SDG.7.2.4

1. The University established an energy conservation plan in 2014, and the Energy Conservation Committee (Attachment 01) meets twice a year to review the energy conservation measures and propose improvement measures, and the minutes of the plan and the Energy Conservation Committee are available on the website(https://ga.nuk.edu.tw/p/412-1010-4764.php?Lang=zh-tw).
2. To implement campus energy management and conservation measures, in recent years the University has focused on strategies such as **energy management and control, replacement of outdated high-consumption equipment, and utilization of renewable energy**. These include actions such as establishing a central power monitoring system, replacing old air-conditioning systems, and installing solar photovoltaic systems. These efforts are incorporated into **Action Plan 3-1-2 of the University's 2023–2026 Mid-Term Development Plan**(Attachment 02), which is reviewed quarterly. Website: https://vicepresident.nuk.edu.tw/p/405-1003-87923,c266.php?Lang=zh-tw
3. Since 2023, the University has conducted an **annual carbon inventory** for the previous year to further develop suitable emission reduction measures and carbon check is certified by a third-party impartial organization. The results are published on the University's website: https://ga.nuk.edu.tw/p/405-1010-84975,c5516.php?Lang=zh-tw
4. The University's energy conservation plan and results are publicized in the annual sustainability report and on the public website for the public viewing. The summary in the 2024 sustainability repoer is shown in the attached file(Attachment 03)). Website:https://ces.nuk.edu.tw/p/412-1011-5978.php?Lang=zh-tw

Attachment 01

國立高雄大學節約能源委員會設置辦法

94 年 3 月 11 日本校第 62 次行政會議通過

100 年 10 月 7 日本校第 117 次行政會議修正通過

第一條　國立高雄大學(以下簡稱本校)為加強管理能源，促進能源合理與有效使用，依能源管理法施行細則第六條第一款之規定，特設置節約能源委員會（以下簡稱本會）。

第二條　本會由行政副校長擔任召集人，並置委員若干人，另設執行小組，本會成員如下：

一、當然委員：副校長、主任秘書、教務長、學務長、總務長、研發長、各學院院長。

二、推選委員：**由各處、院推薦人選，經召集人以建築樓別各遴聘一名。委員任期二年，得連續聘任。**

三、執行秘書：本會中另置執行秘書一人，由總務處環安組組長兼任之。

四、執行小組：由總務處現職人員以任務編組方式派兼之，必要時得聘僱行政助理一至二員。

第三條 本會職責如下：

一、研議校內能源使用規則、目標及計畫。

二、制訂並定期檢討校內能源執行情況。

三、制訂年度提報節約能源計畫內容、執行人力及預算經費。

四、制訂年度提報使用能源統計資料。

五、宣導節約能源知識，並舉辦相關節約能源活動。

六、定期檢討校內各使用能源設備之能源使用效率。

七、各建築大樓之推選委員為該大樓之節約能源負責人，負責大樓之空調溫度調控、照明開關...等節能相關事項推動與監督事宜。

第四條　本會運作所需經費由管理及總務費用支應。

第五條　本會每半年召開一次會議，必要時得召開臨時會議。

第六條　本會開會時，得邀請相關人員列席。

第七條　本辦法經行政會議通過，並經核定後實施，修正時亦同。

4. 績效指標

指標項目	指標衡量說明	評估方式	單位	預期目標/達成值			
				112	113	114	115
				目標值	目標值	目標值	目標值
				達成值	達成值	達成值	達成值
3-1-1A 辦理碳盤查並公布結果[a]（總）	(1)公布碳盤查結果次數	量化	次	1	1	1	1
				1	1		
	(2)公布第三方碳查核結果次數	量化	次	1	1	1	1
				1	1		
3-1-1B 依據碳盤查訂定減排措施（總）	每年減少碳排放量	量化	百分比	--	2	3	3
				--	1.8[b]		

