TÜRK LOYDU

SABANCI UNIVERSITY
TUZLA CAMPUS

2023-2024 ACADEMIC YEAR
GHG VERIFICATION REPORT

TL Project No: 2024-1051

1. SCOPE

Türk Loydu Uygunluk Değerlendirme Hizmetleri A.Ş. (Türk Loydu) 01.09.2023-31.08.2024 Sabancı University Tuzla Campus Greenhouse Gas Inventory Report covering the period 01.09.2023-31.08.2024 has been verified in accordance with *ISO 14064-1:2018 Greenhouse Gases - Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals"* at the Facility Level in accordance with ISO 14064-3 at a reasonable assurance level through process analysis in January-February 2025.

These studies were performed to provide a verification opinion on the greenhouse gas inventory report of Sabancı University Tuzla Campus, which includes direct and indirect greenhouse gas emissions in accordance with *ISO 14064-3:2019 Greenhouse Gases - Part 3: "Guidelines and Specifications for Verification and Validation of Greenhouse Gas Declarations"*.

2. ORGANIZATION BOUNDARIES FOR GHG EMISSION INVENTORY

Greenhouse gases arising from the activities of Sabancı University Tuzla Campus between 01.09.2023-31.08.2024 academic calendar year are within the scope of the Greenhouse Gas Inventory of the organisation.

The organisation has included the campus site located at the address below within its operational boundaries.

Address: Orta, University Cd. No: 27, 34956 Tuzla/Istanbul/TÜRKİYE

3. REPORTING BOUNDARIES FOR GHG EMISSION INVENTORY

Within the scope of the inventory; direct and indirect emissions were calculated and included in the inventory calculation. The emissions considered are those related to greenhouse gases such as carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), correlated to the following categories of emissions.

The emissions of Sabancı University Tuzla Campus are separated in six categories.

1- Direct Greenhouse Gas Emissions:

Direct GHG emissions of Sabancı University Tuzla Campus are calculated in three sub-categories.

- Greenhouse gas emissions from stationary combustion,
- Greenhouse gas emissions from mobile combustion,
- Greenhouse gas emissions from leakage.

Direct emissions of Sabancı University Tuzla Campus are emissions from stationary combustion (natural gas use for heating, diesel fuel from generator and fire pump use), gasoline and diesel fuel from mobile combustion, and leakage emissions (fire extinguishing systems, and cooling devices).

2- Indirect GHG Emissions from imported energy:

Sabancı University Tuzla Campus's indirect emission source from imported energy is electricity consumption. It includes emissions from the electricity consumption of the Tuzla Campus and is calculated using the national grid emission factor.

IREC certificate equivalent to electricity consumption in Tuzla Campus was purchased so GHG emissions in this category are calculated by market-based approach.

3- Indirect GHG Emissions from transportation:

Indirect greenhouse gas emissions from transport are in seven sub-categories:

- Business traveller,
- Employee commuting,
- Students travelling back and forth,
- Transport of capital assets and products,
- Transport of purchased goods and services,
- Accommodation,
- WTT*.

Indirect emissions of Sabancı University Tuzla Campus arising from transportation; business travel, emissions from transportation of employees and students, accommodation, emissions from transportation of capital goods and products, emissions from transportation of purchased goods, WTT (Electricity T&D, Electricity WTT Generation, Electricity WTT Transmission and Distribution, Natural Gas Consumption, Diesel Consumption, Gasoline Consumption).

*A Well-to-Tank emissions factor; also known as upstream or indirect emissions, is an average of all the GHG emissions released into the atmosphere from the production, processing and delivery of a fuel or energy vector.

4- Indirect GHG Emissions from products used by the organization:

Indirect emission sources from the products used by Sabancı University Tuzla Campus are purchased goods and services, capital goods and emissions from wastewater and waste. Without prioritisation analysis, indirect emissions from purchased goods and services, capital goods and emissions from wastewater and waste are included in the inventory calculation.

