



# GHG Verification Statement

## Independent Verification Statement

### **SUNGKYUNKWAN UNIVERSITY.**

Place of business in Korea : Humanities and Social Science Campus(GSB), Natural Science Campus,  
SAMSUNG Medical Center, Dobong Sports Park, Marine Living Hall

The Korea Management Registrar Inc. (hereinafter "KMR") has conducted the verification on the greenhouse gas (hereinafter "GHG") emission (Scope 1, 2) of SUNGKYUNKWAN UNIVERSITY. (hereinafter "the Company") in 2022.

### **SCOPE**

Verification of all places of business and emission facilities under the control of the company.

### **STANDARDS**

- ISO 14064-1:2018, ISO 14064-3:2019
- IPCC Guidelines for National Greenhouse Gas Inventories
- Guidelines for Reporting and Certification of Emissions in the Greenhouse Gas Emissions Trading Scheme

### **PROCEDURE**

We conducted a risk analysis approach and on-site verification based on data evaluation, and we identified the appropriateness of the data and factors applied to GHG emission calculations based on objective evidence. The verification team verified the GHG emissions during the reporting period in a reasonable way based on the verification guidelines.

### **INDEPENDENT**

KMR does not have any stake in the verified entity and does not conduct verification with biased opinions/views. We have drawn an independent and objective verification conclusion based on the verification standards, and reviewed the every aspect of the verification we performed throughout the entire verification process through internal review

### **LIMITATIONS**

The verification team verified the related reports, information and data presented by the audited institution by sampling or enumeration methods. As a result, there are many inherent limitations, and there may be disagreements in the interpretation of appropriateness. Although we have tried to faithfully perform verification that meets the verification standards, we suggest that errors, omissions, and false statements that could not be found may be latent as the limitations to the verification.



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### OPINION

- GHG verification has been performed to meet the reasonable assurance level according to the verification standards.
- We express that no significant errors were found in the calculation of emissions during the verification process, and that relevant activity data and evidence were appropriately managed and calculated. As a result, we express an "unmodified" opinion.
- Criticality: meets the criterion, which is less than 5%
- GHGs Emission(All places)

GHGs Emission	Direct emission (Scope1)		Indirect emission (Scope2)	Total (tCO <sub>2</sub> -eq)
2022	12,294.771		53,791.635	66,084
Energy Consumption	Fuel	Electricity	Steam	Total (TJ)
2022	237.069	1,124.048	-	1,360

- GHGs Emission(SKK GSB)

GHGs Emission	Direct emission (Scope1)		Indirect emission (Scope2)	Total (tCO <sub>2</sub> -eq)
2022	124.633		641.479	766
Energy Consumption	Fuel	Electricity	Steam	Total (TJ)
2022	2.454	13.404	-	15

※ Note : There is a difference in the total amount of emissions and emissions by greenhouse gas and by workplace.  
(Total emissions are cut to a decimal point for each workplace unit and emissions are summed up for each workplace unit.)

### RESULTS

- We confirm through verification that the emissions from major emission facilities have been calculated and reported without omission.

※ The abovementioned company is responsible for preparing verification data in accordance with the "Guidelines for Reporting and Certification of Emissions in the Greenhouse Gas Emissions Trading System (Ministry of Environment Notice No. 2021-278)", and KMR's responsibility is limited to the party in the verification contract according to the agreed contract terms, and is not responsible for other decisions, including investment decisions based on this verification statement.  
 ※ The abovementioned company must comply with the use of the certification and logo marks under the contract entered into with KMR.

October 3rd, 2023

Authorized By

CEO Eun Ju Hwang



National Institute of Environmental Research

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## 온실가스 배출량 및 에너지 소비량 명세서에 대한 약식검증보고서

「온실가스·에너지 목표관리 운영 등에 관한 지침」 제 70조 제 2항에 따른 관장기관의 시정요구에 대한 관리업체 학교법인 성균관대학 의 2022년도 명세서를 확인한 결과, 해당 관리업체의 온실가스 배출량 및 에너지소비량 검증결과를 다음과 같이 수정합니다.