說明：

a. 溫室氣體盤查查證結果請參閱 https://ga.nuk.edu.tw/p/405-1010-84975,c5516.php?Lang=zh-tw

b. 113 年達成值統計自範疇一、二。

(二) 行動方案 3-1-2：校園氣候行動【總務處】

1. 現況描述

(1)全球氣候變遷是當前的重要課題，本校是綠色大學一員，亦是全球環境保護參與者之一。108-109 年本校獲得內政部建築研究所及高雄市政府等機關之計畫經費補助，除將學生宿舍改造為智慧能源住宅外，並建置智慧能源管理系統及中央電力監控等系統。針對電力使用部分，於校內各棟大樓設置數位電錶，蒐集各大樓用電數據，並建置「用電資訊可視化」(Power-BI)網頁，提供師生了解用電情形並提醒節約能源，以盡地球公民之責。

(2)在硬體設備改善之餘，校內環境相關法規與管理也應一併納入氣候議題。本校對應 SDGs：6、13、15 及世界綠色大學評比指標，擬於 112 年至 115 年逐一盤點環境氣候相關議題之現狀與法規等範疇，審視管理上的潛藏風險，以採行有效降低與消除之相關措施。

2. 實施策略與具體作法

(1)大學氣候變遷永續因應計畫，每年參加世界綠色大學評比—能源氣候變化、教育研究（SDG 13）。

- ■ 每年修訂中文與英文永續報告書並參加評比。
- ■ 每年參加世界綠色大學評比以檢討年度執行情形。
- ■ 盤點校園碳排量與擬定減排中長程方案。
- ■ 每年檢視校內管理法規之妥適性。

(2)強化智慧電力並導入水管理系統，參加世界綠色大學評比—水資源（SDG 6、SDG 15）。

- ■ 利用智慧電力系統監控以逐年減少電力浪費。
- ■ 節水設備裝置、水管理及污水回收利用。

3. 預期成效：爰將檢討校內法規、強化智慧電力管理並導入水管理系統，提出具體之大學氣候變遷因應計畫，以呼應大學實踐社會責任之要求。

4. 績效指標

指標項目	指標衡量說明	評估方式	單位	預期目標/達成值			
				112	113	114	115
				目標值	目標值	目標值	目標值
				達成值	達成值	達成值	達成值
3-1-2A 大學氣候變遷永續因應計畫（總）	(1)每年永續報告計畫書名次	質化	名次	金	白金	白金	白金
				銅	銅		
	(2)減少化石燃料的使用（年度用油量/前一年用油量）	量化	百分比	5	5	6	6
				-0.97	-2.59		
3-1-2B 強化智慧電力並導入水管理系統（總）	(1)節電數據與比例（年度用電量/前一年用電量）	量化	百分比	1.5	1.5	2	2
				-2.64	-1.99		
	(2)節水數據與比例（年度用水量/前一年用水量）	量化	百分比	5	5	5	5
				11.10	1		
	(3)污水回收利用（年度回收水量/當年度用水量）	量化	百分比	85	85	90	90
				92.33	90.74		

(三) 行動方案 3-1-3：強化永續供應鏈【總務處】

1. 現況描述：負責任的生產者與消費者，將有助於降低對經濟、環境與社會成本，並強化對環境的保護，以符合 SDG 12 所要求之「負責任消費與生產」項目。本校近年依據行政院採購政策，進行符合道德採購，並在學生宿舍區設置智慧資源回收系統。說明如下：

(1)綠色採購政策：依據 89 年環保署制定之「機關優先採購環境保護產品辦法」及「109 年機關綠色採購績效評核作業評分方法」，執行對環境友善之綠色採購事宜。2020 年綠色採購執行率為 99.7%。全年綠色採購金額計 1,902 萬 5,475 元。

(2)優先採購政策：依據「身心障礙者權益保障法」第 69 條及「優先採購身心障礙福利機構團體或庇護工場生產物品及服務辦法」，執行優先採購事宜。109 年度優先採購總金額為 76 萬 1,325 元整，達成率 5.99%，符合優先採購身心障礙福利機構團體或庇護工場生產物品及服務辦法第 3 條所訂 5%之規定。

