, Taiwan (R.O.C.)

The Appendix forms an integral part of this Certificate, which shall be invalid when used without the Appendix.

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APENDIX B

The Reporting Boundary of National Cheng Kung University Greenhouse Gas Inventory Management Report (2023)

Category	Reporting Boundary
Direct GHG emissions and removals	-Mainly from fuel consumption, other GHG sources or sinks inside organizational boundaries and that are owned or controlled by the organization.
Indirect GHG emissions from imported energy	-The amount of greenhouse gas emissions produced by the input of electricity and energy.
Transportation	-The sources of emissions from activities or facility projects include business travel, which comprises emissions from airplanes, high-speed rail, and trains. -The transportation emissions of waste cleanup transport to the processing plant for general waste.
Products used by organization	-Includes emissions associated with the production of energy purchased (i.e., upstream emissions associated with fuels and electricity production) -The disposal of solid and liquid waste.

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