- 다 음 -

온실가스 배출량 및 에너지 소비량

○ 검증 전 온실가스 배출량 및 에너지 소비량

일련번호	사업장명	연간 온실가스 배출량 (ton CO2_eq)			연간 에너지 소비량 (TJ)			
		직접배출 (scope1)	간접배출 (scope2)	총량	연료사용량	전기사용량	스팀사용량	총량
001	성균관대학교	5,142.859	36,609.385	41,752	98.104	765.002	0.000	863
002	성균관대학교 인문사회과학 캠퍼스	2,664.973	6,878.886	9,543	51.283	143.744	0.000	195
003	성균관대학삼 성창원병원	4,486.939	10,291.243	14,778	87.681	215.049	0.000	302
004	성균관대학교 도봉선수촌	0.000	4.969	4	0.000	0.104	0.000	0
005	성균관대학교 해양생활관	0.000	7.153	7	0.000	0.149	0.000	0
관리업체 총계		12,294.771	53,791.635	66,084	237.069	1,124.048	0.000	1,360

※ 명세서에 기재된 사업장별 온실가스 배출량 및 에너지 소비량을 기재

※ 명세서 상의 사업장 일련번호에 따라 기재할 것

○ 검증 후 온실가스 배출량 및 에너지 소비량

일련번호	사업장명	연간 온실가스 배출량 (ton CO2_eq)			연간 에너지 소비량 (TJ)			
		직접배출 (scope1)	간접배출 (scope2)	총량	연료사용량	전기사용량	스팀사용량	총량
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※ 명세서 상의 사업장 일련번호에 따라 기재할 것

○ 검증 전 온실가스 종류별 배출량

운영경계	CO2 (tCO2eq)	CH4 (tCO2eq)	N2O (tCO2eq)	PFCs (tCO2eq)	HFCs (tCO2eq)	SF6 (tCO2eq)	총배출량 (tCO2eq)
직접배출							
소 계	12,141.341	27.503	38.087	31.320	0.000	0.000	12,294.771
고정연소	11,616.081	21.743	6.424	0.000	0.000	0.000	11,644.248
이동연소	525.159	0.990	9.801	0.000	0.000	0.000	535.949
공정배출	0.000	0.000	0.000	31.320	0.000	0.000	87.840
탈루배출	0.000	0.000	0.000	0.000	0.000	0.000	0.000
기타(폐기물)	0.101	4.770	21.863	0.000	0.000	0.000	26.734
간접배출							
소 계	53,474.255	8.852	308.528	0.000	0.000	0.000	53,791.635
외부전기	53,474.255	8.852	308.528	0.000	0.000	0.000	53,791.635
외부열(스팀)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
계	65,615.596	36.355	346.615	31.320	0.000	0.000	66,086.406

○ 검증 후 온실가스 종류별 배출량

운영경계	CO2 (tCO2eq)	CH4 (tCO2eq)	N2O (tCO2eq)	PFCs (tCO2eq)	HFCs (tCO2eq)	SF6 (tCO2eq)	총배출량 (tCO2eq)
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기타(폐기물)	0.101	4.770	21.863	0.000	0.000	0.000	26.734
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외부열(스팀)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
계	65,615.596	36.355	346.615	31.320	0.000	0.000	66,086.406

배출량차이	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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\* 참고: 온실가스별 배출량 및 총 배출량과 사업장별 배출량 합계는 차이가 있습니다.

세부 검증 내용

사업장 일련번호	사업장명	배출시설 일련번호	배출시설명	배출활동명	활동자료명	세부내용	배출량수정전 (tCO2eq)	배출량수정후 (tCO2eq)	배출량차이 (tCO2eq)	심사원
계							0.000	0.000	0.000	

**검증의견**

1. 적합성 검토의견에 따른 명세서 수정  
- c-C4F8(PFC-318)의 (활동자료) 산정등급 수정 필요(1 → 2)
2. 명세서 수정사항
  - 1) 5-6 배출활동별 배출량 현황(공정배출 분야)  
- 배출시설 139 : c-C4F8(PFC-318)의 (가스의 소비량) 산정등급 1->2로 수정함.
3. 명세서 검증의견  
- 적합성 검토의견에 따른 명세서 수정사항이 적절하며 배출량 변동은 없음

**\* 첨부 문서**

[학교법인 성균관대학.zip](#)

**검증기관 :** (주)한국경영인증원

**대 표 :** 황은주 (인)



# LRQA Independent Assurance Statement

## Relating to Sungkyunkwan University's GHG Emissions Inventory for the calendar year 2022

This Assurance Statement has been prepared for Sungkyunkwan University in accordance with our contract.