(3)學生宿舍區域設置智慧資源回收系統：為改善學生宿舍垃圾區場域異味與髒亂陰暗角落之印象，並提升資源再利用環保概念，降低垃圾產出量。2019 年於學生宿舍建置新型態之智慧垃圾回收管理系統與回收站，運用物聯網（IoT）技術，建立智慧型投入口引導機制、滿位偵測裝置及數位化記錄回收歷程，並運用統計成果分析使用者習慣，進而改善垃圾清運與資源運用。

2. 實施策略與具體作法

(1)提升符合道德之採購比率（SDG 2、SDG 12）。

■ 提升綠色採購執行率。

■ 強化優先採購比例。

(2)宣導並減少塑料廢棄物數量，參加世界綠色大學評比—廢棄物（SDG 12）。

■ 每年針對外包商宣導塑料、一次性物品最小化及廢物處理政策。

■ 衡量年度全校廢棄物與回收量並逐年增加回收比例。

3. 預期成效：參考 SDG 12 項目之指標內涵，賡續辦理校內相關採購政策，以提升符合道德之綠色採購及優先採購比率，並衡量及減少一次性塑料物品使用，降低對環境的衝擊。

4. 績效指標

指標項目	指標衡量說明	評估方式	單位	預期目標/達成值			
				112	113	114	115
				目標值	目標值	目標值	目標值
				達成值	達成值	達成值	達成值
3-1-3A 提升符合道德之採購比率[a]（總）	(1)提升綠色採購比率	量化	百分比	95	95	95	95
				99.96	99.88		
	(2)強化優先採購比率	量化	百分比	5	5	10	10
				7.15	8.16		
3-1-3B 宣導並減少塑料廢棄物數量（總）	(1)每年宣導廢物及塑料最小化處理政策次數（含外包商）	量化	次數	4	4	4	4
				4	4		
	(2)廢物與回收數量及比例（資源回收量/年度總垃圾量）	量化	百分比	10	13	16	19
				4.45	4.56		

說明：

a. 依衛生福利部規定辦理，114 年、115 年目標值提高為 10%。

二、 校園智慧化

本校透過資訊工程技術推動校園數位化與數位治理，以全面提升校務運作效率，期降低教職員之行政負荷並提升校園體驗。茲擬訂「建構智慧校園」、「拓展圖書 E 化資源」及「強化網絡基礎建設及校園資通安全」等三個行動方案，具體內容分述如下：

(一) 行動方案 3-2-1：建構智慧校園【總務處】

1. 現況描述

(1)在校園環境部分，本校自 108 年開始，每年參與「英國泰晤士高等教育（Times Higher Education, THE）」之世界大學影響力排名（University Impact Ranking），檢視與調整各項 SDGs 永續校園規劃與政策方向之妥適性與有效性，於當年度名列全球 201-300。

(2)本校致力對應 SDG 7、SDG 11、世界綠色大學評比（UI Green Metric World University Rankings）指標內容，擬提升於現有建築能效，採取之措施包括：

▲ Smart Cloud Management System Webpage

▲ Classroom Air Conditioning System Website

5.2.2 Green Energy

1. The Administration Building and the Law College set up their own solar panels to generate electricity with a total capacity of 36.4kwp and applied for 15 renewable energy certificates.
2. In conjunction with the Million Rooftop PUs Project, the entire school building rooftops are equipped with solar power generation system bid lease, with a total of 2,142.960kwp and generated about 2.74 million kWh in 2024

    1. Replacement and installation of energy efficient equipment:The University has been budgeting for the replacement of traditional appliances with energy efficient equipment since 2018. Compared to the base period in 2015, the average energy-saving appliances have been improved by over 81%, over 75%: and the electricity bill has been saved by over $2.55 million per year. In 2024, depending on the annual funding budget, the following are completed:

        A. Replacement of power-saving air-conditioning $2,289: 10 buildings have completed more than 9 air-conditioning using inverter-type installations (10/13=77%).

        B. Replacement of LED lighting fixtures $184,000: over 85% of the lighting fixtures in the school buildings and roads around the school have been replaced with energy-saving LED lighting fixtures.