5- Indirect GHG Emissions associated with the use of products from the organization:

The indirect emission sources of Sabancı University Tuzla Campus belonging to this category were calculated as leased assets, electricity and natural gas and included in the greenhouse gas inventory.

Since IREC certificates equivalent to the electricity consumption of leased assets are purchased within the scope of the inventory reporting boundary; indirect emissions from electricity in this category are calculated using a market-based approach.

6- Indirect GHG Emissions from imported energy:

Sabancı University Tuzla Campus's other greenhouse gas emission sources in this category are not exist.

4. CALCULATION METHODOLOGY

The basis for choosing calculation method is to choose the method that will minimize uncertainties. For that matter, TIER 3: activity data-specific emission factors are primarily controlled with regards to technology. If TIER 3 values cannot be attained, then TIER 2: national emission factors of the emission source causing greenhouse gas. Where national sources are not sufficient, TIER 1: emission factors defined by IPCC should be employed.

Sabancı University Tuzla Campus GHG inventory calculation is based on formulae which are the products of activity data and emission factors specified in "2019 Improvement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories".

Calculation methodologies and emission factors are as follows;

- İGDAŞ Gas Chromatography analysis values (Tier 3 values) is used to calculate emissions from natural gas stationary combustion.
- TÜİK Türkiye Greenhouse Gas Inventory 1990-2022, (November 2024) (Tier 2 values) is used to calculate emissions from diesel usage stationary combustion.
- The "2019 Refinement to the 2006 IPCC Guideline for National Greenhouse Gas Inventory, Volume 2: Energy Chapter 3: Mobile Combustion' and the Net Calorific Value (NCV) and Emission Factors (EF) Table for those who will use the National Inventory in their Monitoring Plans and Emission Reports were used to calculate emissions from mobile combustion.
- "2019 Refinement to the 2006 IPCC Guideline for National Greenhouse Gas Inventory, Volume 3 Energy Chapter 7 Fluorinated Emissions of Ozone Depleting Substances" and IPCC-AR6 (6th Assessment Report) were used to calculate leakage and fire extinguisher emissions..
- Electricity grid emission factors data change every year. Turkey Electricity Generation and Electricity Consumption Point Emission Factors Information Form 2022 was used as the current source.
- "https://theicct.org/sites/default/files/publications/EU-LCV-CO2-2030_ICCTupdate_20190123.pdf" was used for personnel services.
- EPA, USEEIOv2.0 was used to calculate purchased goods and services and capital goods.
- DEFRA Conversion Factors 2024 Full Set for Advanced Users, Defra 2021 and Turkey Electricity Generation and Electricity Consumption Point Emission Factors Information Form 2022 are used in the calculations of Business Travel, road transport, accommodation, waste, water supply and wastewater treatment, Electricity generation-transmission-distribution WTT, Gasoline WTT, Diesel WTT, Natural Gas WTT.

In addition to these calculations, negligible emissions and assumptions are calculated and documented in the GHG inventory of Sabancı University Tuzla Campus.

5. VERIFICATION ACTIVITIES

Türk Loydu was performed its verification activity with site visit and remote desk work according to ISO 14064-3:2019 International Standard.

The following verification activities were conducted:

a. Review of documentation, procedure and methodologies, including inventory report,

b. Assessment of risks and verification planning,

c. Assessment of documentation, control and methodologies; including quality management system,

d. Assessment of verification findings and outstanding issues,

e. Assessment and review of resolutions to outstanding issues,

f. Follow-up and Closure by Lead Verifier,

g. Recommendation by Lead Verifier and level of assurance,

h. Internal technical review and determination of assurance by Türk Loydu,

i. Issue of Verification Statement by Türk Loydu,

j. Issuance of verification statement and completion of verification.

6. ASSURANCE LEVEL AND MATERIALITY

The level of assurance agreed is reasonable assurance level. A materiality level of 5% has been applied. It should be noted that the assessment of conformity and materiality was performed according to the specified calculation methodology.