### Terms of engagement

LRQA was commissioned by Sungkyunkwan University to provide independent assurance on its GHG emissions inventory for the calendar year 2022 (here after referred to as "the report") against the assurance criteria below to a limited level of assurance and materiality of 5% using ISO 14064-3:2019, 'Specification with guidance for verification and validation of greenhouse gas statements'.

Our assurance engagement covered Sungkyunkwan University's domestic operations and activities, and specifically the following requirements:

- Evaluating conformance with World Resources Institute / World Business Council for Sustainable Development Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, revised edition<sup>1</sup>
- Evaluating the accuracy and reliability of data and information for other indirect GHG emissions (Scope 3)<sup>2</sup>.

LRQA's responsibility is only to Sungkyunkwan University. LRQA disclaims any liability or responsibility to others as explained in the end footnote. Sungkyunkwan University's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the report and for maintaining effective internal controls over the systems from which the report is derived. Ultimately, the report has been approved by, and remains the responsibility of Sungkyunkwan University.

### LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that Sungkyunkwan University has not, in all material respects:

- Met the requirements above; and
- Disclosed accurate and reliable data and information as summarized in Table 1 below.

The opinion expressed is formed on the basis of a limited level of assurance and at the materiality of 5%.

**Note:** The extent of evidence-gathering for a limited assurance engagement is less than for a reasonable assurance engagement. Limited assurance engagements focus on aggregated data rather than physically checking source data at sites. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

### LRQA's approach

LRQA's assurance engagements are carried out in accordance with our verification procedure. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

- Interviewing key people of the organization responsible for managing GHG emissions data and records;
- Reviewing processes related to the control of GHG emissions data and records;
- Reviewing whether GHG emissions have been calculated with parameters from recognized sources;
- Verifying historical GHG emissions data and records at an aggregated level for the calendar year 2022; and
- Visiting Sungkyunkwan University's Natural Sciences Campus and reviewed additional evidence made available by Sungkyunkwan University.

### LRQA's standards, competence and independence

LRQA implements and maintains a comprehensive management system that meets accreditation requirements for ISO 14065 *Greenhouse gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition* and ISO/IEC 17021 *Conformity assessment – Requirements for bodies providing audit and certification of management systems* that are at least as demanding as the requirements of the International Standard on Quality Control 1 and comply with the *Code of Ethics for Professional Accountants* issued by the International Ethics Standards Board for Accountants.

<sup>1</sup> <https://www.ghgprotocol.org>

<sup>2</sup> This assurance engagement excludes verification of Scope 1 and Scope 2 emissions in accordance with our contract with Sungkyunkwan University. Sungkyunkwan University's Scope 1 and Scope 2 emissions for domestic operations and activities, which were consolidated using an operational control approach for the same reporting period, have been verified by Korea Management Registrar Inc. in accordance with the guidelines on emission reporting and certification under the GHG emissions trading system of Korea.



LRQA ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

This verification engagement is the only work undertaken by LRQA for Sungkyunkwan University and as such does not compromise our independence or impartiality.

Byung-Gil Lim  
 LRQA Lead Verifier  
 On behalf of LRQA Limited  
 2nd Floor, T Tower, 30, Sowol-ro 2-gil, Jung-gu, Seoul, Republic of Korea

Dated: 4 October 2023

LRQA reference: SEO00001397

**Table 1. Summary of Sungkyunkwan University, GHG Emissions Inventory 2022**

Scope of GHG emissions	Tonnes CO <sub>2</sub> e		
	Humanities and Social Sciences Campus (including SKK GSB)	Natural Sciences Campus	SKK GSB (Graduate School of Business)
Other Indirect GHG emissions (Scope 3)			
<ul style="list-style-type: none"> <li>Capital goods – production of capital goods purchased</li> </ul>	900	3,567	30
<ul style="list-style-type: none"> <li>Fuel and energy related activities – upstream GHG emissions of natural gas, diesel, gasoline, kerosene and electricity purchased</li> </ul>	784	3,049	62
<ul style="list-style-type: none"> <li>Waste generated in operations - treatment of waste generated from operations</li> </ul>	5	505	0.4
<ul style="list-style-type: none"> <li>Business travel - personal cars, domestic and international flights</li> </ul>	373	1,310	87
<ul style="list-style-type: none"> <li>Employee commuting - commuting by personal cars, subways, trains and buses</li> </ul>	6,820	11,479	289

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