        C. The improvement of the average energy-saving electrical appliances has exceeded (85+77)/2=81%, which is more than 75%

Attachment03

▼ List of solar power generation equipment

Site	Yr/Mon Installed	KWp	Mode of operation	MW 2023	MW 2024
College of Law	2004/12	26.400	REC	8,185	7,968.6
Admin. BL	2013/08	10.000	REC	2,917	2,367.8
College of Engineering	2019/12	209.450	FIT	282,144	279,352
Library & Info BL	2019/12	348.395	FIT	482,184	472,284
College of Management	2019/12	93.810	FIT	120,116	116,876
1st General BL	2019/12	154.875	FIT	209,696	206,344
Admin. BL	2019/12	57.525	FIT	78,716	78,292
Student Dorm	2020/01	56.640	FIT		
Duty Accommodation	2020/01	50.445	FIT	467,532	461,088
Motor-and-Bicycle Parking Lot	2020/01	246.620	FIT		
Sport & Leisure BL	2022/06	581.060	FIT	797,650	784,050
Student Activity Center	2022/10	307.700	FIT	401,460	332,454
Total		2,142.920		2,850,599	2,740,806

FIT : Feed-in Tariff REC : Renewable Energy Certificate

◀ Solar Panels

5.2.3 Effectiveness of Energy Saving Measures

In order to implement campus energy management and energy saving measures, energy saving strategies such as energy saving control management, retirement and replacement of power-consuming equipment, and utilization of renewable energy, as well as various action plans such as centralized power monitoring system, retirement and replacement of old air-conditioning system, and solar power system, have been formulated. From 2015 to 2024, the electricity saving rate reached 11.84%, and the EUI indicator will be reduced from 58.8 to 31.4.

Construct Sustainable Campus Environment

The major strategies and actions of electricity conservation measures are listed in the table below:

	Action plan	Description
Energy-saving control and management	Central electricity monitoring system	Network function of digital electricity gauge was used to conduct on-line monitoring and controls on the electricity usage of each buildings.
	Implement self-management on spaces	Self-management system on electricity bills will be implemented for each buildings in order to conduct "users pay" policies and save energy.
	Installation of electricity gauge in independent units and outdoor court	Independent electricity gauge will be set up to monitor the electricity usage of independent units and outdoor courts for the affiliated units to conduct electricity calculations and controls.
	Adjustment on the starting and stopping time of air conditioning	Implement the rules that air conditioning will not be supplied for administration building and general classroom during winter season (from December to March next year).
	Adjustment on opening hours of the library and information center	Different opening hours will be established for each space regarding its function and usage frequency. Those spaces will not be opened during Weekends of Winter and Summer Vacations.
	Participate in the demand-based price competition measures of taiwan power company	Participate in the demand-based price competition measures of Taiwan Power Company to save energy and electricity bills
Replace old electricity consumption equipment with new ones	Implementation of intelligent classroom step-by-step	For the project, we applied network cloud technology and used low carbon and energy-saving as our focus to implement intelligent air conditioning schedule management in teaching spaces such as general classrooms and seminar rooms at the 6 teaching buildings of the school. Users may send in real time through course arrangement system and space borrowing system, organize air condition monitoring and database management and implement comprehensive fully automatic air conditioning schedule control, temperature monitoring and the on off procedure control to enhance the correctness and liability in the management of air conditioning for classrooms, reaching the objectives of facilitating sustainable development of environment and enhancing the quality of learning environment.
	Replacing old Air conditioning system with new ones	Budgets were prepared to replace the old air conditioning system with frequency-conversion air conditioner system. Replacements have been completed in College of Science and College of Engineering.
	Replacing lightings with LEDs	Budgets were prepared to replace old light bulbs with LEDs. Replacements have been completed in campus circulating roads, streetlights at the parking lots and the classrooms of each buildings and seminar rooms.
Utilization of renewable energy	Replacing old air conditioning system with new ones	Student dorms adopts solar power hot water system 100% to provide hot water.
	Replacing lightings with LEDs	1. Administration building and College of Law installed solar power panels for electricity generation themselves. The total electricity generated was 36.4 kwp. In addition, they have applied for 15 renewable energy certificates. 2. To cooperate with the "million sun rood" plan, we have installed standard solar power generator system on the roof of all the school buildings. In total, 2217.02 kwp was installed.