Uncertainties may arise from measurement instruments, possible recording errors and deviations, possible deviations in the calorific value of fuels and lower and upper values of fuels.

Materiality is the sum of GHG inventory uncertainties, negligibility and assumptions. Reporting company materiality is calculated accordingly.

7. VERIFICATION OPINION AND CONCLUSION

Türk Loydu planned and performed verification studies to obtain the information, explanations and evidence that we considered necessary to provide a reasonable assurance level based on the process and procedures conducted.

Türk Loydu conducted the verification with regard to the GHG assertion of Sabancı University Tuzla Campus which includes assessment of the GHG information management system and monitoring & reporting methodology. This assessment included the collection of evidence supporting the reported data, multiple cross-checks, reporting standard and calculation methodologies referenced to the verification criteria. This statement shall be interpreted in conjunction with the GHG statement of Sabancı University Tuzla Campus as a whole.

Türk Loydu's approach is risk-based, drawing on an understanding of the risks associated with calculating GHG emission information and the controls in place to mitigate these risks. Our studies included assessment, on a sample basis, of evidence relevant to the reporting of emission information.

Based on the data and information provided by the organization and the process and procedures conducted, Türk Loydu concludes the verification with a reasonable assurance level as there is sufficient evidence that the 2023-2024 Academic Year GHG assertion:

- is materially correct,
- is a fair representation of the GHG emissions data and information, and
- is prepared in accordance with the ISO 14064-1:2018 and GHG Protocol.

The GHG information of Sabancı University Tuzla Campus for the period 1 September 2023 - 31 August 2024 is verified by Türk Loydu, consistent with the agreed verification scope, objectives and criteria.

The GHG assertions of Sabancı University Tuzla Campus Inventory Report verified are given below according to the ISO 14064-1:2018 standard:

TOTAL DIRECT GREENHOUSE GAS EMISSIONS		
1- Direct GHG emissions:	6,772.37	tCO_2e
TOTAL INDIRECT GREENHOUSE GAS EMISSIONS		
2- Indirect GHG emissions from imported energy, purchased electricity: **The emissions from this category are calculated by market-based approach.*	0.00	tCO_2e
3- Indirect GHG emissions from transportation:	6,706.56	tCO_2e
4- Indirect GHG emissions from products used by organization:	5,221.94	tCO_2e
5- Indirect GHG emissions associated with the use of products from the organization:	480.90	tCO_2e
TOTAL	**19,182**	**tCO_2e**

The GHG assertions of Sabancı University Tuzla Campus Inventory Report verified are given below according to the GHG Protocol:

SABANCI UNIVERSITY TUZLA CAMPUS 2023-2024 ACADEMIC YEAR GREENHOUSE GAS EMISSIONS		
Scope 1 GHG emissions	6,772.37	tCO_2e
Scope 2 GHG emissions (Market-based)	0.00	tCO_2e
Scope 2 GHG emissions (Local-based)	2,237.94	tCO_2e
Scope 3 GHG emissions – Category 1 Purchased goods and services	4,859.27	tCO_2e
Scope 3 GHG emissions – Category 2 Capital goods	327.29	tCO_2e
Scope 3 GHG emissions – Category 3 Fuel and energy-related activities (not included in Scope 1 or 2)	1,886.03	tCO_2e
Scope 3 GHG emissions – Category 4 Upstream transportation and distribution	22.31	tCO_2e
Scope 3 GHG emissions – Category 5 Waste generated in operations	35.37	tCO_2e
Scope 3 GHG emissions – Category 6 Business travel	300.97	tCO_2e
Scope 3 GHG emissions – Category 7 Employee commuting	4,497.26	tCO_2e
Scope 3 GHG emissions – Category 13 Downstream leased assets	480.90	tCO_2e
TOTAL	**19,182**	**tCO_2e**

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Responsible Manager

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