▼ Electricity Consumption Statistics

Year	Total/kw	Total/GJ	Year over 2015	TOE	EUI
2015	14,201,510	51,084.57	-	1221.9	58.8
2016	14,528,086	52,259.30	-2.27%	1250	37.1
2017	14,090,386	50,684.84	0.81%	1212.3	36
2018	12,884,463	46,346.99	9.27%	1108.6	33
2019	12,970,796	46,694.89	8.67%	1116	33.2
2020	12,733,420	45,840.31	10.28%	1095.6	32.6
2021	11,292,628	40,620.97	20.43%	971.6	28.9
2022	11,959,686	43,020.46	15.79%	1029	30.6
2023	12,274,980	44,154.76	13.57%	1056.1	30.9
2024	12,520,011	45,036.17	11.84%	1077.2	31.4

EUI =Total electricity used (kWh)/NUK Total floor area
2015 was selected as the base year for the implementation of the Central Four-Saving plan.

Fuel Saving Measures

Two measures are taken to save fuel: a. Regular maintenance and inspection of the school's official vehicles are carried out to maintain efficiency and to save fuels; b. When replacing aged official vehicles, the purchase priority is given to the ones with high efficiency and low fuel consumption. The total fuel consumption in 2024 is 5102.56 liters, which represents a fuel saving of 17.69% compared to the base year 2019. However, if compared with 2023, an increase of 2.59% occurred due to the use of diesel fuel on campus for tree pruning equipment and vehicles in result of more natural disasters. In 2024, however, there were more natural climate disasters, resulting in an increase in usage.

▼ Statistics on Fuel Consumption

Year	Gasoline/L	Diesel/L	Ttl Fuel Consumption/L	TOE	Fuel saving (%)
2019	5,227.26	880.41	6,107.67	4.8	-
2020	4,774.51	1,424.93	6,199.44	4.9	-1.50%
2021	5,690.06	847.16	6,537.22	5.2	-5.45%
2022	4,492.70	432.82	4,925.52	3.9	24.65%
2023	4,418.62	554.88	4,973.50	3.9	18.57%
2024	4,524.55	578.01	5,102.56	4.0	17.69%

5.2.6 Carbon Neutral Commitments and Emission Reduction Programs

"As a citizen of the world, everyone has the responsibility to slow down the pace of global climate change and avoid damaging the natural environment." At the opening ceremony of the 2022 Sustainability Week, the President of the University signed " Net Zero 2050". NUK follows the national policy of actively linking industries and society, cooperates with the government to promote energy transformation, and simultaneously takes stock of the six major directions of "Green University", "Campus Carbon Neutrality", "Low-Carbon Transportation", "Green Building", "Zero Waste and Low-Carbon Diet", and "Citizen Participation".

▲ Signing Net Zero 2050

In response to global climate action, the Taiwan 2050 Net Zero Carbon Emission Pathway Plan, and the cultivation of globally sustainable human resources, NUK has been promoting campus climate action since 2022 from the perspectives of campus environmental organization and regulations, environmental management, energy-saving strategies, and environmental education.

The University has integrated UN Sustainable Development Goals into the organization and operation of the University, and has formulated a carbon neutral plan, which aims to utilize the University's professional knowledge and scientific research capabilities to actively reduce the environmental carbon footprint of the campus, and to gradually achieve carbon neutrality of the campus. Specific practices are described below:

Action Plan 1: Campus Carbon Inventory

1. **Description of Current Status:** At the opening ceremony of the Sustainable Development Week on May 23, 2022, the President of the University announced and signed "2050 Net Zero Carbon Emissions" declaration, which aims to achieve carbon neutrality and move towards the goal of net zero emissions by 2050 gradually.

2. **Implementation Strategies and Practices:** In order to understand the carbon emissions of the school, a carbon inventory is expected to be conducted from 2023 to 2026 to calculate the greenhouse gases emitted directly or indirectly by the school in all aspects of administration, teaching, research, and student learning, so as to further develop appropriate measures to reduce the emissions of the school.

   A. Carbon inventory will be conducted annually and the results of the inventory will be made public.
      a. Annual carbon inventory conducted by a professional consultant.
      b. Carbon check certified by a third-party impartial organization
   B. Setting up emission reduction measures based on the results of inventory and verification to gradually move towards carbon neutrality (SDG 7, SDG 13)
      a. Develop and review a campus-wide reduction plan based on the results of the current year's inventory.

3. **Implementation results in 2024:**The school conducted the first 2022 GHG inventory in 2023 and therefore set 2022 as the base year for the inventory. In 2024, the school continued to conduct the 2023 GHG inventory.

   A. Organization of the inventory : The University has 13 administrative units; academic units include the Colleges of Humanities and Social Sciences, Law, Management, Science, and Engineering, and the Center for General Education, as well as 21 university departments and 2 independent research institutes. The program emphasizes cross-disciplinary integration and the cultivation of talents to meet the needs of industry and academia in Southern Taiwan. This inventory is organized according to ISO 14064-1, the greenhouse gas inventory team of the University. The composition of the team and their responsibilities are as follows.
   B. Boundary of the report : In accordance with the ISO 14064-1 standard, the University defines the organizational boundaries of our inventory as follows in accordance with the Law of Control Rights:

Director Member	President to oversee GHG inventory team operations
Management Representative	Dean of the General Affairs Office: 1. Responsible for convening the relevant inventory team leaders and members, and forming an internal verification team. 2. Responsible for planning GHG related work on campus and coordinating with related offices and departments.
Head of Inventory	The head of the Environmental Safety and Health Section of the General Affairs Office. 1. Responsible for serving as the main contact window for each office and department. 2. Responsible for inventory operations, including data collection and quantification. 3. Responsible for the preparation of greenhouse gas emission inventory and inventory report.
Inspector	Supervisors of colleges / departments / administrative units are responsible for providing the necessary data and supporting information to the Inventory Leader.
GHG Inventory Personnel	Responsible for performing inventory operations including data collection and quantification.
Internal Verification Team	Responsible for data and document verification after the completion of the inventory report.

Note: GHG inventory personnel should receive 3 hours of GHG inventory training or obtain a certificate of completion of external training in accordance with "Education and Training Procedures" in order to be qualified for the position.

a. Organizational boundary

- Teaching, research, and activities in the Administration Building, Library and Information Building, the Colleges of Humanities and Social Sciences, Law, Management, Science, and Engineering, staff Student Activity Center, Hong Sze-Chuen Sports Dome, First General Building, the Kinesiology, Health and Leisure Building, and Student Dormitories I and II.

- Scope of exclusion: Duty accommodation

▲ NUK Floor Plan Configuration (Excl Boundary in red)

b. Report Boundary:

- Inventory of greenhouse gas types: CO2, CH4, N2O, HFCs, PFCs, SF6, NF3
- Identification of GHG Emission Sources: According to categories 1, 2, 3, 4, 5, and 6, each emission source in the organization boundary is listed separately.
- Direct and indirect GHG emission sources are covered in Table 5-20.

c. Total GHG Emissions: This report is prepared, produced, and provided with information by the University's Greenhouse Gas Inventory Team, and is published annually on a regular basis. The inventory is based on all greenhouse gases generated within the reporting boundary from January 1 to December 31, 2023, and it is hoped that the results of the greenhouse gas inventory will provide an important reference for the subsequent planning of greenhouse gas mitigation measures, and at the same time, to ensure that the content of the school's GHG inventory maintains the same quality and consistency, so as to facilitate the subsequent implementation of the internal and external verification needs. The following are the requirements for the internal and external verification.

In compliance with the requirements of ISO14064-1: 2018 and with reference to the EPA's operational guidelines for GHG emissions reporting, the exclusion thresholds are that the emissions from each single-emitting emission facility or operation account for less than 0.5% of the total emissions and are cumulatively lower than less than 5.0% of the total emissions, and that the University did not exclude any significant sources of GHG during the 2022 GHG inventory process.

d. Our greenhouse gas emissions are as follows.

GHG Inventory Category	GHG Emission Source	MTCO2e/Yr
Category 1, Direct GHG Emissions and Removals	**Total**	**149.7564**
1.1 Stationary Combustion	Emergency generator (diesel)	9.6745
1.2 Mobile Combustion	Public Transportation Vehicle (Gasoline & Diesel)	12.1790
1.3 Industrial process emissions (direct process emissions from school operations)	Lab alcohol for Combustion (Methanol, Ethanol, Others), Lab Specific Gas Cylinders (CO2, N2O, Gas, Acetylene), Lawnmowers (Diesel)	2.4904
1.4 Fugitive emissions	Refrigerant (air conditioning, refrigeration & freezer equipment, bus air conditioning), septic tanks, fire extinguishers (dry powder, CO2, foam extinguishers)	125.4125
1.5 Land Use, Land Use Change and Forestry Emissions	Nil	0
Category 2. Input energy indirect GHGe	**Total**	**5,776.3739**
2.1 Indirect emissions from imported electricity, including GHGe from the production and consumption of imported electricity by the related organization.	School Electricity - Purchased Electricity	5,776.3739
2.2 Indirect emissions from energy inputs, incl. GHGe from energy consumption (steam, heat, cooling and compressed air) of the organization's production through the physical network, except for emissions from electricity.	Nil	0.0000
Category 3. Indirect GHGe from transportation	**Total**	**562.2858**
3.3 Emissions from employee commuting	Employee commuting	249.4679
3.5 Emissions from business or employee travel and transportation	Faculty/staff/student travel (by high-speed rail, Taiwan Railway, air, and MRT only)	312.8179
Category 4. GHGe between products used by the organization	**Total**	**1,291.3295**
4.1 The organization purchases GHGe from raw material extraction, manufacturing and processing.	Procurement of electricity, water, gasoline and diesel for school	1,176.4162
4.3 Disposal of emissions from solid and liquid wastes depend on the characteristics of the waste and its treatment. Typical treatment types are landfill, incineration, biological treatment or recycling processes.	Waste incineration, waste removal and transportation	114.9133
Category 5. Indirect GHGe derived from products of user organization	**Total**	**362.9148**
5.2 Emissions from downstream leased assets	Outsourced manufacturers lease electricity, tap water, and natural gas	362.9148
Total		**8,142.660**

* The latest version of the announced GWP value is the IPCC 6th Assessment Report (2021), so the IPCC 6th Assessment Report (2021) is used.

▲ NUK Inventory of GHG Emissions, 2023 (Base Year)

Action Plan 2: Campus Climate Action

1. Description of Current Status:

A. Global climate change is a critical issue for mankind, and we are a member of the Green University and one of the participants in global environmental protection. In 2019-2020, the University received funding from the Architectural Research Institute of the Ministry of the Interior and the Kaohsiung City Government to renovate the student dormitories into smart-energy residences, and to install a smart-energy management system and a centralized power monitoring system. For electricity usage, digital meters are installed in each building on campus to collect data on electricity usage in each building, and a "Power-BI" webpage has been built to provide students and faculty with information on electricity usage and remind them to conserve energy in order to fulfill their responsibilities as citizens of the earth.

B. In addition to the improvement of hardware and equipment, the environmental regulations and management of the University should also be included in climate issues. In response to the SDGs: 6, 13, 15 and UI Green Metric World University Rankings, the University intends to take stock of the current status of environmental and climate-related issues and regulations during 2023-2026, and to examine the potential risks in management in order to take measures to effectively reduce and eliminate them.

2. Implementation Strategies and Practices

A. The University's Sustainable Climate Change Program, which participates annually in UI Green Metric World University Rankings - Energy Climate Change, Education and Research (SDG 13).

a. Revise the Chinese and English sustainability reports annually and participate in the evaluation.

b. Participate in UI Green Metric World University Rankings annually to review annual implementation.

c. Inventory campus carbon emissions and develop medium- and long-term options for reducing emissions.